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THE IMPACT OF ELECTRONIC BANKING SERVICE QUALITY DIMENSIONS ON CUSTOMER LOYALTY: THE MEDIATING ROLE OF CUSTOMER TRUST AN ANALYTICAL STUDY OF A SAMPLE OF AL-RAFIDAIN BANK CUSTOMERS IN SALAH AL-DIN

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Abstract. This study seeks to investigate how the dimensions of the quality of electronic banking services, namely reliability and credibility, application interface, response speed and support, and privacy and security affect customer loyalty and how customer trust acts as a mediator between these attributes and customer loyalty, through Al-Rafidain Bank, Salah Al-Din Branch.The study used descriptive, analytical and inferential approach in implementing the objectives of the study. The study population was the bank customers and bank clients in Salah Al-Din Governorate. A random sampling method was used to select the respondents (370) and the data were gathered using a scientifically validated and structured electronic questionnaire. Data collected was subsequently processed and statistically analyzed by SPSS version 26 for gaps analysis, description and diagnosis of the study variables and sample characteristics while the analysis of the study model and test of the study hypotheses was carried out by Smart PLS. The study concluded that technical dimensions of electronic banking service quality (i.e. application interface, security and responsiveness) had not significant direct influence statistically on improving customer loyalty. But it was detected that customers' trust in electronic banking services is the full mediator of the relationship between these dimensions and loyalty, which means that the effects of these dimensions on loyalty is realized by increasing customers' trust in electronic banking services.The study suggests that banks change their managerial approach from merely focusing on the technical aspect of electronic applications to enhancing the level of security and privacy, and creating intelligent support and response mechanisms, which are the foundation on which the technical quality can be converted into trust for sustainable customer loyalty.

Key words: Electronic Banking Service Quality, Customer Trust, Customer Loyalty, Al-Rafidain Bank.

Introduction

Technological and digital advancements have offered the industrial and service sectors great opportunities to provide high-value services within shorter duration and lower costs while having a quick access. One of the most significant beneficiaries of these changes has been the banking sector, which, like other sectors, has undergone significant change. Technology however, has brought a number of challenges, such as heightened pressure for bank management to deliver more sophisticated services to meet customer expectations, changing customer behaviours and increased competition to banks, as well as its benefits. These challenges have occurred at the same time that the number of private banks, especially in Iraq, has risen significantly and these banks are characterized by technology adoption and customer service improvement, compared to traditional banks.

Similarly, in the same sense as the importance of electronic banking services, the customers' loyalty toward the traditional banking has been reduced and vulnerable. Consumers of traditional banks like Al-Rafidain Bank in Salah Al-Din can easily transfer their banking and financial transactions from traditional banks to private banks. This has created a dilemma for the management of Al-Rafidain Bank to make decisions on how to provide better electronic banking services, while simultaneously gaining the trust of customers to retain them and maintain long-term banking relationships.

Keeping this integrated view in mind, this study aims to illuminate the situation of the service quality of the electronic banking in the developing banking environment. This academic work is significant because it considers the total mediation of customer trust, providing a comprehensive overview that aids banking decision-makers to better understand the behavior of digital customers and to make their investments more efficient, in the sense of moving from "digital technology" to "digital customer trust and security".

Study Methodology

Study Problem

Customer loyalty is one of the largest challenges for traditional banks' management. In banking services it's generally more expensive to acquire new customers than to keep current ones and most banks make continuous efforts to enhance the quality of their services and improve the services they provide. Traditional banks are often unable to offer the customized services and personalized experience that customers have become accustomed to. This lack of personalisation could result in customer dissatisfaction, customer attrition and customer's financial transactions switching from traditional banks to emerging commercial banks. The challenge has become more complex because of the rising number of private banks offering a variety of highly customized services that can address customers' requirements and offer them better customer experience.

This is accompanied by a decrease in customer confidence in electronic banking services, which has a negative impact on customer satisfaction and, in turn, reduces customer loyalty to the bank's name and brand.

Accordingly, the research problem can be formulated through the following main question:

What is the impact of electronic banking service quality on enhancing customer loyalty through the mediating role of customer trust?

Based on the main research question, several sub-questions emerge as follows:

1. What is the level of the study sample’s perception of the dimensions of electronic banking service quality at Al-Rafidain Bank?
2. What is the level of the study sample’s perception of the importance of trust in the electronic banking services provided by Al-Rafidain Bank?
3. What is the level of the study sample’s perception of the importance of customer loyalty toward Al-Rafidain Bank’s services?
4. What is the impact of electronic banking service quality on enhancing the loyalty of Al-Rafidain Bank customers?
5. Does customer trust play a mediating role in the relationship between electronic banking service quality and customer loyalty at Al-Rafidain Bank?

Study Importance

1. Scientific Importance

The scientific importance of this study lies in addressing a highly significant topic related to electronic banking services, customer trust, and customer loyalty, particularly within an emerging environment such as Iraq. The study represents a scientific attempt to bridge the existing knowledge gap and complement previous studies. It also contributes as a valuable source of knowledge by providing an important conceptual framework related to banking services and customer loyalty, thereby enriching academic libraries and scientific platforms.

2. Practical Importance

The practical value of the study is to have accurate quantitative results and indicators which will help the financial and managerial decision makers to make informed decisions with respect to the improvement of the quality of electronic banking services at Al-Rafidain bank. Such improvement helps to build customer confidence in electronic banking and sustain customer loyalty.

Moreover, the study aims to give useful suggestions to help the bank's management in crafting good marketing strategies to enhance customer satisfaction and convert customers into long-term loyal clients, especially in the midst of the fierce competition of private banks which attract customers with their advanced digital technologies.

Study Objectives

This study aims to achieve a set of interrelated research objectives, which can be formulated as follows:

1. Analyze the level of the study sample’s perception of the dimensions of electronic banking service quality.
2. Analyze the level of customer trust in electronic banking services.
3. Analyze the level of customer loyalty toward electronic banking services.
4. Analyze the impact level of electronic banking service quality on customer loyalty.
5. Analyze the impact level of customer trust on customer loyalty.

6. Analyze the mediating role of customer trust in the relationship between electronic banking service quality and customer loyalty.

