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The impact of information security on user trust in electronic banking services

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Abstract

For individuals in charge of information security in banks especially electronic banks information security has been one of the most important factors to create consumer confidence in banking services. Consequently, our study investigated the influence of information security on the confidence consumers have in electronic banking services in Iraq. This research applied the descriptive-analytic method for conducting the research. As a result of the study, there was an average level of user confidence in electronic banking services in Iraq 3.10 with a standard deviation of 1.04 as well as an average level for the three dimensions of user confidence in electronic banking services (security, satisfaction, meeting obligation). In addition, there was a statistically positive relationship between the application of information security and the confidence of consumers in electronic banking services in Iraq at the .01 level. Based upon these results, for each 1 percent increase in the application of information security technology, the confidence of consumers in electronic banking services in Iraq increased by 1.543%. These results confirm the major objective of our study. Thus, we recommend that a key strategy to improve the confidence of consumers in electronic banking services in Iraq would be to utilize advanced security technologies (i.e., encryption) to secure the confidentiality of the financial and personal information of consumers.

Keywords: Information Security, User Trust, Electronic Banking Services

Introduction

Technology-based banking services have created an urgent need for bank management to implement security protocols to protect against the theft of customer data in order to minimize risk to the security of banks. As such, banking institutions have made a concerted effort to create effective security policies to protect against information security threats and prevent data and asset leakage, fraud, and unauthorized access to their systems. (Al-Ghariwi, 2024, p. 111)^[9]

Therefore, the security of information in electronic banking is the number one priority for all who manage information security in banks. This issue has been one of the major obstacles electronic banks have encountered due to technological advancements occurring daily, and by some exploiting that technology to develop the crimes they commit. Therefore, the degree to which banks can protect their customers' information has the greatest influence upon how much their customers will trust them when conducting Internet based financial transactions. (Al-Mikhlaifi, 2018, p. 602)^[13]

Given the increasingly rapid rate at which our world is becoming a more digital place, the confidence users have in electronic banking services is directly related to the effectiveness of the banks in creating a secure, dependable environment for the sharing of information. If the level of protection provided through the protection systems and information security measures employed by the banks are effective, then the greater the levels of comfort users will feel about using the services, and thus the greater the reliance they will place on those services. Conversely, if a bank's security systems are breached or hacked into, then that comfort and reliance placed on those services will be reduced, and ultimately will affect the adoption of electronic transactions. Thus, there is a critical need to study the relationship between information security and user trust, as a means of better understanding user behavior and attitudes in the digital banking environment.

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Chapter One: Methodological Framework of the Research

First: The Research Problem

As technology continues to evolve and expand in terms of digital transformation in the banking industry, electronic banking has also evolved into a regular component of consumers' day-to-day life. As a result of this increase in electronic banking, concerns regarding information security have grown and have been exacerbated by the increased number of cyber-attacks, hacking and electronic fraud occurring today. Security of information is viewed as a fundamental factor in developing the level of trust that exists between the consumer and bank; and as such it represents one of the main components of banking service, because of the sensitive nature of the data and the constant threat from technology that surrounds the bank's business. (Qarziz & Zidan, 2022, p. 85) ^[10]. The higher the level of security therefore will be directly proportional to the customer's willingness to accept electronic banking, and consequently to continue to utilize those services electronically. Although banks have implemented many different types of protection systems for the customers and have established and implemented security policies, there remains some question as to what degree these measures have had an impact on the consumer's confidence and trust in electronic banking services, and if they are sufficient enough to provide the customers with a greater feeling of security and comfort when utilizing electronic banking services. Accordingly, the research problem is to investigate the degree of influence that information security has on consumer trust in electronic banking services.

Second: Research Questions

What are the effects of information security on the users' trust in e-banking services in Iraq?

From that question are derived three other questions as follows:

1. How do e-banking services apply information security in Iraq?
2. In how much degree do Iraqi users have a belief in e-banking services?
3. To what degree does the information security influence each dimension of users' beliefs in e-banking services in Iraq (the security, the satisfaction, the meeting of obligations)?

Third: The Aim of the Research

To address this research objective, it is planned to identify through research the three following aspects:

1. The level of information security implementation by electronic banking service providers in Iraq.
2. The degree of users' confidence in electronic banking services in Iraq
3. The degree that information security has an effect on users' confidence in electronic banking services in Iraq (dimensions: Security, Satisfaction, Ability to fulfill Obligations).

