

Digital Service Innovation in Enhancing Customer Satisfaction: An Analysis of Service and Product Quality in the Banking Industry

(Inovasi Layanan Digital dalam Meningkatkan Kepuasan Nasabah: Analisis Kualitas Layanan dan Produk pada Industri Perbankan)

Agung Prastyo, Kevin Ewaldo*, Marselinus, Aira Putri E D

Department of Business Administration, Universitas Jakarta,
Jl. Pulomas Barat No.9, East Jakarta, Indonesia.

* Corresponding Author. E-mail: kevinewaldooffice@gmail.com

Abstract

This study aims to analyze the influence of service quality and product quality on customer satisfaction through digital service innovation at BNI Agen46 Menteng Main Branch and to propose strategic recommendations for developing digital services that enhance customer satisfaction and loyalty. A quantitative approach was applied using a survey method with a five-point Likert scale questionnaire. The collected data were analyzed using multiple linear regression to examine the relationships among variables, supported by validity, reliability, and classical assumption tests to ensure the robustness of the findings. The results indicate that both service quality and product quality have a positive and significant impact on customer satisfaction. These findings highlight that improving service and product quality is crucial for strengthening customer loyalty and fostering sustainable long-term relationships. Furthermore, based on SWOT and TOWS analyses, this study proposes strategic recommendations that leverage internal strengths and external opportunities, such as optimizing brand reputation, fostering collaboration with fintech companies, and enhancing digital service features to be more responsive to customer needs.

Keywords: Customer satisfaction, digital services, service quality, SWOT, product quality.

Abstrak

Penelitian ini bertujuan untuk menganalisis pengaruh kualitas layanan dan kualitas produk terhadap kepuasan nasabah melalui inovasi layanan digital pada Agen46 BNI Kantor Cabang Utama Menteng, serta merumuskan rekomendasi strategis untuk pengembangan layanan digital yang dapat meningkatkan kepuasan dan loyalitas nasabah. Pendekatan kuantitatif digunakan dengan metode survei melalui kuesioner yang disusun menggunakan skala Likert lima poin. Data yang diperoleh dianalisis menggunakan regresi linier berganda untuk menguji pengaruh antarvariabel, disertai uji validitas, reliabilitas, dan asumsi klasik guna memastikan keandalan hasil penelitian. Hasil analisis menunjukkan bahwa baik kualitas layanan maupun kualitas produk berpengaruh positif dan signifikan terhadap kepuasan nasabah. Temuan ini menegaskan bahwa peningkatan kualitas layanan dan produk merupakan faktor penting dalam memperkuat loyalitas nasabah dan menciptakan hubungan jangka panjang yang berkelanjutan. Selanjutnya, melalui analisis SWOT dan TOWS, penelitian ini merekomendasikan strategi pengembangan layanan digital berbasis kekuatan internal dan peluang eksternal, seperti optimalisasi reputasi merek, kolaborasi dengan fintech, serta peningkatan fitur digital yang responsif terhadap kebutuhan nasabah.

Kata kunci: kepuasan nasabah, kualitas layanan, kualitas produk, layanan digital, SWOT.

INTRODUCTION

The rapid development of digital technology has brought significant changes across various sectors, including the financial industry. In the banking sector, technological

advancement represents a strategic opportunity to expand access to financial services, improve operational efficiency, and strengthen customer relationships. Banks that can optimally leverage digital innovation will gain a competitive advantage and better meet the financial needs of

society in a faster, safer, and more practical manner.

To remain competitive in an increasingly dynamic market, banks must adapt by implementing digital-based service innovations. Such innovations not only aim to attract customers but also to enhance their transaction experience through services that are efficient, accessible, and reliable. Therefore, a bank's ability to develop high-quality digital services and products has become a crucial factor in achieving customer satisfaction.

