Signifikan: Jurnal Ilmu Ekonomi
Volume 14(1), 2025: 247 - 264
P-ISSN: 2087-2046; E-ISSN: 2476-9223
https://doi.org/10.15408/sjie.v14i1.44901

Examining the Model for Enhancing E-Loyalty in Digital Banks

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JEL Classification:
G21
M31
D91

Received: 14 February 2025

Revised: 04 March 2025

Accepted: 09 March 2025

Available online: April 2025

Published regularly: April 2025

ABSTRACT

Research Originality: This research novelty lies in applying the Stimulus-Organism-Response (S-O-R) theory to measure e-loyalty among digital banking customers in Indonesia. This approach has not been widely explored in Indonesia's digital banks' context.

Research Objectives: This research evaluates e-loyalty among digital banks' customers in Indonesia using the SOR theory's direct and indirect measurement methodologies.

Research Methods: The sample consists of 130 participants drawn from customers of both Islamic and conventional digital banks in Indonesia. This research applies PLS-SEM through SmartPLS software for structural model analysis.

Empirical Result: The results show that e-CRM, e-trust, and e-satisfaction directly enhance e-loyalty. E-CRM and e-trust also influence e-loyalty indirectly through e-satisfaction. Moreover, e-satisfaction mediates these relationships, highlighting its crucial role in strengthening customer loyalty in Islamic and conventional digital banks.

Implications: Digital banks need to enhance e-CRM by improving application features and usability to maintain customer interaction. Additionally, e-trust is crucial to continuously strengthening security systems to reduce customer concerns. Moreover, services must consistently meet or even exceed customer expectations to achieve high satisfaction and foster customer loyalty.

Keywords:
digital banks; e-Loyalty; stimulus-organism-respons theory

How to Cite:
Mahfuzh, M. A., Setyono, J., & Riza., A. F. (2025). Examining the Model for Enhancing E-Loyalty in Digital Banks. *Signifikan: Jurnal Ilmu Ekonomi*, *14*(1), 247-264. https://doi.org/10.15408/sjie.v14i1.44901.

INTRODUCTION

Indonesia ranks as the fourth most populous country globally. According to the Central Statistics Agency (BPS), in 2022, the population of Indonesia reached 275 million people, while the Ministry of Communication and Information (Kominfo) reports that the number of internet users in the country has grown to 204.7 million. The widespread use of the Internet is driving a shift from traditional to digital transactions, leading many individuals to move their business activities to online platforms (Johan, 2021). Consequently, Indonesia holds significant potential for developing financial technology, particularly in the digital banking sector. The growth of Indonesia's digital financial sector has been remarkable with the COVID-19 pandemic, despite its widespread impact on all sectors, providing momentum for the expansion of digital banks.

Digital Banks are based on paragraph 1 number (22) PJOK No.12/POJK.03/2021, explaining that Digital Banks are Indonesian Legal Entity Banks (BHI) which primarily provide and carry out their business activities through electronic channels without a physical office other than the head office or use a limited physical office. Before the pandemic, from 2016 to 2019, there were only two digital banks, Jenius and Digibank. However, with the onset of the pandemic in 2020, several new digital banks emerged, including Bank Jago Sharia, Bank Aladin Sharia, Sea Bank, and Blu Bank. As a result, between 2020 and the fourth quarter of 2022, the number of digital bank customers surged rapidly, reaching 40 million.

This phenomenon should be appreciated because the average digital bank is a young industry; in less than two years, customers have touched 40 million, and active customers are more than 10 million. However, there is an anomaly phenomenon from the development of digital banks in Indonesia where there are only around 10 million monthly active customers, namely customers who have been active for the last three months or 25% of the total digital bank customers as a whole. This data indicates a notably low level of e-loyalty among digital bank customers in Indonesia.

E-loyalty is defined as an expression in the customer's attitude towards the bank, which leads to repeat transaction behavior (Huang, 2023). Loyalty is not only about involvement, but loyalty emerges from the psychological involvement of customers, starting from web pages that create attitudes and intentions to use effectively (Rezeki et al., 2023). To predict digital bank customer e-loyalty, researchers use the stimulus-organism-response (S-O-R) theory. S-O-R theory states that there is a relationship between stimulus and response through an organism; this states that a stimulus characterized by the environment impacts an organism, which, in the end, will impact specific responses (Mishra et al., 2022).

In this research, one of the antecedents of digital bank customer e-loyalty is e-CRM. E-CRM is proxied as a stimulus referring to marketing technology that stimulates consumers through internet services (Kumar et al., 2022; Mang'unyi et al., 2018; Suchitra & Merugu, 2024). Herman et al. (2021) explained that e-CRM could help increase and maintain customer loyalty for an extended period. In line with this explanation, the

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findings of Mokha & Kumar (2022), Kumar and Mokha (2021), and Rashwan et al. (2019) state that there is a positive relationship between e-CRM and e-loyalty.