This will allow the researchers to identify the relationship between information security and user trust and determine how each dimension of trust affects the other.

Fourth: Research Hypotheses

The main hypothesis: There is a statistically significant

impact of information security on user trust in electronic banking services in Iraq.

Sub-hypotheses

- There is a statistically significant impact of information security on security as a dimension of user trust in electronic banking services in Iraq.
- There is a statistically significant impact of information security on satisfaction as a dimension of user trust in electronic banking services in Iraq.
- There is a statistically significant impact of information security on the ability to meet obligations as a dimension of user trust in electronic banking services in Iraq.

Fifth: The Significance of the Research

In recent years, we have seen an explosion of new ways to deliver modernized banking services via electronic communications networks, to meet customer needs and keep up with rapid advancements in technology in this area. One of the main features of electronic banking services is to provide customers access to the same type of information regarding bank services electronically (via the Internet and mobile phone apps), to make banking processes easier, faster and more efficient for customers. (Al-Ghariwi, 2024, p. 112) ^[9]. Therefore, with this rise came the urgent necessity to protect customer information from hacking and misuse by enhancing Information Security; to prevent any breaches in privacy, theft of identity, etc., given the rising threat of cyber-attacks and new forms of electronic fraud. A loss of confidence in the security of these services will be a major disincentive to the use of these services, and ultimately will also harm both the reputation of banks and their performance.

Thus, the relevance of the research lies in the emphasis it places on one of the main challenges in the banking sector today in the digital environment, i.e., the relationship between users' level of confidence in a bank (and consequently the bank's ability to gain that trust) and the security of information; and as well as an analysis of the extent of the influence of the banks' security measures on the customers' degree of confidence, and provide insights for banks to be able to develop and adapt their security strategy in accordance with the users' demands and therefore improve the quality of their services.

Sixth: Research Methodology

We will utilize the Descriptive-Analytical Method to accomplish our research objective and resolve its problem; this method entails collecting data in the field and then analyzing it to better comprehend the researched phenomena (Information Security) and their influence on User Trust. The method also utilizes study findings with the purpose of diagnosing the existing conditions and scientifically explaining the inter-relationships among the variables under investigation.

Seventh: Previous Studies

The study "An evaluation of the impact of information security on bank performance," by Ibtisam Ibrahim Bouker Al-Ghariwi (2024) ^[9], focused on analyzing the influence of information security on banks' performances over the two year period 2020/2021. Based upon the Descriptive-Analytic approach, the most important results of this study,

with respect to the multi-variables Chi-Square (χ^2) test, confirmed that information security has an obvious effect on banks' profitability indicators, i.e., return on assets, return on equity, return on capital. The results of this study have shown a relationship between information security and asset quality, as indicated by the ratio of loan loss provisions, i.e., there is evidence that improvement of information security enhances financial performance and banking stability.

"The Study of Nabila Qarziz and Mohamed Zidan, 2022^[10]", Titled: "The Role of Information Security in Achieving Quality of Banking Services- A Case Study on Credit Populaire D'Algerie in Chlef". The main objective of this research study was to demonstrate how much information security contributes to quality of banking services at Credit Populaire D'Algerie Bank. This study was conducted using the deductive method and the tools of descriptive and analytical studies and the inductive method to extend results. The most important data collection instrument was a questionnaire. The sample size for this study included 55 employees that have knowledge of information security, and were selected using the purposeful sampling technique. Results demonstrated that there is a statistically significant relationship between information security and quality of banking services. There are no statistically significant differences at alpha level ($\alpha \leq 0.05$) related to demographic characteristics (age, educational level and years of experience) related to quality of banking services. Recommendations from the research include the need to train employees and give them the latest programs and mechanisms to be able to defend against the threats to banking activities so as to contribute to the achievement of quality of service in accordance with the principles of confidentiality, integrity, and availability.

Research conducted by "Sarah Mahmoud Abdel Aziz," "The Role of Mobile Banking in Increasing the Confidence of Customers in E-Banking Services", (2022). The purpose of the research is to show how mobile banking can increase confidence in e-banking. The research used surveys based on TAM (Technology Acceptance Model). The study surveyed 250 people using mobile banking services through Egyptian banks. The results showed that users of mobile banking on an irregular basis were the largest group with 42.2%, followed by those using it on a daily basis with 24.4% as the second largest. In addition, the majority of the sample that has an individual bank account, ranked first in the usage of e-banking services with 79.4%, and in second place were individuals that have both an individual and an institutional bank account, with a rate of 17.6%. Thus, the study recommends to focus on the trust issue, and to provide sufficient protection for mobile applications because they are very important for adopting banking services.

