



Social Loyalty Behavior in Digital Banking Usage: The Role of E-Service Quality, E-System Quality, and Social Trust

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ABSTRACT

Purpose of the study: The purpose of this study is to examine the effect of e-service quality, e-system quality, and e-trust on e-loyalty among users of the Wondr By BNI digital banking application in Surakarta, using a quantitative approach and multiple linear regression analysis.

Methodology: This study employed a quantitative survey method using a structured questionnaire based on a five-point Likert scale. Data were collected from 160 Wondr By BNI application users in Surakarta. Multiple linear regression analysis was conducted using IBM SPSS Statistics version 23 to examine the relationships among variables.

Main Findings: The results indicate that e-service quality, e-system quality, and e-trust have positive and significant effects on e-loyalty among Wondr By BNI application users. E-trust shows the strongest influence on e-loyalty. Simultaneously, the three variables significantly affect e-loyalty, with an adjusted R² value of 0.710, indicating substantial explanatory power of the model. Within the digital social context, these results emphasize the crucial role of public trust in strengthening long-term user relationships with digital banking platforms. Furthermore, enhanced e-loyalty has broader socio-economic implications, as it supports sustainable digital banking adoption, promotes financial inclusion, and reinforces public confidence in the digital financial ecosystem.

Novelty/Originality of this study: This study offers early empirical evidence on user e-loyalty toward the newly launched Wondr By BNI application, released in July 2024, by specifically examining e-system quality, e-service quality, and e-trust in the Surakarta region. It contributes new regional insights by integrating system quality, service quality, and trust to explain user loyalty in emerging digital banking adoption contexts.

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1. INTRODUCTION

The rapid advancement of digital technology has fundamentally transformed the banking industry, particularly through the widespread adoption of digital banking applications. These platforms enable customers to perform financial transactions efficiently, securely, and without physical interaction with bank branches. As competition among digital banking providers intensifies, maintaining customer loyalty (*e-loyalty*) has become a critical strategic priority for financial institutions [1].

E-loyalty refers to a user's intention to repeatedly use a digital service and recommend it to others based on positive experiences and perceived value [2]. In electronic service environments, loyalty is strongly influenced by service performance, system reliability, and psychological trust [3], [4]. Previous studies indicate that loyal digital banking users contribute to long-term profitability and competitive advantage [5]

One important determinant of e-loyalty is *e-service quality*. E-service quality reflects users' evaluations of how effectively digital services are delivered, including responsiveness, accuracy, ease of access, and customer support [6], [7]. High e-service quality has been consistently shown to enhance customer satisfaction and loyalty in electronic and mobile banking contexts [8]-[10].

In addition to service-related aspects, *e-system quality* plays a crucial role in shaping user experience. E-system quality refers to the technical characteristics of a digital platform, such as system stability, processing speed, security features, interface design, and ease of navigation [11]. A reliable and user-friendly system reduces transaction errors and user frustration, thereby increasing continued usage intention [12]. However, empirical research examining e-system quality as a direct determinant of e-loyalty remains limited, particularly in newly launched digital banking applications and regional contexts [13]-[15].

Trust is another essential factor in digital banking environments, where users are required to share sensitive personal and financial information. *E-trust* represents users' confidence in the integrity, security, and reliability of digital banking services. Prior studies confirm that trust significantly influences users' willingness to continue using digital banking applications and strengthens long-term loyalty [16], [17].

Digital banking applications can also be understood as a new form of social institution, where interactions between financial institutions and society increasingly occur within digital spaces rather than physical branches. This transformation reshapes patterns of social interaction, shifting trust-building processes from face-to-face encounters to technology-mediated experiences, such as system reliability, data security, and transparency of digital services. In this context, e-trust represents not merely technical confidence but a form of social trust, reflecting users' collective beliefs in the credibility and responsibility of digital financial institutions, while e-loyalty manifests as a repeated social behavior, expressed through continuous usage, recommendation, and long-term engagement with digital banking platforms [18]-[20].