Study Methodology

The current study adopted the **descriptive analytical approach** due to its suitability for the nature of the study, which aims to describe the research variables (**electronic banking service quality, customer trust, and customer loyalty**), analyze the relationships of correlation and influence among them, and test the proposed hypotheses.

Study Population and Sample

The study population consists of customers who have domiciled their financial transactions with **Al-Rafidain Bank in Salah Al-Din** and who use the bank's electronic applications. Due to the absence of an accurate sampling frame containing all members of the study population, a **purposive sampling method** was adopted. The questionnaire was distributed electronically to ensure access to the targeted group of customers who use the bank's services. A total of **(370) valid responses** were obtained for statistical analysis.

Study Instrument and Measurement of Variables

To achieve the objectives of the study, an electronic questionnaire was developed as the main instrument for data collection. All study variables were measured using a **five-point Likert scale**, with its weighting levels presented in the following table (Saunders, 2023:456).

Table 1. Weights of the Five-Point Likert Scale

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

The study also relied on robust international scales that were adapted to suit the Iraqi context, as follows:

1- Electronic Banking Service Quality:

It was measured as an independent variable through the following dimensions (**reliability and credibility, privacy and security, response speed and support, and application interface**) based on the **E-SERVQUAL** scale developed by (Parasuraman et al., 2005:7) and adopted in the studies of (Nguyen et al.,2023:56) , (İslamoglu and Hassan., 2025:589), and (Kappil and Santhi .,2025:3)

2- Customer Trust:

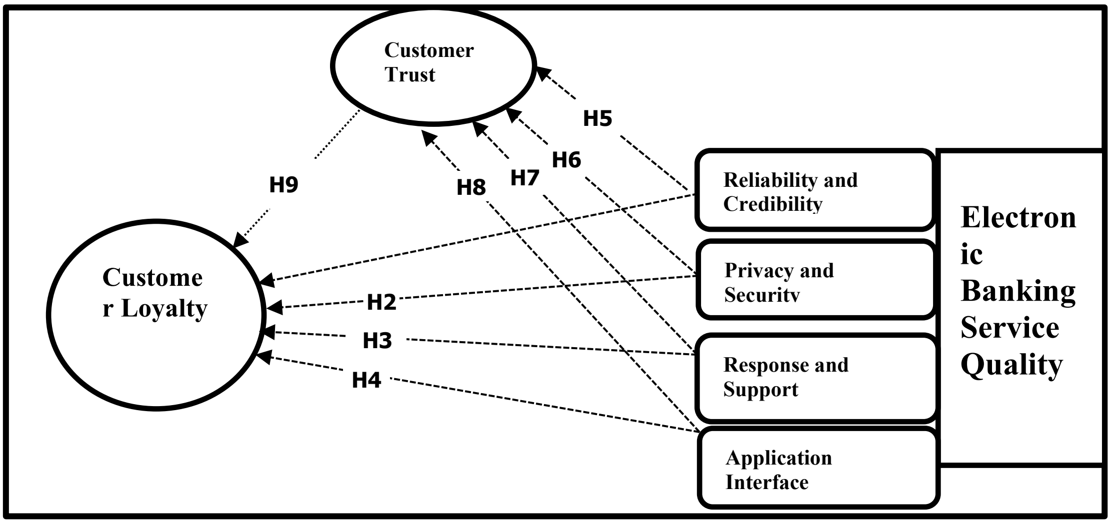
It was measured as a one-dimensional mediating variable based on the study of Chowdhury et al., 2024:125) and was supported by items reflecting trust in the digital environment, based on the dimensions of the study by (Otopah et al., 2024:26).

3- Customer Loyalty:

It was measured based on the study of (Santos and Neves.,2026:443).

Hypothesized Study Model

Based on the study problem and the nature of the relationships among the variables, the hypothesized model of the study can be constructed as follows:



Source: Prepared by the Researcher

Figure 1. The Hypothesized Model of the Study.

Study Hypotheses

Based on the hypothesized study model and the nature of the influence relationships among the variables, the study hypotheses can be formulated as follows:

H1: There is a significant and statistically significant effect of reliability and credibility on customer loyalty.

H2: There is a significant and statistically significant effect of privacy and security on customer loyalty.

H3: There is a significant and statistically significant effect of response and support on customer loyalty.

H4: There is a significant and statistically significant effect of the application interface on customer loyalty.

H5: There is a significant and statistically significant effect of reliability and credibility on customer trust.

H6: There is a significant and statistically significant effect of privacy and security on customer trust.

H7: There is a significant and statistically significant effect of response and support on customer trust.

H8: There is a significant and statistically significant effect of the application interface on customer trust.

H9: There is a significant and statistically significant effect of customer trust on customer loyalty.

H10: Customer trust mediates the relationship between the reliability and credibility dimension and customer loyalty among the customers of the investigated bank.

H11: Customer trust mediates the relationship between the privacy and security dimension and customer loyalty among the customers of the investigated bank.

H12: Customer trust mediates the relationship between the response speed and support dimension and customer loyalty among the customers of the investigated bank.

H13: Customer trust mediates the relationship between the application interface dimension and customer loyalty among the customers of the investigated bank.

Statistical Analysis Methods

The data were processed using the **Statistical Package for the Social Sciences (SPSS.26)** to conduct descriptive analysis. In addition, **Partial Least Squares Structural Equation Modeling (PLS-SEM)** was employed through the **(Smart PLS)** software to test the study hypotheses, due to its high capability in handling complex models containing mediating variables.

Theoretical Framework

Electronic Banking Service Quality

Since all banks have started providing electronic banking services at the present time, the fundamental strategy for achieving competitive advantage lies in delivering high-quality electronic services that exceed customer expectations and outperform competitors. Therefore, the concept of electronic banking service quality has gained a prominent position in the literature on electronic service marketing (Shankar and Jebarajakirthy.,2019:4).

Service quality is generally defined as the gap or degree of discrepancy between customers' normative expectations and their actual perceptions of the managerial and operational performance of the provided service. This concept is considered one of the most debated and significant issues in management literature due to the complexities associated with its definition and quantitative measurement (Rahmon and Ayantoso ,2024:193).