One notable example of digital service innovation in Indonesia is Agen46, an initiative by PT Bank Negara Indonesia (Persero) Tbk. This program represents a form of inclusive financial transformation that enables individuals and business entities to access a wide range of banking services through authorized agents. Agen46 offers various services such as Laku Pandai, digital financial transactions, e-payments, e-commerce, and micro-loans. Through Electronic Data Capture (EDC) devices and a mobile application, Agen46 extends BNI's reach even to areas not covered by branch offices.

However, despite the continuous growth in the number of agents, data indicate a decline in transaction volume and fee-based income in several branches, including the *Kantor Cabang Utama Menteng*. In 2020, the number of agents reached 535 with approximately 33,000 transactions, but in 2023, even though the number of agents increased to 616, transaction volume and income decreased. Moreover, 86 agents terminated their operations during 2023, mainly due to switching to competitors.

This phenomenon shows that the increase in the number of agents has not been followed by improved performance and customer satisfaction. Interviews with the Branch Manager of BNI Menteng Branch revealed several customer complaints regarding service quality, less competitive transaction fees, and technical issues with the Agen46 mobile application. These findings indicate that the quality of digital services and products plays a vital role in maintaining customer satisfaction and loyalty.

Previous studies on the influence of service quality and product quality on customer satisfaction have been widely conducted, such as those by Laili & Rahman (2024), who emphasized the importance of customer satisfaction in maintaining loyalty, and Atmaja

(2018), who highlighted the role of product quality in shaping customers' positive perceptions of banks. However, most of these studies focused on conventional banking services and have not thoroughly examined the implementation of digital service innovations as a strategic approach to improving service quality, product quality, and customer satisfaction in the era of banking digitalization. With the rapid development of digital banking, there is a need for more specific studies to understand how digital innovation contributes to enhancing customer satisfaction and experience.

Based on the background and the problems identified, this study aims to analyze the influence of service quality and product quality on customer satisfaction through digital service innovation at *Kantor Cabang Utama BNI Menteng*, and to propose strategic recommendations for the development of digital services that can enhance customer satisfaction and loyalty. This research is expected to provide valuable insights for BNI's management in optimizing the implementation of digital innovations and serve as a practical reference for advancing the banking industry in the digital transformation era.

LITERATURE REVIEW

Marketing Management

Marketing management is a strategic process that involves analyzing market opportunities, selecting target segments, and designing integrated marketing programs to attract, retain, and grow customers. It focuses on creating superior value for customers through effective product development, pricing, promotion, and distribution strategies.

In the modern business landscape, marketing management plays a critical role in aligning company objectives with customer needs. It emphasizes understanding consumer behavior, delivering consistent value, and building long-term relationships that contribute to customer loyalty and sustainable business growth (Agu et al., 2024).

In the context of digital banking, marketing management is not limited to traditional promotional efforts but also includes managing digital platforms, enhancing customer experience, and ensuring service innovation that

meets the evolving expectations of tech-savvy customers (Athaide et al., 2025).

Therefore, marketing management serves as the foundation for designing customer-centered strategies that integrate both technological innovation and service excellence to enhance satisfaction and competitiveness in the banking industry (Cakir et al., 2025).

Customer Satisfaction

Customer satisfaction refers to the feeling of pleasure or disappointment that arises when comparing perceived product or service performance with customer expectations (Fadhillah & Simanjuntak, 2024). If performance falls short of expectations, customers are dissatisfied; if it meets expectations, they are satisfied; and if it exceeds expectations, they experience delight.

Customer satisfaction is critical for fostering loyalty, enhancing corporate reputation, reducing price sensitivity, and improving overall efficiency (Akanbi & Obafemi, 2024). Satisfied customers are more likely to engage in repeat transactions, provide positive word-of-mouth recommendations, and become long-term users of a company's products and services.

Several methods can be used to measure customer satisfaction, including complaint and suggestion systems, mystery shopping, lost customer analysis, and customer surveys. There are five key factors commonly associated with customer satisfaction, including product quality, service quality, emotional factors, price, and cost considerations (Ifedi et al., 2024; Marselinus & Rudianto, 2024).

