Mercatura Lumina Journal of Management, Entrepreneurship, and Tourism
Vol 1 No 3 August 2026, Hal 46-61
ISSN: 3125-1250 (Print) ISSN: 3125-0939 (Electronic)
Open Access: https://researchfrontiers.id/mercaturalumina

The Effect of Digital Marketing and Service Quality on Customer Loyalty Among E-Commerce Users in Indonesia

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Article Info :
Received:
23-07-2026
Revised:
03-08-2026
Accepted:
10-08-2026

Abstract

This study examines the effects of digital marketing and service quality on customer loyalty among e-commerce users in Indonesia. Using a quantitative explanatory cross-sectional design, primary data were collected from 150 active e-commerce users in Jakarta, Surabaya, and Semarang through a structured online questionnaire employing a five-point Likert scale. The data were analyzed using multiple linear regression with SPSS version 26, preceded by validity, reliability, normality, multicollinearity, and heteroscedasticity testing. The results indicate that digital marketing has a positive and significant effect on customer loyalty ($\beta = 0.412$; $t = 5.87$; $p < 0.05$), while service quality also has a positive and significant effect on customer loyalty ($\beta = 0.386$; $t = 5.21$; $p < 0.05$). The simultaneous regression model is statistically significant and explains 50.7% of the variance in customer loyalty ($R^2 = 0.507$). Digital marketing demonstrates a slightly stronger contribution than service quality, although both factors have relatively comparable effects on loyalty. The findings indicate that promotional engagement and consistent service delivery should be developed concurrently to strengthen repeat purchases, referrals, and resistance to competing platforms. The study contributes empirical evidence to e-commerce marketing management and offers practical guidance for integrating digital marketing strategies with service quality improvements to foster sustainable customer loyalty.

Keywords: *Customer Loyalty, Digital Marketing, E-Commerce, Indonesia, Service Quality.*

INTRODUCTION

Indonesia's digital economy has grown into one of the largest in Southeast Asia, driven largely by the rapid expansion of e-commerce platforms that now serve as a major shopping channel for millions of consumers. As internet penetration increases and smartphone ownership becomes increasingly widespread, online retail has evolved from a supplementary sales channel into a central component of national economic activity and consumer purchasing behavior. The development of digital marketing and technological infrastructure has further accelerated the transformation of retail competition by enabling businesses to reach consumers through increasingly diverse digital touchpoints (Ariffian & Zainal, 2024). This growth, however, has also intensified competition among marketplace operators, each competing for consumer attention through promotional campaigns, personalized content, social media engagement, and increasingly sophisticated digital marketing strategies. Within this highly saturated market, the ability to attract new customers is no longer sufficient because consumers can compare platforms, prices, promotions, and service experiences with minimal switching barriers. Customer loyalty has therefore become an important strategic concern for e-commerce businesses seeking to transform short-term transactions into sustainable customer relationships.

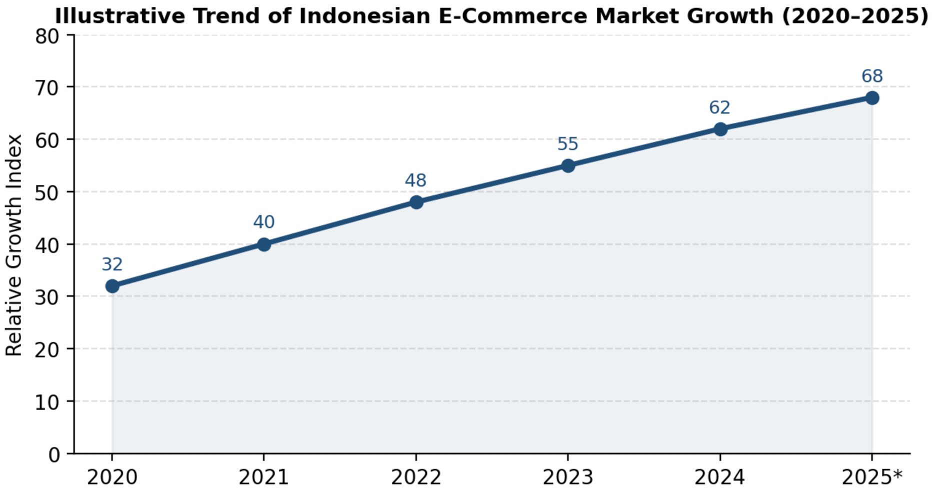

Figure 1. Illustrative Overview of Indonesian E-Commerce Market Growth (2020–2025)

Figure 1 illustrates the general upward trajectory of the Indonesian e-commerce sector over the 2020–2025 period, reflecting the expanding role of digital commerce in consumer purchasing behavior. Although the figure is presented as an illustrative overview rather than an industry-statistical projection, the pattern represents the broader development of Indonesia's increasingly digital retail environment. The expansion of e-commerce has simultaneously increased the intensity of competition because consumers have access to multiple platforms and can switch between providers with relatively low effort. Research examining factors affecting e-commerce customer loyalty in Indonesia indicates that loyalty is influenced by several interconnected consumer evaluations rather than by transactional considerations alone (Kristanto et al., 2022). This condition creates a strategic challenge for platforms because promotional incentives may generate temporary purchases without necessarily establishing long-term commitment. Sustainable competitiveness therefore requires firms to understand the mechanisms through which digital interactions and service experiences contribute to continued customer patronage.

Previous research demonstrates that digital marketing has become an important mechanism for developing consumer engagement and strengthening relationships between e-commerce platforms and their customers. Kannan (2017) conceptualizes digital marketing as an integrated process through which firms use digital technologies and channels to create, communicate, and deliver value throughout the customer journey. Evidence from Indonesian e-commerce indicates that social media marketing activities can contribute to brand loyalty through their relationships with consumer satisfaction and brand equity (Daya et al., 2022). These findings suggest that digital marketing should not be regarded solely as a short-term promotional instrument because sustained digital interaction can shape consumers' perceptions, engagement, and relational attachment toward a platform. Recent evidence from Indonesia also shows that digital marketing, social media engagement, and customer trust are associated with customer loyalty in e-commerce contexts (Pasaribu et al., 2025). The effectiveness of digital marketing consequently depends not only on its ability to generate attention but also on whether the expectations created through digital communication are supported by a satisfactory customer experience.