Wondr By BNI is a digital banking application developed by PT Bank Negara Indonesia (Persero) Tbk and officially launched in July 2024. As a newly introduced platform, empirical studies examining user loyalty toward Wondr By BNI are still scarce. Moreover, research integrating e-service quality, e-system quality, and e-trust simultaneously to explain e-loyalty in the context of a newly released digital banking application, particularly at the regional level such as Surakarta, remains limited [21].

Despite the growing literature on digital banking loyalty, prior studies largely focus on well-established platforms and emphasize customer satisfaction or a limited set of predictors, such as e-service quality and e-trust, while often neglecting e-system quality as a direct antecedent of e-loyalty. In addition, socio-cultural and regional contexts in emerging markets like Indonesia remain underexplored, limiting the ability of existing models to explain user loyalty in newly launched digital banking platforms outside major urban areas [22], [23].

This study addresses these gaps by integrating e-service quality, e-system quality, and e-trust within a single empirical framework to explain e-loyalty in a newly introduced digital banking application. By focusing on users in Surakarta, this research offers timely and relevant insights into digital banking adoption in non-metropolitan settings, supporting more effective user retention strategies and the broader goal of strengthening trust and financial inclusion in digital financial ecosystems [24]-[26].

Therefore, this study aims to examine the effect of e-service quality, e-system quality, and e-trust on e-loyalty among users of the Wondr By BNI application in Surakarta. By incorporating system quality as a key explanatory variable and focusing on an emerging digital banking platform, this research provides early empirical evidence that extends existing digital banking and e-loyalty literature. The findings are expected to offer theoretical contributions and practical implications for improving digital banking performance and user retention strategies.

Based on the literature review and research framework, the following hypotheses are proposed:

H1: Based on the research framework, the following hypotheses are proposed:

H1: E-service quality has a positive and significant effect on e-loyalty among users of the Wondr By BNI application.

H2: E-system quality has a positive and significant effect on e-loyalty among users of the Wondr By BNI application.

H3: E-trust has a positive and significant effect on e-loyalty among users of the Wondr By BNI application.

H4: E-service quality, e-system quality, and e-trust simultaneously have a positive and significant effect on e-loyalty among users of the Wondr By BNI application.

2. RESEARCH METHOD

2.1. Research Design

This study uses a quantitative research design to analyze the causal relationship between e-service quality, e-system quality, e-trust, and e-loyalty. The survey method was used to collect primary data from respondents, as this approach is suitable for testing hypotheses and measuring relationships between variables statistically [27]. This study used a cross-sectional design, in which data were collected at a single point in time [28].

2.2. Population, Sample, and Data Sources

The population of this study consists of users of the Wondr By BNI digital banking application [29]. This population was selected due to the recent launch of the application in July 2024 and the relevance of the Surakarta region for examining the loyalty behavior of early users. The study employed a non-probability sampling technique, targeting respondents who are active users of the Wondr By BNI application, reside in the Surakarta area, and have used the application for a minimum period of six months to ensure sufficient user experience in evaluating service quality, system performance, and trust.

The sample size is 160, using the Maximum Likelihood Estimation calculation method. That is, 10×16 indicators = 160 respondents [30]. Primary data was obtained directly from respondents through questionnaires, while secondary data was collected from academic journals, books, and previous empirical studies related to digital banking, service quality, system quality, trust, and loyalty [31].

2.3. Data Collection Procedure

Data were collected using a structured questionnaire developed based on measurement scales established in previous studies. The questionnaire used a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire was distributed directly to respondents who met the sampling criteria. The collected data was then screened to ensure completeness and consistency before further analysis.

