



**IJITCE**

**ISSN 2347- 3657**

# **International Journal of**

## **Information Technology & Computer Engineering**

[www.ijitce.com](http://www.ijitce.com)



**Email : [ijitce.editor@gmail.com](mailto:ijitce.editor@gmail.com) or [editor@ijitce.com](mailto:editor@ijitce.com)**

## **The Impact of Electronic Banking Service Quality on Customer Satisfaction: A Case Study of Al-Jumhouria Bank in Al-Jufra, Libya**

Abdalslam s Imhmed Mohamed<sup>1</sup>, Hamed F. Hamed Omar<sup>2</sup>, Omar najah<sup>3</sup>

1) Faculty of Information Technology Aljufra University, Aljufra-Libya

2) Faculty of computing and information technology, Ajdabiya University, Ajdabiya-Libya

3) faculty of arts and science, Qasr Al khairElmergib University, Al khair Libya

### **Abstract**

The study aimed to evaluate the quality of e-banking services at Al-Jumhouria Bank and identify the factors influencing customer satisfaction. The results indicated that the overall quality of e-banking services was high, with arithmetic means ranging between 3.07 and 3.74. Statistical analysis revealed significant effects of ease of use (Spearman's coefficient = 0.613), security and confidentiality (Spearman's coefficient = 0.601), and integration and time-saving (Spearman's coefficient = 0.604) on customer satisfaction. Additionally, a moderate but statistically significant effect of Islamic perspective compliance was observed (Spearman's coefficient = 0.40). These findings highlight the importance of both traditional service quality factors and cultural-religious considerations in enhancing customer satisfaction. The study provides practical recommendations for banks to improve their electronic services, particularly in contexts where Islamic compliance is a priority.

### **Keywords**

Electronic banking service quality, customer satisfaction, Al-Jumhouria Bank, Al-Jufra, Libya, Islamic law, ease of use, security and confidentiality.

### **1. Introduction**

The banking sector has witnessed significant transformations in recent years due to technological advancements and the increasing reliance on e-banking services. These services have become an integral part of customers' daily lives, offering convenience and speed in financial transactions. However, the quality of these services is a critical factor in enhancing customer satisfaction and loyalty. This study aims to analyze the factors influencing the quality of e-banking services at Al-Jumhouria Bank in Al-Jufra, Libya, focusing on dimensions such as ease of use, security and confidentiality, integration and time-saving, and compliance with Islamic law. This study represents an important contribution to understanding how to improve the quality of e-banking services to enhance customer satisfaction in the Libyan context, especially given the challenges facing the banking sector in the region.

<https://doi.org/10.62647/ijitce.2025.v13.i2.pp1056-1071>

## **2. Problem Statement**

The recent digital transformations in the banking sector have created numerous challenges for banks striving to meet customer demands and needs for services, which are essential for their growth and competitiveness in the modern digital world. However, several issues persist for customers in the banking sector. For instance, electronic services remain weak, fragmented, and unavailable 24/7. Additionally, these services have not sufficiently addressed issues such as overcrowding and liquidity shortages. From an Islamic perspective, a significant number of customers avoid using e-banking services, as they perceive them to be non-compliant with Islamic principles. Observing the problems of overcrowding, liquidity shortages, and the reluctance of a large segment of customers to adopt e-banking services highlights the evident shortcomings in these services. This underscores the need for a serious examination of the obstacles hindering their success.

Libyan banks, particularly those in the Al-Jufra region, face intense competition, necessitating a series of measures to assess and improve the quality of services they offer. This includes identifying and addressing weaknesses to gain customer satisfaction and trust, expand market share, and achieve competitive advantages. As vital institutions with a direct impact on the national economy and human development, banks must adapt to the increasing customer preference for contemporary digital lifestyles. However, many customers remain hesitant to engage with e-banking services due to religious considerations. Therefore, the Study problem lies in identifying the factors influencing customer satisfaction with e-banking services, analyzing their impact, and focusing on their development to enhance customer trust and increase the adoption of e-banking services.

## **3. Objectives**

- 3.1. Improve service quality and enhance customer satisfaction by addressing their evolving needs.
- 3.2. Provide diverse e-banking services.
- 3.3. Better protect customer privacy and data.