The second construct is e-trust. E-trust is proxied as a stimulus because customer trust directly impacts banks, such as bank credibility, bank integrity, bank virtue, and bank attitudes in the aspect of solving problems that occur with customers (Ashiq & Hussain, 2024). Customers are worried about privacy violations and potential loss of control over their personal information (Kalantari, 2017). Trust is essential in business-to-business and business-to-customer relationships (Kuska et al., 2024). Therefore, digital banks must be trusted by their customers. When customers trust the bank, they will continue to use its services and recommend them to others (Kuska et al., 2024; Qatawneh et al., 2024; Shankar & Jebarajakirthy, 2019). E-trust has a positive effect with e-loyalty, when trust increases, customer loyalty also increases (Almaiah et al., 2022; Dospinescu et al., 2019; Hayati et al., 2020; Jeon & Jeong, 2017; Kuska et al., 2024; Qatawneh et al., 2024; Shankar & Jebarajakirthy, 2019).

Furthermore, an additional variable utilized for assessing e-loyalty within the framework of this study is e-satisfaction, which is operationalized as the organism component in line with the Stimulus-Organism-Response (S-O-R) theoretical model. The attribution of e-satisfaction as an organism arises from its dual nature encompassing affective and cognitive dimensions, as posited by Mokha and Kumar (2022) and Kumar and Mokha (2021). The assertions of Tahir (2020), Mokha and Kumar (2022), Kumar and Mokha (2021), and Hayati et al. (2020) collectively highlight a robust and well-documented connection between customer satisfaction and loyalty. The propensity for elevated customer loyalty is notably observed when customers express contentment with the array of products and services proffered by the bank.

Inconsistency is seen in the ability of e-satisfaction to mediate e-CRM to e-loyalty, where in the studies of Kumar and Mokha (2021), Mokha and Kumar (2022), and Mulyono et al. (2018), e-satisfaction can mediate e-CRM towards e-loyalty but in the research of Rashwan et al. (2019) and Ismail and Hussin (2017) it cannot mediated. After that, the research of Gotama and Indarwati (2019) and Suariedewi (2020) found that e-satisfaction can act as a mediation between e-trust and e-loyalty, but in Dospinescu et al. (2019), Hayati et al. (2020), Jeon and Jeong (2017) it was rejected.

Despite extensive research on e-loyalty in digital banks, gaps remain in understanding the interplay between e-CRM, e-trust, and e-satisfaction within the S-O-R framework, particularly in Indonesia. Previous studies such as Kumar and Mokha (2021) and Mokha and Kumar (2022) show inconsistent findings on the mediating role of e-satisfaction, highlighting the need for further examination. Additionally, the impact of e-CRM and e-trust on e-loyalty is well-documented (Kumar et al., 2022; Kuska et al., 2024). limited research applies the S-O-R theory to capture the psychological mechanisms influencing customer behavior. This research addresses these gaps by integrating e-CRM, e-trust, and e-satisfaction into the S-O-R model, offering a more comprehensive understanding of e-loyalty dynamics in Indonesia's digital banking sector.

This research aims to analyze the direct impact of e-CRM and e-trust on e-loyalty among digital banking customers in Indonesia while also identifying the mediating role of e-satisfaction in the relationship between e-CRM, e-trust, and e-loyalty. By adopting the Stimulus-Organism-Response (S-O-R) theory, this research explores how e-CRM and e-trust function as stimuli that influence e-satisfaction as an organism, ultimately shaping e-loyalty as the final response. Furthermore, this study seeks to provide managerial implications for digital banks by offering strategic insights into optimizing e-CRM practices, fostering customer trust, and enhancing satisfaction to reinforce customer loyalty in the digital era.

The novelty of this research is that the application of the S-O-R theory in the context of e-loyalty in digital banks in Indonesia is still rarely found. By using e-CRM and e-trust as stimuli and e-satisfaction as the organism that mediates their relationship with e-loyalty, this study provides a more comprehensive approach to understanding digital banking customer behavior. This research provides a theoretical contribution by reinforcing the S-O-R theory in digital banks and expanding the literature on the role of e-CRM and e-trust in shaping e-loyalty, considering the mediating role of e-satisfaction. Practically, this research offers recommendations for digital banks to enhance e-CRM strategies, build customer trust through e-trust, and improve customer satisfaction to foster loyalty.

METHODS

The sampling technique employed for this study was a nonprobability approach, explicitly utilizing the purposive sampling method. The sample criteria in this research are based on several considerations. First, respondents must be customers of digital banks in Indonesia to ensure relevance to the research context. Second, they must have been digital bank customers for at least six (6) months, as this period allows them to develop sufficient experience and familiarity with the bank's services. Lastly, they must have conducted transactions more than twice, ensuring respondents have actively engaged with digital bank services rather than merely registering without regular usage. The sample size was established based on the guidelines outlined by Hair et al. (2022), which recommend a minimum of ten times the number of directed structural paths in the research model. Following this criterion, a minimum sample of 70 participants was determined. Accordingly, the researchers selected a sample of 130 respondents, exceeding the prescribed minimum threshold.