Service quality represents another critical factor in the formation of customer loyalty because consumers evaluate not only what an e-commerce platform communicates but also how consistently it delivers the promised service. Zeithaml et al. (2018) emphasize that service quality influences customers' evaluations of service performance and their willingness to maintain relationships with service providers. Empirical research on Shopee users demonstrates that e-service quality can influence e-customer loyalty through customer satisfaction, indicating that service performance has consequences extending beyond immediate transaction evaluation (Avania & Widodo, 2022). In an e-commerce environment, reliability, responsiveness, transaction security, accurate information, and effective complaint resolution become particularly important because customers cannot depend on direct face-to-face interaction to resolve uncertainty. Research on e-service quality in Indonesian e-commerce further confirms its relevance to customer satisfaction and loyalty, reinforcing the importance of service performance in digitally mediated transactions (Wisnel et al., 2022). When the service experience fails to correspond with the expectations generated by digital marketing, the resulting inconsistency may weaken trust and reduce the likelihood of repeated purchases.

The Indonesian e-commerce environment also reveals an important limitation in existing research because digital marketing and service quality have frequently been examined through separate analytical perspectives. Research on digital user experience demonstrates that consumers' interactions with digital platforms can influence brand perception and loyalty, indicating that the quality of digital touchpoints has become an important component of the overall customer relationship (Susilawati et al., 2024). Research on the Indonesian e-commerce industry has similarly found that digital marketing strategy and service quality are relevant to customer satisfaction, suggesting that promotional communication and service delivery may operate as interconnected elements of customer experience (Misidawati et al., 2023). However, several studies concentrate on the indirect influence of service quality through satisfaction or trust, while digital marketing studies often emphasize social media activities, engagement, or trust rather than examining both constructs as simultaneous direct predictors of loyalty. Recent research continues to demonstrate the importance of e-service quality, customer satisfaction, trust, and service recovery in explaining loyalty, but these studies do not fully resolve the comparative contribution of digital marketing and service quality within one direct-effect model (Cuandra et al., 2026). This creates a conceptual and empirical gap concerning whether digital marketing and service quality independently contribute to customer loyalty when examined simultaneously among Indonesian e-commerce users.

Addressing this gap is scientifically important because an integrated model can clarify whether customer loyalty is more strongly associated with digital communication, service experience, or the simultaneous contribution of both dimensions. The issue is also practically significant because e-commerce platforms must determine whether resources should be concentrated on promotional activities, customer engagement, service improvement, or a combination of these strategies. The present study positions itself within this unresolved intersection by conceptualizing digital marketing and service quality as two independent variables that directly influence customer loyalty among e-commerce users in Indonesia. The study aims to analyze the effect of digital marketing on customer loyalty among Indonesian e-commerce users and to examine the effect of service quality on customer loyalty among the same population. The theoretical contribution of the study lies in extending the discussion of customer loyalty by integrating communication-based and experience-based determinants within a single e-commerce framework. The methodological contribution lies in simultaneously testing the direct effects of both independent variables on customer loyalty, providing empirical evidence that can clarify their respective roles in the Indonesian digital commerce environment. The findings are expected to provide e-commerce managers with a stronger basis for developing integrated marketing and service strategies aimed at cultivating sustainable customer loyalty.

RESEARCH METHODS

This study employs a quantitative empirical research design using an explanatory cross-sectional survey to examine the effects of digital marketing and service quality on customer loyalty among e-commerce users in Indonesia. The population consists of consumers who have made at least one online purchase through an e-commerce platform within the previous six months, with the study covering active users in Jakarta, Surabaya, and Semarang. Because the exact population size is unknown, the minimum sample was determined using the Lemeshow formula for an unknown population, resulting in 150 respondents based on a 95% confidence level, a maximum population variance of 0.5, and an 8% margin of error. Respondents were selected through purposive sampling, with the criteria that participants must be at least 17 years old and have used an e-commerce platform at least three times during the preceding year. Primary data were collected through an online questionnaire distributed using Google Forms during February–March 2025, with all indicators measured using a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The questionnaire was pilot-tested with 30 respondents outside the main sample to assess item clarity and preliminary reliability before minor wording adjustments were implemented. The operationalization of digital marketing was based on content marketing, social media marketing, search engine marketing, email/push marketing, and mobile marketing as dimensions reflecting digital promotional activities

(Chaffey & Ellis-Chadwick, 2019), while customer loyalty was measured through repeat purchase, cross-line purchase, referral, and resistance to competitors (Griffin, 2005).

Table 1. Operational Definition of Research Variables

Variable	Dimension	Representative Indicator	Scale
Digital Marketing (X1)	Content marketing	Product content is informative and engaging	Likert 1–5
	Social media marketing	Active and responsive presence on social media	Likert 1–5
	Search engine marketing	Products are easy to find via search	Likert 1–5
	Email/push marketing	Relevant, personalized promotional messages	Likert 1–5
	Mobile marketing	Useful and timely app notifications	Likert 1–5
Service Quality (X2)	Tangibility	App/website design is clear and easy to use	Likert 1–5
	Reliability	Orders are delivered accurately and on time	Likert 1–5
	Responsiveness	Customer service responds quickly	Likert 1–5
	Assurance	Transactions feel safe and trustworthy	Likert 1–5
	Empathy	Complaints are handled with genuine attention	Likert 1–5
Customer Loyalty (Y)	Repeat purchase	I regularly repurchase from this platform	Likert 1–5
	Cross-line purchase	I buy across different product categories here	Likert 1–5
	Referral	I recommend this platform to others	Likert 1–5
	Resistance to competitors	I am not easily tempted by competitor promotions	Likert 1–5