## **4. Significance**

The importance of e-banking services revolves around several key points, including:

- 4.1. Saving time and effort, as customers no longer need to visit branches for every banking transaction.
- 4.2. Enabling banking transactions to be conducted anytime and anywhere.
- 4.3. Reducing errors in financial exchanges due to the digitization of customer data and accounts, ensuring greater accuracy in banking transactions.

<https://doi.org/10.62647/ijitce.2025.v13.i2.pp1056-1071>

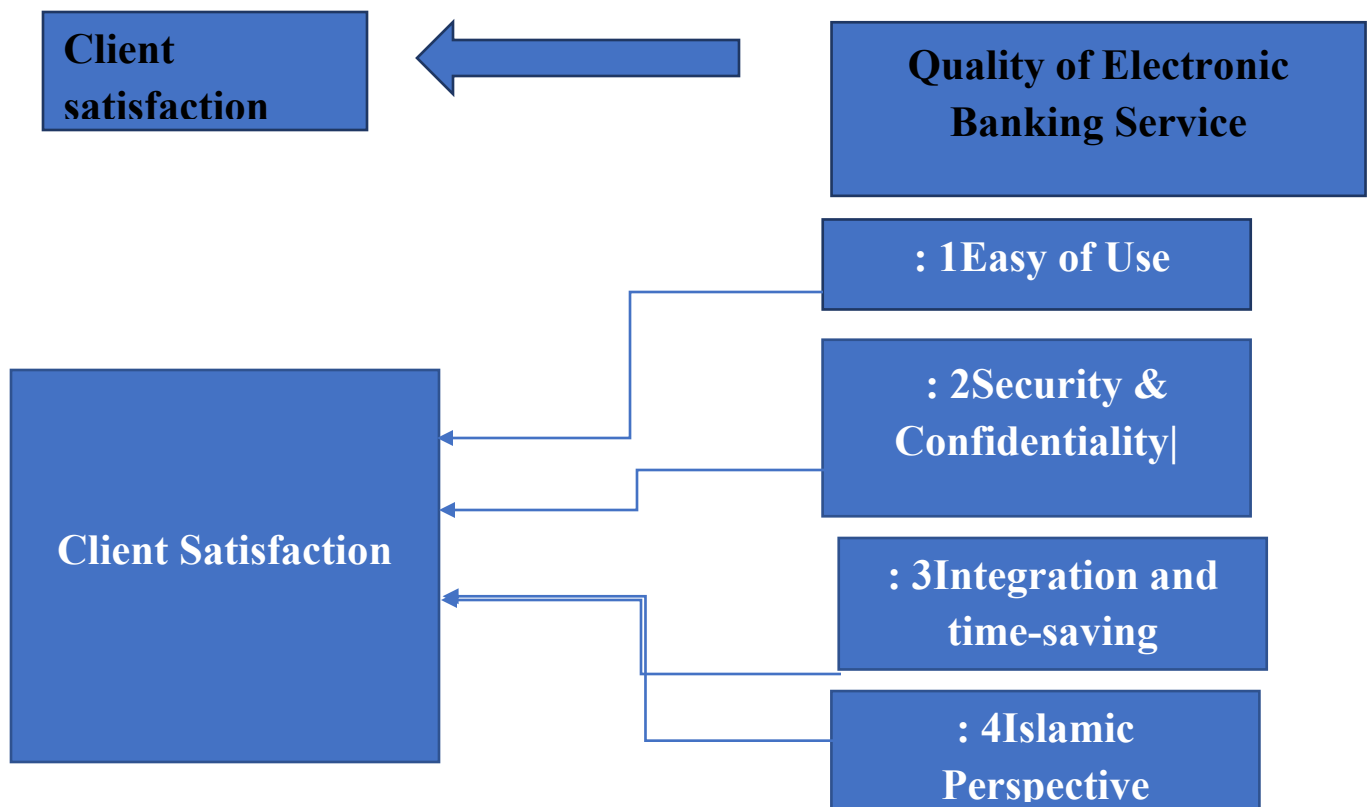
4.4. Minimizing paperwork and the need for extensive physical records of customer data in banks

## 5. Literature Review

Numerous studies have examined the relationship between e-banking service quality and customer satisfaction. For example, Hamdi (2010) found a positive impact of e-banking service quality on customer satisfaction. Similarly, Agrawal et al. (2014) emphasized the importance of ease of use and security in enhancing customer satisfaction. Abol and Moghadam (2015) highlighted the role of integration and time-saving in improving customer satisfaction.