These factors demonstrate that customer satisfaction serves as a key outcome of marketing and service strategies, closely influenced by how well the company delivers quality in both products and services.

Product Quality

Product quality refers to a product's ability to meet customer needs and expectations by delivering performance that matches or exceeds what is desired (Sambo et al., 2022). Yusuf & Matin (2023) describe a product as anything offered to a market for attention, acquisition, use, or consumption that satisfies consumer wants or needs. Understanding product quality dimensions helps firms differentiate their offerings from competitors. Key dimensions include

performance, durability, conformance to specifications, features, reliability, aesthetics, and perceived quality.

In the digital banking industry, product quality can be reflected through the stability of the digital platform, the completeness of its features, the design appeal of its interface, and the reliability of its transaction systems. High product quality not only strengthens customer trust but also enhances satisfaction and long-term engagement.

While product quality emphasizes the tangible and technical aspects of digital banking services, service quality focuses on the experiential and relational elements that shape customer perceptions and loyalty.

Service Quality

Service quality is defined as a company's ability to fulfill customer needs and expectations by delivering services accurately, promptly, and reliably (Setiono & Hidayat, 2022; Singh et al., 2023). In essence, services represent intangible exchanges between parties that emphasize experience and value creation rather than physical ownership.

Baek et al. (2023) identifies several characteristics of services, including intangibility, inseparability, and customization. Service quality is often measured through the SERVQUAL model, which includes five key dimensions:

1. Tangibles, physical facilities, tools, and appearance of personnel.
2. Reliability, the ability to perform promised service dependably and accurately.
3. Responsiveness, willingness to help and provide prompt service.
4. Assurance, employee knowledge, courtesy, and ability to inspire trust.
5. Empathy, individualized attention and genuine concern for customers.

In the context of digital banking, service quality is reflected in the reliability of digital platforms, the responsiveness of customer service, and the ease of accessing banking features through applications or agent networks such as BNI's Agen46.

Together with product quality, service quality forms the foundation for customer satisfaction, which in turn determines loyalty and

competitive sustainability in the era of digital transformation.

CONCEPTUAL FRAMEWORK

This study is based on the assumption that customer satisfaction is influenced by the quality of services and products provided by the bank. Digital service innovation plays a crucial role in enhancing both aspects by improving efficiency, accessibility, and transaction convenience. The better the quality of digital products and services offered, the higher the level of customer satisfaction with the bank. Digital service innovation enhances both product and service quality by improving efficiency, accessibility, and customer experience. As product and service quality improve, customer satisfaction increases accordingly (Figure 1).

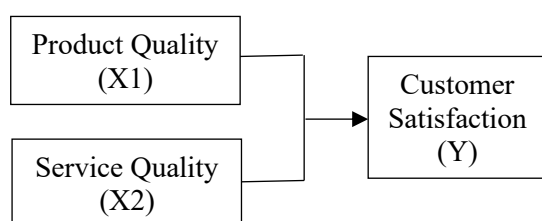


Figure 1. Conceptual Framework

Based on the theoretical framework and previous studies related to service quality, product quality, and customer satisfaction, the hypotheses in this research are formulated as follows:

1. Service quality (X_1) has a significant effect on customer satisfaction (Y).
2. Product quality (X_2) has a significant effect on customer satisfaction (Y).
3. Service quality (X_1) and product quality (X_2) simultaneously have a significant effect on customer satisfaction (Y).

METHODS

This study employs a quantitative approach aimed at analyzing the influence of service quality and product quality on customer satisfaction within BNI's digital service platform, Agen46. The research was conducted at PT Bank Negara Indonesia (Persero) Tbk, *Kantor Cabang Utama* Menteng, located at Jl. Menteng Raya No. 76, Kebon Sirih Sub-district, Menteng District,

Central Jakarta. The study was carried out over the period of March to August 2024.