Electronic service quality is considered a form of service delivered through electronic media or Internet networks. It includes service delivery processes, transactions, and distribution in an effective and efficient manner, enabling customers to receive products or services optimally (Natrilia and Yancik, 2025:467). Electronic service quality refers to the level of excellence or adequacy of services provided by online platforms to their customers. Therefore, it is a complex concept that includes various dimensions, such as functionality, reliability, local information availability, atmosphere quality, customer feedback, and emotional engagement (Hassan., 2024:495).

It should be noted that electronic service quality does not differ significantly in concept from electronic banking service quality, except for its specialization to suit the field of banking transactions. Therefore, the concept of electronic banking service quality is primarily based on customers' understanding and perception of this quality. This concept describes electronic service quality in general and electronic banking service quality in particular (Awang.,2017:68).

In practice, electronic banking service quality refers to the practice of providing banking services to customers through electronic channels, whether at their workplace or homes (Naparota and Canda., 2025:1508). These electronic banking services are delivered to customers through various electronic channels to conduct online financial transactions, such as telephones, televisions, mobile phones, and computers (Thilakaratna et al.,2023:98).

Accordingly, electronic banking service quality can be defined as a measure of the extent to which the level of service provided by the bank corresponds with customer expectations, resulting from a comparison between customers' previous expectations regarding the service and their subsequent perceptions of the actual service experience (Ayinaddis and Yirsaw., 2023:4). It is worth noting that the concept of electronic banking service quality depends primarily on the customer's perspective, making it a relative measure that varies from one customer to another (Ahmed., 2023:106). Furthermore, electronic banking service quality is defined as customers' evaluation of the online services provided by the bank (Kappil and Santhi., 2025:3).

Dimensions of Electronic Banking Service Quality

The dimensions of electronic banking service quality were identified based on the (**SERVQUAL model)** , which is considered one of the most widely used models in studying and analyzing the dimensions of electronic banking services. Many studies have adopted the **(SERVQUAL model)** to examine electronic banking service quality. This model includes the following dimensions:

Table 2. Dimensions of Electronic Banking Service Quality

Dimension	Concept	Source
Privacy and Security	Privacy and security refer to the extent to which bank customers perceive that the bank's electronic platform is secure from breaches and that personal information shared through the platform is protected and cannot be compromised or accessed by unauthorized parties. When a bank is able to safeguard its customers' privacy, they become more likely to trust the bank's management. Furthermore, privacy and security policies contribute to generating positive customer responses toward the service provider. Privacy and security also include protecting customers' financial transactions and account balances, rather than only safeguarding personal data.	(Thilakaratna, Tennekoon,. 2023:100). (Kappil and Santhi., 2025:3). (Binti and Shahrom., 2023:37)
Reliability and Credibility	Reliability and credibility refer to the bank's ability to provide high-quality electronic banking services and fulfill its promises, enabling customers to perceive consistency and credibility in electronic banking services. They also include ensuring that electronic banking services are free from risks, errors, or failures, and that service providers' performance is trustworthy. Furthermore, reliability and credibility involve the bank's commitment to	(Ullah, 2021:8) (Kappil and Santhi., 2025:3). (Binti and Shahrom., 2023:37)

	delivering the services promised to its customers, as well as providing updated, accurate, easy-to-understand, and relevant services that meet customers' needs and enhance their satisfaction.	
Responsiveness and Support	Response and support relate to the ability of bank service providers to offer assistance to customers with high speed and at the appropriate time through rapid responses to their requests and unexpected problems encountered while using electronic banking services. Response and support also include listening to customer complaints and providing care and technical assistance in cases of interruptions, errors, or failures during the use of the bank's electronic applications.	(Kappil and Santhi., 2025:3). (Shankar and Jebarajakirthy.,2019:4)
Application Interface	The electronic banking service interface used by customers includes several aspects, including quick access to the website, ease of navigation, detailed information, and transaction processing. The application interface refers to the various interactive features of the platform that facilitate smooth navigation within the application by providing an active electronic platform that is easy to use and understand. It reduces search effort, provides clear details about services, and enhances customer interaction. An attractive, interactive, accessible, and user-friendly electronic banking application interface enhances customer satisfaction and increases their willingness to use online banking services more frequently.	(Shankar and Jebarajakirthy.,2019:4. (Kappil and Santhi., 2025:3).

Source: Prepared by the Researcher.

Customer Trust

The technical quality of an electronic website alone is not sufficient as a stimulus to guarantee the customer's automatic return unless websites first succeed in creating a positive psychological state among customers, which is commonly referred to as **customer trust** (Anderson, 2025:6). Since customer trust in electronic websites and applications, particularly banking applications, creates a sense of security and reassurance, trust plays an important role in the context of electronic banking transactions (Bilgihan, 2016:106).

Given this significant importance, customer trust can be defined as a set of specific beliefs primarily related to the integrity, goodwill, and capability of the bank in protecting customer information available on the website, as well as ensuring that bank management will not misuse or exploit such information (Guo et al.,2023:4). In other words, bank customers have complete confidence and assurance that electronic vulnerabilities will not be exploited, and they are willing to tolerate potential weaknesses in online transactions based on their optimistic expectations regarding the future behavior of the electronic banking system. Therefore, customer trust develops as a belief that weaknesses in online risk situations will not be exploited, reflecting the customer's willingness to accept the vulnerability of digital transactions between themselves and the bank (Wani and Mir.,2023:557).

From another perspective, customer trust is measured by the extent of customers' confidence in the quality of banking products and services provided to them. This trust develops gradually through actual experiences and customers' feelings of security and reassurance regarding the bank's ability to comply with regulatory rules and standards (Albaity and Rahman, 2021:4). Accordingly, trust represents the confidence that individuals or groups place in a brand based on expectations of reliability, integrity, and positive intentions. When customers experience greater satisfaction with a product or service, their trust in the bank increases (Chowdhury et al,2024:120).

It is important to note that "trust" is a key and essential component of improving customer adoption of digital services, as it helps to defuse customer perceived risk. Thus, trust is a preceding variable and one of the necessary variables for customer loyalty and strengthening their relationship with electronic banking services (Shankar and Jebarajakirthy.,2019:7). Increased customer trust can improve the long-term relationship between the parties involved in providing services to customers, because it can reduce customers' perceived risk, make customers want to continue using the service, and make customers hesitate to use other service providers (Rachma and Anwar., 2026:1329).