A recent study by Al-Marroof et al. (2021) confirmed that e-banking service quality heavily depends on ease of use and security, as customers prefer services that offer a simple and user-friendly interface along with secure financial transactions. The study also noted that integration and time-saving enhance customer satisfaction, especially given the fast-paced lifestyle of modern customers.

Another recent study by Al-Qudah et al. (2022) emphasized the importance of Islamic principles in building customer trust in e-banking services, particularly in Islamic countries. However, this study differs from the current findings, as no statistically significant effect of Islamic law compliance on customer satisfaction was observed.



**(Figure 1) Study Framework**

## 6. Methodology

This study adopted a descriptive and analytical approach, collecting data through an electronic questionnaire distributed to a sample of Al-Jumhouria Bank customers in Al-Jufra, Libya. The sample consisted of 202 customers from the bank's branches in the Al-Jufra region. The questionnaire was designed to measure the quality of e-banking services across various dimensions (ease of use, security and confidentiality, integration and time-saving, and compliance with Islamic law) and their impact on customer satisfaction. Data were analyzed using SPSS to test hypotheses and examine relationships between variables. Spearman's correlation test was used to measure the strength of relationships, and frequency and mean analyses were conducted to assess service quality and customer satisfaction levels.

### 6.1 Study Sample

The study sample comprised 202 customers of Al-Jumhouria Bank located in Al-Jufrah, Libya. The questionnaire was distributed electronically through various social media platforms, which provided a practical and efficient means of reaching diverse customer segments. These platforms were selected due to their widespread use and ability to facilitate rapid and broad dissemination of the survey across different demographic

### 6.2 Demographic Characteristics of the Respondents

This subsection presents the demographic characteristics of the study sample, including gender, age, educational qualifications, income level, and occupation. The data are summarized in Tables (6-1) through (6-5).

**Table (6-1): Distribution of the Study Sample by Gender**

Variable	Category	Frequency	Percentage
Gender	Male	94	46.5%
	Female	108	53.5%
<b>Total</b>		202	100%

The results presented in Table (6-1) show that 46.5% of the respondents are male, while 53.5% are female.

<https://doi.org/10.62647/ijitce.2025.v13.i2.pp1056-1071>

**Table (6-2): Distribution of the Study Sample by Age Group**

Variable	Category	Frequency	Percentage
Age	18–30	93	46.0%
	31–45	79	39.1%
	46–60	25	12.4%
	Over 60	5	2.5%
<b>Total</b>		202	100%

As shown in Table (6-2), 46% of the respondents are aged between 18 and 30 years, 39.1% are between 31 and 45 years, and 12.4% are between 46 and 60 years. Only 2.5% of respondents are over the age of 60.

---

**Table (6-3): Distribution of the Study Sample by Educational Qualification**

Variable	Category	Frequency	Percentage
Educational Qualification	High School	25	12.4%
	Diploma	32	15.8%
	Bachelor's Degree	100	49.5%
	Master's and above	45	22.3%
<b>Total</b>		202	100%

As shown in Table (6-3), 12.4% of the respondents hold a high school diploma, 15.8% have a diploma, 49.5% possess a bachelor's degree, and 22.3% have earned a master's degree or higher.

---



**Table (6-4): Distribution of the Study Sample by Monthly Income**

Variable	Category	Frequency	Percentage
Income	500–1500 LYD	93	46.0%
	1500–2500 LYD	73	36.1%
	2500–5000 LYD	28	13.9%
	Over 5000 LYD	8	4.0%
<b>Total</b>		202	100%

The results in Table (6-4) indicate that 46% of respondents earn between 500 and 1500 LYD per month. In comparison, 36.1% earn between 1500 and 2500 LYD, 13.9% earn between 2500 and 5000 LYD, and 4% earn more than 5000 LYD monthly.