The population in this research consists of all Agen46 partners under the supervision of *Kantor Cabang Utama* BNI Menteng. Due to the dynamic and fluctuating nature of the population, the exact number could not be determined. Therefore, the sample size was determined based on the rule of thumb principle proposed by VanVoorhis & Morgan (2007), to ensure that the collected data possess adequate representativeness and sufficiency for statistical analysis. The sample size formulation was adapted from the approach suggested by Hair Jr et al. (2010), as shown in the following equation:

$$n_{\min} = k \times p \quad (1)$$

Where:

- $n_{\min}$ = minimum sample size
- k = limiting factor of 10
(as suggested by Hair et al.)
- p = number of independent variables
in the analytical model

Based on this calculation, a total of 43 respondents were selected as the research sample. The sampling technique used was accidental sampling, which selects respondents based on accessibility and availability during the data collection process (Sugiyono, 2013).

The research utilized both primary and secondary data. Primary data were obtained directly through questionnaires distributed to respondents, while secondary data were collected from documented sources such as company reports, academic publications, and other relevant literature that support the study. The research instrument employed was a structured questionnaire designed using the Likert scale method. This method was used to measure respondents' perceptions, attitudes, and evaluations toward each research variable. Each variable was operationalized into several indicators that were then formulated into questionnaire items, allowing for systematic and measurable assessment of the phenomena being studied.

Before conducting data analysis, the research instrument was tested to ensure that the questionnaire met the criteria of validity and reliability. The validity test aims to assess the extent to which the questionnaire items

accurately and appropriately measure the intended variables (Dasli & Achmad, 2024). The test was conducted using a statistical data processing application by comparing the r-count value with the r-table value at a 5% significance level. A questionnaire item is considered valid if the r-count value is greater than the r-table value, and invalid if otherwise (Isnardono & Nicholas, 2024).

A reliability test was then performed to evaluate the consistency of the research instrument. Reliability reflects the extent to which a measurement tool produces stable and consistent results when applied at different times (Puspita & Arisandi, 2024). The reliability test in this study employed the Cronbach's Alpha method, where an instrument is considered reliable if the Alpha value exceeds 0.60 (Bungatang & Reynel, 2021). This method was used to assess the internal consistency reliability of the questionnaire items.

Data analysis in this study was carried out quantitatively using statistical analysis tools to process and interpret the collected data. The analytical procedures included descriptive analysis, classical assumption testing, and hypothesis testing. Descriptive analysis was conducted to present the characteristics of respondents and to provide an overview of their perceptions of each research variable. The descriptive statistics employed included measures of central tendency (mean, median, and mode) and measures of dispersion (range and standard deviation).

Prior to regression analysis, basic assumption tests were conducted, including normality and linearity tests. The normality test aimed to determine whether the data were normally distributed, using the Kolmogorov-Smirnov method with a significance level of 0.05 (Jasin & Firmansyah, 2023). The data are considered normally distributed if the significance value exceeds 0.05 (Naulibasa et al., 2023). The linearity test was conducted to determine whether the relationship between independent and dependent variables was linear (James et al., 2021). The relationship is considered linear if the significance value is greater than 0.05 (Arini et al., 2022).

Subsequently, classical assumption tests were performed, including multicollinearity, heteroskedasticity, and autocorrelation tests (Nyoman et al., 2023). The multicollinearity test

aimed to ensure that there was no high correlation among the independent variables, with the criterion that the Variance Inflation Factor (VIF) values should fall between 1 and 10 (Saehu & Hutabarat, 2024). The heteroskedasticity test used to detect variance inequality among residuals, where no heteroskedasticity is indicated if the significance value is greater than 0.05 (Musa et al., 2024). The autocorrelation test was conducted using the Durbin-Watson method, where no autocorrelation is indicated if the value satisfies $du < d < 4 - du$ (Kumar, 2023).

