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THE INFLUENCE OF DIGITAL BANKING SERVICE QUALITY ON ELECTRONIC SATISFACTION AND ELECTRONIC LOYALTY AMONG CUSTOMERS OF BANK CENTRAL ASIA (BCA) IN INDONESIA

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Abstract: *This study aims to analyze the influence of digital banking service quality on electronic satisfaction (e-satisfaction) and electronic loyalty (e-loyalty) among customers of Bank Central Asia (BCA) in Indonesia. Digital banking services such as BCA Mobile and myBCA have become essential tools for customers to conduct fast, secure, and convenient financial transactions. A quantitative approach was employed through a survey involving 240 respondents who actively use BCA's digital services. Data collection was carried out from January to February 2025. Structural Equation Modeling (SEM) was applied using SmartPLS software for data analysis. The results indicate that all dimensions of service quality positively and significantly influence both e-satisfaction and e-loyalty. Reliability has the strongest influence on e-satisfaction, while convenience is the most dominant driver of e-loyalty. Additionally, e-satisfaction significantly affects e-loyalty, albeit with a modest coefficient. These findings highlight the strategic importance of improving digital service quality to enhance customer satisfaction and loyalty.*

Key Words*: *Digital Service Quality, Security, Reliability, Convenience, Responsiveness, Electronic Trust, Electronic Satisfaction, Electronic Loyalty, Digital Banking, BCA, SEM, Smartpls

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1.INTRODUCTION

Customer loyalty remains a cornerstone of sustainable business success, particularly in service industries such as banking. Defined as a consumer's consistent preference and emotional attachment to a brand, loyalty has evolved into electronic loyalty (e-loyalty) in the digital era, driven by customer satisfaction with digital service platforms (e-satisfaction) (Kotler et al., 2019; Zhang et al., 2010; Raza et al., 2020). In this context, customer retention becomes increasingly dependent on the perceived quality of digital services and the trustworthiness of financial institutions in virtual interactions (Ahmad et al., 2017). Digital transformation in banking has reshaped the way customers interact with financial institutions. In Indonesia, the COVID-19 pandemic acted as a catalyst for digital banking adoption, with transaction volumes increasing by 56.93% in 2021 alone. From a pre-pandemic annual growth rate of 14–16%, the average digital transaction volume now exceeds IDR 3,642 trillion per year, reflecting a 20.65% compound annual growth rate. This shift reflects not only behavioral adaptations prompted by health crises but also an accelerated adoption of convenience, accessibility, and time efficiency in banking services.

The Indonesian banking industry, led by major institutions such as BCA, BRI, Mandiri, and BNI, has actively developed digital platforms including mobile banking, internet banking, and call center integration. Among these, mobile banking has emerged as the most widely used, particularly among BCA customers. BCA, as a technology pioneer, offers a comprehensive digital suite comprising BCA Mobile, myBCA, and KlikBCA (internet banking). By 2023, digital channels accounted for 99.7% of BCA's total transactions, with only 0.3% conducted via physical branches. However, recent data indicates a decline in the year-over-year growth rate of BCA's digital transaction volume—suggesting potential quality issues that may influence customer satisfaction and long-term loyalty.

Although BCA added 5.7 million new customers in 2023, the digital performance gap—particularly in areas such as security, reliability, convenience, and responsiveness—has raised concerns. For instance, in 2023, BRI surpassed BCA in total digital banking users (31.6 million), leveraging its rural outreach and broader customer base. BCA faced public scrutiny due to security incidents, including fake virus pop-up warnings and phishing scams through deceptive APK files sent via messaging apps. These cybersecurity breaches expose vulnerabilities that could erode e-trust, a critical component of sustainable e-loyalty. Moreover, customers reported dissatisfaction with BCA's mobile interface and app experience, reflected in ratings of 3.3 (BCA Mobile) and 3.6 (myBCA) on app stores. Downtime issues and sluggish problem resolution times—often exceeding the promised 2x24 hours—have also diminished customer confidence. Responsiveness, as well as the relevance and effectiveness of complaint resolutions, are now seen as critical indicators of service quality and satisfaction in digital banking. To address these challenges, BCA has taken preventive steps, including extensive cybersecurity education campaigns such as "Don't Know? Kasih No!". However, maintaining competitive advantage in a rapidly digitizing banking sector requires more than customer outreach—it demands continuous improvement of electronic service quality (e-service quality) across multiple dimensions.

Recent international studies affirm that digital service quality significantly influences both e-satisfaction and e-loyalty. Ashiq & Hussain (2024) found that while e-trust impacts e-loyalty, e-service quality alone may not ensure e-satisfaction. Meanwhile, Ina'im et al. (2022) demonstrated that efficiency, system availability, and privacy protection positively influence e-satisfaction and e-trust. Similar conclusions were drawn in Zambia (Mwiya et al., 2022), Ethiopia (Beshir & Zelalem, 2020), and other regions (Shankar & Jebarajakirthy, 2019; Hammoud et al., 2018; Raza et al., 2020), reinforcing the idea that security, reliability, convenience, responsiveness, and trust collectively shape customer perceptions and behaviors in digital banking.

Given the competitive nature of the banking industry and the growing reliance on digital platforms, there is an urgent need for empirical studies that evaluate how digital service quality dimensions influence customer satisfaction and loyalty. This study focuses on Bank Central Asia (BCA) as a case study, aiming to explore the relationship between digital banking service quality, e-satisfaction, and e-loyalty among customers in Indonesia. The findings are expected to provide insights into the strategic development of digital banking experiences that foster sustainable customer relationships in the era of fintech evolution.

2. LITERATURE REVIEW

2.1 E-Service Quality

E-service quality has evolved in response to the transition of traditional service delivery into digital environments, particularly since the proliferation of online retail in the 1990s (Rodríguez et al., 2020). It refers to the overall capability of digital platforms to facilitate the effective and efficient completion of service activities, including search, evaluation, transaction, and after-sales service (Ellitan & Suhartatik, 2023). In the context of online banking, e-service quality represents customers' evaluations of the digital service experience, encompassing functionality, interaction, and reliability (Amin, 2016 in Khan et al., 2023).