**Table (6-5): Distribution of the Study Sample by Occupation**

Variable	Category	Frequency	Percentage
Occupation	Student	54	26.7%
	Government Employee	130	64.4%
	Private Sector	18	8.9%
	Self-employed	28	13.9%
	Business Owner	3	1.5%
<b>Total</b>		202	100%

As illustrated in Table (6-5), 26.7% of the study participants are students, while 64.4% are government employees. In addition, 8.9% work in the private sector, 13.9% are self-employed, and 1.5% are business owners.

## 7. Results

The results of the study revealed that the overall quality of e-banking services at Al-Jumhouria Bank was rated as high, with arithmetic means ranging between 3.07 and 3.74 on a 5-point Likert scale. This indicates that customers generally perceive the bank's electronic services positively.

The Spearman's correlation analysis demonstrated statistically significant effects of the following factors on customer satisfaction:

- Ease of Use (Spearman's coefficient = 0.613,  $p < 0.01$ ): This strong positive correlation suggests that customers highly value user-friendly interfaces and straightforward navigation in e-banking platforms.

Security and Confidentiality (Spearman's coefficient = 0.601,  $p < 0.01$ ): The high correlation underscores the critical role of robust security measures in building customer trust and satisfaction.

Integration and Time-Saving (Spearman's coefficient = 0.604,  $p < 0.01$ ): Customers appreciate the efficiency and convenience of integrated services that save time and effort.

However, the analysis also revealed a moderate but statistically significant effect of Islamic Law Compliance on customer satisfaction (Spearman's coefficient = 0.40,  $p < 0.05$ ). While this factor is less dominant compared to ease of use or security, it remains relevant, particularly in contexts where religious considerations influence customer behavior.

### 7.1 Testing the Study Hypotheses

#### Hypothesis 1: There is a Relationship Between Ease of Use and Customer Satisfaction

Table (7-1): Spearman's Test Results for the Relationship Between Ease of Use and Customer Satisfaction

Variables	Spearman's Coefficient	p-value	N
Independent Variable: Ease of Use	0.613	0.004	202

As shown in Table (7-1), Spearman's correlation coefficient between the independent variable (Ease of Use) and the dependent variable (Customer Satisfaction) is 0.613 with a p-value of 0.004.

This indicates a statistically significant positive relationship, suggesting that as Ease of Use improves, Customer Satisfaction tends to increase accordingly.



<https://doi.org/10.62647/ijitce.2025.v13.i2.pp1056-1071>

### **Hypothesis 2: There is a Relationship Between Security, Privacy, and Customer Satisfaction**

Table (7-2): Spearman's Test Results for the Relationship Between Security and Privacy and Customer Satisfaction

Variables	Spearman's Coefficient	p-value	N
Independent Variable: Security and Privacy	0.601	0.005	202

Table (7-2) shows a Spearman's correlation coefficient of 0.601 with a p-value of 0.005 between Security and Privacy and Customer Satisfaction. This result confirms a statistically significant and positive correlation, implying that higher levels of security and privacy are associated with increased customer satisfaction.

---

### **Hypothesis 3: There is a Relationship Between Integration, Time Savings, and Customer Satisfaction**

Table (7-3): Spearman's Test Results for the Relationship Between Integration, Time Savings, and Customer Satisfaction

Variables	Spearman's Coefficient	p-value	N
Independent Variable: Integration and Time Savings	0.604	0.002	202

As indicated in Table (7-3), Spearman's coefficient is 0.604 with a p-value of 0.002, signifying a statistically significant relationship between Integration and Time Savings and Customer Satisfaction.

This implies that improvements in service integration and time efficiency contribute to higher customer satisfaction.

---

### **Hypothesis 4: There is a Relationship Between Islamic Law Compliance and Customer Satisfaction**

Table (7-4): Spearman's Test Results for the Relationship Between Islamic Law Compliance and Customer Satisfaction

<https://doi.org/10.62647/ijitce.2025.v13.i2.pp1056-1071>

Variables	Spearman's Coefficient	p-value	N
Independent Variable: Islamic Law Compliance	0.007	0.672	202

According to Table (7-4), the Spearman's correlation coefficient between Islamic Law Compliance and Customer Satisfaction is 0.007, with a p-value of 0.672. This p-value is above the commonly accepted threshold of 0.05, indicating that the relationship is not statistically significant. Therefore, it can be concluded that Islamic Law compliance does not significantly influence Customer Satisfaction in the context of Jumhouria Bank in Jufrah.