The primary analysis of this research employed multiple linear regression to examine the influence of service quality and product quality on customer satisfaction. Multiple linear regression was chosen because the study involved more than one independent variable (Aras et al., 2023) with the following formula:

$$Y = a + b_1 X_1 + b_2 X_2 + \dots + b_n X_n \quad (2)$$

Where:

Y = Dependent variable
a = Constant
 $X_1, X_2, \dots, X_n$ = Independent variables
 $b_1, b_2, \dots, b_n$ = Regression coefficients

Hypothesis testing was conducted through the t-test and F-test. The t-test was used to measure the partial effect of each independent variable on the dependent variable at a 0.05 significance level (Puspita & Arisandi, 2024). If the t-count value exceeds the t-table value, the alternative hypothesis is accepted (Sugiyono, 2013). Meanwhile, the F-test was used to examine the simultaneous effect of all independent variables on the dependent variable (Sugiyono, 2013). The hypothesis is accepted if the F-count value exceeds the F-table value or if the significance value is less than 0.05.

Furthermore, the coefficient of determination (R^2) was used to determine the proportion of variance in the dependent variable explained by the independent variables (Dasli & Achmad, 2024). A higher R^2 value indicates that the independent variables have a greater ability to explain variations in customer satisfaction as the dependent variable (Isnardono & Nicholas, 2024).

Subsequently, to formulate strategies for the development of digital services, the SWOT method was employed, taking into account

internal factors (strengths and weaknesses) as well as external factors (opportunities and threats) relevant to enhancing customer satisfaction and loyalty.

RESULT AND DISCUSSION

Validity and Reliability Test

Validity testing aims to ensure that the questionnaire items accurately measure the intended research variables. In this study, the Pearson Product Moment correlation method was applied. An item is considered valid if its r-count exceeds the r-table value at a 5% significance level.

Table 1. Validity Test Result

Variable	Item	R-Table	R-Count	Information
Service Quality (SQ)	SQ1	0,294	0.786	Valid
	SQ2		0.720	Valid
	SQ3		0.770	Valid
	SQ4		0.801	Valid
	SQ5		0.821	Valid
	SQ6		0.793	Valid
	SQ7		0.691	Valid
	SQ8		0.794	Valid
	SQ9		0.773	Valid
	SQ10		0.794	Valid
	SQ11		0.820	Valid
Product Quality (PQ)	PQ1	0,294	0.760	Valid
	PQ2		0.849	Valid
	PQ3		0.766	Valid
	PQ4		0.893	Valid
	PQ5		0.727	Valid
	PQ6		0.826	Valid
	PQ7		0.845	Valid
	PQ8		0.865	Valid
Customer Satisfaction (CS)	CS1	0,294	0.882	Valid
	CS2		0.692	Valid
	CS3		0.818	Valid
	CS4		0.859	Valid
	CS5		0.880	Valid

Variable	Item	R-Table	R-Count	Information
	CS6		0.866	Valid
	CS7		0.928	Valid
	CS8		0.863	Valid
	CS9		0.843	Valid
	CS10		0.767	Valid

Source: Primary Data (2024)

As shown in Table 1, the research variables include Service Quality (11 items), Product Quality (8 items), and Customer Satisfaction (10 items). All items have r-count values greater than r-table, indicating that each item is capable of accurately measuring the construct it represents. This confirms the validity of the instrument, ensuring the data collected from respondents is suitable for further analysis.

Reliability testing evaluates the consistency of an instrument in measuring the same construct over time. In this study, Cronbach's Alpha was used, with a threshold of 0.60 as the minimum requirement for reliability.

Table 2. Reliability Test Result

Variable	Cronbach's Alpha	Information
Service Quality	0,933	Reliable
Product Quality	0,926	Reliable
Customer Satisfaction	0,953	Reliable

Source: Primary Data (2024)

The results indicate that all variables have Cronbach's Alpha values exceeding 0.60 (Table 2). This demonstrates that the questionnaire items are reliable and capable of producing consistent data, providing a solid foundation for subsequent statistical analyses.

Classical Assumption Test

The normality test aims to verify whether the residuals in the regression model are normally distributed. This is essential because parametric statistical tests assume normality of residuals. The Kolmogorov-Smirnov (K-S) test was applied, producing an Asymp. Sig. value of 0.200, which is greater than 0.05 (Table 3). Therefore, it can be concluded that the data are normally distributed.