According to Ashiq & Hussain (2024), e-service quality in virtual marketplaces includes the entire customer journey—from information search to post-purchase support—and is a major determinant of e-satisfaction and e-loyalty. Improvements in service quality have consistently been shown to enhance customer retention and loyalty (Olaleye et al., 2021). Building upon the SERVQUAL model by Parasuraman et al. (1988), several researchers have adapted and expanded its dimensions for digital services, including reliability, responsiveness, assurance, empathy, and tangibles. Al-Dweeri et al. (2017)

offered a tailored model for e-service quality comprising five dimensions, Efficiency, Privacy/Security, Fulfillment/Reliability, Emotional Benefit – user enjoyment, customization, and engagement, Customer Service/Communication. Complementing this, Ashiq & Hussain (2024) emphasized four core dimensions relevant to online banking, Reliability, Responsiveness, Security, and Convenience. These elements collectively determine how customers evaluate service performance in e-banking environments (Shankar & Jebarajakirthy, 2019; Zeithaml et al., 2002). Based on the evidence from the literature, the following hypothesis is formulated:

H1: Security has a significant effect on e-satisfaction.

H2: Reliability has a significant effect on e-satisfaction.

H3: Convenience has a significant effect on e-satisfaction.

H4: Responsiveness has a significant effect on e-satisfaction.

2.2 E-Trust

Electronic trust (e-trust) is central in digital financial services, where the absence of physical interaction raises concerns about credibility and security (Ashiq & Hussain, 2024; Gefen, 2002). Trust is defined as the willingness of a party to be vulnerable based on the expectation that the other will act favorably, even in the absence of monitoring (Shankar & Jebarajakirthy, 2019). In e-commerce, trust encompasses consumer confidence in a website's ability to offer a secure, private, and satisfactory shopping experience (Ellitan & Suhartatik, 2023). Fernández-Bonilla et al. (2022) identified key antecedents of e-trust, including website accessibility, privacy assurances, service quality, and customer support. Without trust, customers are unlikely to engage in digital transactions, making it an indispensable component of e-loyalty. Saoula et al. (2023) further emphasized that e-trust has a stronger effect on e-loyalty than even customer satisfaction, reinforcing its strategic significance in digital service ecosystems. Based on this argument, the following is hypothesised:

H5: E-trust has a significant effect on e-satisfaction.

H10: E-trust has a significant effect on e-loyalty.

2.3 E-Satisfaction

Customer satisfaction is a well-established driver of customer retention and loyalty. In digital contexts, e-satisfaction refers to consumers' post-transaction evaluations of their experience with electronic services (Anderson & Srinivasan, 2003; Ashiq & Hussain, 2024). It reflects not only the fulfillment of functional expectations but also the emotional and cognitive responses to service delivery. Satisfaction in online banking is influenced by perceived service quality, which in turn is shaped by dimensions such as reliability, security, responsiveness, and usability (Hadid et al., 2020; Ayinaddis et al., 2023). Amin (2016) and Khan et al. (2023) compared traditional and electronic service experiences, concluding that improvements in digital quality increase both trust and satisfaction, which consequently foster customer loyalty. Zeithaml (2009) proposed four indicators of e-satisfaction, Usefulness, Enjoyment, Past Experience, Decision. These dimensions are echoed in contemporary frameworks assessing digital service delivery across banking and e-commerce platforms (Demirel, 2022; Sathiyavany & Shivany, 2018). Therefore, it is hypotesised:

H11: E-satisfaction has a significant effect on e-loyalty.

2.4 E-Loyalty

Loyalty in digital settings (e-loyalty) reflects sustained customer engagement with a specific online service provider, often manifesting through repeated transactions, referrals, and favorable attitudes (Ariff et al., 2013; Napitupulu et al., 2019). In banking, e-loyalty entails continuous usage of digital channels such as mobile apps and internet banking platforms.

According to Khan et al. (2023) and Amin (2016), e-loyalty is driven by factors including perceived service quality, e-trust, and satisfaction. Valvi & Fragkos (2012) outlined three conceptual approaches: Behavioral loyalty, Attitudinal loyalty, Composite loyalty. Hidayat (2009) identified key indicators of loyalty, Trust, Emotional commitment, Switching cost, Word-of-mouth, Cooperation. Ashiq & Hussain (2024) concluded that enhancing e-service quality, trust, and satisfaction is pivotal in sustaining e-loyalty, particularly in competitive sectors like banking. The interplay among these constructs provides a robust foundation for strategic service design and customer relationship management in digital banking.Thus, the following hypothesis is formulated:

H6: Security has a significant effect on e-loyalty.
H7: Reliability has a significant effect on e-loyalty.
H8: Convenience has a significant effect on e-loyalty.
H9: Responsiveness has a significant effect on e-loyalty.

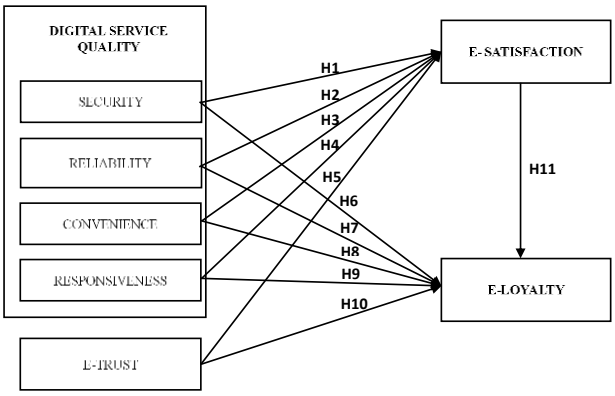

Fig -1: Conceptual Framework

3. METHODOLOGY

This study employs quantitative research design. Quantitative research is utilized to measure data and produce statistical analysis results (Hair et al., 2019). The research adopts a causal research method, which,

according to Malhotra (2016), aims to determine cause-and-effect relationships between variables. Data collection was conducted using a questionnaire comprising structured questions distributed to respondents, who were asked to answer based on their actual experiences. The population of this study includes all BCA customers who use e-banking services (Mobile Banking, myBCA, and Internet Banking). The sampling technique used in this study is non-probability sampling with a purposive sampling method. Based on the guidelines proposed by Hair et al. (2019), the maximum sample size for this study is 240 respondents. The data collection and distribution process was conducted from January to February 2025. The data analysis technique employed is Structural Equation Modeling (SEM), facilitated by the SmartPLS software.