The collected data were analyzed using multiple linear regression with SPSS version 26 to determine the effects of digital marketing and service quality on customer loyalty. Before hypothesis testing, validity and reliability tests were conducted to assess whether the measurement items adequately represented the respective research constructs. The service quality indicators were evaluated based on the dimensions of tangibility, reliability, responsiveness, assurance, and empathy, which remain relevant for assessing perceived service performance in digital service environments (Zeithaml et al., 2018). Classical assumption testing included normality, multicollinearity, and heteroscedasticity tests to determine whether the data satisfied the principal statistical requirements for multiple linear regression. The regression model was specified as $Y = a + b_1X_1 + b_2X_2 + e$, where Y represents customer loyalty, X_1 represents digital marketing, X_2 represents service quality, a represents the constant, b_1 and b_2 represent the regression coefficients, and e represents the error term. The validity of the customer loyalty measurement was conceptually supported by behavioral indicators involving repeated purchasing, referrals, and resistance to competing alternatives (Griffin, 2005). Hypothesis testing was conducted using partial t-tests at a significance level of 0.05, while the F-test was used to evaluate the simultaneous effect of the independent variables and the coefficient of determination (R^2) was used to assess the explanatory power of the regression model.

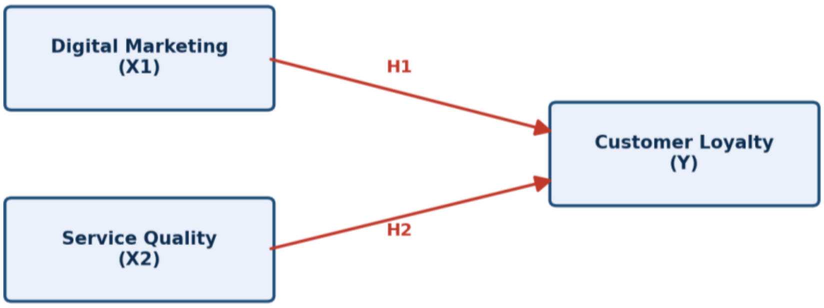

Figure 2. Research Framework

Hypothesis Development

H1: Digital marketing has a positive and significant effect on customer loyalty among e-commerce users in Indonesia.

H2: Service quality has a positive and significant effect on customer loyalty among e-commerce users in Indonesia.

RESULTS AND DISCUSSION

Respondent Characteristics

The characteristics of the 150 respondents provide an empirical foundation for interpreting the relationships between digital marketing, service quality, and customer loyalty among Indonesian e-commerce users. The sample includes consumers with recent online purchasing experience, allowing the respondents to evaluate promotional activities, platform interactions, transaction processes, and customer services based on actual usage rather than hypothetical exposure. The distribution across age, gender, education, occupation, and preferred e-commerce platform demonstrates that the sample represents several consumer segments within the targeted population. This variation is relevant because customer loyalty in e-commerce is shaped by a combination of consumer experience, trust, satisfaction, service performance, and the quality of digital interactions (Kristanto et al., 2022). The demographic composition also provides a basis for assessing the contextual characteristics of the respondents before examining the statistical relationships among the principal research variables. Table 2 summarizes the distribution of respondents across the demographic and platform-related categories used in this study.

Table 2. Respondent Characteristics (n = 150)

Category	Group	n	Percentage (%)
Age	17–25 years old	58	39%
	26–35 years old	71	47%
	> 35 years old	21	14%
Gender	Female	89	59%
	Male	61	41%
Education	Senior High School	34	23%
	Diploma	22	15%
	Bachelor's Degree (S1)	78	52%
	Master's Degree (S2)	16	11%
Occupation	Student	41	27%
	Private Employee	58	39%
	Entrepreneur	27	18%
	Civil Servant / Other	24	16%
Platform Most Used	Shopee	64	43%
	Tokopedia	39	26%
	Lazada	24	16%
	TikTok Shop	23	15%
	26–35 years old	71	47%

Source: Primary Data Processing (2025)

The age distribution indicates that respondents aged 26–35 years constituted the largest group, with 71 individuals or 47% of the sample, followed by respondents aged 17–25 years at 39% and those above 35 years at 14%. The combined proportion of respondents aged 17–35 years therefore reached 86%, indicating that the sample was predominantly composed of younger adult consumers with substantial exposure to digital purchasing environments. This composition is particularly relevant to the study because digital marketing increasingly relies on interactive, mobile-based, and personalized communication channels that are embedded within consumers' everyday online activities (Chaffey & Ellis-Chadwick, 2019). The dominance of these age groups suggests that respondents are positioned within a consumer segment for which online shopping can function as a routine purchasing mechanism rather than an occasional alternative to physical retail. Such consumers can readily compare products, prices, promotional offers, and platform experiences across competing marketplaces, making continued loyalty more difficult to sustain without consistently favorable experiences. The finding is consistent with the broader transformation of Indonesian retail, in which digital marketing and technological infrastructure have intensified competition between traditional and digitally oriented retail businesses (Ariffian & Zainal, 2024). Figure 3 illustrates the age distribution and visually confirms the concentration of respondents within the 17–35-year age range.