Several studies have studied many different components of banking information security. Al-Ghariwi (2024)^[9] concentrated on how information security affected bank profitability indicators and asset quality. The study conducted by Qarziz and Zidan (2022)^[10] analyzed the correlation of banking service quality with information security from a staff perspective. However, Sarah Abdel Aziz (2022)^[6] demonstrated the effects of mobile banking on customer confidence without considering information security as a separate element. Thus, this study has a distinct advantage over previous studies in that it addresses the correlation between information security and user confidence in electronic banking services from a customer's

point of view, providing a more complete analysis of both the technical and behavioral elements affecting user confidence in the digital banking environment.

Chapter Two: Theoretical Framework of Information Security and User Trust in Electronic Banking Services

The recent explosion in the use of Information and Communication Technology (ICT) is among the most important factors affecting many areas of our lives, like Education, Health Care, Business, and Banking Services; The Banking Sector also benefited greatly from ICT boom, as it was able to offer a range of modern and innovative banking services to thousands of customers via electronic means that enabled users to receive the same services that were previously available at branch-based banks, without having to physically visit bank premises. (Abdel Aziz, 2022, pp. 322)^[6]. In this chapter, we will examine the effect of the Information Security on User Trust in Banking Services.

Section One: The Concept and Dimensions of Information Security in the Electronic Banking Environment

The creation of a suitable environment for developing an Integrated Information Society depends on the ability to build and sustain a secure digital environment; due to growing Internet usage, professional experts in Informatics are able to exploit vulnerability in the penetrable digital environment with the capability to commit crimes against the digital environment or critical National Infrastructure (e.g., telecommunications network, transportation network, Health Information Network) - therefore it is imperative to enhance Information Security to protect our vital infrastructure and maintain the stability of the Digital Society (Mrizek, 2011, p. 8)^[14]

First: The Concept of Information Security

"One of the most common definitions for Information Security is 'a mechanism used to secure information from attacks and to enforce security.' (Al-Danaf, 2013, p. 33)^[3] Other authors have also described it as 'the methods, means and directions given by the company's administration to protect its technical assets and the information they hold in all their forms to ensure their integrity, availability and confidentiality under predetermined conditions and permissions.' (Salah Al-Din, 2005, p. 318)^[5]. As such, 'information security is the rules and practices put into place to keep information from reaching unauthorized individuals through communication, and to guarantee the authenticity and integrity of that communication.' (Sagr, 2010, p. 146)^[4]. Banking information security thus refers to an array of policies, methods, and technology that banks use to protect their confidential data and to restrict unapproved access to their systems so as to preserve the confidentiality, integrity, and on-time availability of their information.

Second: The Importance of Banking Information Security

Information security is important because it is a shared experience among all parties (institutions, nations, etc.) and it is being used by every single one of them. (Saleh & Awadalla, 2018, p. 44) Today's way of thinking has evolved to realize that the individual problem is no longer just getting access to information, but also preserving it and protecting it. (Qarziz & Zidan, 2022, p. 85)^[10]. The

importance of banking information is illustrated below:

- Safeguarding the vast amounts of information from the many dangers that may impede or block the flow of information.
- Improving customer confidence and bank reputations through secure banking information, ultimately helping to increase customers, which will contribute to maintaining the national economy.
- Securing banking information through preventing fraudulent activities and cybercrime that can result in large financial loss to the banks, customers, and even the national economy; by implementing cutting-edge security measures, banks are able to maintain protection of their systems and data against cyber attacks.. (Qarziz & Zidan, 2022, p. 85)^[10]

Information security for banking information is very important for banks and other financial organizations. The reason for its importance is because it involves information regarding your personal and financial matters, information that could be stolen and/or used for fraudulent purposes if it is not properly secured. Therefore, banking information security is needed to have a comprehensive security system in place. Such a system should include the application of encryption technologies; use of intrusion detection systems; and utilization of access controls (i.e., limiting employee access). Although securing data from outside attacks is one aspect of information security, there is another major threat area - namely, the potential for unauthorized disclosure of information through either employee error or unauthorized action by employees within the organization. (Al-Ghariwi, 2024, p. 112)^[9].