Customer Loyalty.

The concept of customer loyalty refers to the continuous behavioral response that motivates customers to repurchase or repeatedly use banking services. Loyalty represents a strategic objective for any financial institution, as it is considered a fundamental guarantee for the bank's sustainability amid intense competition in the banking sector. In the digital environment, this loyalty is operationally reflected in customers' tendency to repeatedly visit the bank's electronic platforms and websites and rely on its electronic banking services (Shankar and Jebarajakirthy.,2019:5). Customer loyalty also includes the bank's ability to retain its customers by providing more competitive services compared with other banks (Albaity and Rahman, 2021:5).

It should be noted that customer loyalty toward traditional banking services does not differ significantly from loyalty toward electronic banking services. In the context of electronic banking services, customer loyalty refers to customers' tendency to visit the bank's website and use its services repeatedly while preferring it over other websites and services (Wani, and Mir.,2023:557). Customer loyalty also indicates the extent of a customer's commitment to continuously purchasing or using a product or service in the future, regardless of potential factors that may encourage switching. This commitment results in a positive attitude toward the bank's electronic platform and the continuous and repeated use of electronic banking services (Kim, and Yeo, 2024:2).

Furthermore, customer loyalty is not measured solely in terms of behavior (repeated purchasing or usage), but is also measured in terms of attitudes, such as customers' willingness to provide positive recommendations regarding electronic banking services (Aji and Harun.,2026:890). It is worth mentioning that customer loyalty toward the bank is of great importance, as it ensures the sustainability of the relationship between the customer and the bank. Since retaining existing customers is more cost-effective than acquiring new ones, losing a single customer may lead to a decline in the bank's long-term profitability (Santos and Neves.,2026:443).

The Field Framework of the Study

Description and Diagnosis of the Demographic Characteristics of the Study Sample

This section includes a description and diagnosis of the demographic characteristics of the study sample. A random sample consisting of **(370) respondents** was selected from customers and users of the electronic banking services provided by **Al-Rafidain Bank**. Their demographic characteristics are presented in the following table.

Table 3. Demographic Characteristics of the Study Sample

Variable	Category	Frequency	Percentage
Gender	**Male**	229	62 %
	Female	141	38%
Age	**Less than 30 years**	99	26.7%
	31–40 years	190	51.3%
	41–50 years	68	18.5%
	51–60 years	11	3 %
	61 years and above	2	0.5%
Educational Qualification	**Higher Degree (Master's/PhD)**	32	8.9%
	Bachelor's Degree	236	63.7%
	Diploma	71	19.1%
	Secondary School Education	20	5.4%
	Intermediate Education	11	2.9%
Usage Rate	**Daily**	32	8.6%
	Weekly	84	22.8%
	Monthly (Upon Receiving the Salary)	254	68.6%

Source: Outputs of SPSS 26 Software.

The previous table presents the demographic characteristics of the respondents in terms of gender, age, educational qualifications, and rates of electronic banking service usage. The results indicate the dominance of males within the study sample, accounting for **(62%)** compared with **(38%)** for females. Regarding age distribution, respondents were mainly concentrated in the age group **(31–40 years)**, representing **(35.1%)**, which constitutes approximately one-third of the study sample. This indicates that the majority of the study sample are adults, reflecting their level of awareness and perception.

This finding is further supported by the fact that the majority of respondents held a **Bachelor's degree**, representing **(63.7%)** of the sample. However, the results of describing and diagnosing the study sample revealed that most respondents were not regular users of electronic banking services, except for specific purposes related to checking account balances at the end of the month and upon receiving salaries, accounting for **(68.6%)**.

Description and Diagnosis of the Study Variables

This section includes a description and diagnosis of the levels of respondents' perceptions regarding the items of the study variables. The results are presented in the following table.

Table 4. Description and Diagnosis of the Study Variables

Standard Deviation	Mean	Dimension	Variable
0.74	3.482	Reliability and Credibility	Electronic Banking Service Quality
0.72	3.494	Privacy and Security	
0.62	3.674	Responsiveness and Support	
0.68	3.758	Application Interface	
0.79	3.371	Customer Trust	
1.04	3.367	Customer Loyalty	

Source: Outputs of SPSS 26 Software.

The statistical analysis results of the study variables presented in the table indicate that the **Application Interface** dimension achieved the highest mean value of **(3.75)** with a standard deviation of **(0.68)**, followed by the **Responsiveness and Support** dimension, which recorded a mean value of **(3.67)** and a standard deviation of **(0.62)**. The descriptive statistical indicators of these values suggest that the overall level of perception among the investigated sample was **high**, accompanied by substantial consistency, general homogeneity, and limited dispersion in respondents' answers.

Meanwhile, the other dimensions, namely **Privacy and Security** and **Reliability and Credibility**, recorded lower mean values with relatively higher standard deviations. This indicates that respondents' perceptions regarding the items of **Privacy and Security** and **Reliability and Credibility** ranged from **moderate to high**.

This was directly reflected in the decline in respondents' perceptions of the **Customer Trust** variable, which achieved a mean value of **(3.37)** with a standard deviation of **(0.79)**. Furthermore, **Customer Loyalty** ranked last, recording the lowest mean value of **(3.36)** and the highest level of dispersion, with a standard deviation of **(1.04)**.

Gap Analysis Test

The following table presents the **One-Sample T-Test** results used to determine the level of gaps or significant differences between the actual evaluations of the sample members regarding the dimensions of the study variables and the accepted benchmark in the measurement instrument. The results are presented in the following table:

Table 5. Gap Analysis Test

Dimensions	**T**	**M.D**	**Sig**
Reliability and Credibility	12.6	0.48	.000
Application Interface	21.5	0.75	.000
Responsiveness and Support	21.0	0.67	.000
Privacy and Security	13.4	0.49	.000
Customer Trust	9.1	0.37	.000
Customer Loyalty	6.9	0.36	.000

Source: Outputs of SPSS 26 Software.

The results of the **One-Sample T-Test** for the study variables at the critical test value of **(3)** indicate the existence of significant differences with statistical significance at the level of **(Sig = 0.000)** for all study variables and their detailed dimensions. All calculated **(T)** values were positive and statistically significant.