The analysis model in this study uses PLS-SEM with the help of the SmartPLS analysis tool and uses SPSS 23 for descriptive analysis. The researchers implemented a multi-stage data analysis process to achieve accurate and comprehensive results. This study used a quantitative method where the measurements used a Likert scale of 1-5 answer intervals. The variables in this study were taken by combining previous studies that measured e-CRM based on scale items from Kumar and Mokha (2021) and Mokha and Kumar (2022), then measured e-trust based on scale items from Ben Mansour (2016) to measure e-satisfaction based on scale items from Kumar and Mokha (2021) as well as to measure e-loyalty based on scale items from Kumar and Mokha (2021).

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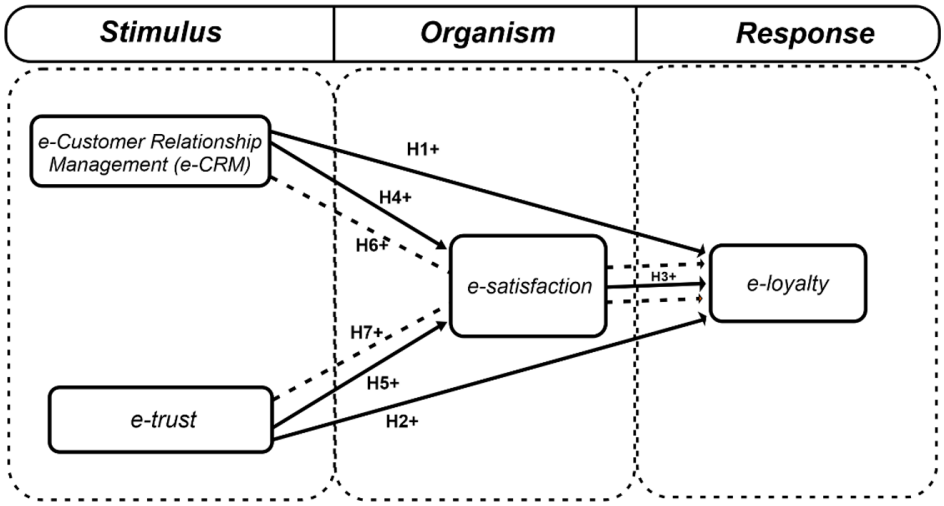
Figure 1. Model Development



This analytical procedure comprised two primary phases: the Outer Model assessment and the Inner Model evaluation (Hair et al., 2022). The initial phase involved assessing the measurement model (Outer Model) through validity and reliability tests. Validity was measured via convergent and discriminant validity analyses, while reliability was assessed using composite reliability metrics. In the second phase, structural evaluation of the model (Inner Model) was conducted, including tests for model fit and quality indices, R-squared (R^2), Q-squared (Q^2), f-squared (f^2), PLSpredict, and Robustness Check. Before hypothesis testing, a full collinearity variance inflation factor (VIF) test was performed to verify the absence of multicollinearity between constructs. Subsequently, hypothesis testing was conducted to determine the relationship between variable constructs. The researchers also analyzed mediation effects and identified the types of mediation established within the research.

In this framework, e-CRM and e-trust act as stimuli, while e-satisfaction is the intermediary organism. E-loyalty serves as both the response and the primary outcome under examination. Figure 1 shows the model development from this research.

RESULTS AND DISCUSSION

Based on Table 1, most digital bank customers in this study were women, comprising 89 respondents (68.5%), while men accounted for 41 respondents (31.5%). Thus, women represent the dominant demographic of digital bank users supporting their daily activities. Regarding age distribution, most users were between 20-30 years old, with 118 respondents (90.8%), followed by respondents under 20 years old with nine respondents (6.9%). The remaining respondents were aged 31-40 (2 respondents, 1.5%) and 41-50 years (1 respondent, 0.8%). These findings suggest significant growth potential for digital banks, particularly among the 20-30 age group and those under 20, representing highly productive age ranges, indicating a need for digital banks to continue providing services supporting daily activities.