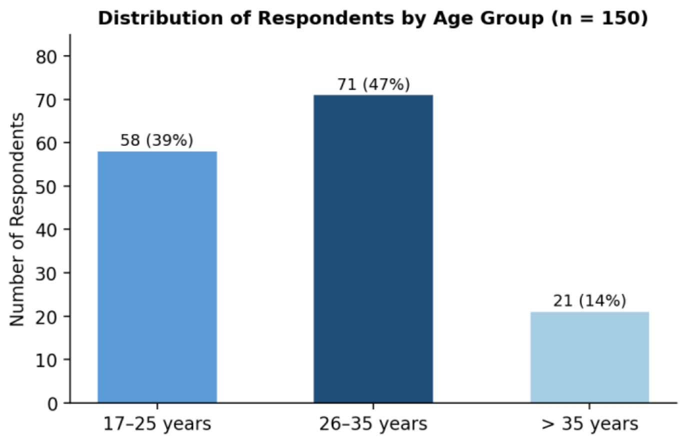

Figure 3. Distribution of Respondents by Age Group
Source: Primary Data Processing (2025)

The gender composition consists of 89 female respondents or 59% and 61 male respondents or 41%, indicating a moderate predominance of female participants while retaining substantial representation from male users. The distribution provides sufficient descriptive variation to capture e-commerce experiences from both gender groups within the sampled population. Gender is not incorporated as an explanatory variable in the present regression model, so the observed difference should not be interpreted as evidence of a causal relationship between gender and customer loyalty. Customer loyalty in Indonesian e-commerce has instead been associated with broader experiential factors such as service quality, satisfaction, and trust, which provide a more direct theoretical basis for the variables tested in this study (Susanti et al., 2018). The inclusion of both female and male respondents is important because the research seeks to identify relationships that operate across the sampled e-commerce user base rather than within a single gender category. The relatively moderate difference between the two groups also reduces the descriptive risk of interpreting the findings as being exclusively representative of female consumers. Figure 4 places the gender distribution alongside platform usage, providing a clearer representation of the composition of the respondent sample.

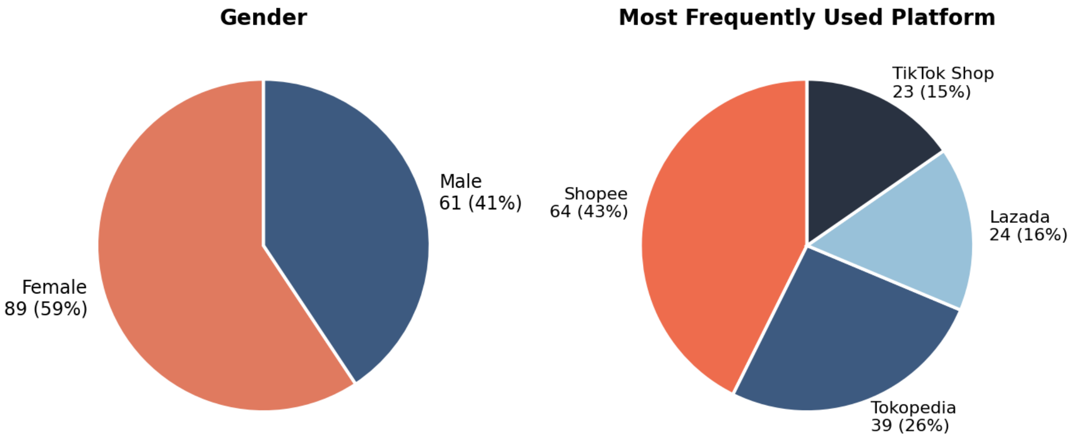

Figure 4. Distribution of Respondents by Gender and Platform Used
Source: Primary Data Processing (2025)

Educational characteristics show that respondents with a bachelor's degree represented the largest group at 52%, followed by senior high school graduates at 23%, diploma holders at 15%, and master's degree holders at 11%. The predominance of undergraduate respondents indicates that more than half of the sample possessed a relatively advanced level of formal education, which may facilitate the evaluation of online information, promotional messages, transaction procedures, and service communications. This characteristic is relevant because digital marketing depends heavily on consumers’ interactions with information-rich channels that integrate content, search, social media, mobile communication, and personalized promotional mechanisms (Kannan, 2017). The educational distribution also indicates that the questionnaire was administered to respondents who were sufficiently diverse in formal educational attainment to provide variation in perceptions of the studied constructs. Nevertheless, educational attainment cannot independently be interpreted as a measure of digital literacy because familiarity with e-commerce is also determined by usage frequency, platform experience, and individual technological exposure. The findings therefore use education as a descriptive characteristic rather than as an assumed determinant of customer loyalty. This approach maintains consistency with the research model, which focuses specifically on digital marketing and service quality as predictors of loyalty.

Occupational characteristics reveal that private employees constituted the largest group, accounting for 58 respondents or 39%, followed by students at 27%, entrepreneurs at 18%, and civil servants or respondents in other occupations at 16%. The distribution indicates that the sample incorporates consumers with different occupational routines and economic circumstances, which may produce variation in the way e-commerce services and promotional activities are encountered. Private employees may place particular importance on transaction convenience, delivery reliability, and responsive customer support because digital purchasing can reduce the time associated with conventional shopping activities. Students may have relatively frequent exposure to social-media-based promotional content and mobile marketing because these channels are closely integrated with their everyday digital activities. Digital marketing activities have been shown to influence consumer engagement and loyalty in Indonesian e-commerce environments, particularly when communication is interactive and capable of sustaining consumer involvement (Daya et al., 2022). The occupational composition consequently provides useful context for interpreting the diversity of consumer experiences represented in the dataset. Occupation, however, remains a descriptive characteristic in this study and is not interpreted as an independent causal factor affecting customer loyalty.

The platform distribution indicates that Shopee was the most frequently used e-commerce platform, with 64 respondents or 43%, followed by Tokopedia at 26%, Lazada at 16%, and TikTok Shop at 15%. The concentration of respondents across four major platforms indicates that the dataset captures experiences from consumers exposed to different interface designs, promotional systems, seller environments, transaction procedures, and customer-service mechanisms. Digital marketing strategies can influence loyalty through the quality of consumer engagement generated across these digital touchpoints, particularly when promotional communication becomes integrated with ongoing platform interaction (Sudirjo et al., 2023). The largest proportion of Shopee users does not, however, establish that Shopee provides superior digital marketing or service quality because the study does not conduct platform-level comparative testing. The distribution instead demonstrates that the respondents' evaluations originate from several major e-commerce environments operating within the Indonesian market. Differences in digital user experience across platforms can influence brand perception and consumer loyalty, making platform diversity relevant when interpreting the overall findings (Susilawati et al., 2024). The respondent profile therefore provides a sufficiently varied empirical context for examining whether digital marketing and service quality remain significant predictors of customer loyalty across users of different e-commerce platforms.