Furthermore, the results of the **Mean Difference (M.D)** indicator revealed that the bank exceeded the threshold related to respondents' perceptions of the study variables' items. The sample members perceived that the study variables met their expectations, as all variables were evaluated above the statistical benchmark **(3)**.

The **Application Interface** dimension ranked first as the most successful dimension in reducing the gap, with a difference value of **(0.75)**, followed by the **Responsiveness and Support** dimension with a difference of **(0.67)**, then the **Privacy and Security** dimension with a difference of **(0.49)**. The **Reliability and Credibility** dimension ranked fourth with a difference of **(0.48)**.

Regarding the complementary variables within the structural model, the **Customer Trust** variable recorded a positive and significant difference of **(0.37)**, while the **Customer Loyalty** variable ranked last with a mean difference value of **(0.36)**.

Measurement Model

The quality of the measurement model was checked using the following tests: Composite Reliability, Convergent Validity, Cronbach's Alpha and Indicator Loadings. The results showed that the model had a high level of measurement quality and met the statistical criteria approved by the Partial Least Squares Structural Equation Modeling (PLS-SEM) model as presented in the following table.

Table 6. Psychometric Properties of the Study Instrument

Variables and Items	Outer Loadings	Cronbach's Alpha (α)	Composite Reliability (CR)	Average Variance Extracted (AVE)
Reliability and Credibility		0.799	0.869	0.625
X1	0.841			
X2	0.743			
X3	0.789			
X4	0.787			
Application Interface		0.790	0.864	0.614
X6	0.728			
X7	0.864			
X8	0.737			
X10	0.797			
Responsiveness and Support		0.732	0.850	0.656
X12	0.725			
X14	0.796			
X15	0.899			
Privacy and Security		0.769	0.852	0.591
X16	0.832			
X18	0.707			
X19	0.763			
X20	0.767			
Customer Trust		0.870	0.906	0.660
X21	0.877			
X22	0.873			
X23	0.840			
X24	0.762			
X25	0.696			
Customer Loyalty		0.927	0.945	0.774
X26	0.869			
X27	0.877			
X28	0.839			
X29	0.911			
X30	0.902			

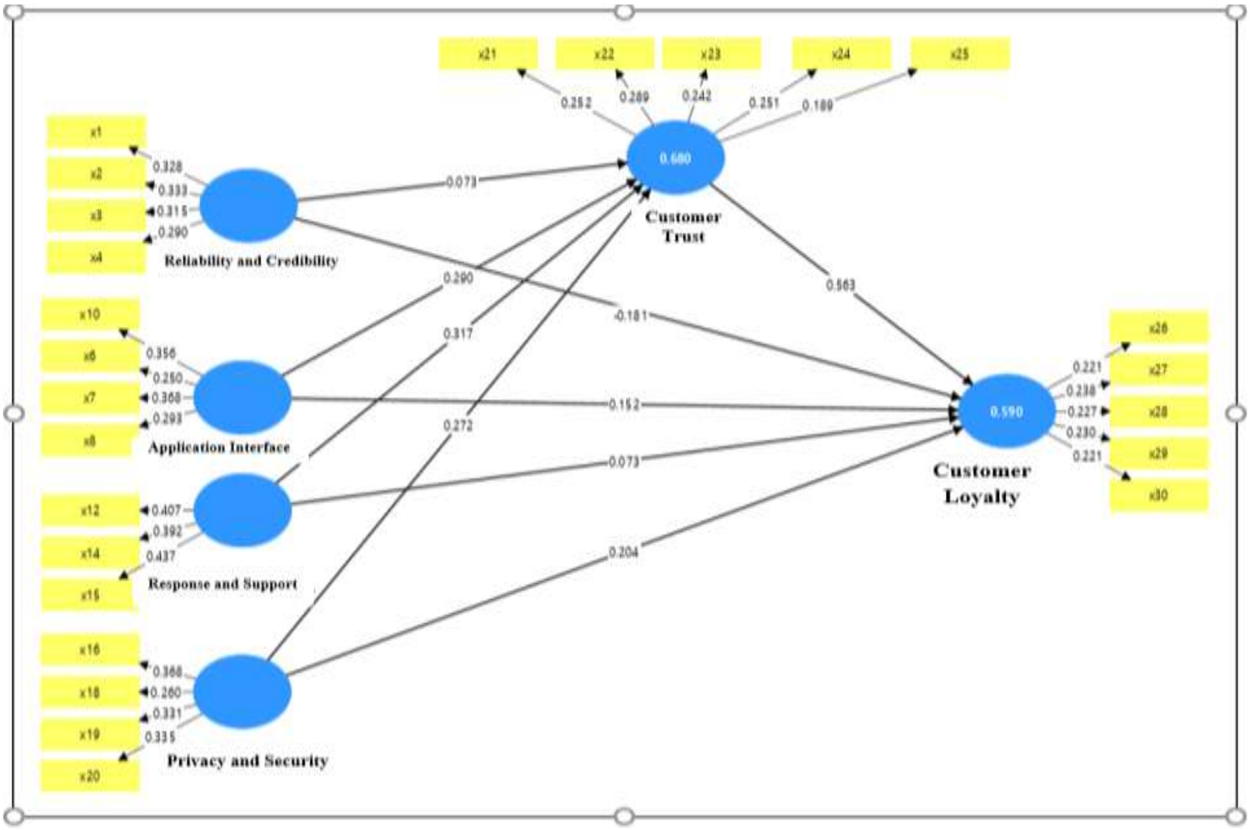
Source: Outputs of Smart PLS Software.

The statistical results presented in the previous table, which relate to the psychometric properties, indicate the exceptional efficiency and suitability of the study instrument. All values of **Convergent Validity (AVE)** exceeded the statistical threshold of **(70%)** specified by (Fornell and Larcker, 1981:46), with values ranging between **(0.59)** and **(0.77)**.

Regarding **Cronbach's Alpha** values, all indicators exceeded the critical statistical threshold of **(0.70)**, with values ranging between **(0.73)** and **(0.92)**. The **Composite Reliability (CR)** values ranged between **(0.85)** and **(0.94)**, exceeding the accepted statistical threshold of **(0.70)** for composite reliability. This confirms the high internal consistency and strong coherence among the study items.