Tabel 1. Research Instrument

No	Instrument Type	Data Source	Variable/Indicators	Purpose
1	Questionnaire	Wondr By BNI Application Users	E-Service Quality (responsiveness, accuracy of service, ease of access, customer support)	To measure users' perceptions of the quality of digital services provided by the Wondr By BNI application
2	Questionnaire	Wondr By BNI Application Users	E-System Quality (system stability, processing speed, security features, ease of navigation)	To assess the technical performance and reliability of the Wondr By BNI digital banking system
3	Questionnaire	Wondr By BNI Application Users	E-Trust (data security, system reliability, application credibility)	To measure users' level of trust in the integrity and security of the Wondr By BNI application
4	Questionnaire	Wondr By BNI Application Users	E-Loyalty (continued usage intention, willingness to recommend, preference over alternatives)	To evaluate users' loyalty behavior toward the Wondr By BNI digital banking application

2.4. Operational Definitions and Measurement of Variables

2.4.1. E-Service Quality

E-service quality (X1) refers to users' perceptions of the overall effectiveness and efficiency of electronic services delivered through the Wondr By BNI application. This variable reflects how well the application provides timely, accurate, and responsive services, including ease of accessing features, reliability of transactions, and clarity of service information. E-service quality was measured using several indicators adapted from established electronic service quality dimensions and assessed using a five-point Likert scale [16], [32], [33].

2.4.2. E-System Quality

E-system quality (X2) refers to users' evaluations of the technical performance of the Wondr By BNI application. This variable includes system reliability, processing speed, security features, ease of navigation, and interface design. A high level of e-system quality indicates that the application functions consistently, securely, and efficiently, providing a smooth user experience. The measurement of this variable was based on indicators derived from information systems quality literature and assessed using a five-point Likert scale [34], [35].

2.4.3. E-Trust

E-trust (X3) refers to users' confidence in the security, integrity, and reliability of the Wondr By BNI application when conducting digital financial transactions. This variable reflects users' beliefs that the application

protects personal data, ensures transaction security, and operates in a transparent and dependable manner. E-trust was measured using indicators related to perceived security and reliability, adapted from prior studies on trust in electronic banking environments [36]-[38]

2.4.4. E-Loyalty

E-loyalty (Y) refers to users' intention to continue using the Wondr By BNI application and their willingness to recommend it to others. This variable reflects long-term user commitment and positive behavioral intentions toward the application. E-loyalty was measured using indicators related to repeat usage intention and recommendation behavior, adapted from previous studies on electronic loyalty and assessed using a five-point Likert scale [39], [40].

2.5. Data Analysis Technique

This study employs descriptive and inferential statistical techniques to analyze the collected data. Descriptive statistics are used to summarize the research data by presenting the minimum, maximum, mean, and standard deviation values of each variable, providing an initial overview of data distribution and respondent characteristics [41].

Prior to hypothesis testing, classical assumption tests are conducted to ensure that the regression model satisfies statistical requirements and produces unbiased and reliable estimation results (Best Linear Unbiased Estimator/BLUE). These tests include normality testing to examine whether the data are normally distributed, multicollinearity testing to assess correlations among independent variables, and heteroscedasticity testing to verify the homogeneity of error variances [28], [42], [43].

Furthermore, multiple linear regression analysis is applied, as the study involves more than one independent variable. This method is used to examine the effect of e-service quality, e-system quality, and e-trust on e-loyalty among users of the Wondr By BNI digital banking application. The coefficient of determination (R^2) is employed to measure the extent to which variations in e-loyalty can be explained by the independent variables included in the model. A higher R^2 value indicates stronger explanatory power, while the remaining variance is attributed to factors outside the scope of this study, such as individual user characteristics, external conditions, or technological factors [44].

To test the proposed hypotheses, both simultaneous and partial significance tests are conducted. The F-test is used to evaluate the simultaneous effect of e-service quality, e-system quality, and e-trust on e-loyalty, as well as to assess the overall goodness-of-fit of the regression model. A statistically significant F-test result indicates that the independent variables jointly influence e-loyalty and that the model is appropriate for further interpretation [45]. Meanwhile, the t-test is applied to examine the partial effect of each independent variable on e-loyalty individually. This test determines whether each variable has a statistically significant influence on e-loyalty while controlling for other variables in the model, thereby identifying the relative contribution of each determinant [46].

3. RESULTS AND DISCUSSION

This section aims to interpret the empirical findings by linking the regression results with relevant theories and prior studies. The discussion focuses on explaining the effects of e-service quality, e-system quality, and e-trust on e-loyalty among users of the Wondr By BNI digital banking application in Surakarta, as well as highlighting the practical meaning and implications of both significant and insignificant relationships identified in this study.