Descriptive Statistics, Validity, Reliability, and Classical Assumptions

The descriptive statistics provide an initial assessment of respondents' perceptions of digital marketing, service quality, and customer loyalty before the regression model is interpreted. As presented in Table 3, all three variables recorded mean scores above the midpoint of the five-point Likert scale, indicating generally favorable evaluations among the 150 respondents. Digital Marketing obtained a mean score of 3.98 with a standard deviation of 0.52, Service Quality recorded a slightly higher mean of 4.05 with a standard deviation of 0.49, while Customer Loyalty produced a mean of 3.91 with a standard deviation of 0.55. The relatively small standard deviations indicate that the responses were reasonably concentrated around their respective means rather than being characterized by substantial dispersion. The high average perception of service quality is particularly relevant because reliable digital service delivery can reduce uncertainty and strengthen consumers' willingness to maintain relationships with an e-commerce provider (Zeithaml et al., 2018). The descriptive pattern also provides an initial indication that favorable assessments of digital marketing and service quality coexist with relatively strong loyalty behavior within the sampled population.

Table 3. Descriptive Statistics of Research Variables

Variable	N	Min	Max	Mean	Std. Deviation	Category
Digital Marketing (X1)	150	2.17	5.00	3.98	0.52	High
Service Quality (X2)	150	2.40	5.00	4.05	0.49	High
Customer Loyalty (Y)	150	2.00	5.00	3.91	0.55	High

Source: Primary Data Processing, SPSS 26 Output (2025)

The Digital Marketing mean of 3.98 indicates that respondents generally perceived the content, social media activities, search visibility, promotional messages, and mobile-based communication of the platforms they used as favorable. The minimum score of 2.17 demonstrates that not all respondents experienced digital marketing activities at the same level, suggesting that exposure and perceived usefulness varied across individual users and platforms. The standard deviation of 0.52 nevertheless indicates that these differences were relatively contained, allowing the aggregate score to represent a broadly positive perception within the sample. Digital marketing creates value when digital channels are coordinated to deliver relevant information, facilitate interaction, and maintain customer engagement throughout the purchasing process (Chaffey & Ellis-Chadwick, 2019). The favorable score therefore suggests that respondents generally recognized digital promotional activities as meaningful components of their e-commerce experience rather than merely as isolated sales incentives. This interpretation is consistent with evidence that digital marketing strategies can contribute to customer loyalty when they create sustained engagement with consumers in e-commerce environments (Mardiani et al., 2023).

Service Quality recorded the highest mean among the three variables at 4.05, with a standard deviation of 0.49 and a minimum score of 2.40. The result indicates that respondents generally evaluated platform reliability, responsiveness, assurance, empathy, and digital service interfaces positively. The comparatively low standard deviation suggests that perceptions of service quality were relatively consistent across respondents, despite differences in demographic characteristics and platform preferences. Research on e-commerce service quality indicates that reliable transactions, responsive support, and effective service processes can contribute to customer satisfaction and loyalty by strengthening the perceived quality of the overall digital experience (Wisnel et al., 2022). The high service-quality assessment is also consistent with findings that e-service quality can influence customer loyalty through satisfaction and trust mechanisms in Indonesian e-commerce settings (Agritika & Suharjo, 2024). The result indicates that respondents did not evaluate loyalty solely through promotional attractiveness but also considered the quality and dependability of the service received during their interactions with the platform.

Customer Loyalty obtained a mean score of 3.91, which remains within the high category despite being slightly lower than the scores for digital marketing and service quality. The result suggests that respondents generally reported favorable behavioral tendencies involving repeat purchases, purchasing across product categories, recommending the platform to others, and resistance to competing offers. The minimum value of 2.00 indicates that loyalty was not uniformly strong across all respondents, providing sufficient variation for examining whether differences in digital marketing and service quality were statistically associated with differences in loyalty. Loyalty represents a more enduring consumer response than immediate satisfaction because it involves continued purchasing intentions and behavioral commitment toward a particular provider (Griffin, 2005). The relatively high loyalty score is consistent with empirical evidence that e-service quality, customer trust, and satisfaction can contribute to stronger loyalty among Indonesian e-commerce users (Avania & Widodo, 2022). The descriptive relationship among the three variables therefore provides a theoretically coherent starting point for the subsequent regression analysis, while the inferential tests are still required to determine whether the observed associations are statistically significant.

The validity and reliability assessment demonstrates that the questionnaire items adequately represented the three research variables and produced internally consistent responses. As shown in Table 4, all corrected item-total correlation values exceeded the critical r-table value of 0.159, with Digital Marketing ranging from 0.412 to 0.687, Service Quality from 0.438 to 0.701, and Customer Loyalty from 0.455 to 0.723. The Cronbach's Alpha coefficients were 0.812 for Digital Marketing, 0.834 for Service Quality, and 0.798 for Customer Loyalty, indicating satisfactory internal consistency across the measurement scales. The measurement structure is conceptually consistent with the multidimensional nature of digital marketing, which encompasses several interconnected digital communication activities rather than a single promotional mechanism (Kannan, 2017). The reliability of the loyalty scale is also supported by its behavioral orientation toward repeated purchasing, cross-category purchasing, recommendations, and resistance to competitors (Griffin, 2005). These results establish that the empirical analysis can proceed using the constructed variable scores without evidence of inadequate item representation or problematic internal consistency.