Section Two: User Trust in Electronic Banking Services

The Banking sector is regarded as one of the sectors most directly affected and related to technological developments. The banking sector, therefore, provides its services through reliance on digital transformation and technological means. (Kouachi, 2022, p. 1)^[11]. Thusly, the services offered by banks need to have a very high quality, since the quality is a constant improvement process; that is to say, the services should satisfy the customers' needs and expectations, by taking advantage of the human element and by its understanding of the importance of this process for both sides, i.e. for the bank itself and for the customer. (Zulfadli, H., Ayu, P., Febdwi, 2019, p. 1-13)^[18, 19]. Furthermore, the necessity of establishing a large degree of trust from the part of the users in relation to the level of the electronic service offered to them is to be mentioned. Trust is a fundamental aspect in creating relationships between banks and their customers, mainly when offering electronic banking services. Due to the fact that there are several types of customers in terms of age, nature, etc. and also due to the type of bank and the services that it offers, the search of a common method of establishment of the trust in the electronic banking services is a great challenge. Banks, therefore, have to consider the various differences and develop a strategy for each of their clients so as to establish a trusting relationship with them. By supplying secure and reliable electronic banking services, the banks will reinforce the trust existing between them and their clients, and thus they will create conditions favorable to the establishment of lasting relations and the satisfaction of their clients.. (Ben Saleh, 2021, 89)^[1].

First: The Concept of Trust in Banking Relationships

Trust is very important in all types of relationships (between individuals) and (between organizations). There are many definitions and measures of trust due to the fact that all relationships are ever-changing. Researchers from many disciplines including psychology; social psychology; economics and its many branches; social marketing; management; information systems; public relations; and politics have discussed and attempted to define what trust is. Definitions of Trust - Alsajjan defines trust as "the belief of one individual or group of people in another that they will do what has been promised and therefore will be able to rely on them." (Alsajjan, 2009, p. 259)^[15]. Colesca states that "trust is built on expectations arising from verbal or written declarations, actions, promises, words, or processes." (Colesca, 2009, p. 8)^[17].

The term "trust" in electronic banking is "a degree of feeling safe and secure by customers when they use electronic banking services (e.g., through the Internet, through their mobile phones, etc.)." (Ben Saleh, 2021, 91)^[1].

Second: Factors Influencing the Building of Customer Trust

The creation of the confidence required to support a successful relationship between businesses and their consumers is built on trust. The importance of creating confidence among consumers as a result of obtaining consumer trust is very significant in the banking business, especially when it comes to providing an effective level of customer satisfaction with the use of electronic banking services (Ben Saleh, 2021, p. 94)^[1]. There are numerous elements influencing the development of customer trust, one of the most important of which are: (Ben Saleh, 2021, p. 99)^[1] Confidentiality and Security: Protecting confidential customer information from unauthorized disclosure or misuse is critical to building confidence in using e-banking service. In essence, the more a customer believes their private information as well as their financial information are secure, the greater will be his confidence in doing business electronically with a bank. It is therefore possible to protect the security of information through the application of specialized security applications. A study carried out by Milind Sathye (2001)^[16] in Australia to investigate the acceptance of Internet Banking identified the factors influencing the non-acceptance of banking services by individual and institutional bank customers as due to fears of misuse, lack of trust, and concerns for account confidentiality. Additionally, this research found that many customers have doubts about the safety and security of their money when they access their accounts online.

Electronic Banking Services Ease of use can also affect the trust of customers, since a simple and easy-to-understand system is required to create comfort for the customer and avoid technical issues in usage.

1. Bank's reputation A bank's reputation has an influence on the trust of its customers because banks with a long history of being reliable and transparent tend to attract customers to rely on their e-banking services.
2. Customer's Experience Customer's experiences in the past with electronic banking services play an important part in creating trust. If their last experience was free from problems and satisfactory, the customer will be more likely to participate again and if it was unsatisfactory, he will be less likely to do so.

3. **Technical Efficiency** The degree to which a customer is able to use technology is another important factor in determining how much trust he has in electronic banking services. Customers who are skilled users of computers and smartphones will be more open to electronic banking and more assured of their ability to use it.
4. The responsiveness of the service providers and technical assistance offered by them to their customers will increase the confidence and security of the customer. Therefore, banks should provide effective technical assistance and respond promptly to all questions and problems that arise in the course of using electronic banking services.