3.1. Descriptive Statistics

Descriptive statistics are used to provide an overview of the distribution and characteristics of the research variables, namely e-service quality, e-system quality, e-trust, and e-loyalty. The descriptive analysis indicates that respondents generally perceive the Wondr By BNI application positively across all variables.

Table 2. Descriptive Statistics of E-Service Quality, E-System Quality, E-Trust, and E-Loyalty Variables

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std.Deviation
E-Service Quality	160	6	20	16.77	2.546
E-System Quality	160	5	20	16.73	3.057
E-Trust	160	6	20	16.79	2.429
E-Loyalty	160	7	20	16.93	2.308
Valid N (listwise)	160				

Source: primary data analyzed using SPSS version 23.0

The descriptive statistical analysis provides an overview of respondents' perceptions regarding e-service quality, e-system quality, e-trust, and e-loyalty in the Wondr By BNI application. The results indicate generally

positive evaluations across all variables. The e-service quality variable shows a minimum score of 6 and a maximum score of 20, with a mean value of 16.77 and a standard deviation of 2.546. This indicates that most respondents perceive the quality of electronic services provided by the application as high. The relatively moderate standard deviation suggests that respondents' perceptions are fairly consistent, reflecting stable service performance in terms of responsiveness, reliability, and ease of use. This indicates that users experience the application as supportive and practical for meeting their daily digital banking needs.

The e-system quality variable has a minimum value of 5 and a maximum value of 20, with a mean of 16.73 and a standard deviation of 3.057. This result indicates that users generally evaluate the system performance positively, including aspects such as system reliability, security, and interface design. However, the slightly higher standard deviation compared to other variables suggests greater variation in user experiences, which may be influenced by differences in device compatibility, network conditions, or frequency of application usage. This suggests that while the system is generally well received, users' experiences may vary depending on their technological environment.

The e-trust variable shows a minimum score of 6 and a maximum score of 20, with a mean value of 16.79 and a standard deviation of 2.429. This finding indicates a high level of user trust toward the Wondr By BNI application. The relatively low standard deviation implies that most respondents share similar perceptions regarding the security and credibility of the application, suggesting that trust has been established consistently among users despite the application being newly launched. This reflects users' confidence in the application to securely handle their financial transactions and personal data.

The e-loyalty variable records a minimum value of 7 and a maximum value of 20, with the highest mean score among all variables at 16.93 and a standard deviation of 2.308. This result suggests that users demonstrate a strong intention to continue using and recommending the application. The low dispersion of responses indicates a relatively uniform level of loyalty among users. This implies that users are willing to continue using and recommending the application as part of their routine financial activities.

Overall, the descriptive statistics demonstrate that users of the Wondr By BNI application in Surakarta have positive perceptions of service quality, system quality, and trust, which are reflected in high levels of e-loyalty. These findings provide an initial indication that the application has successfully met user expectations in its early adoption stage.

3.2. Classical Assumption Tests

This classical assumption test was conducted to determine whether the data violated the classical assumption requirements. The classical assumption tests conducted included normality tests, multicollinearity tests, and heteroscedasticity tests. The results of the three tests are as follows:

1) Normality Test

The normality of the regression residuals was tested using the Kolmogorov–Smirnov test. Based on the test results, the Asymp. Sig. (2-tailed) value is 0.200, which is greater than the significance level of 0.05. This indicates that the residuals are normally distributed. Therefore, the normality assumption is satisfied, and the data are suitable for regression analysis. This result indicates that respondents' perceptions were distributed proportionally, allowing the analysis to represent user conditions objectively.

2) Multicollinearity

Multicollinearity was assessed by evaluating the tolerance and Variance Inflation Factor (VIF) values for each independent variable. The results show that e-service quality has a tolerance value of 0.503 and a VIF value of 1.987, e-system quality has a tolerance value of 0.498 and a VIF value of 2.008, while e-trust has a tolerance value of 0.445 and a VIF value of 2.248. All tolerance values exceed the minimum threshold of 0.100, and all VIF values are well below the critical value of 10.00. These findings indicate that there is no multicollinearity among the independent variables. Consequently, each variable independently explains a distinct dimension of the digital banking experience without overlapping effects, ensuring that the regression model produces reliable and unbiased estimates.