Furthermore, all items related to the study variables achieved high and strong **Outer Loadings**, as most of them exceeded or closely approached the specified criterion of **(0.70)**. However, the items **(X5, X9, X11, X13, X17)** were deleted due to obtaining outer loadings below the threshold of **(0.70)**, which may affect the model quality. The exception was item **(X25)**, as it was very close to the threshold, with an outer loading value of **(0.69)**, and therefore did not affect the quality of the model according to the criteria established by (Hair and Ringle,2019:5).

The following figure illustrates the quality of the measurement model.



Source: Outputs of Smart PLS Software.

Figure 2. Quality of the Measurement Model

Discriminant Validity

To ensure the independence of the variables and their distinction from one another, the **Heterotrait-Monotrait Ratio (HTMT)** criterion was used, which is considered the most recent and accurate criterion in **Structural Equation Modeling (SEM)** compared with traditional methods (Henseler et al., 2015:118). The results are presented in the following table:

Table 7. Discriminant Validity

Electronic Banking Service Quality	Reliability and Credibility	Privacy and Security	Responsiveness and Support	Application Interface	Customer Trust	Customer Loyalty
Reliability and Credibility	0.791					
Privacy and Security	0.714	0.769				
Responsiveness and Support	0.653	0.676	0.810			
Application Interface	0.684	0.577	0.657	0.784		
Customer Trust	0.672	0.706	0.739	0.705	0.813	
Customer Loyalty	0.495	0.609	0.609	0.591	0.747	0.880

Source: Outputs of Smart PLS Software.

The statistical analysis results presented in the previous table indicate that the **discriminant validity** condition among the study variables has been achieved according to the **Fornell–Larcker criterion** (Fornell and Larcker, 1981:46). The results show that the square roots of the **Average Variance Extracted (AVE)** values, which appear on the diagonal of the previous table, were all higher than the inter-correlations among the variables and dimensions in the corresponding rows and columns.

These findings statistically confirm the accuracy of the measurement instrument, the independence of each variable, and the absence of overlap among the dimensions. This demonstrates the validity of the model and its readiness for hypothesis testing (Sarstedt and Hair, 2021:10).

Testing Direct Effect Hypotheses

This section examines the direct effects between the independent variable (**Electronic Banking Service Quality**) through its sub-dimensions, the dependent variable (**Customer Loyalty**), and the mediating variable (**Customer Trust**). The results of the hypothesis testing are presented in the following table:

Table 8. Direct Effect Hypothesis Testing

Symbol	Direct Effect Path	Path Coefficient	T-value	P-value	Result
H1	Reliability and Trustworthiness → Customer Loyalty	-0.181	1.441	0.150	Not Supported
H2	Privacy and Security → Customer Loyalty	0.204	1.687	0.092	Not Supported
H3	Responsiveness and Support → Customer Loyalty	0.073	0.590	0.555	Not Supported
H4	Application Interface → Customer Loyalty	0.152	1.278	0.201	Not Supported
H5	Reliability and Credibility → Customer Trust	0.073	0.742	0.458	Not Supported
H6	Privacy and Security → Customer Trust	0.272	2.933	0.003	Supported
H7	Responsiveness and Support → Customer Trust	0.317	3.531	0.000	Supported
H8	Application Interface → Customer Trust	0.290	3.034	0.002	Supported
H9	Customer Trust → Customer Loyalty	0.563	4.187	0.000	Supported

Source: SMART PLS output.

The results of the statistical analysis of the direct-effect hypotheses among the study variables indicate that the variable **Customer Trust** had the strongest effect on the dependent variable **Customer Loyalty**. This was evidenced by the path coefficient (**Beta**), which reached **(0.56)**, with a **T-value** of **(4.18)** at a significance level of **(0.000)**. The positive and significant effect of customer trust on customer loyalty is attributed to the significant influence of the dimensions of **Electronic Banking Service Quality Privacy and Security**, **Responsiveness and Support**, and **Application Interface** on **Customer Trust**. The results revealed positive and significant effects of these dimensions at a significance level of **(0.000**), thereby supporting hypotheses **(H6, H7, H8, and H9)**.

Conversely, the results revealed that the direct effect of the **Reliability and Trustworthiness** dimension on customer trust and customer loyalty was statistically insignificant and therefore rejected. Moreover, all direct paths linking the dimensions of electronic service quality to customer loyalty were also rejected. These findings indicate that the technical features and characteristics of electronic banking services alone are insufficient to establish sustainable customer loyalty unless they first operate through **Customer Trust** as a full mediating variable. In this context, customer trust transforms the outcomes of electronic banking service quality into long-term customer commitment.

Testing the Mediation Hypotheses (Indirect Effect)

A mediation analysis was conducted to examine the role of **Customer Trust** as a mediating variable in the relationship between **Electronic Banking Service Quality** and **Customer Loyalty**. The following table summarizes the results of the indirect path analysis.