4. RESULT AND DISCUSSION

4.1 Convergent Validity Result

The convergent validity test was conducted to assess the correlation among manifest variables (measurement indicators) of a construct. Convergent validity is determined through the loading factor values of each indicator. According to Hair et al. (2019), a loading factor should be greater than 0.70, and the Average Variance Extracted (AVE) should be greater than 0.50.

Table -1: Convergent Validity Result

VARIABLE	INDICATOR	LOADING FACTOR	AVE	Ket
SECURITY	S1	0,87	0,706	Valid
	S2	0,837		Valid
	S3	0,841		Valid
RELIABILITY	R1	0,706	0,584	Valid
	R2	0,778		Valid
	R3	0,803		Valid
	R4	0,811		Valid
CONVENIENCE	C1	0,806	0,627	Valid
	C2	0,783		Valid
	C3	0,774		Valid
	C4	0,84		Valid
RESPONSIVENESS	RES1	0,741	0,561	Valid
	RES2	0,742		Valid
	RES3	0,795		Valid
	RES4	0,767		Valid
E-TRUST	ET1	0,738	0,585	Valid
	ET2	0,749		Valid
	ET3	0,833		Valid
E-SATISFACTION	ES1	0,712	0,625	Valid
	ES2	0,8		Valid
	ES3	0,869		Valid
E-LOYALTY	EL1	0,809	0,659	Valid
	EL2	0,765		Valid
	EL3	0,88		Valid

Based on Table 1, all loading factor values exceed 0.70, and AVE values are greater than 0.50. Thus, it can be concluded that the indicators are valid and reliable in measuring their respective constructs.

4.2 Discriminant Validity Result

Discriminant validity was assessed using the Fornell-Larcker Criterion, Cross Loadings, and the Heterotrait-Monotrait Ratio (HTMT).

Table -2: Discriminant Validity Result

	CONVENIENCE	E-LOYALTY	E-SATISFACTION	E-TRUST	RELIABILITY	RESPONSIVENESS	SECURITY
C							
E-L	0.117						
E-S	0.745	0.643					
E-T	0.707	0.547	0.112				
R	0.013	0.021	0.091	0.005			
RES	0.661	0.021	0.032	0.136	0.043		
S	0.011	0.091	0.784	0.673	0.661	0.361	

As shown in Table 2, the HTMT values for inter-construct relationships are all below the threshold of 0.90, indicating that the constructs possess adequate discriminant validity. This suggests that each construct is distinguishable from the others.

4.3 Reliability Result

Reliability was evaluated using Cronbach's Alpha (CA) and Composite Reliability (CR). According to Hair et al. (2014), acceptable thresholds are CA > 0.70 and CR > 0.70.

Table -3: Reliability Result

VARIABLE	*CRONBACH'S ALPHA*	*COMPOSITE REALIABILITY*	RESULT
SECURITY(S)	0,792	0,878	*Reliabel*
RELIABILITY (R)	0,762	0,848	*Reliabel*
CONVENIENCE (C)	0,801	0,87	*Reliabel*
RESPONSIVENESS (RES)	0,74	0,836	*Reliabel*
E-TRUST (ET)	0,744	0,808	*Reliabel*
E-SATISFACTION (ES)	0,797	0,833	*Reliabel*
E-LOYALTY (EL)	0,74	0,853	*Reliabel*

Table 3 shows that all constructs have Cronbach's Alpha values above 0.70, indicating good internal consistency. The Composite Reliability values are also consistently above 0.70, supporting the conclusion that the constructs are reliable in measuring their respective latent variables.

4.4 Coefficient Determination (R^2) Result

The coefficient of determination (R^2) is used to assess the influence of specific latent independent variables on latent dependent variables

Table -4: Coefficient Determination (R2) Result

	R-Square	*R-Square Adjusted*
E-LOYALTY	0,811	0,806
E-SATISFACTION	0,738	0,732

Based on Table 4, the Structural Inner Model evaluation shows that the R^2 value for e-loyalty is 0.811, indicating that 81.1% of the variance in e-loyalty can be explained by the independent constructs. Similarly, the R^2 value for E-Satisfaction is 0.738, meaning that 73.8% of its variance is accounted for by the influencing constructs.

4.5 Predictive Relevance (Q^2) Result

A higher Q^2 value, or one closer to 1, indicates stronger predictive accuracy of a variable for forecasting outputs when changes occur in the data parameters (Hair, 2019).

Table -5: Predictive Relevance (Q2) Result

	SSO	**SSE**	**Q^2 (=1-SSE/SSO)**
CONVENIENCE	960	960	
E-LOYALTY	720	355,802	0,506
E-SATISFACTION	720	410,173	0,43
E-TRUST	720	720	
RELIABILITY	960	960	
RESPONSIVENESS	960	960	
*SECURITY_*	720	720	

According to Table 5, the Q^2 value for e-loyalty is 0.506, suggesting high predictive relevance. The Q^2 value for E-Satisfaction is 0.43, indicating moderate predictive relevance.

4.6 Effect Size (F^2) Result

Interpretation of effect size follows the thresholds proposed by Hair (2022): $F^2 \geq 0.02$ (small effect), $F^2 \geq 0.15$ (moderate effect), and $F^2 \geq 0.35$ (large effect).

Table -6: Effect Size (F2)Result

	E-LOYALTY	***E-SATISFACTION***
CONVENIENCE	0,3	0,006
E-LOYALTY		
E-SATISFACTION	0,003	
E-TRUST	0,01	0,095
RELIABILITY	0,004	0,192
RESPONSIVENESS	0,016	0,069
*SECURITY_*	0,13	0,007

As illustrated in Table 6, several relationships exhibit significant effect sizes. However, some relationships demonstrate only small or negligible effects, implying that certain links within the model may require further strengthening to improve overall explanatory power.