Table 1. Operational Definition of Research Variables

Variables	Operation Definition	Indicator	Likert Scale	Previous Studies
E-Customer Relationship Management (E-CRM)	E-CRM refers to the utilization of digital communication technologies to enhance a company's relationships with existing customers, with the aim of increasing the usage of online services (Mokha & Kumar, 2022).	1. Digital Bank allows me to customize products or services according to my needs. 2. Customized products and services motivated me to use Digital Bank. 3. Alternative payment options are clearly stated at Digital Banks. 4. Digital Bank quickly resolved the problems I encountered when transaction. 5. Digital Bank provides the correct information when a problem occurs. 6. Online feedback feature is available on Digital Banks service channels. 7. Digital Bank has online customer service representatives. 8. Frequently asked questions (FAQ) feature helps me use Digital Banks products or services. 9. I always use the FAQ feature when browsing Digital Bank service channels. **Source:** Kumar & Mokha (2021); Mokha & Kumar (2022)	1-5	(Ismail & Hussin, 2017; Kumar & Mokha, 2021; Mokha & Kumar, 2022; Rashwan et al., 2019)
E-Trust	E-Trust is defined as the level of customer trust in direct exchanges and online exchange channels (Qatawneh et al., 2024).	1. Digital Bank's services are efficient. 2. Digital Bank will keep the promise that has been made. 3. Digital Bank's security features to protect its customers. 4. I feel safe placing personal information in Digital Banks. 5. Digital Banks has a service design that shows respect for its customers. 6. Digital Banks always pays attention to my best interests. 7. Digital Banks shows sympathy for the problems that befall its customers. 8. If there is a problem, it will be easy to make a claim. **Source:** Ben Mansour (2016)	1-5	(Kuska et al., 2024; Qatawneh et al., 2024)

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Variables	Operation Definition	Indicator	Likert Scale	Previous Studies
E-Satisfaction	E-satisfaction refers to the level of customer satisfaction derived from their experience in utilizing digital services (Mang'unyi et al., 2018).	1. I am satisfied with my decision to become a customer at Digital Bank. 2. My decision to become a Digital Bank customer is wise. 3. Using Digital Bank is the right thing. 4. I feel happy to be a customer of Digital Bank. 5. I am satisfied with the security mechanism of Digital Bank. 6. I am satisfied with Bank Digital's services because it is easy to use. 7. I received more benefits than I expected. 8. Overall, I am satisfied with Digital Bank. **Source:** Kumar & Mokha (2021)	1-5	(Hayati et al., 2020; Kumar & Mokha, 2021; Mokha & Kumar, 2022)
E-Loyalty	E-loyalty is defined as an expression in the customer's attitude towards the bank which leads repeat transaction behaviour (Kuska et al., 2024).	1. I don't think about moving to another bank. 2. After receiving this service, I am hesitant to move to another bank. 3. I use Digital Bank whenever I need to. 4. Digital Bank is my first choice when I need to make a transaction. 5. I like using Digital Bank products and services. 6. For me, Digital Bank is the best bank. 7. Digital Bank is my favorite bank. 8. I recommend Bank Digital to the people closest to me. **Source:** Mokha & Kumar, (2022), Kumar & Mokha (2021)	1-5	Kumar & Mokha (2021), Mokha & Kumar (2022), Mulyono et al. (2018), Rashwan et al. (2019), and Ismail & Hussin (2017)

Most respondents had been digital bank customers for six months, totaling 48 respondents (36.9%). Among respondents who had been customers for more than six months, there were 38 respondents (29.2%), 27 respondents (20.8%) had been customers for more than one year, and 17 respondents (13.1%) had been customers for precisely one year. The highest number of respondents were customers of Sea Bank, with 35 respondents (26.9%), followed by 29 respondents (22.3%) using Jenius and 17 respondents (13.1%) using Allo Bank. Additionally, 14 respondents (10.8%) held accounts with two digital banks. Furthermore, 13 respondents (10%) were customers of Bank Jago Sharia, while

six respondents (4.6%) each used Bank Raya and Digibank. Customers of Aladin Sharia Bank numbered four respondents (3.1%), and three respondents (2.3%) were customers of Line Bank and BLU, respectively. Regarding transaction frequency, most respondents conducted digital banking transactions thrice daily, accounting for 52 respondents (40%). Another 44 respondents (33.8%) transacted ten times per month, and 34 (26.2%) made five weekly transactions.

Table 2. Respondent Demographics

	Characteristics	Quantity	Percentage
Gender	Male	41	31,5%
	Female	89	68,5%
Age	< 20 years old	9	6,9%
	20-30 years old	118	90,8%
	31-40 years old	2	1,5%
	41-50 years old	1	0,8%
	> 50 years old	0	0,0%
Length of Use	6 months	48	36,9%
	> 6 months	38	29,2%
	1 years	17	13,1%
	> 1 years	27	20,8%
Provider	Allo Bank	17	13,1%
	Bank Aladin Sharia	4	3,1%
	Bank Jago Sharia	13	10,0%
	Bank Raya	6	4,6%
	BLU Bank	3	2,3%
	Digibank	6	4,6%
	Jenius	29	22,3%
	Line bank	3	2,3%
	Have two Digital Bank accounts	14	10,8%
	Sea Bank	35	26,9%
Frequency of Use	10 times a month	44	33,8%
	3 times a daily	52	40,0%
	5 times a week	34	26,2%

Source: (Data processing)