Section Three: The Relationship Between Information Security and User Trust in Electronic Banking Services

Trust forms the basis for establishing relationships as a necessary component for all types of reciprocal relationships and is the base from which a relationship cannot last if there is no trust. Many studies have demonstrated that customers feel a level of loyalty towards an institution when they develop a feeling of trust for the institution and the relationship the customer has with the institution. Thusly, the relationship between user trust and information security is based on achieving the following: (Abdel Aziz, 2022, p. 327) ^[6]

The use of new technology is one of the most common forms of how banks are providing banking services in the current digital era (Al-Tomi, 2017, p. 182) ^[2] because of what it symbolizes as being an integral part of the services that banks provide to consumers. As the result of this rapid technological change there has been a great deal of improvement in how banking institutions communicate with their customers, enabling them to be able to quickly, cost effectively, and efficiently offer services to their customers. The presence of technology is essential in the communication process that takes place between a bank and its customer; therefore, the presence of technology will have a positive effect on the customers' satisfaction, but the absence of technology will give a negative image of a bank and indicate that they are not keeping up with modernization. In addition, the absence of technology will affect how much trust customers will have in the electronic banking services provided by a bank, since customers expect a constant and direct communication with the bank to allow them to form a correct perception of their own needs and expectations of the services provided by the bank. Therefore, a bank's ability to stay in line with technological changes and provide communication tools that are effective will be critical to establishing trust and increasing the trust of existing customers. Trust is one of the major determinants of the success of organizations in the area of electronic commerce, and it is the key to the relationship between an organization and a consumer. Trust has a significant ethical influence on consumers' perceptions and attitudes toward an organization's information systems, merchants, or online companies. Furthermore, trust significantly influences the behavioral intention of consumers to use these systems and to purchase from online stores. Therefore, the greater the increase in the trust of the consumers in the providers of services, the greater the probability of consumers using digital technologies and relying on electronic transactions.. (Abdullah, 2013, p. 79)

First: The Relationship between Information Technology and the Quality of Banking Service

The banking sector is among the sectors using information technology extensively; as such the banking sector responds quickly to successive developments in technologies and will continue to pursue ways to leverage them to improve its banking services. Considering the rapid pace at which changes occur within the banking sector, banks must commit to employing the concept of information and communications technology within their operations to protect their market share and meet the needs of their customers currently and in the future in a unique way. The effective application of technology contributes to not only enhancing the quality of service offered by banks, but it also generates new requirements or expectations from customers and provides banks with competitive advantages allowing them to compete against other institutions and challenges faced by them. Banks must establish a working environment that encourages and supports the development of innovative banking products and solutions that meet the aspirations of their customers. Data protection and maintaining confidentiality of data are two of the most significant challenges facing banks in view of the increased reliance on technology. As such, the use of information and communications technology within electronic banking transactions require both the bank and the customer to be aware and cautious of protecting the data and maintaining mutual trust in the digital environment. (Adisa & Ali, 2018, p. 1) Banking services' quality represents one of the criteria through which banks may improve their ability to serve customer needs and therefore many studies show that banks work on improving the quality of banking services and information technology is one of the most critical factors in the business environment that enables banks to create new opportunities to survive, grow and stabilize themselves in a competitive environment. Additionally, having access to modern technology allows banks to enhance their financial performance by improving the quality of banking services.. (Al-Tomi, 2017, p. 186) ^[2]

It's obvious that there is a connection between information technology and the quality of the banking service. The use of modern technology for example is an investment which does not just have the goal of speeding up banking operations but also has the goal of improving the quality of the services offered by banks; customer satisfaction; and the survival of banking institutions in the face of the increasing digital challenges they are facing.

Second: The Role of Information Security in Building Trust within Electronic Banking Services

The user's trust in electronic banking systems is fundamentally tied to the information security within the system; information security is the foundation in which the user develops confidence in the digital transaction process. The degree to which a bank can protect a customer's information and maintain confidentiality is a fundamental element of quality in banking services and an indispensable part of banking. Banks have made it a priority to protect customer information due to the rapidly changing business environment (Qariz & Zidan, 2022, p. 88) ^[10]. As banking systems become increasingly capable of preventing fraud and protecting customer financial and personal information, customers will continue to grow in their reliance upon the banking systems. Trust is a key factor in the electronic

banking user's willingness to interact with electronic banking systems because in most cases, the electronic banking user has no direct visual contact with the electronic banking systems. When users perceive there are secure processes in place, such as encryption, multi-factor authentication and privacy policies, studies indicate this perception of security contributes to the reduction of a user's concern regarding potential fraudulent activity or loss of their personal data.