4.7 Overal Model Fit Result

A PLS model is considered to meet the Goodness-of-Fit criterion when the Standardized Root Mean Square Residual (SRMR) is less than 0.10, and it is considered a perfect fit when SRMR is below 0. 08..

Table -7: Goodness of Fit Model Result

	Saturated Model	**Estimated Model**
SRMR	0,0171	0,017
d_ULS	35,872	35,87
d_G	n/a	n/a
Chi-Square	infinite	infinite
NFI	n/a	n/a

The results in Table 7 show that the SRMR value for the saturated model is 0.0171, and for the estimated model, it is 0.017. Since both values are well below the 0.08 threshold, the model is deemed to have a perfect fit and is therefore suitable for hypothesis testing in this study.

4.8 Hypothesis Testing

Hypothesis		**Original sample (O)**	**T statistics (|O/STDEV|)**	**P values**	**Result**
H1	*Security ⇒ e-satisfaction*	0,053	3,034	0,004	Accepted
H2	*Security ⇒ e-loyalty*	0,3	2,582	0,010	Accepted
H3	*Reliability ⇒ e-satisfaction*	0,44	3,704	0,000	Accepted
H4	*Reliability ⇒ e-loyalty*	0,057	2,596	0,002	Accepted
H5	*Convenience⇒ e-satisfaction*	0,083	2,828	0,008	Accepted
H6	*Convenience ⇒ e-loyalty*	0,485	4,566	0,000	Accepted
H7	*Responsiveness ⇒ e-satisfaction*	0,251	2,39	0,017	Accepted
H8	*Responsiveness ⇒ e-loyalty*	0,105	2,111	0,007	Accepted
H9	*E-Trust ⇒ e-satisfaction*	0,241	2,955	0,003	Accepted
H10	*E-Trust ⇒ e-loyalty*	0,068	2,964	0,035	Accepted
H11	*e-satisfaction ⇒ e-loyalty*	0,053	2.506	0,013	Accepted

The Effect of Security on E-Satisfaction

The results demonstrate a positive and significant relationship between security and e-satisfaction, supported by a t-statistic of 3.034 and p-value of 0.004. Although the effect size (0.053) is modest, it underscores the importance of digital security features—such as encryption and authentication—for customer satisfaction. This aligns with prior findings (Joghee & Pillai, 2019; Kim et al., 2009) indicating that robust security systems enhance trust and perceived service quality in digital banking.

The Effect of Security on E-Loyalty

Security also shows a significant impact on e-loyalty (t = 2.582, p = 0.01), indicating that customers' confidence in data protection encourages loyalty behaviors. This supports the E-SERVQUAL model (Parasuraman et al., 2005) and Oliver's loyalty theory (1999), emphasizing

security as both a technical and strategic determinant of long-term customer retention in digital environments.

The Effect of Reliability on E-Satisfaction

Reliability significantly influences e-satisfaction ($t = 3.704$, $p < 0.001$), suggesting that consistent and error-free performance of BCA's digital platforms contribute to higher satisfaction. These results are supported by both E-SERVQUAL and Expectation-Confirmation Theory (Oliver, 1980), which assert that when expectations are met or exceeded through reliable service delivery, satisfaction increases.

The Effect of Reliability on E-Loyalty

The effect of reliability on e-loyalty is also statistically significant ($t = 2.596$, $p = 0.002$). When digital platforms operate smoothly and predictably, they foster trust and encourage repeat usage, as supported by Oliver (1999). This affirms that technical dependability is essential for cultivating user loyalty in competitive digital banking markets.

The Effect of Convenience on E-Satisfaction

Convenience has a significant positive effect on e-satisfaction ($t = 2.359$, $p = 0.018$). Elements such as ease of access, speed, and flexible transaction timing enhance user experience, confirming both the E-SERVQUAL framework and Bhattacherjee's Expectation-Confirmation Model (2001). Improved user interface and seamless design are recommended to optimize satisfaction.

The Effect of Convenience on E-Loyalty

Convenience significantly affects e-loyalty ($t = 4.566$, $p < 0.001$), indicating that a user-friendly and accessible system increases the likelihood of repeated use. Theories such as TAM (Davis, 1989) and customer loyalty frameworks (Oliver, 1999) affirm that perceived ease of use fosters long-term customer relationships. Continued interface optimization is crucial for maintaining loyalty.

The Effect of Responsiveness on E-Satisfaction

The analysis confirms that responsiveness significantly impacts e-satisfaction ($t = 2.390$, $p = 0.017$). Prompt and accurate support boosts users' confidence and contributes to their overall satisfaction. These findings support digital service quality models (Parasuraman et al., 2005) and reinforce the role of service responsiveness in shaping user perceptions.

The Effect of Responsiveness on E-Loyalty

Responsiveness also positively affects e-loyalty ($t = 2.111$, $p = 0.007$). Customers who receive timely and helpful support are more inclined to stay loyal to the service. The findings are consistent with Parasuraman et al.'s e-service model and Oliver's loyalty theory, highlighting the strategic importance of agile customer support in digital contexts.

The Effect of E-Trust on E-Satisfaction

E-trust significantly influences e-satisfaction ($t = 2.955$, $p = 0.003$), indicating that users who trust the system's integrity, security, and information accuracy report greater satisfaction. This supports McKnight et al.'s trust model (2002) and the ECM framework (Bhattacherjee, 2001), underscoring trust as a key satisfaction driver in digital service ecosystems.

The Effect of E-Trust on E-Loyalty

The analysis reveals a significant relationship between e-trust and e-loyalty ($t = 2.964$, $p = 0.035$). Trust in digital banking platforms mitigates risk perceptions and fosters long-term commitment, as posited by Morgan & Hunt (1994) in their commitment-trust theory and reinforced by McKnight et al. (2002). Ensuring data transparency and platform reliability is essential to enhancing loyalty.