3) Heteroskedasticity Test

The heteroskedasticity test was conducted using the Glejser method by examining the significance values of each independent variable on the absolute residuals. The results show that the significance values for e-service quality (0.065), e-system quality (0.492), and e-trust (0.469) are all greater than 0.05. Therefore, it can be concluded that the regression model does not exhibit heteroskedasticity. This indicates that differences in users' responses do not create bias in the analysis, allowing the regression results to be interpreted consistently across respondents.

3.3. Multiple Linear Regression Results

The multiple linear regression analysis produces the following estimation model:

$$Y = 2,585 + 0,223X_1 + 0,120X_2 + 0,512X_3 + e$$

- The constant value of 2.585 indicates that when e-service quality (X1), e-system quality (X2), and e-trust (X3) are assumed to be zero, the value of e-loyalty (Y) remains at 2.585. This suggests that a basic level of loyalty exists among users even without improvements in digital service attributes.
- The regression coefficient for e-service quality (X1) is positive at 0.223. This result implies that a 1% increase in e-service quality leads to an increase of 0.223 in e-loyalty, indicating a positive relationship between e-service quality and e-loyalty. This indicates that responsive and helpful digital services encourage users to continue using the application.
- The regression coefficient for e-system quality (X2) is also positive at 0.120. This finding suggests that a 1% increase in e-system quality results in an increase of 0.120 in e-loyalty, demonstrating that improvements in system performance contribute positively to user loyalty. This implies that a reliable and well-functioning system supports users' willingness to stay with the application.
- Furthermore, e-trust (X3) shows the highest positive regression coefficient of 0.512. This indicates that a 1% increase in e-trust leads to an increase of 0.512 in e-loyalty, highlighting e-trust as the most influential variable in enhancing user loyalty. This reflects that users' confidence in data security and transaction safety strongly drives long-term loyalty.
- Overall, these results indicate that e-service quality, e-system quality, and e-trust have positive effects on e-loyalty. Improvements in these three factors are therefore expected to increase user loyalty toward the Wondr By BNI digital banking application. This shows that strengthening digital service performance and trust can reinforce users' commitment to the application in daily financial activities [47].

3.4. Coefficient of Determination (R, R²)

Table 3. Coefficient of Determination E-Service Quality, E-System Quality, E-Trust, and E-Loyalty Variables Model Summary

Model	R	RSquare	Adjusted R Square	Std.Error of the Estimate
1	.846	.716	.710	1.243

Source: primary data analyzed using SPSS version 23.0

The coefficient of determination (R²) is used to assess the proportion of variation in the dependent variable that can be explained by the independent variables in the regression model. The results show that the adjusted R² value is 0.710, indicating that 71% of the variation in e-loyalty is explained by e-service quality, e-system quality, and e-trust, while the remaining 29% is influenced by other factors outside the model. This indicates that users' loyalty is largely shaped by their digital service experience and trust in the application, although other external factors also play a role.

3.5. Simultaneous Test (F-Test)

Table 4. Simultaneous Effect of E-Service Quality, E-System Quality, E-Trust, and E-Loyalty Variables (F-Test) Anova

Model		Sum of Squares	df	Mean Square	F	Sig
1	Regression	606.167	3	202.056	130.827	<.000
	Residual	3.385	63	1.544		
	Total	7.392	65			

Source: primary data analyzed using SPSS version 23.0

The F-test is used to examine whether all independent variables simultaneously have a significant effect on the dependent variable at a significance level of 0.05. The results show that the calculated F value (130.827) is greater than the F-table value (2.662569) and the significance value (0.000) is less than 0.05. Therefore, it can be concluded that e-service quality, e-system quality, and e-trust jointly have a positive and significant effect on e-loyalty, leading to the acceptance of H4 and rejection of H0. This indicates that users' loyalty is formed through the combined experience of service quality, system performance, and trust rather than by a single factor alone.