On the contrary, failure in the area of information security, as an incident such as a data leak or a security breach, would lead to loss of confidence by users, and could cause them to abandon the use of e-banking services, or switch to alternative and safer institutions. Therefore, it will be necessary for banks to implement new security methods, and to demonstrate their ability to be transparent when managing customer data to build confidence, and to increase customer loyalty.

The research further indicated that trust is not just based upon the technical aspects of protection; however, the type of communication with the customer (the quality), the responsiveness of the institution to the customer's complaints, and the degree of the institution's adherence to ethical and legal standards related to the protection of customer information, are all important factors in creating this trust. Therefore, the implementation of information security is a strategic process in developing a long-term relationship between the customer and the financial institution.

Chapter Three: The Applied Study Study Population and Sample

The study population consists of all individuals residing within Iraq. The study used the simple random sampling method, and the number of individuals in the study sample reached 479, who were the ones that answered the questionnaire form questions.

Study Tool

A questionnaire was used as the study tool and was divided into two parts:

- **Part One:** This part is dedicated to the demographic variables of the study sample members and was divided into: Gender, Age, Educational Qualification, and Number of years dealing with electronic banking services.
- **Part Two:** The second part included the statements and dimensions that measure the study variables. It consisted of the information security axis, which included 7 statements, and the user trust in electronic banking services axis with its dimensions (Security, Satisfaction, Ability to meet obligations), which included 12 statements.

A five-point Likert scale was used to answer the questions of the study's axes.

Table 1: Levels of Agreement of the Study Sample on the Statements of the Study Tool

Level	Score
Very Low	1 - 1.79
Low	1.80 - 2.59
Moderate	2.60 - 3.39
High	3.40 - 4.19
Very High	4.20 - 5.00

Statistical Treatment

1. Frequency Distributions, Percentages
2. Arithmetic Means, Standard Deviations
3. Cronbach's Alpha Test
4. Pearson Correlation Coefficient
5. Simple Regression Equation

Validity of the Study Tool

Table 2: Correlation Coefficients for the Statements of the Study Tool

Statement	Pearson Correlation Coefficient	Statistical Significance	Statement	Pearson Correlation Coefficient	Statistical Significance	Statement	Pearson Correlation Coefficient	Statistical Significance
Information Security								
1	0.904**	0.000	4	0.818**	0.000	7	0.892**	0.000
2	0.904**	0.000	5	0.913**	0.000	---	---	---
3	0.903**	0.000	6	0.878**	0.000	---	---	---
User Trust in Electronic Banking Services								
Security	Satisfaction	Ability to Meet Obligations						
1	0.909**	0.000	1	0.778**	0.000	1	0.880**	0.000
2	0.925**	0.000	2	0.925**	0.000	2	0.880**	0.000
3	0.845**	0.000	3	0.913**	0.000	3	0.912**	0.000
4	0.897**	0.000	4	0.926**	0.000	4	0.923**	0.000

It is evident that all Pearson correlation coefficient values were statistically significant at the (0.01) level, which indicates a high level of validity for the statements of the

study tool.

Reliability of the Study Tool

Table 3: Reliability Results of the Study Tool

Axis	Number of Items	Cronbach's Alpha Value
Information Security	7	0.955
User Trust in Electronic Banking Services	12	0.977
Total Questionnaire Form	19	0.983

It is shown that the Cronbach's alpha reliability coefficient value is greater than 0.7 for all axes of the questionnaire,

which indicates a high level of reliability of the tool used in the study.

Table 4: Distribution of the Study Sample Members According to Personal Characteristics

Characteristic	Categories	Number	%
Gender	Male	314	65.6
	Female	165	34.4
Age	Less than 30 years	122	25.5
	From 30 to less than 35 years	135	28.2
	From 35 to less than 45 years	129	26.9
	45 years and over	93	19.4
Educational Qualification	Less than intermediate	73	15.2
	Intermediate	134	28.0
	Bachelor's	193	40.3
	Postgraduate studies	79	16.5
Number of years dealing with electronic banking services	Less than 5 years	172	35.9
	From 5 to less than 10 years	156	32.6
	From 10 to less than 15 years	96	20.0
	15 years and over	55	11.5

Analysis of the Questionnaire Form

Axis One: Information Security

Table 5: Arithmetic Mean, Standard Deviation, Rank, and Level of Agreement on the Information Security Statements