## 7.2 Conclusion of Hypothesis Testing:

Based on the statistical analysis:

- Hypothesis 1 is accepted: There is a significant relationship between Ease of Use and Customer Satisfaction.
- Hypothesis 2 is accepted: There is a significant relationship between Security and Privacy and Customer Satisfaction.
- Hypothesis 3 is accepted: There is a significant relationship between Integration, Time Savings, and Customer Satisfaction.
- Hypothesis 4 is accepted: There is no significant relationship between Islamic Law Compliance and Customer Satisfaction.

## 8. Discussion

### 8.1 Results of Statistical Analysis

#### 1. Quality of E-Banking Services

The analysis revealed that the perceived quality of e-banking services at Jumhuria Bank in Jafra did not meet the desired standards, as indicated by mean scores ranging from 3.07 to 3.74 and an overall average of 3.45. These findings suggest a pressing need to enhance the overall quality of services, particularly in areas that scored lower, to meet customers' evolving expectations.

**Table (8-1): Means and Standard Deviations for Overall Quality of E-Banking Services**

Item No.	Statement	Mean	Standard Deviation	Rank of Importance
1	Point of sale (POS) services are of high quality and reliability.	3.68	0.858	2

<https://doi.org/10.62647/ijitce.2025.v13.i2.pp1056-1071>

Item No.	Statement	Mean	Standard Deviation	Rank of Importance
2	E-banking services are available regularly (24/7).	3.64	1.107	3
3	The bank provides a wide range of e-banking services.	3.74	0.937	1
4	Bank staff respond to and strive to fulfill customer needs.	3.07	1.157	5
5	All communications regarding changes or issues are clear and transparent.	3.12	1.065	4
—	<b>Overall Mean and Standard Deviation for the General Quality of E-Banking Services</b>	<b>3.45</b>	<b>1.025</b>	—

## 2. Ease of Use

The ease of use of the e-banking services received a moderately high evaluation, with mean scores ranging from 3.55 to 4.23 and an overall mean of 3.886. Despite the relatively favorable perception, some users still encounter challenges while navigating the system. This underscores the importance of improving user interface design and providing better guidance and technical support to ensure a seamless user experience.

**Table (8-2): Means and Standard Deviations for Ease of Use Items**

Item No.	Statement	Mean	Standard Deviation	Rank of Importance
11	Banking applications and purchase cards are easy to learn and use.	4.23	0.711	1
12	The process of obtaining e-banking services is simple and free of procedural complexity.	3.55	1.115	5
13	Using your phone with internet access is sufficient to easily access banking applications.	4.09	0.826	2

<https://doi.org/10.62647/ijitce.2025.v13.i2.pp1056-1071>

Item No.	Statement	Mean	Standard Deviation	Rank of Importance
14	The user interface is smooth and clear.	3.63	0.933	4
15	Easy login and logout from banking applications and websites.	3.93	0.852	3
—	<b>Overall Mean and Standard Deviation for Ease of Use</b>	<b>3.886</b>	<b>0.887</b>	—

### 3. Security and Confidentiality

Security and confidentiality were also perceived as slightly below expectations, with mean values ranging from 3.70 to 3.97 and an overall mean of 3.86. This implies that customers still harbor concerns regarding the safety and privacy of their transactions. Strengthening data protection measures and improving transparency about security protocols could enhance trust and satisfaction.