3.6. Partial Test (T-Test)

Tabel 5. Partial Effect of E-Service Quality, E-System Quality, E-Trust, and E-Loyalty Variable (T-Test) Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.585	.737		3.507	<.001
	E-Service Quality	.223	.055	.246	4.095	<.000
	E-System Quality	.120	.046	.158	2.619	<.010
	E-Trust	.512	.061	.538	8.410	<.000

Source: primary data analyzed using SPSS version 23.0

Based on the t-test results with a degree of freedom (df) of 156 and a critical t-value of 1.65468, the partial hypothesis testing shows that all independent variables have a positive and significant effect on e-loyalty. E-service quality (X1) has a t-value of 4.095 with a significance level of 0.000, e-system quality (X2) has a t-value of 2.619 with a significance level of 0.010, and e-trust (X3) has a t-value of 8.410 with a significance level of 0.000. Since all t-values exceed the critical value and all significance levels are below 0.05, H1, H2, and H3 are accepted, while H0 is rejected.

This subsection discusses the empirical findings by linking the regression results with relevant theories and prior empirical evidence. The discussion is structured according to each research hypothesis to provide a clear interpretation of the effects of e-service quality, e-system quality, and e-trust on e-loyalty among users of the Wondr By BNI digital banking application. The results of this study indicate that e-service quality has a positive and significant effect on e-loyalty among users of the Wondr By BNI application. This is evidenced by the partial regression test results, where the calculated t-value (4.095) exceeds the critical value (1.65468) and the significance level is below 0.05. These findings suggest that higher levels of digital service quality lead to stronger user loyalty.

High e-service quality in the Wondr By BNI application is reflected in ease of access, transaction speed, clarity of information, and user-friendly design. These factors contribute to a positive user experience, particularly for technologically literate users who expect efficient and reliable digital banking services. When transactions run smoothly and support services are easily accessible, users are more likely to continue using the application and avoid switching to alternative platforms.

Beyond functional benefits, high e-service quality also strengthens users' trust in the institution behind the service, particularly because Bank Negara Indonesia (BNI) operates as a state-owned enterprise. Reliable and transparent digital services reinforce institutional legitimacy and enhance public trust in government-owned financial institutions, positioning e-loyalty not merely as an individual behavioral intention but as a form of collective social confidence in public-sector digital transformation. In this context, user loyalty reflects a broader social behavior, where continued use of the Wondr By BNI application symbolizes support for a trusted national institution. This collective dimension of loyalty suggests that improvements in e-service quality indirectly contribute to sustaining public trust in state-owned digital banking platforms, thereby strengthening long-term institutional credibility. Overall, e-service quality functions as a key driver of e-loyalty by creating consistent and positive user experiences. This finding is consistent with previous research by Gunawan et al. [15], which confirms that improvements in e-service quality significantly enhance e-loyalty in mobile banking applications.

The findings of this study indicate that e-system quality has a positive and significant effect on e-loyalty among users of the Wondr By BNI application. This is supported by the partial regression test results, where the calculated t-value (2.619) exceeds the critical t-value (1.65468) and the significance level is below 0.05. These results suggest that improvements in system quality are associated with higher levels of user loyalty.

The Wondr By BNI application demonstrates good system quality through application stability, fast access, and ease of navigation across features. A well-integrated system enables users to conduct various banking transactions efficiently with minimal technical disruptions. In practice, users in Surakarta often compare Wondr By BNI with other digital banking applications, particularly in terms of login speed, system responsiveness during transactions, and overall stability during peak usage periods.

From a technical perspective, e-system quality serves as the underlying infrastructure that supports all service activities within the application. Although users may not always consciously recognize system quality, it plays a crucial role in determining convenience and usability. A stable and user-friendly system reduces uncertainty and technical frustration, allowing users to transact confidently and comfortably.