Validity and reliability assessments were conducted to ensure the robustness of the measurement model. Convergent validity was evaluated using the loading factor, which is deemed valid when its value exceeds 0.5 (Hair et al., 2022). Further validity checks were performed through the Cronbach's alpha (α) value, where a threshold of α greater than 0.6 indicates adequate validity (Hair et al., 2022). Discriminant validity was confirmed if the square root of the Average Variance Extracted (AVE) exceeded 0.5, as specified by (Hair et al., 2022). Reliability was measured using composite reliability, which must exceed 0.7 to be considered reliable Based (Hair et al., 2022). On the results presented in Table 2, all variable items in this study are valid, as indicated by loading factor values

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above 0.7(Hair et al., 2022). Than Heterotrait-Monotrait Ratio (HTMT) should ideally be no higher than 0.9 (Hair et al., 2022). The research variable is valid because all item no above than 0.9 (see Table 3).

Table 3. Outer Model Measurement

Code	Scale Item	Loading
e-CRM (AVE=0.677, CA=0.957, CR=0.962)		
EC1	Digital Bank allows me to customize products or services according to my needs.	0.678
EC2	Customized products and services motivated me to use Digital Bank.	0.644
EC3	Alternative payment options are clearly stated at Digital Bank.	0.631
EC4	The Digital Bank quickly resolved the problems I encountered when transaction.	0.741
EC5	The Digital Bank provides the correct information when a problem occurs	0.713
EC6	The online feedback feature is available on Bank Digital's service channels.	0.662
EC7	Digital Bank has online customer service representatives.	0.709
EC8	The frequently asked questions (FAQ) feature helps me use Bank Digital's products or services.	0.645
EC9	I always use the FAQ feature when browsing Digital Bank's service channels.	0.562
e-Trust (AVE=0.706, CA=0.940, CR=0.951)		
ET1	Bank Digital's services are efficient.	0.560
ET2	Bank Digital will keep the promise that has been made.	0.760
ET3	Bank Digital has security features to protect its customers.	0.597
ET4	I feel safe placing personal information in Digital Bank.	0.704
ET5	Digital Bank has a service design that shows respect for its customers.	0.596
ET6	The Bank always pays attention to my best interests.	0.707
ET7	The Bank shows sympathy for the problems that befall its customers.	0.681
ET8	If there is a problem, it will be easy to make a claim.	0.739
e-Satisfaction (AVE=0.584, CA=0.898, CR=0.918)		
ES1	I am satisfied with my decision to become a customer at Digital Bank.	0.763
ES2	My decision to become a Digital Bank customer is wise.	0.597
ES3	Using Digital Bank is the right thing.	0.701
ES4	I feel happy to be a customer of Digital Bank.	0.706
ES5	I am satisfied with the security mechanism of Digital Bank.	0.712
ES6	I am satisfied with Bank Digital's services because it is easy to use.	0.611
ES7	I received more benefits than I expected.	0.623
ES8	Overall, I am satisfied with Digital Bank.	0.746
e-Loyalty (AVE=0.637, CA=0.918, CR=0.933)		
EL1	I don't think about moving to another bank.	0.641
EL2	After receiving this service, I am hesitant to move to another bank.	0.614
EL3	I use Digital Bank whenever I need to.	0.558
EL4	Digital Bank is my first choice when I need to make a transaction.	0.740
EL5	I like using Digital Bank products and services.	0.703
EL6	For me, Digital Bank is the best bank.	0.817
EL7	Digital Bank is my favourite bank.	0.822
EL8	I recommend Bank Digital to the people closest to me.	0.761

Source: Data processing

Furthermore, Table 4 illustrates that the discriminant validity coefficients for all constructs surpass their correlations with other constructs. The diagonal elements in the table represent the square root of the respective AVE values, highlighting the relationships between each construct and its indicators. This result demonstrates that all developed items effectively capture the intended theoretical constructs. Moreover, composite reliability values exceeding 0.9 indicate that the study's instruments are reliable and consistent across measurements.

Table 4. HTMT Output

Construct	EC	EL	ES	ET
EC				
EL	0.780			
ES	0.800	0.866		
ET	0.864	0.845	0.880	

Source: Data processing

This study incorporated a comprehensive analysis of path coefficients for the hypothesized relationships, the computation of coefficients of determination (R^2) for the variables, and assessments of both effect size (f^2) and the Variance Inflation Factor (VIF). These evaluations were pivotal to the study's rigorous methodological framework (Hair et al., 2022). Then, examining the Variance Inflation Factor (VIF) remains one of the most robust methods for detecting multicollinearity among independent variables (Hair et al., 2022). The regression analysis revealed that the VIF values ranged between 2.096 and 2.732. In line with (Hair et al., 2022), these results indicate the absence of common method bias, as all VIF values remained below the threshold of 5. Moreover, (Hair et al., 2022) identify three critical thresholds for the F-square: 0.35 suggests a high effect size, 0.15 represents a moderate effect size, and 0.02 reflects a low effect size. The regression analysis in this study demonstrated that f^2 values ranged from 0.046 to 0.303, indicating varying effect sizes across the constructs under examination.