The Effect of E-Satisfaction on E-Loyalty

Lastly, e-satisfaction significantly affects e-loyalty ($t = 2.506$, $p = 0.013$), though the effect size is relatively small (0.053), suggesting that while satisfaction contributes to loyalty, factors like convenience (0.485) and security (0.3) may play larger roles. Nonetheless, consistent positive user experiences are essential for encouraging loyalty, as supported by Anderson & Srinivasan (2003).

5. CONCLUSION

This study provides empirical evidence on the critical role of digital service quality dimensions—namely security, reliability, convenience, responsiveness, and e-trust—in influencing both e-satisfaction and e-loyalty among users of BCA's digital banking services. The findings underscore that all tested variables significantly affect customer satisfaction and loyalty in the digital context, affirming the premise that digital service quality forms the bedrock of positive customer experiences. Notably, convenience emerged as the strongest determinant of e-loyalty, followed by reliability as the leading predictor of e-satisfaction. These insights highlight that ease of use and consistent system performance are crucial elements in fostering long-term customer engagement. While security and responsiveness also show statistically significant impacts, their relatively lower coefficients suggest that users may take these dimensions as baseline expectations, and thus improvements in these areas offer strategic opportunities for differentiation. Moreover, the positive but modest effect of e-satisfaction on e-loyalty reveals that satisfaction alone may not be sufficient to guarantee customer retention; instead, it must be supported by technical excellence and user-centric service design.

From a strategic standpoint, this research offers valuable implications for financial service providers operating in increasingly digital ecosystems. To optimize customer loyalty, banks such as BCA must exceed customer expectations and invest in continuous improvement of usability, reliability, and security infrastructures. Enhancing digital trust through transparent communication, simplified processes, and responsive customer service will be key to sustaining competitive advantage. The results also advocate for an integrative approach that combines technology investment with user experience design, ensuring that digital platforms not only perform effectively but also resonate with customers' evolving needs and preferences. By implementing the

practical recommendations derived from this study—such as redesigning user-friendly security features, adopting hybrid cloud infrastructure, improving interface navigation, and reinforcing real-time support systems—BCA can cultivate a digital banking environment that is resilient, responsive, and deeply trusted. Ultimately, this will not only elevate satisfaction and loyalty but also contribute to long-term value creation and sustainable customer relationships in the digital era.

REFERENCES

Ahmad, A., Rahman, O., & Khan, M. N. (2017). Exploring the role of website quality and hedonism in the formation of e-satisfaction and e-loyalty. Journal of Research in Interactive Marketing, 11(3), 246–267. https://doi.org/10.1108/JRIM-04-2017-0022

Al-dweeri, R. M., Obeidat, Z. M., Al-dwiry, M. A., Alshurideh, M. T., & Alhorani, A. M. (2017). The Impact of E-Service Quality and E-Loyalty on Online Shopping: Moderating Effect of E-Satisfaction and E-Trust. International Journal of Marketing Studies, 9(2), 92. https://doi.org/10.5539/ijms.v9n2p92

Alnaim, A. F., Sobaih, A. E. E., & Elshaer, I. A. (2022a). Measuring the Mediating Roles of E-Trust and E-Satisfaction in the Relationship between E-Service Quality and E-Loyalty: A Structural Modeling Approach. Mathematics, 10(13). https://doi.org/10.3390/math10132328

Alnaim, A. F., Sobaih, A. E. E., & Elshaer, I. A. (2022b). Measuring the Mediating Roles of E-Trust and E-Satisfaction in the Relationship between E-Service Quality and E-Loyalty: A Structural Modeling Approach. Mathematics, 10(13). https://doi.org/10.3390/math10132328

Anderson, R. E., & Srinivasan, S. S. (2003). E-Satisfaction and E-Loyalty: A Contingency Framework. Psychology and Marketing, 20(2), 123–138. https://doi.org/10.1002/mar.10063

Anser, M. K., Tabash, M. I., Nassani, A. A., Aldakhil, A. M., & Yousaf, Z. (2023). Toward the e-loyalty of digital library users: investigating the role of e-service quality and e-trust in digital economy. Library Hi Tech, 41(4), 1006–1021. https://doi.org/10.1108/LHT-07-2020-016

Ashiq, R., & Hussain, A. (2024). Exploring the effects of e-service quality and e-trust on consumers' e-satisfaction and e-loyalty: insights from online shoppers in Pakistan. Journal of Electronic Business & Digital Economics, 3(2), 117–141. https://doi.org/10.1108/jebde-09-2023-0019

Bauer, H. H., Falk, T., & Hammerschmidt, M. (2006). eTransQual: A transaction process-based approach for capturing service quality in online shopping. Journal of Business Research, 59(7), 866–875. https://doi.org/10.1016/j.jbusres.2006.01.021

Bhattacherjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. MIS Quarterly, 25(3), 351–370. https://doi.org/10.2307/3250921

Chang, H. H., & Chen, S. W. (2008). The impact of customer interface quality, satisfaction and switching costs on e-loyalty: Internet experience as a moderator. Computers in Human Behavior, 24(6), 2927–2944. https://doi.org/10.1016/j.chb.2008.04.014

Cooper, D. R., & Schindler, P. S. (2014). Business Research Methods (Twelfth edition.). New York, NY: McGraw-Hill/Irwin (The McGraw-Hill/Irwin series in operations and decision sciences business statistics).

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. MIS Quarterly, 13(3), 319–340. https://doi.org/10.2307/249008

Dimaro, M. E. (2023). Service Quality for Customers' Satisfaction: A Literature Review. European Modern Studies Journal, 7(1).

Ellitan, L., & Suhartatik, A. (2023). The Role of E-Trust and E-Service Quality in Building E-Loyalty and E-Satisfaction. Jurnal Cendekia Ilmiah, 2(3), 2023.