Moreover, consistent system performance contributes to the formation of e-trust, especially in the context of a state-owned banking institution such as BNI. Reliable system operations reinforce users' perceptions of institutional competence and accountability, which are essential elements of institutional legitimacy in public-sector digital services. When users experience uninterrupted access and secure transactions, their trust extends beyond the application to the institution itself.

In this sense, e-loyalty emerges not only as an individual preference for continued usage but also as a collective behavioral response reflecting public confidence in the digital capabilities of state-owned enterprises. Sustained system quality strengthens this shared trust, encouraging users to remain loyal as part of a broader social endorsement of national digital banking platforms. Therefore, e-system quality functions as a fundamental technical foundation that enables optimal application performance. Consistent system stability fosters positive user experiences over time, which ultimately strengthens user loyalty. This finding is consistent with the study by Geebren et al. [11], which demonstrates that e-system quality has a positive and significant effect on mobile banking user satisfaction, both directly and indirectly through trust.

The results of this study indicate that e-trust has a positive and significant effect on e-loyalty among users of the Wondr By BNI application. This is supported by the partial regression test results, where the calculated t-value (8.410) exceeds the critical t-value (1.65468) and the significance level is below 0.05. These findings demonstrate that higher levels of user trust lead to stronger loyalty toward the application.

Users of the Wondr By BNI application exhibit a high level of trust in the digital services provided, which is developed through data security guarantees, accuracy of transaction information, and consistent system performance. In practice, users in Surakarta tend to remain loyal when they are confident that the application is supported by strong security systems and the reputation of BNI as a state-owned bank. Secure transactions, minimal errors, and transparent information further strengthen user trust.

From a behavioral perspective, e-trust serves as a psychological foundation that sustains the long-term relationship between users and the application. In digital banking services, users entrust not only convenience but also the safety of their financial assets and personal data. When trust is well established, users are more tolerant of temporary system disruptions and are less likely to switch to alternative applications.

In the context of a state-owned enterprise, e-trust also represents public trust in institutional legitimacy and governance. Trust in Wondr By BNI extends beyond confidence in technology to confidence in the state's ability to manage secure and accountable digital financial services. As such, user loyalty reflects not only personal satisfaction but also a collective affirmation of trust in BNI as a national financial institution.

This collective dimension positions e-loyalty as a form of social behavior, where continued usage of the application signifies public support for the digital transformation of state-owned banks. High levels of e-trust reinforce this shared confidence, strengthening the sustainability of digital banking adoption within society. Therefore, e-trust emerges as the most influential factor in the formation of e-loyalty. High levels of trust encourage users to consistently rely on Wondr By BNI as their primary digital banking service. This finding is supported by previous research conducted by Fajar et al. [5], which confirms that strong e-trust in BNI's e-banking services significantly contributes to increased user loyalty.

The results of this study indicate that e-service quality (X1), e-system quality (X2), and e-trust (X3) simultaneously have a positive and significant effect on e-loyalty (Y) among users of the Wondr By BNI application. This is evidenced by the simultaneous regression test results, where the calculated F-value (130.827) exceeds the critical F-value (2.662569) and the significance value is below 0.05. These findings confirm that, collectively, the three independent variables significantly influence e-loyalty.

The results suggest that user loyalty is shaped by a combination of digital service quality, application system quality, and user trust in digital banking services. Responsive and informative services, stable and user-friendly systems, as well as strong security and reliable information contribute to a comprehensive and positive user experience. Although practical challenges such as temporary system disruptions, service response limitations, and data security concerns may still occur, consistent and continuous management of service quality, system quality, and user trust can effectively minimize negative user perceptions.

From a conceptual perspective, the three variables form an integrated user experience framework. E-service quality represents the direct service experience perceived by users, e-system quality serves as the technical foundation that enables optimal application performance, and e-trust functions as a psychological factor that strengthens long-term relationships between users and the application. These elements are interrelated and jointly shape sustained user loyalty.