Table 3. Kolmogorov–Smirnov Normality Test

One-sample Kolmogorov-Smirnov Test			
			Unstandardized Residual
N			43
Normal Parameters a,b	Mean		.0000000
	Std. Deviation		4.43970362
Most Extreme Differences	Absolute		.108
	Positive		.106
	Negative		-.108
Test Statistic			.108
Asymp. Sig. (2-tailed)			.200 ^d
Monte Carlo Sig. (2-tailed) ^e	Sig. 99% Confidence Interval		.224
		Lower Bound	.213
		Upper Bound	.235

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction

d. This is a lower bound of the true significance.

e. Lilliefors' method based on 10000 Monte Carlo sample with starting seed 2000000

Source: Primary Data (2024)

The multicollinearity test evaluates whether independent variables are highly correlated with one another. Excessive correlation can distort regression estimates. The results (Table 4) indicate that the Tolerance values are above 0.1 and VIF values are below 10, suggesting that multicollinearity is not present in the regression model.

Table 4. Multicollinearity Test Results

Coefficients ^a						
Model	B	Std. Error	Beta	t	Sig.	VIF
(Constant)	21.727	4.381		4.959	<.001	
Service Quality	-.550	.231	-.614	-2.379	.022	
Product Quality	1.384	.276	1.293	5.012	<.000	6.482

a. Dependent Variable: Customer Satisfaction

Source: Primary Data (2024)

Heteroscedasticity testing checks whether the variance of residuals is constant across observations. Using the Glejser test, the significance values for Service Quality and Product Quality exceed 0.05, indicating the model does not exhibit heteroscedasticity. This confirms that the regression estimates are reliable and unbiased.

Autocorrelation testing examines whether residuals from one observation are correlated with residuals from previous observations. The Durbin–Watson (DW) test yielded a value of 2.173, with decision criteria $du = 1.6091$ and $4 - du = 2.5849$. Since $du < DW < 4 - du$, it is concluded that the model does not experience autocorrelation, ensuring the independence of observations (Table 5).

Table 5. Autocorrelation Test Results (Durbin–Watson)

Mode Summary ^b					
Model	R	R Square	Adj R Square	Std Error	DW
1	.767 ^a	.589	.569	4.549	2.173

Source: Primary Data (2024)

Multiple linear regression analysis was conducted to determine the effect of Service Quality (X_1) and Product Quality (X_2) on Customer Satisfaction (Y). The regression equation is as follows:

$$Y = -2,376 + 0,713 X_1 + 0,274 X_2 + e$$

Table 6. Multiple Linear Regression Results

Coefficients ^a					
Model	B	Coef Std. Error	Coef Beta	t	Sig.
(Constant)	-2,376	10.176		-.233	.817
Service Quality	.713	.218	.433	3.265	.002
Product Quality	.274	.120	.302	2.277	.028

a. Dependent Variable: Customer Satisfaction

Source: Primary Data (2024)

The negative constant (-2.376) suggests that if both independent variables are zero, Customer Satisfaction is predicted to decrease by 2.376 units (Table 6). The positive coefficient for Service Quality (0.713) indicates that higher service quality is associated with increased

customer satisfaction, reflecting the critical role of service in customer perception. The positive coefficient for Product Quality (0.274) shows that improvements in product quality contribute positively to customer satisfaction. This finding aligns with the theory that product quality is a key determinant of consumer satisfaction.

The results of the t-test indicate that both service quality and product quality have a positive and significant effect on customer satisfaction with Agen46. The significance values for each variable were below 0.05, suggesting that any improvement in these variables is likely to be followed by an increase in customer satisfaction. This implies that efforts to enhance service quality, such as improving response speed, information clarity, and digital interaction comfort, as well as strengthening product quality through more functional and reliable features, will have a direct impact on customer satisfaction levels.

Furthermore, the F-test results show that service quality and product quality simultaneously have a significant influence on customer satisfaction, with a significance value smaller than 0.05 (Table 7). This finding confirms that both variables complement each other in shaping customers' positive perceptions of Agen46.