Table 4. Summary of Validity and Reliability Test Results

Variable	Number of Items	r-count Range	Cronbach's Alpha	Status
Digital Marketing (X1)	5	0.412–0.687	0.812	Valid & Reliable
Service Quality (X2)	5	0.438–0.701	0.834	Valid & Reliable
Customer Loyalty (Y)	4	0.455–0.723	0.798	Valid & Reliable

Source: Primary Data Processing, SPSS 26 Output (2025)

The classical assumption tests further indicate that the data satisfy the principal requirements for multiple linear regression, as summarized in Table 5. The Kolmogorov–Smirnov test produced an Asymp. Sig. value of 0.200, exceeding the 0.05 threshold and indicating that the residuals can be treated as normally distributed. The tolerance values of 0.758 for both independent variables and VIF values of 1.319 indicate that multicollinearity does not pose a substantial problem within the regression model. The absence of strong multicollinearity is important because digital marketing and service quality are conceptually related components of the broader customer experience, yet their statistical estimates must remain sufficiently distinguishable for individual effects to be interpreted. The Glejser test produced significance values of 0.512 for Digital Marketing and 0.478 for Service Quality, both above 0.05, indicating no statistically significant heteroscedasticity. These diagnostic results provide adequate statistical support for proceeding to coefficient estimation and hypothesis testing because the regression model does not show evidence of the principal assumption violations examined in this study.

Table 5. Classical Assumption Test Results

Test	Indicator	Result	Conclusion
Normality (Kolmogorov–Smirnov)	Asymp. Sig. (2-tailed)	0.200	Residuals normally distributed
Multicollinearity	Tolerance (X1 / X2)	0.758 / 0.758	No multicollinearity
Multicollinearity	VIF (X1 / X2)	1.319 / 1.319	No multicollinearity (VIF < 10)
Heteroscedasticity (Glejser)	Sig. (X1 / X2)	0.512 / 0.478	No heteroscedasticity (Sig. > 0.05)

Source: Primary Data Processing, SPSS 26 Output (2025)

Multiple Linear Regression and Model Fit

Multiple linear regression was applied to determine the extent to which digital marketing and service quality predict customer loyalty among the 150 e-commerce users included in the study. The analysis produced positive coefficients for both independent variables, indicating that higher perceived digital marketing and service quality were associated with higher levels of customer loyalty. The regression coefficients presented in Table 6 show that Digital Marketing obtained an unstandardized coefficient of 0.398 and Service Quality obtained a coefficient of 0.371. The standardized coefficients were 0.412 and 0.386, respectively, indicating that both predictors contributed meaningfully to variations in customer loyalty. The regression equation can therefore be expressed as $Y = 1.045 + 0.398X_1 + 0.371X_2 + e$, where customer loyalty increases as the perceived quality of digital marketing and service quality increases. This empirical pattern is consistent with research identifying digital marketing and service-related experiences as important components of loyalty formation in Indonesian e-commerce environments (Pasaribu et al., 2025).

Table 6. Multiple Linear Regression Coefficients

Model	B	Std. Error	Standardized Beta	t	Sig.
(Constant)	1.045	0.215	–	4.86	0.000
Digital Marketing (X1)	0.398	0.068	0.412	5.87	0.000
Service Quality (X2)	0.371	0.071	0.386	5.21	0.000

Dependent Variable: Customer Loyalty (Y)
Source: Primary Data Processing, SPSS 26 Output (2025)

The coefficient for Digital Marketing indicates that a one-unit increase in the Digital Marketing score is associated with a 0.398-unit increase in Customer Loyalty when Service Quality is held constant. The standardized beta of 0.412 indicates a relatively substantial contribution compared with Service Quality, whose standardized beta was 0.386. This difference suggests that promotional communication, social media engagement, search visibility, personalized messages, and mobile interactions may have a slightly stronger statistical association with loyalty in this sample than service quality alone. Digital marketing strategies can strengthen consumer relationships by creating continuous interactions across multiple digital touchpoints rather than limiting communication to the moment of purchase (Kannan, 2017). The finding also corresponds with empirical evidence from Indonesian e-commerce research showing that digital marketing activities can contribute positively to loyalty through sustained consumer engagement and relationship-building mechanisms (Febriyanti et al., 2026). The positive coefficient indicates that digital marketing operates as more than an acquisition mechanism in this setting because favorable perceptions of digital promotional activities are also associated with consumers' willingness to maintain their relationship with the platform.

The coefficient for Service Quality demonstrates that a one-unit increase in perceived service quality is associated with a 0.371-unit increase in Customer Loyalty when Digital Marketing is statistically controlled. The standardized beta of 0.386 confirms that service quality has a strong positive contribution to loyalty, although its coefficient is slightly lower than that of Digital Marketing. This result indicates that consumers' loyalty decisions remain closely connected to functional aspects of the e-commerce experience, including reliable order fulfillment, responsive customer assistance, transaction assurance, and appropriate handling of customer concerns. High service quality can strengthen the perceived dependability of an online provider, which is particularly important when consumers cannot directly inspect products or interact physically with sellers before completing transactions (Zeithaml et al., 2018). Empirical research involving Indonesian e-commerce users similarly demonstrates that e-service quality is associated with customer loyalty, particularly when the service experience contributes to satisfaction and trust (Cuandra et al., 2026). The regression coefficient therefore indicates that attractive digital communication alone does not fully account for loyalty because consumers also evaluate whether the platform can consistently deliver the service promised during the purchasing process.

The comparison between the standardized beta coefficients provides insight into the relative contribution of the two predictors within the same statistical model. Digital Marketing produced a beta coefficient of 0.412, whereas Service Quality produced a beta coefficient of 0.386, resulting in only a 0.026 difference between the two standardized effects. The relatively narrow difference indicates that customer loyalty is not overwhelmingly associated with one predictor while the other becomes statistically negligible. The finding supports an integrated perspective in which promotional engagement and service performance represent interconnected dimensions of the customer relationship rather than isolated managerial functions. Research on Indonesian e-commerce has similarly demonstrated that digital marketing, engagement, trust, and related experiential factors can operate together in shaping customer loyalty (Rismawan & Cahyono, 2025). The statistical closeness of the coefficients also indicates that managerial attention directed exclusively toward promotional activities may overlook an important component of loyalty formation represented by service delivery. The model consequently portrays customer loyalty as an outcome associated with both the ability to attract and engage consumers digitally and the ability to provide a dependable service experience after engagement has occurred.