Table 9. Testing the Indirect Effect Hypotheses

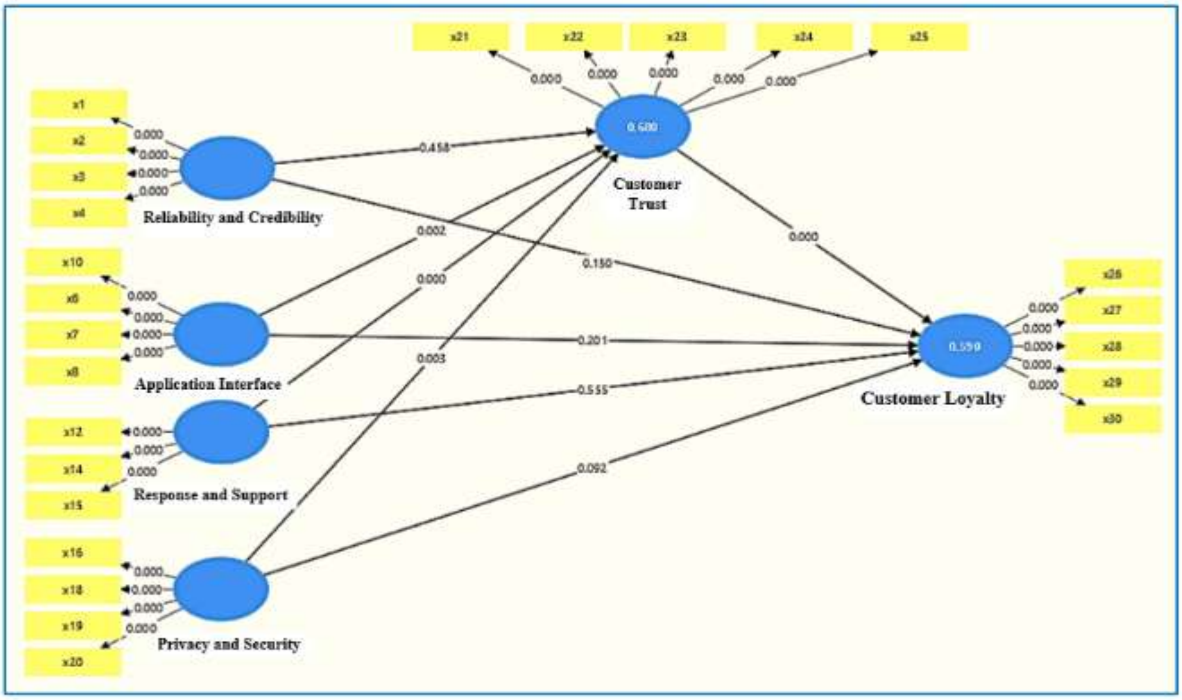
Code	Indirect Effect Path	Path Coefficient	T-value	P-value	Result
H10	Reliability and Trustworthiness → Customer Trust → Customer Loyalty	0.041	0.685	0.493	Not Supported
H11	Privacy and Security → Customer Trust → Customer Loyalty	0.153	2.728	0.006	Supported
H12	Responsiveness and Support → Customer Trust → Customer Loyalty	0.179	2.603	0.009	Supported
H13	Application Interface → Customer Trust → Customer Loyalty	0.163	2.246	0.025	Supported

Source: SMART PLS output.

The results of the statistical analysis of the indirect relationships among the study dimensions and variables highlight the fundamental role of **Customer Trust**. The findings supported three out of the four proposed hypotheses (**H11, H12, and H13**) at a significance level of (**P ≤ 0.05)**, with **T-values** exceeding the statistical threshold of (**1.96)**.

The results indicated that the indirect path **(Responsiveness and Support → Customer Trust → Customer Loyalty)** had the strongest effect, with a path coefficient of **(0.179)**, a **T-value** of **(2.603)**, and a **P-value** of **(0.009)**. This was followed by the indirect path **(Application Interface → Customer Trust → Customer Loyalty)**, with a path coefficient of (**0.163**), a **T-value** of **(2.246)**, and a **P-value** of (**0.025)**. The indirect path **(Privacy and Security → Customer Trust → Customer Loyalty)** ranked third, with a path coefficient of (**0.153)**, a **T-value** of **(2.728)**, and a **P-value** of **(0.006)**.

In contrast, the results did not support the indirect relationship for the **Reliability and Trustworthiness** path, leading to the rejection of hypothesis **(H10)**. The following figure illustrates the significance levels among the study variables.



Source: SMART PLS output.

Figure (3) Significance Levels of the Mediation Relationships Among the Study Variables

Conclusions and Recommendations

Conclusions

1. The study found that the technical aspects of electronic banking service quality (interface, privacy and security, responsiveness and support) are not enough to directly create customer loyalty. The result shows that the customers' trust in the bank is not full, therefore the trust is a necessary and complete mediator in the process of building customer loyalty.
2. The study found that psychological security of customers in digital environment is related to their perception of the presence of a responsive human and technical support that can respond quickly to their requests or emergency situations in financial transactions.
3. The study also found that the importance of service reliability, reducing errors, failures and service interruptions, ease of navigation and accessibility to services with minimal effort are not just features of the design, but are the key criteria by which customers determine the competence and credibility of the bank.
4. The study revealed that ensuring customers' banking information is secure, keeping financial transactions confidential and securing systems from security breaches are the number one defense to preserving customer trust and keeping customers from switching banks.
5. The study also found that the availability of digital banking services is now seen as a necessary service requirement, not something that can be used as a differentiator to build the trust and loyalty of the customer with the bank.
6. The study found that the electronic banking services market is high customer

mobility with respect to customers' loyalty. Customers still use the existing banking application, but they don't feel that they are attached to it enough to shift to a similar application of a different bank that has a better feature.

7. In conclusion, the study found that the most effective and reliable means of increasing customer loyalty and retention is by investing in financial and managerial means to strengthen the emotional reliability of the bank and the bank's institutional image.
8. The study found that the bank studied has a digital infrastructure that is highly acceptable to the study participants. But it is not about technology, it is about its effective management to create customer trust and loyalty.

Recommendations

1. The study suggests that the advertising and promotional strategy for electronic banking services should be rethought, moving away from technical aspects, like the speed of applications or the efficiency of services, to aspects that create greater customer loyalty, especially in the protection of the customer against fraud, security breaches and loss of customer information, which is the main basis of sustainable customer loyalty.
2. The study suggests the use of the advanced technology that enables the automated 24 hours customer support to address technical issues and offer immediate assistance in addition to human support services. Besides, dedicated customers should be offered 24 times a day hotline.
3. It is recommended to constantly update electronic banking services, but at the same time making them easy, secure and friendly to be used by different ages and education levels.
4. The study suggests that personalized service in the banking sector should be offered according to the requirements of individual clients. Depending on the customer's needs, such as business customers, some may need other application options, such as international money transfers and foreign currency payment services.
5. Release of separated applications, which can be considered as new versions of the original electronic banking application, should be avoided, as this can lead to security issues, the study recommends. Updates should be incorporated into the original app with same application name and login.
6. The study suggests creating a rewards program that would add points for electronic payments and/or bill settlement to the points available to customers. These points can then be used for monetary rewards, discounts or further banking services.
7. The study suggests that there should be a periodic assessment of the quality of electronic banking services from customers' point of view and customers should be given a chance to voice their problems using the application, and to give suggestions that help solve the problem and enhance the service quality.