Eryiğit, C., & Fan, Y. (2021). The Effects of Convenience and Risk on E-Loyalty through the Mediating Role of E-Service Quality: A Comparison for China and Turkey. Journal of International Consumer Marketing, 33(5), 613–626. https://doi.org/10.1080/08961530.2021.1879704

Faraoni, M., Rialti, R., Zollo, L., & Pellicelli, A. C. (2019). Exploring e-Loyalty Antecedents in B2C e-Commerce. British Food Journal, 121(2), 574–589. https://doi.org/10.1108/BFJ-04-2018-0216

Fernández-Bonilla, F., Gijón, C., & De la Vega, B. (2022). E-commerce in Spain: Determining factors and the importance of the e-trust. Telecommunications Policy, 46(1). https://doi.org/10.1016/j.telpol.2021.102280

Garepasha, A., Aali, S., Bafandeh Zendeh, A. R., & Iranzadeh, S. (2021). Relationship dynamics in customer loyalty to online banking services. Journal of Islamic Marketing, 12(4), 830–863. https://doi.org/10.1108/JIMA-09-2019-0183

Gefen, D. (2002). Customer Loyalty in E-Commerce. Journal of the Association for Information Systems, 3(1), 27–53. https://doi.org/10.17705/1jais.00022

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in Online Shopping: An Integrated Model. MIS Quarterly, 27(1), 51–90.

Ghali, Z. (2021). Motives of customers' e-loyalty towards e-banking services: a study in Saudi Arabia. Journal of Decision Systems, 30(2–3), 172–193. https://doi.org/10.1080/12460125.2020.1870063

Ghozali, I. (2014). Structural Equation Modeling Metode Alternatif dengan Partial Least Squares (PLS). Badan Penerbit Universitas Diponegoro.

Giao, H. N. K. B. N. V., Vuong, B. N., & Quan, T. N. (2020). The influence of website quality on consumer's e-loyalty through the mediating role of e-trust and e-satisfaction: An evidence from online shopping in Vietnam. Supply Chain Management An International Journal.

Hair, J. F. , Black, W. C. , Babin, B. J. , & Anderson, R. E. (2014). Multivariate Data Analysis Seventh Edition (Seventh). Pearson Education Limited.

Hair, J. F., Babin, B. J., Black, W. C., & Anderson, R. E. (2019). Multivariate Data Analysis (8th ed.).

Hidayat, R. (2009). Pengaruh Kualitas Layanan, Kualitas Produk dan Nilai Nasabah Terhadap Kepuasan dan Loyalitas Nasabah Bank Mandiri.

Indrasari, A., Nadjmie, N., & Endri, E. (2022). Determinants of satisfaction and loyalty of e-banking users during the COVID-19 pandemic. International Journal of Data and Network Science, 6(2), 497508. https://doi.org/10.5267/j.ijdns.2021.12.004

Izzuddin, M. G., & Ilahiyyah, I. (2022). Pengaruh User Interface, Brand Image, dan Digital Literacy terhadap Minat Penggunaan Bank Digital. Jurnal Maksipreneur: Manajemen, Koperasi, Dan Entrepreneurship, 12(1), 144. https://doi.org/10.30588/jmp.v12i1.994

Jeyakumar, J. W., & Saravanan, P. V. (2023). IMPACT OF DIGITAL MARKETING ON CONSUMER BUYING BEHAVIOUR. INTERANTIONAL JOURNAL OF SCIENTIFIC RESEARCH IN ENGINEERING AND MANAGEMENT, 07(04). https://doi.org/10.55041/ijsrem18894

Joghee, S., & Pillai, R. (2019). The role of perceived security and trust on the adoption of digital banking in the UAE. Journal of Internet Banking and Commerce, 24(2), 1–20.

Juwaini, A., Chidir, G., Novitasari, D., Iskandar, J., Hutagalung, D., Pramono, T., Maulana, A., Safitri, K., Fahlevi, M., Sulistyo, A. B., & Purwanto, A. (2022). The role of customer e-trust, customer e-service quality and customer e-satisfaction on customer e-loyalty. International Journal of Data and Network Science, 6(2), 477–486. https://doi.org/10.5267/j.ijdns.2021.12.006

Khan, F. N., Arshad, M. U., & Munir, M. (2023). Impact of e-service quality on e-loyalty of online banking customers in Pakistan during the Covid-19 pandemic: mediating role of e-satisfaction. Future Business Journal, 9(1). https://doi.org/10.1186/s43093-023-00201-8

Kim, J., Jin, B., & Swinney, J. L. (2009). The role of etail quality, e-satisfaction and e-trust in online loyalty development process. Journal of Retailing and Consumer Services, 16(4), 239–247. https://doi.org/10.1016/j.jretconser.2008.11.019

Kim, D. J., Ferrin, D. L., & Rao, H. R. (2009). Trust and satisfaction, two stepping stones for successful e-commerce relationships: A longitudinal exploration. Information Systems Research, 20(2), 237–257. https://doi.org/10.1287/isre.1080.0188

Kline, R. B., & Santor, D. A. (1999). [Principles & Practice of Structural Equation Modelling]. Canadian Psychology, 40, 381. https://api.semanticscholar.org/CorpusID:142492634
Kotler, P., & Keller, K. L. (2016). Marketing management.

Kotler, P., Keller, K. L., Brady, M., Goodman, M., & Hansen, T. (2019). 4th European edition. www.pearson.com/uk

Langgeng Abadi, D., & Sofian, S. (2013). ANALISIS FAKTOR YANG MEMPENGARUHI LOYALITAS KONSUMEN TERHADAP PERUSAHAAN JASA BUS RAJAWALI. In DIPONEGORO JOURNAL OF MANAGEMENT (Vol. 2, Issue 2). http://ejournal-s1.undip.ac.id/index.php/dbr

Lee, M. K. O., & Turban, E. (2001). A trust model for consumer internet shopping. International Journal of Electronic Commerce, 6(1), 75–91. https://doi.org/10.1080/10864415.2001.11044227

López-Miguens, M. J., & Vázquez, E. G. (2017). An integral model of e-loyalty from the consumer's perspective. Computers in Human Behavior, 72, 397–411. https://doi.org/10.1016/j.chb.2017.02.003

Lotko, A. (2022). The Influence of the Quality of Internet Banking Services on Customer Loyalty. In European Research Studies Journal: Vol. XXV.