Table 7. Model Summary and ANOVA (F-test)

R	R Square	Adjusted R Square	Std. Error of Estimate	F	Sig.
0.712	0.507	0.501	0.389	75.62	0.000

Predictors: (Constant), Digital Marketing, Service Quality
Source: Primary Data Processing (2025)

The model summary in Table 7 indicates an R value of 0.712 and an R^2 value of 0.507, meaning that Digital Marketing and Service Quality jointly explain 50.7% of the variance in Customer Loyalty. The adjusted R^2 of 0.501 remains close to the unadjusted coefficient, indicating that the explanatory capacity of the model is relatively stable after accounting for the number of predictors included. The remaining 49.3% of unexplained variance indicates that other factors outside the present model may contribute to customer loyalty, including price perception, trust, satisfaction, brand image, website quality, perceived value, and product-related considerations. Previous research has identified trust, website quality, and brand image as relevant factors in explaining loyalty within Indonesian e-commerce environments, indicating that loyalty is multidimensional and cannot be reduced to promotional and service variables alone (Wilson, 2021). The R^2 value therefore demonstrates meaningful explanatory capacity while simultaneously identifying theoretical space for future models incorporating additional determinants. The result also avoids an overly deterministic interpretation of the two independent variables because nearly half of the variation in customer loyalty remains attributable to factors not incorporated into the present analysis.

The ANOVA result further establishes that the regression model is statistically significant, with an F-value of 75.62 and a significance value of 0.000. Since the significance value is below the 0.05 criterion, Digital Marketing and Service Quality jointly provide statistically significant explanatory information regarding Customer Loyalty. The finding means that the two predictors collectively contribute to the prediction of loyalty beyond what would be expected from random variation in the sample. The simultaneous significance of the model is theoretically plausible because consumers encounter promotional communication and service experiences as interconnected elements of their overall relationship with an e-commerce platform. Previous research has shown that digital marketing strategy and service quality can jointly influence consumer outcomes within the Indonesian e-commerce environment, particularly through their effects on customer satisfaction (Misidawati et al., 2023). The model therefore provides empirical support for examining both constructs within a common analytical framework rather than treating them as unrelated determinants of consumer behavior. The statistical evidence establishes the overall adequacy of the proposed explanatory model before the individual hypotheses are evaluated through the partial t-tests in the subsequent analysis.

Joint Effect of Digital Marketing and Service Quality on Customer Loyalty

The findings indicate that digital marketing and service quality jointly exert a significant influence on customer loyalty among e-commerce users in Indonesia. The regression model produces an R value of 0.712, indicating a strong positive association between the two independent variables and customer loyalty. The coefficient of determination reaches 0.507, meaning that digital marketing and service quality collectively explain 50.7% of the variance in customer loyalty. The remaining 49.3% indicates that loyalty formation is also associated with other factors outside the proposed model, including customer trust, satisfaction, perceived price, brand image, and digital user experience. Research on Indonesian e-commerce has demonstrated that customer loyalty is influenced by multiple factors that operate across transactional, relational, and experiential dimensions (Kristanto et al., 2022). The F-test value of 75.62 with a significance level of 0.000 confirms that the regression model provides statistically significant explanatory power for customer loyalty.

The relative contribution of each predictor demonstrates that both variables make meaningful and comparatively balanced contributions to loyalty formation. As presented in Table 8, digital marketing records a standardized beta coefficient of 0.412, while service quality records a standardized beta coefficient of 0.386, indicating that digital marketing has a slightly stronger influence than service quality within the estimated model.

Table 8. Summary of Hypothesis Testing Results

Hypothesis	Path	Standardized Beta	t-value	Sig.	Result
H1	Digital Marketing → Customer Loyalty	0.412	5.87	0.000	Supported (Positive, Significant)
H2	Service Quality → Customer Loyalty	0.386	5.21	0.000	Supported (Positive, Significant)

Source: Primary Data Processing (2025

The relatively close beta coefficients indicate that customer loyalty is not predominantly determined by promotional activity or service performance in isolation, but reflects the contribution of both dimensions within the same customer experience. Digital marketing can strengthen consumer engagement by providing relevant information, interactive communication, and promotional stimuli that maintain platform awareness and encourage continued interaction. Research on social media marketing in Indonesian e-commerce demonstrates that digital marketing activities can strengthen brand loyalty through consumer engagement, customer satisfaction, and brand equity (Daya et al., 2022). Service quality complements this marketing function by determining whether the expectations generated through digital communication are supported by reliable and responsive transactional experiences. Evidence from Indonesian e-commerce users shows that e-service quality is associated with customer satisfaction and loyalty, particularly when consumers perceive the platform as dependable and responsive (Wisnel et al., 2022). The comparable magnitude of the two coefficients therefore supports an integrated interpretation in which attracting and retaining customers depend on interconnected marketing and service capabilities.