Table 7. F-Test Results

	Model	Sum of Sq	df	Mean Square	F	Sig.
1	Regression	700.304	2	350.152	10.657	<.000 ^b
	Residual	1314.207	40	32.855		
	Total	2014.512	42			

a. Dependent Variable: Customer Satisfaction

b. Predictors: (Constant), Service Quality, Product Quality

Source: Primary Data (2024)

The coefficient of determination (Adjusted R²) value of 0.315 indicates that 31.5 percent of the variation in customer satisfaction can be explained by the combination of service and product quality (Table 8), while the remaining 68.5 percent is influenced by other factors outside the model, such as brand trust, digital experience, and emotional or social factors. Therefore, simultaneous improvement in service and product quality should be considered a strategic priority to strengthen customer satisfaction and loyalty in Agen46.

Table 8. Coefficient of Determination (R²) Results

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.590 ^a	.348	.315	5.732

a. Dependent Variable: Customer Satisfaction

b. Predictors: (Constant), Service Quality, Product Quality

Source: Primary Data (2024)

Strategic Analysis for Digital Service Development

To propose strategic recommendations for enhancing customer satisfaction and loyalty in Agen46 digital services, a SWOT analysis was conducted. This method evaluates internal and external factors that influence service performance. The findings are summarized as follows:

Strengths (Internal Positive Factors):

- Strong brand recognition of BNI and the Agen46 network.
- Historical base of loyal customers with consistent engagement.
- Integration of digital platforms with an easy-to-use interface.
- Experienced and well-trained workforce supporting digital services.

Weaknesses (Internal Negative Factors):

- Limited customization of digital services to meet specific customer needs.
- Occasional delays in service response for some transactions.
- Digital features are still incomplete compared to competitors.

Opportunities (External Positive Factors):

- Rapid digital transformation among the public.
- Increasing adoption of digital banking services among Indonesian customers.
- Growing demand for remote and practical financial solutions.
- Opportunities to collaborate with fintech companies to expand services.

Threats (External Negative Factors):

- Intense competition from other digital banking platforms and e-wallets.
- Rapid technological changes requiring continuous platform updates.
- Security and privacy concerns that may affect customer trust.

Based on the results of the TOWS analysis, several strategic recommendations can be formulated to support the development of Agen46's digital services in enhancing customer satisfaction and loyalty. These strategies were derived by integrating internal factors (strengths and weaknesses) and external factors (opportunities and threats), aiming to provide realistic and sustainable directions for improving the competitiveness of BNI's digital services.

First, the SO (Strength–Opportunity) strategy emphasizes leveraging internal strengths to capitalize on the growing opportunities in the digital market. BNI can strengthen the synergy between its online and offline channels by developing more user-friendly digital features, promoting accessibility, and collaborating with fintech companies to expand financial inclusion among unbanked communities.

Second, the WO (Weakness–Opportunity) strategy focuses on addressing internal weaknesses while utilizing external opportunities. For instance, enhancing service responsiveness and adding personalized digital features can better meet the diverse needs of customers. BNI can also introduce continuous digital training programs for Agen46 partners to improve their understanding and use of digital tools, thereby ensuring a consistent and satisfying customer experience across all service points.

Third, the ST (Strength–Threat) strategy aims to use internal strengths to mitigate external threats. In the face of intense competition and rapid technological changes, BNI should pursue continuous innovation by leveraging its digital capabilities. Strengthening cybersecurity, ensuring transparency in data management, and proactively communicating privacy policies will be crucial to maintaining customer trust and reinforcing confidence in the Agen46 digital platform.

Fourth, the WT (Weakness–Threat) strategy highlights defensive actions to minimize the impact of weaknesses and external threats. BNI should conduct regular performance evaluations of its digital applications, develop a data-driven customer feedback monitoring system, and benchmark against key competitors to identify and address service gaps. This approach enables the organization to maintain operational stability while remaining responsive to dynamic market conditions.