The study suggests that to enhance the corporate social responsibility of the bank, it is needed to sponsor community and university programs that will advance digital financial literacy. This would further position the bank as a leader in secure digital transformation and would indirectly assist in gaining new customers who have already high level of trust into the bank.

References

1. Ahmed, M. A. H. (2023). The impact of the quality of electronic banking services in achieving customer satisfaction from the point of view of Al Rajhi Bank customers. *International Journal of Business and Management, 17*(1), 105–105.
2. Aji, S. R., & Al Rasyid, H. (2026). The effect of electronic word of mouth and company image on customer loyalty to Indonesian Sharia banks with satisfaction as an intervening variable. *Al-Kharaj: Journal of Islamic Economic and Business, 8*(1).
3. Anderson, M. (2025). *Building trust through reliability: A qualitative approach to understanding customer loyalty.*
4. Awang, Z. (2017). *Service quality and customer satisfaction in electronic banking. International Journal of Business and Management.*
5. Ayinaddis, S. G., Taye, B. A., & Yirsaw, B. G. (2023). Examining the effect of electronic banking service quality on customer satisfaction and loyalty: An implication for technological innovation. *Journal of Innovation and Entrepreneurship, 12*(1), 22.
6. Bilgihan, A. (2016). Gen Y customer loyalty in online shopping: An integrated model of trust, user experience and branding. *Computers in Human Behavior, 61*, 103–113. https://doi.org/10.1016/j.chb.2016.03.014
7. Binti Subahudin, S. N. A., & Shahrom, M. (2023). The effect of electronic banking service quality on customer satisfaction. *Romanian Journal of Information Technology and Automatic Control, 33*(2), 35–46.
8. Chowdhury, H. J., Quaosar, G. M. A. A., Saba, N. A., & Rahman, M. A. (2024). The mediating role of trust in shaping customer loyalty of bank: Insights from a developing country perspective. *Financial Markets, Institutions and Risks, 8*(4), 1–13. https://doi.org/10.61093/fmir.8(4).1-13.2024
9. Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50. https://doi.org/10.2307/3151312
10. Guo, J., Zhang, W., & Xia, T. (2023). Impact of shopping website design on customer satisfaction and loyalty: The mediating role of usability and the moderating role of trust. *Sustainability, 15*, 6347. https://doi.org/10.3390/su15086347
11. Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review, 31*(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203
12. Hassan, T. H., Al-Hyari, H. S., Helal, M. Y., Elshawarbi, N. N., Mahmoud, H. M. E., Hashish, M. E., & Anas, A. M. (2024). Meeting online customers' expectations: How

do e-service quality and e-reputation impact restaurant e-customer satisfaction? *African Journal of Hospitality, Tourism and Leisure, 13*(3), 494–503.

13. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115–135.
14. İslamoglu, E., & Hassan, A. (2025). The impact of electronic banking service quality on customer satisfaction in participation banks: A case study of Lebanon. *Trends in Business and Economics, 39*(4), 584–603.
15. Kappil, F. T., & Santhi, P. (2025). Navigating the digital wave: An in-depth analysis of service quality and user satisfaction in e-banking. *Humanities and Social Sciences Communications, 12*(1), 1–11.
16. Kim, L., Jindabot, T., & Yeo, S. F. (2024). Understanding customer loyalty in the banking industry: A systematic review and meta-analysis. *Heliyon, 10*(17).
17. Naparota, L., & Canda, C. M. A. (2025). The e-banking service quality and customer satisfaction: Evidence from Dipolog City. *Divine Word International Journal of Management and Humanities, 4*(2), 1506–1523.
18. Natrilia, D., Rachmawati, D., & Yancik, Y. (2025). The influence of e-service quality on repurchase intention through customer satisfaction among Tokopedia users in Depok City. *Neo Journal of Economy and Social Humanities, 4*(3), 465–476.
19. Nguyen, T. D., Banh, U. U., Nguyen, T. M., & Nguyen, T. T. (2023). E-service quality: A literature review and research trends. In *Intelligent Sustainable Systems: Selected Papers of WorldS4 2022* (Vol. 1, pp. 47–62).
20. Otopah, A. A., Dogbe, C. S. K., Amofah, O., & Ahlijah, B. (2024). Digital marketing and purchase intention of bank services: The role of trust and engagement. *International Journal of Bank Marketing, 42*(2), 241–267. https://doi.org/10.1108/IJBM-02-2023-0110
21. 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. https://doi.org/10.1177/1094670504271156
22. Rachma, M., Junaidi, J., & Anwar, S. M. (2026). The role of satisfaction in enhancing customer loyalty in Islamic mobile banking services of Bank Syariah Indonesia. *Golden Ratio of Mapping Idea and Literature Format, 6*(2), 1325–1336.
23. Rahmon, T. A., & Ayantoso, A. J. (2024). Impact of e-banking service quality on customer satisfaction in Osun State. *International Journal of Research and Innovation in Social Science, 8*(7).
24. Santos, A., Coelho, A., & Neves, M. E. D. (2026). A systematic literature review on customer loyalty and its relationship to CSR: State of the art and future research agenda. *Corporate Social Responsibility and Environmental Management.*
25. Sarstedt, M., Ringle, C. M., & Hair, J. F. (2021). Partial least squares structural equation modeling. In *Handbook of Market Research* (pp. 587–632). Springer International Publishing.

26. Saunders, M., Lewis, P., & Thornhill, A. (2023). *Research methods for business students* (9th ed.). Pearson Education.

27. Shankar, A., & Jebarajakirthy, C. (2019). The influence of e-banking service quality on customer loyalty: A moderated mediation approach. *International Journal of Bank Marketing, 37*(5), 1119–1142.

28. Thilakaratna, K. G. S. S., Premarathna, W. G. I. D., & Tennekoon, S. T. M. S. (2023). The impact of electronic banking service quality on customer satisfaction during COVID-19.

29. Ullah, N. (2021). *The influence of e-banking service quality on customer loyalty: A moderated mediation approach.*

30. Wani, A. Z., Bhatnagar, A., & Mir, M. A. (2023). The impact of e-service quality on e-loyalty and revisit intention through the mediating role of e-satisfaction and e-trust. *African Journal of Hospitality, Tourism and Leisure, 12*(2), 555–573. https://doi.org/10.46222/ajhtl.19770720.385