Malhotra, N. K. (2010). Marketing Research- An Applied Orientation.

Malhotra, N. K., & Dash, S. (2016). Marketing Research an Applied Orientation (7th ed). Chennai: Pearson India Education Services.

Mandal, P. C. (2023). Management of Customer Lifetime Value in Organizations. Journal of Business Ecosystems, 4(1), 1–15. https://doi.org/10.4018/jbe.318471

Mbama, C. I., & Ezepue, P. O. (2018). Digital banking, customer experience and bank financial performance: UK customers' perceptions. International Journal of Bank Marketing, 36(2), 230–255. https://doi.org/10.1108/IJBM-11-2016-0181

McKnight, D. H., Choudhury, V., & Kacmar, C. (2002). Developing and Validating Trust Measures for e-Commerce: An Integrative Typology. Information Systems Research, 13(3), 334–359. https://doi.org/10.1287/isre.13.3.334.81

Morgan, R. M., & Hunt, S. D. (1994). The Commitment-Trust Theory of Relationship Marketing. Journal of Marketing, 58(3), 20–38. https://doi.org/10.2307/1252308

Nath, A., & Zheng, L. (2004). Perception of Service Quality in E-commerce An Analytical Study of Internet Auction Sites. Lulea University of Technology.

Octa Melani, D., & Kunci, K. (2021). The Influence of E-service quality, e-trust and e-satisfaction toward e-loyalty on Shopee online shopping application users. Marketing Management Studies. https://doi.org/10.24036/jkmp.v1i1

Ojasalo, J. (2010). E-Service Quality: A Conceptual Model. International Journal of Arts and Sciences, 3(7), 127–143.

Olaleye, B. R., Adeyeye, O. P., Efuntade, A. O., Arije, B. S., & Anifowose, O. N. (2021). E-quality services: A paradigm shift for consumer satisfaction and e-loyalty; Evidence from postgraduate students in Nigeria. Management Science Letters, 849–860. https://doi.org/10.5267/j.msl.2020.10.015

Oliver, R. L. (1999). Whence Consumer Loyalty? Journal of Marketing, 63(4_suppl1), 33–44. https://doi.org/10.1177/00222429990634s105

Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. Journal of Marketing Research, 17(4), 460–469. https://doi.org/10.1177/002224378001700405

Oliver, R. L. (1997). Satisfaction: A Behavioral Perspective on the Consumer. McGraw-Hill.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-Item Scale for measuring consumer perceptions of service quality. https://www.researchgate.net/publication/225083802

Parasuraman, A., Zeithaml, V. A., & Malhotra, A. (2005). E-S-QUAL: A multiple-item scale for assessing electronic service quality. Journal of Service Research, 7(3), 213–233

Pavlou, P. A. (2003). Consumer Acceptance of Electronic Commerce: Integrating Trust and Risk with the Technology Acceptance Model. International Journal of Electronic Commerce, 7(3), 101–134

Raza, S. A., Umer, A., Qureshi, M. A., & Dahri, A. S. (2020). Internet banking service quality, e-customer satisfaction and loyalty: the modified e-SERVQUAL model. The TQM Journal, 32(6), 1443–1466. https://doi.org/10.1108/TQM-02-2020-0019

Rita, P., Oliveira, T., & Farisa, A. (2019). The impact of e-service quality and customer satisfaction on customer behavior in online shopping. Heliyon, 5(10). https://doi.org/10.1016/j.heliyon.2019.e02690

Rodríguez, P. G., Villarreal, R., Valiño, P. C., & Blozis, S. (2020). A PLS-SEM approach to understanding E-SQ, E-Satisfaction and E-Loyalty for fashion E-Retailers in Spain. Journal of Retailing and Consumer Services, 57. https://doi.org/10.1016/j.jretconser.2020.102201

Rosa Indah, D. (2016). Pengaruh E-Banking dan Kualitas Pelayanan terhadap Loyalitas Nasabah pada PT. Bank BNI'46 Cabang Langsa. 5(2).

Saoula, O., Shamim, A., Mohd Suki, N., Ahmad, M. J., Abid, M. F., Patwary, A. K., & Abbasi, A. Z. (2023). Building e-trust and e-retention in online shopping: the role of website design, reliability and perceived ease of use. Spanish Journal of Marketing - ESIC, 27(2), 178–201. https://doi.org/10.1108/SJME-07-2022-0159

Sekaran. (2009). Reaserch Methods for Business: A Skill Building Approach (5th Edition). International Journal of Information Technology and Management - IJITM.

Seyed Alireza Mosavi. (2012). A survey on the relationships between customer satisfaction, image, trust and customer advocacy behavior. AFRICAN JOURNAL OF BUSINESS MANAGEMENT, 6(8). https://doi.org/10.5897/AJBM11.1465

Shafiee, M. M., & Bazargan, N. A. (2018). Behavioral customer loyalty in online shopping: The role of e-service quality and e-recovery. Journal of Theoretical and Applied Electronic Commerce Research, 13(1), 26–38. https://doi.org/10.4067/S0718-18762018000100103

Shafiya, S., Shaheera Amin, & Hasnain Ali, M. (2023). Examining E- Satisfaction as Mediator between Banking Mobile Application Quality Factors and Consumers E-Loyalty. Academic Journal of Social Sciences (AJSS), 7(1), 001–016. https://doi.org/10.54692/ajss.2023.07011912

Shankar, A., & Jebarajakirthy, C. (2019a). The influence of e-banking service quality on customer loyalty. International Journal of Bank Marketing, 37(5), 1119–1142. https://doi.org/10.1108/IJBM-03-2018-0063

Shankar, A., & Jebarajakirthy, C. (2019b). The influence of e-banking service quality on customer loyalty: A moderated mediation approach. International Journal of Bank Marketing, 37(5), 1119–1142. https://doi.org/10.1108/IJBM-03-2018-0063

Sharma, G., & Lijuan, W. (2015). The effects of online service quality of e-commerce Websites on user satisfaction. Electronic Library, 33(3), 468–485. https://doi.org/10.1108/EL-10-2013-0193