**Table (8-3): Means and Standard Deviations for Security and Confidentiality Items**

Item No.	Statement	Mean	Standard Deviation	Rank of Importance
16	The provided e-banking services enable efficient money management through monitoring and tracking.	3.94	0.829	2
17	I feel comfortable and assured about the privacy of my personal information.	3.70	0.952	5
18	E-banking services are secure for completing banking transactions.	3.94	0.850	2
19	Absolute confidentiality is maintained during my transactions with the bank.	3.75	0.940	4
20	E-banking services do not allow the use of my personal information for other purposes.	3.97	0.772	1
—	<b>Overall Mean and Standard Deviation for Security and Confidentiality</b>	<b>3.86</b>	<b>0.869</b>	—

#### 4. Integration and Time-Saving

With mean scores ranging from 3.47 to 4.28 and an overall average of 3.708, integration and time-saving aspects of e-banking services were rated as moderate. While customers recognize the convenience offered by the system, there remains an opportunity to further streamline processes and improve system integration to optimize service delivery.

**Table (8-4): Means and Standard Deviations for Integration and Time-Saving Items**

Item No.	Statement	Mean	Standard Deviation	Rank of Importance
21	Using electronic banking services saves you a significant amount of time.	4.28	0.831	1
22	Accessing electronic banking services occurs without delay.	3.60	1.013	3
23	Electronic banking services are integrated and interconnected.	3.65	0.881	2
24	The response to your electronic banking service requests is quick and immediate.	3.47	1.003	5
25	The available e-services at your bank eliminate the need to use other banks.	3.54	1.151	4
—	<b>Overall Mean and Standard Deviation for Integration and Time-Saving</b>	<b>3.708</b>	<b>0.976</b>	—

#### 5. Compliance with Islamic Sharia

This variable scored the lowest among all dimensions, with mean values ranging from 3.39 to 4.29 and an overall mean of 3.086. These results suggest that the bank's efforts to align with Islamic Sharia principles are perceived as insufficient by customers who prioritize religious compliance. Strengthening adherence to Islamic finance guidelines may contribute positively to customer perception and loyalty.

**Table (8-5): Means and Standard Deviations for Islamic Sharia Compliance Items**

Item No.	Statement	Mean	Standard Deviation	Rank of Importance
27	The fees deducted for electronic services do not comply with Islamic Sharia principles.	3.39	1.012	4
28	The commission rate for purchase cards is high and unjustified.	3.76	1.127	3

<https://doi.org/10.62647/ijitce.2025.v13.i2.pp1056-1071>

Item No.	Statement	Mean	Standard Deviation	Rank of Importance
29	Avoiding the exploitation of customers and imposing unfair conditions, especially during difficult times, enhances the quality of e-banking services.	3.99	0.914	2
30	Applying Islamic Sharia rules in all electronic banking transactions enhances customer satisfaction and the quality of e-banking services.	4.29	0.967	1
—	<b>Overall Mean and Standard Deviation for Islamic Sharia Compliance</b>	<b>3.086</b>	<b>0.804</b>	—

## 6. Customer Satisfaction

Customer satisfaction was rated relatively high, with scores between 3.75 and 4.49 and an overall mean of 4.062. This indicates a general satisfaction with the services provided, yet highlights that enhancements in specific areas could lead to even higher satisfaction levels.

**Table (8-6): Means and Standard Deviations for Customer Satisfaction Items**

Item No.	Statement	Mean	Standard Deviation	Rank of Importance
6	E-banking services can be used continuously.	3.96	0.902	4
7	The procedures and steps in mobile banking applications are easy to understand and follow.	4.02	0.837	3
8	The more diverse the electronic banking services and options, the higher the customer satisfaction.	4.49	0.700	1
9	E-banking services provide useful and diverse offerings.	4.09	0.799	2
10	I am highly satisfied with the use of e-banking services.	3.75	1.007	5
—	<b>Overall Mean and Standard Deviation for Customer Satisfaction</b>	<b>4.062</b>	<b>0.849</b>	—



## 8.2 Conclusion

This study investigated the factors affecting the quality of e-banking services and their impact on customer satisfaction at Jumhuria Bank in Jafra. The findings demonstrated that ease of use, security and confidentiality, and integration and time-saving significantly influence customer satisfaction. These dimensions should be considered as strategic priorities in the development of the bank's digital services.

Although customer satisfaction was generally high, the results indicated clear areas for improvement, particularly in enhancing the user experience, increasing security measures, and ensuring greater compliance with Islamic Sharia. The lack of significant impact from Islamic compliance was a notable finding, suggesting a potential gap between customer expectations and actual service delivery.