Table 5. Effect Size and Multicollinearity Output

Construct Relationship	f^2	VIF
EC -> EL	0.046	2.348
ET -> EL	0.072	2.732
ES -> EL	0.170	2.466
EC -> ES	0.120	2.096
ET -> ES	0.303	2.096

Source: Data processing

According to Hair et al. (2022), the R-Square criteria consist of three classifications: an R-Square value of 0.75 means strong, 0.50 means moderate, and 0.25 means weak (Poor). Based on this, the R Square of this study is included in the weak category. It

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can be interpreted that the ability of the stimulus variable to influence the organism is 59.4% (moderate), and the ability of the stimulus variable and the organism in this study to influence the response is 62.3% (moderate). The suggested Q-squared value must be more significant than zero (> 0), which is further explained in Table 5. Therefore, the external latent variables in this study are relevant to the endogenous latent variables.

Table 6. R Square and Q^2 Output

Construct	R Square	R Square Adjusted	Q^2
EL	0.623	0.614	0.302
ES	0.594	0.588	0.266

Source: Data processing

A model is considered an excellent fit model if the SRMR value is less than 0.05, but if the model has an SRMR value below 0.10, the model can be fit (Hair et al., 2022). Furthermore, by looking at the NFI values, namely > 0.90 good fits, 0.80-0.90 marginal fit, and <0.80 poor fits. Based on Table 6, it can be seen that the NFI value of the model is categorized as a poor fit, and based on the SRMR value, which is 0.076 (below 0.10), this indicates that the model in this study is a fit.

Table 7. Model Fit Output

Model fit	Saturated Model	Estimated Model
SRMR	0.076	0.076
NFI	0.651	0.651

Source: Data processing

Table 7 presents the PLSpredict data. According to Hair et al. (2022), an endogenous variable (E-Loyalty and E-Satisfaction) with a PLS model with lower RMSE and MAE values compared to LM for all indicators indicates that the proposed PLS model possesses high predictive power. Therefore, it can be concluded that the PLS model in this study demonstrates a high predictive power level.

This research performed a robustness test by incorporating the non-linearity criterion, as suggested by Sarstedt et al. (2020). It acknowledged that the theoretical assumption of a linear relationship between constructs may not always be empirically valid. Statistically, when the association between two constructs is non-linear, the effect size is influenced by the magnitude of change in the exogenous construct and its specific values (Hair et al., 2022). The research utilized a polynomial model that included quadratic effects. However, the analysis revealed that none of the paths with quadratic effects were statistically significant, as shown in Table 8 and Figure 2. Thus, the findings suggest that the linear effects remain robust, as the non-linear relationships did not significantly influence the results (Sarstedt et al., 2020). This result indicates that the model in this research is considered robust and can be applied in future research.

Table 8. PLS Predict Output

Construct	PLS-SEM		Benchmark	
	RMSE	MAE	RMSE	MAE
EL1	0.742	0.594	0.768	0.613
EL2	0.775	0.597	0.865	0.670
EL3	0.523	0.448	0.552	0.442
EL4	0.618	0.489	0.711	0.552
EL5	0.537	0.428	0.573	0.453
EL6	0.633	0.499	0684	0.544
EL7	0.613	0.484	0.680	0.526
EL8	0.535	0.415	0.583	0.438
ES1	0.458	0.379	0.478	0.384
ES2	0.551	0.446	0.565	0.455
ES3	0.545	0.446	0.587	0.466
ES4	0.534	0.434	0.606	0.480
ES5	0.502	0.400	0.563	0.441
ES6	0.557	0.465	0.597	0.480
ES7	0.570	0.464	0.598	0.467
ES8	0.469	0.390	0.525	0.426