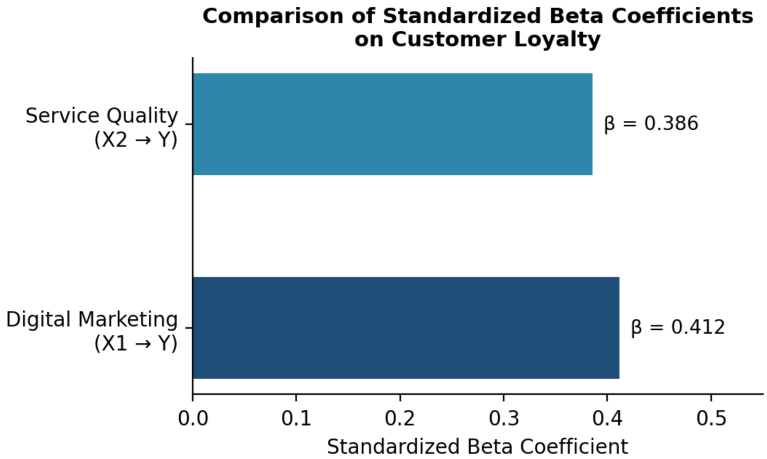

Figure 5. Comparison of Standardized Beta Coefficients on Customer Loyalty
Source: Primary Data Processing (2025)

The joint relationship can also be interpreted through the consistency between promotional promises and customers' actual experiences during and after transactions. Digital marketing establishes expectations concerning product value, convenience, personalization, promotions, and platform attractiveness, whereas service quality determines whether those expectations are confirmed through accurate transactions, reliable delivery, responsive assistance, and effective complaint resolution. When these dimensions are aligned, customers are more likely to perceive continuity between what the platform communicates and what it actually delivers. Misidawati et al. (2023) demonstrate that digital marketing strategy and service quality are significant factors in shaping customer satisfaction within the Indonesian e-commerce industry. The present findings extend this argument by showing that both factors remain significant predictors of customer loyalty when incorporated simultaneously into a regression model. This pattern is particularly relevant to e-commerce because consumers can compare competing platforms with minimal switching barriers and can readily redirect their purchases when perceived value or service performance declines.

The explanatory power of the model should nevertheless be interpreted within the boundaries established by the research design. An R^2 of 0.507 represents substantial explanatory capacity, but it also indicates that almost half of the observed variation in customer loyalty originates from factors that were not included in the analysis. Customer trust and satisfaction are particularly relevant possibilities because e-service quality has been shown to influence loyalty through customers' evaluative and relational responses (Agritika & Suharjo, 2024). Recent research further indicates that e-service quality and service recovery can contribute to loyalty through customer satisfaction and trust, suggesting that loyalty formation may involve indirect mechanisms that are not captured by a direct-effect regression model (Cuandra et al., 2026). The present findings remain important because digital marketing and service quality retain statistically significant coefficients after being examined simultaneously. Their effects therefore cannot be interpreted merely as redundant indicators of the same underlying phenomenon. The results support the explanatory usefulness of the current direct-effect framework while also indicating that future studies could incorporate mediating and moderating variables to explain the remaining variation in customer loyalty.

From a managerial perspective, the comparable contributions of digital marketing and service quality suggest that e-commerce platforms should develop retention strategies that connect promotional activities with consistent service performance. Digital marketing investments should be supported by reliable order fulfillment, responsive customer support, secure transactions, and effective complaint handling so that expectations generated through digital communication correspond with actual customer experiences. Research examining digital marketing, social media engagement, and customer trust similarly indicates that loyalty becomes stronger when digital promotional activities are supported by relational factors that reinforce consumer confidence (Pasaribu et al., 2025). The findings also suggest that excessive dependence on promotional incentives may have limited long-term effectiveness when service performance fails to sustain the relationship created through digital engagement. Conversely, strong service quality may not generate its full loyalty potential when the platform lacks effective mechanisms for maintaining customer attention and interaction. An integrated approach that simultaneously manages digital engagement and service delivery is therefore more consistent with the empirical structure of customer loyalty identified in this study.

CONCLUSION

This study concludes that digital marketing has a positive and significant effect on customer loyalty among e-commerce users in Indonesia, confirming that effective digital communication and engagement strategies can encourage repeat purchasing and strengthen customers' commitment to their preferred platforms. Service quality also demonstrates a positive and significant effect on customer loyalty, indicating that reliable, responsive, secure, and empathetic service delivery remains essential for sustaining customer relationships in digital commerce. The regression results show that digital marketing has a standardized beta coefficient of 0.412, while service quality records a coefficient of 0.386, suggesting that both factors make relatively comparable contributions to loyalty formation. The coefficient of determination of 0.507 indicates that the two variables jointly explain 50.7% of the variance in customer loyalty, while the remaining 49.3% is attributable to other factors beyond the scope of the present model. These findings demonstrate that customer loyalty in Indonesian e-commerce is shaped not only by the ability of platforms to attract and engage consumers through digital marketing but also by their capacity to deliver consistent service experiences after transactions occur. The study therefore supports an integrated view of customer loyalty in which promotional engagement and service performance operate as complementary antecedents rather than isolated managerial functions. The findings contribute to the management literature by providing empirical evidence that both dimensions are relevant for explaining loyalty behavior within Indonesia's competitive e-commerce environment.

From a managerial perspective, e-commerce providers should balance investments in personalized and interactive digital marketing with continuous improvements in delivery reliability, customer-service responsiveness, transaction security, and complaint handling. The relatively close contribution of digital marketing and service quality indicates that allocating excessive resources to promotional activities without strengthening service infrastructure may limit the ability of firms to convert customer acquisition into sustained loyalty. Future research should incorporate additional variables such as customer satisfaction, brand trust, perceived value, price perception, product variety, and user experience to explain the unexplained portion of customer loyalty identified by the present model. Comparative research across e-commerce platforms, demographic groups, geographic regions, and consumer generations could further clarify whether the observed relationships remain consistent across different market segments. Longitudinal or experimental research would also be valuable for examining changes in loyalty over time and strengthening causal interpretation beyond the limitations of a cross-sectional survey design. The generalizability of future findings could be improved by expanding samples beyond major metropolitan areas to include consumers from secondary cities and rural regions with different levels of digital access and e-commerce maturity. Such extensions would provide a broader basis for developing theoretically robust and practically responsive models of customer loyalty in Indonesia's evolving digital commerce landscape.

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