In the context of a state-owned banking institution, the simultaneous influence of e-service quality, e-system quality, and e-trust also reflects the strength of institutional legitimacy and public trust. High-quality digital services and reliable systems reinforce perceptions of BNI's capability as a public financial institution, while strong e-trust signals confidence in state governance, accountability, and data protection within digital banking services. Consequently, e-loyalty among Wondr By BNI users should be understood not only as an individual behavioral outcome but also as a collective social response to successful public-sector digital transformation. Continued use of the application represents shared public endorsement of a trusted national banking platform, where loyalty functions as an expression of confidence in both technology and institution.

Therefore, it can be concluded that e-service quality, e-system quality, and e-trust simultaneously act as key determinants of e-loyalty among Wondr By BNI application users. This finding is supported by previous research conducted by Alfaro and Widodo [6], which demonstrates that e-trust and e-service quality positively

and significantly influence e-loyalty through e-satisfaction as an intervening variable, indicating that additional factors such as e-satisfaction may further enhance user loyalty.

Several prior studies support and reinforce the findings of the present research. For example, research on m-BCA users found that e-service quality and e-trust both positively and significantly influence e-loyalty, either directly or through e-satisfaction as an intervening variable, indicating consistent effects of digital service quality and trust on user loyalty in financial applications similar to mobile banking contexts [48]. Similarly, a study of Generation Y digital banking users in Indonesia also reported that both e-service quality and e-trust significantly affect e-loyalty, with trust additionally strengthening the relationship between service quality and loyalty [49]. These findings corroborate our results and are consistent with broader evidence in the literature that highlights the importance of high-quality digital services and strong user trust in maintaining long-term loyalty among electronic banking users.

The results of this study carry both theoretical and practical implications. Theoretically, this research adds to the growing body of literature demonstrating the joint importance of service quality, system quality, and trust in shaping e-loyalty, providing empirical support for integrated models of digital banking adoption and loyalty. Practically, the findings offer actionable insights for digital banking providers, especially state-owned financial institutions, highlighting the need to invest in service and system improvements while fostering trust to enhance user retention. In the context of national digital transformation, reinforcing e-trust may also contribute to strengthening public confidence in government-linked digital financial services, thus supporting broader digital inclusion and financial stability objectives.

Despite its contributions, this research has several limitations. First, the cross-sectional design limits the ability to draw long-term causal conclusions about user behavior over time. Second, the study sample was drawn from users of a single digital banking application in a specific region, which may constrain the generalizability of the results to other populations or digital service platforms. Additionally, while this study focused on direct effects of service quality, system quality, and trust on loyalty, intervening variables such as e-satisfaction or perceived value (shown in prior research to mediate these relationships) were not incorporated into the model [50]. Future research should consider longitudinal designs, diversified samples across multiple applications or countries, and extended models that include additional mediators and moderators to provide a more comprehensive understanding of digital loyalty mechanisms.

4. CONCLUSION

This study aims to empirically examine the effects of e-service quality, e-system quality, and e-trust on e-loyalty among users of the Wondr By BNI digital banking application in the Surakarta region. The results of the analysis indicate that the research objectives have been successfully achieved, as all proposed relationships are empirically supported. The findings demonstrate that e-service quality, e-system quality, and e-trust each have a positive and statistically significant effect on e-loyalty. E-service quality contributes to increased user loyalty through responsive, clear, and accessible digital services. E-system quality enhances loyalty by providing stable system performance, fast access, and ease of navigation that support smooth transaction processes. Among the three variables, e-trust shows the strongest influence on e-loyalty, indicating that user confidence in data security, transaction accuracy, transparency, and institutional credibility plays a decisive role in sustaining loyalty in digital banking services.

In addition, the simultaneous test confirms that e-service quality, e-system quality, and e-trust jointly have a positive and significant effect on e-loyalty. The regression model explains 71% of the variance in e-loyalty, suggesting that user loyalty is shaped by the combined influence of service-related, technical, and trust-based factors rather than by a single determinant. Based on these findings, future research is recommended to expand the scope of analysis by incorporating additional variables such as e-satisfaction, perceived value, or user engagement as mediating or moderating factors. Further studies may also employ longitudinal research designs, broader geographical coverage, or comparative analyses across different digital banking platforms to enhance the generalizability and depth of understanding of e-loyalty in digital financial services.

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