Source: Data processing

Figure 2. Full Model Output

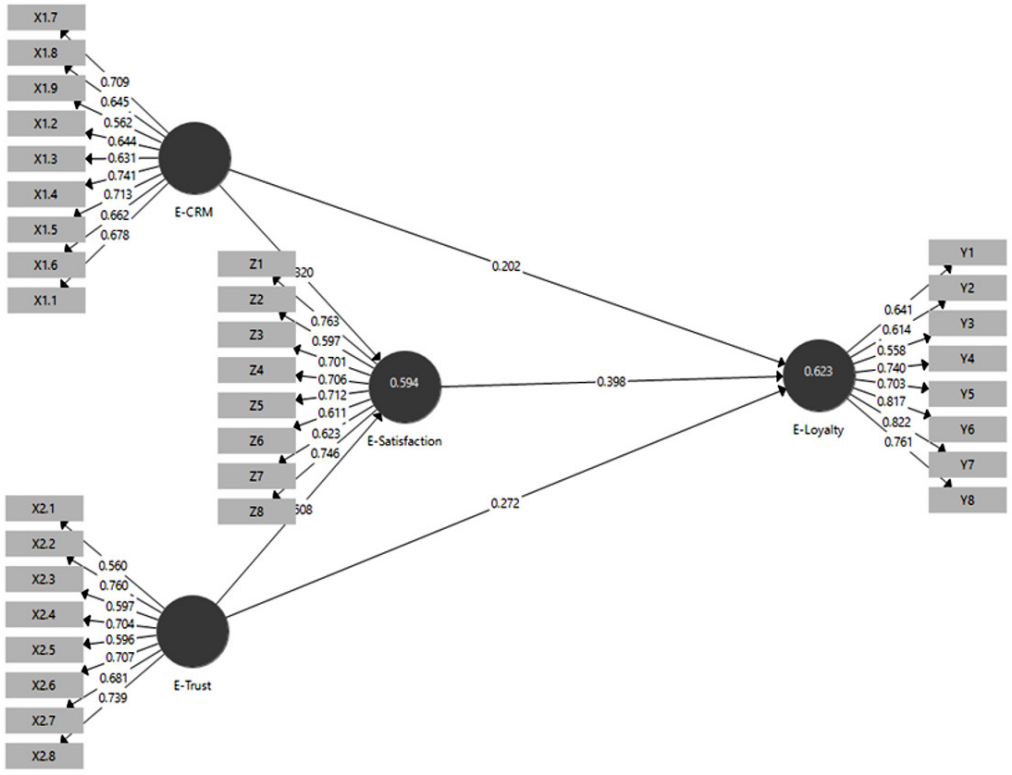

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Table 9. Output of Quadratic Effect

Construct Relationship	β	p-value	f^2
EC -> EL	0.208	0.043	0.043
ET -> EL	0.221	0.009	0.039
ES -> EL	0.394	0.001	0.156
EC -> ES	0.348	0.001	0.129
ET -> ES	0.531	0.000	0.265
Quadratic Effect EC -> EL	-0.040	0.292	0.005
Quadratic Effect ET -> EL	-0.005	0.467	0.000
Quadratic Effect ES -> EL	-0.088	0.121	0.022
Quadratic Effect EC -> ES	0.092	0.101	0.027
Quadratic Effect ET -> ES	0.013	0.412	0.001

Source: Data processing

The significance and statistics influence the relationship between exogen and endogen variables. The rule of thumb is more than 1.65, 1.28, and 2.33 for one-tailed (hypothesis directional) (Hair et al., 2022). In this study, the researchers determined that the results of a significant influence would be obtained using one-tailed with a t-count > 1.65 (5% significance) and p-values less than 0.05. Based on the research results, e-CRM has a positive effect of 0.175. Furthermore, e-trust positively affects e-loyalty by 0.255. E-satisfaction on e-loyalty also has a positive effect of 0.284. The effect of e-CRM on e-loyalty is also positive at 0.324. The following hypothesis is that e-trust positively affects e-satisfaction of 0.338. Furthermore, the relationship between e-CRM and e-loyalty, mediated by e-satisfaction, was significantly positive, with a coefficient of 0.264. Similarly, the relationship between e-trust and e-loyalty, mediated by e-satisfaction, demonstrated a positive effect, with a coefficient of 0.351 (for details, see Tables 9 and 10).

Table 10. Hypothesis Testing Results

	Hypothesis	β	T-Statistics	P-Values	Results
H1	EC -> EL	0.175	1.719	0.043	Supported
H2	ET -> EL	0.255	2.620	0.004	Supported
H3	ES -> EL	0.284	2.464	0.007	Supported
H4	EC -> ES	0.324	2.929	0.002	Supported
H5	ET -> ES	0.338	2.802	0.002	Supported
H6	EC -> ES -> EL	0.264	2.061	0.020	Supported
H7	EC -> ES -> EL	0.351	3.012	0.001	Supported

Source: Data processing

Hair et al. (2022) suggest that partial mediation happens when an exogenous construct affects an endogenous construct in two ways: directly and indirectly through a mediator. As seen in Table 10, directly or indirectly, e-CRM and e-trust to e-loyalty are significant. Therefore, the type of mediation that is formed is partial mediation (Table 11).

The findings of this research underscore the paramount influence of e-satisfaction on digital bank customer e-loyalty. This phenomenon is primarily attributed to the notion that satisfied customers are more inclined to advocate for the banks' services, aligning with the assertions of Mulyono et al. (2018). The theoretical foundation of cognitive dissonance supports the argument that customer loyalty is integral to fostering satisfaction, as individuals may hold multiple bank accounts but exhibit loyalty to a single institution (Tahir, 2020). These results align with the findings of previous studies by Hayati et al. (2020), Kumar et al. (2022), and Kumar and Mokha (2021).