Srinivasan, S. S., Anderson, R., & Ponnavolu, K. (2002). Customer loyalty in e-commerce: an exploration of its antecedents and consequences. Journal of Retailing, 78(1), 41–50. https://doi.org/10.1016/S0022-4359(01)00065-3

Stephen, A. T. (2016). The role of digital and social media marketing in consumer behavior. Current Opinion in Psychology, 10, 17–21. https://doi.org/10.1016/j.copsyc.2015.10.016

Sudirman, I. M. S. A. S., & Suasana, I. G. A. K. G. (2018). Pengaruh Kualitas Layanan Online Terhadap Kepuasan, Komitmen, dan Loyalitas Nasabah Internet Banking di

Kota Denpasar. INOBIS: Jurnal Inovasi Bisnis Dan Manajemen Indonesia, 1. https://doi.org/https://doi.org/10.31842/jurnalinobis.v1i4.52

Sugiyono. (2017). Metode Penelitian Kuantitatif, Kualitatif, dan R&D. Bandung : Alfabeta, CV.

Utama, A. S. (2021). Digitalisasi Produk Bank Konvensional Dan Bank Syariah Di Indonesia. Jurnal Justisia : Jurnal Ilmu Hukum, Perundang-Undangan Dan Pranata Sosial, 6(2), 113. https://doi.org/10.22373/justisia.v6i2.11532

Valvi, A. C., & Fragkos, K. C. (2012). Critical review of the e-loyalty literature: a purchase-centred framework. Electronic Commerce Research, 12(3), 331–378. https://doi.org/10.1007/s10660-012-9097-5

Widi Astuti, Y., Agriyanto, R., & Turmudzi, A. (2020). PENGARUH KUALITAS LAYANAN, NILAI NASABAH, KEPERCAYAAN, DAN KEPUASAN TERHADAP LOYALITAS NASABAH PENGGUNA LAYANAN MOBILE BANKING SYARIAH. JURNAL SAINS PEMASARAN INDONESIA, XIX, 134–158.

Wolfinbarger, M., & Gilly, M. C. (2003). eTailQ: dimensionalizing, measuring and predicting etail quality. Journal of Retailing, 79(3), 183–198. https://doi.org/10.1016/S0022-4359(03)00034-4

Wu, J.-J., Hwang, J.-N., Sharkhuu, O., & Tsogt-Ochir, B. (2018). Shopping online and off-line? Complementary service quality and image congruence. Asia Pacific Management Review, 23(1), 30–36. https://doi.org/10.1016/j.apmrv.2017.01.004

Yenisey, M. M., Ozok, A. A., & Salvendy, G. (2005). Perceived security determinants in e-commerce among Turkish university students. Behaviour & Information Technology, 24(4), 259–274. https://doi.org/10.1080/01449290410001715763

Yoon, S.-J. (2002). The Antecedents and Consequences of Trust in Online-Purchase Decisions. Journal of Interactive Marketing, 16(2), 47–63.

Yushkevych, O., Vikarchuk, O., & Zaburmekha, Y. (2023). MARKETING RESEARCH OF CONSUMER BEHAVIOUR IN A DIGITAL INFRASTRUCTURE ENVIRONMENT. Economics. Management. Innovations, 2(33). https://doi.org/10.35433/issn2410-3748-2023-2(33)-7

Zeithaml, V. A., Parasuraman, A., & Malhotra, A. (2002). Service Quality Delivery through Web Sites: A Critical Review of Extant Knowledge. Journal of the Academy of Marketing Science, 30(4), 362–375. https://doi.org/10.1177/009207002236911

Zhang, J. Q., Dixit, A., & Friedmann, R. (2010). Customer Loyalty and Lifetime Value: An Empirical Investigation of Consumer Packaged Goods. Journal of Marketing Theory and Practice, 18(2), 127–140. https://doi.org/10.2753/MTP1069-6679180202.

Appendix Questionnaire:

Gender
1. Male
2. Female

Age
1. 17 to 27
2. 28 to 43
3. 44 to 59
4. 41 to 50
5. Above 59

Education:
1. High School diploma or lower education
2. Bachelor's degree
3. Master's degree
4. Doctoral degree

Occupation:
1. Student
2. Civil Servant/Military or Police Personel
3. Private Sector Employee
4. Entrepreneur/Self-employed
5. Housewife
3. Other, please specify.

Items	Reference Models
Security 1. My personal information is protected during online banking transactions. 2. My privacy is protected by the online banking site. 3. I require security when completing transactions on the online banking site.	(Ashiq & Hussain, 2024)
Reliability 1. The online banking site provides information that is easy to understand. 2. The online banking site provides reliable information. 3. The information available on the online banking site is well-organized, accurate, and up to date. 4. The online banking site provides information about products and services, including product names, types, costs, benefits, and risks.	(Ashiq & Hussain, 2024)
Convenience 1. The online banking site helps me easily find what I need. 2. The online banking site is available 24/7 to conduct transactions from any location. 3. The online banking site provides fast online transaction processing. 4. The online banking site provides easy online transaction processing	(Ashiq & Hussain, 2024)
Responsiveness 1. I can interact with the online banking site to obtain information tailored to my specific needs. 2. The online banking site responds quickly to customer needs.	(Ashiq & Hussain, 2024)

3. The online banking site provides timely responses to ensure quick problem resolution. 4. When I have a problem, the online banking site shows genuine interest in solving it.	
E-trust 1. I believe the online banking site will not misuse my personal information. 2. I can trust the online banking site. 3. I feel highly confident about the online banking site.	(Ashiq & Hussain, 2024)
E-Satisfaction 1. I believe that my decision to transact through the online banking site results in satisfaction. 2. I am satisfied with my decision to choose the online banking site for transactions. 3. My overall experience of transacting through the online banking site is very satisfying.	(Ashiq & Hussain, 2024)
E-Loyalty 1. I conduct repeated transactions on the online banking site. 2. I recommend the online banking site for transactions to someone who asks for my advice. 3. I speak positively about the online banking site.	(Ashiq & Hussain, 2024)