Overall, the TOWS analysis suggests that the development of Agen46's digital services should prioritize customer-oriented innovation, the improvement of digital interaction quality, and the strengthening of cross-sector collaborations. Implementing these strategies is expected to enhance the value proposition of BNI's digital services, foster customer trust, and build a sustainable competitive advantage in the era of digital banking transformation.

Discussion

The results of the multiple linear regression analysis conducted in this study indicate that both service quality and product quality have a significant and positive effect on customer satisfaction with Agen46's digital services. The positive coefficients for both variables demonstrate that an improvement in either service or product quality directly contributes to higher customer satisfaction levels. This finding reinforces the theoretical framework suggesting that customer satisfaction is primarily determined by the degree to which expectations are met through high-quality products and superior service delivery.

Furthermore, the results of the classical assumption tests, along with the validity and reliability analyses, confirm that the data used in this study are valid and consistent. The Adjusted R Square value of 0.315 indicates that 31.5% of the variation in customer satisfaction can be explained by service and product quality, while the remaining 68.5% is influenced by other factors beyond the scope of this study. This finding highlights that service and product quality remain central determinants of satisfaction, but complementary aspects may also play an essential role in shaping long-term customer relationships.

The results of the t-test further reveal that both service quality and product quality individually have significant effects on customer satisfaction. Meanwhile, the F-test confirms that these variables jointly exert a meaningful influence on satisfaction, demonstrating their interdependence. The coefficient of determination (R^2) value further supports this by showing a moderate explanatory power, which suggests the presence of other contributing variables that could be explored in future studies, such as digital convenience, system reliability, and perceived security.

These findings are consistent with previous research by Noivyanti et al. (2021), Mimi and Ekawati (2016), as well as Panjaitan and Yuliati (2016), all of which found that service quality positively and significantly affects customer satisfaction. Similarly, the current study supports the work of previous researchers, which demonstrated that product quality has a significant and measurable impact on customer satisfaction (Tanjung et al., 2022). This alignment with earlier studies strengthens the empirical validity of the present findings and underscores the importance of continuous service and product improvement as strategic levers for enhancing satisfaction and loyalty.

Given the significant influence of these variables, the findings suggest that improving digital service and product quality should become a strategic priority for Agen46. Enhancing the efficiency and responsiveness of digital platforms, expanding the range of product offerings, and ensuring consistency in service quality across all digital touchpoints will help reinforce customer trust and foster loyalty. In this context, digital transformation is not merely a technological initiative but a comprehensive approach to strengthening the overall customer experience.

To further formulate strategic recommendations for the enhancement of digital services, a SWOT and TOWS analysis was conducted to identify key internal and external factors influencing Agen46's performance. The integration of these analytical results allows for the development of actionable strategies, including leveraging BNI's strong brand recognition, expanding collaboration with fintech partners, and continuously innovating digital features to remain competitive in a rapidly evolving financial landscape. By aligning internal strengths with market opportunities while addressing existing weaknesses and mitigating threats, Agen46 can build a sustainable digital ecosystem that enhances both customer satisfaction and loyalty in the long term.

CONCLUSION

This study concludes that service quality and product quality have a positive and significant influence on customer satisfaction with BNI Agen46 digital services at the *Kantor*

Cabang Utama Menteng. Improvements in both aspects have been shown to make a tangible contribution to increasing customer satisfaction, which in turn plays an essential role in building loyalty and strengthening long-term relationships between customers and the bank. These findings reinforce the notion that customer satisfaction results from the effective and continuous management of service and product strategies.

In this regard, the strategic recommendations formulated through SWOT and TOWS analyses emphasize the importance of leveraging BNI's internal strengths, such as its strong brand reputation and digital capabilities, to capture external opportunities arising from the growing adoption of digital banking services in society. The development of more responsive digital features tailored to customer needs should be prioritized, along with optimizing collaborations with fintech partners and enhancing the reliability of digital systems to strengthen customer trust and loyalty.

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