Moreover, the empirical evidence suggests that e-trust positively impacts digital bank customer e-loyalty. Theoretically, trust in service providers enhances customer satisfaction and loyalty (Jeon & Jeong, 2017; Tahir, 2020). Tahir (2020) further elucidates that when customers perceive a bank as credible and reliable, their service satisfaction increases, fostering long-term engagement. Customers exhibit loyalty through cooperative behaviors, reinforcing their trust in the institution (Kuska et al., 2024). To enhance customer trust, digital banks must fortify their credibility and integrity while demonstrating empathy when addressing customer concerns. This result aligns with the findings of Baabdullah et al. (2019) and Lestari and Saibil (2022).

Table 11. Type of Mediation

Hypothesis	Total Effects	Direct Effects	Indirect Effects	Type Mediation
EC -> ES -> EL	0.439	0.175 (p=0.043) (Significant)	0.264 (p=0.020) (Significant)	Partial Mediation
ET -> ES -> EL	0.606	0.255 (p=0.004) (Significant)	0.351 (p=0.001) (Significant)	Partial Mediation

Source: Data processing

Additionally, e-CRM is a pivotal determinant of digital bank customer e-loyalty. Theoretical perspectives emphasize that e-CRM is a strategic tool for acquiring new customers and retaining existing ones (Kumar et al., 2022; Mang'unyi et al., 2018; Suchitra & Merugu, 2024). Mokha and Kumar (2022) assert that e-CRM fosters long-term customer loyalty by facilitating sustained interactions between banks and customers. Investing in e-CRM enables digital banks to personalize services, enhance transactional security, and provide seamless payment alternatives, strengthening customer relationships (Mokha & Kumar, 2022). Furthermore, integrating social media for customer engagement and expanding FAQ services can improve customer experience, as supported by (Kumar et al., 2022; Suchitra & Merugu, 2024). These findings are consistent with previous research by Kumar et al. (2022), Kumar and Mokha (2021), Mang'unyi et al. (2018), and Mokha and Kumar (2022).

Furthermore, this research confirms that e-satisfaction is an essential mediating variable in bridging the relationship between e-CRM, e-trust, and e-loyalty in digital banking. As an intermediary factor, e-satisfaction transforms positive experiences from implementing e-CRM and e-trust into customer loyalty. Without satisfaction, even if customers positively perceive

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e-CRM and e-trust, it does not necessarily lead to loyalty. E-satisfaction ensures that positive customer interactions with digital banks create strong emotional attachments and long-term preferences for the banking institution (Kumar & Mokha, 2021). Thus, although e-CRM and e-trust directly influence e-loyalty, their impact becomes more significant when mediated by e-satisfaction (Kumar & Mokha, 2021). Therefore, to increase customer loyalty, digital banks need to optimize their e-CRM strategies, build trust, and ensure that the services provided consistently meet or exceed customer expectations to create a level of satisfaction and make customers loyal. (Mokha & Kumar, 2022). These findings are aligned with Gotama and Indarwati (2019), Kumar and Mokha (2021), Mokha and Kumar (2022), Mulyono et al. (2018), and Suariedewi (2020).

CONCLUSION

This research confirms that e-CRM, e-trust, and e-satisfaction significantly influence e-loyalty among digital banking customers in Indonesia. Using the Stimulus-Organism-Response (S-O-R) theory, the findings highlight direct and indirect effects, where e-satisfaction mediates the relationship between e-CRM, e-trust, and e-loyalty. The research provides empirical evidence that improving digital customer relationship management and strengthening trust mechanisms are key drivers in enhancing customer loyalty, but also ensure that the services provided consistently meet, or even exceed, customer expectations to create the level of satisfaction and make a customer loyal.

To enhance digital banking e-loyalty, policymakers, particularly Bank Indonesia (BI) and the Financial Services Authority (OJK), should focus on regulatory frameworks that promote security, transparency, and service excellence. Strengthening consumer protection policies, enforcing strict cybersecurity measures, and ensuring fair digital banking practices will foster greater trust and satisfaction. Additionally, digital banks should invest in improving e-CRM strategies, optimizing user experience, and developing personalized engagement models to sustain long-term customer loyalty. Future research should explore comparative analyses between conventional and Islamic digital banks and examine additional variables such as e-service quality and customer experience to gain deeper insights into e-loyalty dynamics.

ACKNOWLEDGMENT

The author would like to sincerely thank The Fiscal Policy Agency of the Ministry of Finance and the Center for Islamic Economics and Business at the Faculty of Economics and Business, Universitas Indonesia, for organizing the 8th Annual Islamic Finance Conference (AIFC). This conference has provided valuable insights and constructive feedback that have significantly contributed to the improvement this article. The author also deeply appreciates the financial support provided for publication in this journal. Such support has been instrumental in facilitating the completion and dissemination of this research.

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