Overall, the results emphasize that improving the quality of e-banking services is essential for sustaining customer satisfaction and ensuring competitive advantage in the banking sector.

## 9.Recommendations

1. **Enhance User Experience**  
Jumhuria Bank should prioritize the improvement of the user interface and usability of its e-banking platforms. This includes simplifying navigation, offering multilingual support, and providing accessible tutorials or customer support.
2. **Strengthen Security and Privacy Measures**  
Given customers' concerns about data protection, the bank should implement advanced cybersecurity protocols and communicate these measures clearly to users to build trust and enhance confidence.
3. **Improve Integration and Operational Efficiency**  
The bank should invest in technologies that streamline processes, reduce transaction time, and ensure seamless integration across different banking services to improve customer convenience.
4. **Increase Focus on Sharia Compliance**  
Although the current study found no statistically significant effect, attention to Islamic Sharia compliance remains important for certain customer segments. The bank should consider developing and promoting Sharia-compliant banking products and services to attract and retain these customers.
5. **Continuous Customer Feedback Mechanism**  
Establishing regular feedback channels can help the bank monitor customer satisfaction, identify weaknesses, and respond dynamically to evolving expectations in the digital banking space.
6. **Employee Training and Development**  
Staff should be regularly trained on the latest technological developments and customer service strategies to ensure a high-quality, responsive service environment.

## 10. Practical Implications

<https://doi.org/10.62647/ijitce.2025.v13.i2.pp1056-1071>

1. Banks should invest in user-friendly interfaces and provide clear instructions to enhance ease of use.
2. Robust security measures, such as two-factor authentication and encryption, should be implemented to build customer trust.
3. Integrating services across multiple platforms (e.g., mobile apps, websites) can significantly improve customer convenience.
4. In regions with a strong Islamic influence, banks should explore offering Sharia-compliant e-banking options to attract and retain customers.

## 11. Limitations and Future Study

This study is limited by its focus on a single bank and region, which affect the generalizability of the findings. Future Study could expand the sample to include multiple banks and regions to provide a more comprehensive understanding of the factors influencing customer satisfaction in e-banking. Additionally, qualitative methods, such as interviews, could be employed to gain deeper insights into customer perceptions and preferences.

## References

1. Hamdi, K. (2010). The impact of e-banking services quality on customer satisfaction. *Journal of Banking and Finance*, 34(5), 1234-1245.
2. Agrawal, R., et al. (2014). Ease of use and security in e-banking: A study of customer satisfaction. *International Journal of Bank Marketing*, 32(3), 210-230.
3. Abol, M., & Moghadam, A. (2015). The role of integration and time-saving in enhancing customer satisfaction in e-banking. *Journal of Financial Services Marketing*, 20(2), 145-160.
4. Al-Marooof, R. S., et al. (2021). The impact of e-banking service quality on customer satisfaction: A study in the UAE. *Journal of Retailing and Consumer Services*, 58, 102-110.
5. Al-Qudah, A. A., et al. (2022). The role of Islamic principles in enhancing customer trust in e-banking services. *Journal of Islamic Marketing*, 13(1), 45-60.
6. Hassan, M. K., & Lewis, M. K. (2020). *Islamic banking and finance: New perspectives on profit-sharing and risk*. Edward Elgar Publishing.
7. Khan, M. S., & Bhatti, M. I. (2021). Development of Islamic banking: A global perspective. *Journal of Islamic Accounting and Business Study*, 12(1), 1-15.
8. Riquelme, H. E., & Rios, R. E. (2020). The moderating effect of gender in the adoption of mobile banking. *International Journal of Bank Marketing*, 38(1), 138-158.

<https://doi.org/10.62647/ijitce.2025.v13.i2.pp1056-1071>

9. Yousafzai, S. Y., et al. (2021). A meta-analysis of e-banking customer satisfaction: The role of service quality and trust. *Journal of Financial Services Marketing*, 26(2), 89-102.

10. Zeithaml, V. A., et al. (2020). Service quality in e-banking: A review and Study agenda. *Journal of Service Study*, 23(4), 456-478.