Statement	Arithmetic Mean	Standard Deviation	Rank	Level of Agreement
Information security contributes to protecting systems, networks, devices, and data from electronic attacks.	3.12	1.17	5	Moderate
Information security works to protect physical assets that contain sensitive information.	3.17	1.07	1	Moderate
Information security uses encryption codes to protect the confidentiality of information during its transmission and storage.	3.16	1.05	2	Moderate
Information security works to ensure that information and data are available to authorized users at the appropriate time when needed.	3.03	1.02	7	Moderate
Information security contributes to maintaining the accuracy and reliability of data.	3.13	1.03	4	Moderate
Information security protects the privacy of individuals from the breach of personal information.	3.14	1.09	3	Moderate
Information security works to maintain the application of regulations and laws.	3.10	1.08	6	Moderate
Average	3.12	1.07		Moderate

When studying the information security statements, it was found that all statements are at a moderate level of agreement, which indicates the existence of a moderate level of information security application in electronic banking

services in Iraq, with a mean of 3.12 and a standard deviation of 1.07.

Axis Two: User Trust in Electronic Banking Services

Table 6: Arithmetic Mean, Standard Deviation, Rank, and Level of Agreement on the Security Statements

Statement	Arithmetic Mean	Standard Deviation	Rank	Level of Agreement
Users feel secure when using electronic banking services.	3.17	1.05	1	Moderate
Users feel confident when using electronic banking services.	3.09	1.08	2	Moderate
Employees in electronic banking services have sufficient knowledge to answer various customer questions.	3.04	0.98	4	Moderate
Electronic banking services provide all the services that customers need at any time.	3.05	1.05	3	Moderate
Average	3.08	1.04		Moderate

Upon analyzing the findings related to the users' security statements, it was concluded that all statements were identified to have a moderate degree of agreement among the participants, which implies there is a moderate degree of

security as a dimension of user trust in e-banking services in Iraq, which averaged 3.08 on a scale of 5 and had a standard deviation of 1.04.

Table 7: Arithmetic Mean, Standard Deviation, Rank, and Level of Agreement on the Satisfaction Statements

Statement	Arithmetic Mean	Standard Deviation	Rank	Level of Agreement
The speed of completing electronic banking services achieves customer satisfaction.	2.93	1.01	4	Moderate
The accuracy of completing electronic banking services achieves customer satisfaction.	3.13	1.05	2	Moderate
Customers' feeling of distinction increases their level of satisfaction.	3.16	1.01	1	Moderate
The level of electronic banking services that customers receive is commensurate with their expectations.	3.08	1.02	3	Moderate
Average	3.08	1.02		Moderate

From an examination of the degree of satisfaction statements, we were able to find that each of the satisfaction statements was rated by users at a moderate level of satisfaction; therefore, there exists a moderate degree of satisfaction as one of the dimensions of user trust in

electronic banking services in Iraq. The arithmetic means of the statements were 3.08, while their respective standard deviations ranged from 1.02.

Table 8: Arithmetic Mean, Standard Deviation, Rank, and Level of Agreement for the Ability to Meet Obligations Statements

Statement	Arithmetic Mean	Standard Deviation	Rank	Level of Agreement
Electronic banking services process transactions immediately to ensure customers receive accurate updates in a timely manner.	3.12	0.96	2	Moderate
Electronic banking services adhere to organizational regulations to provide secure, transparent, and reliable digital services.	3.10	1.13	3	Moderate
Customers can use multiple channels of electronic banking services to fund their accounts.	3.15	1.05	1	Moderate
Electronic banking services provide customers with a comfortable and effective banking experience.	3.15	1.05	1	Moderate
Average	3.13	1.05		Moderate

The ability to meet obligation statements were studied, and it was shown that all of the statements have an average level of agreement, indicating a moderate ability to meet obligations as a dimension of user trust in e-banking services in Iraq with an average of 3.13 and a standard deviation of 1.05. It can be seen from the above that user trust in e-banking services in Iraq has a moderate level of user trust with an average of 3.10 and a standard deviation of 1.04.

Test of the study's hypotheses

Hypothesis 1 (main): The information security has a statistically significant influence on the user's trust in e-banking services in Iraq.

Table 9: Results of the Simple Linear Regression Model for Testing the Main Hypothesis

b	t	F	R ²	r	P-VALUE
1.543	**53.414	**2853.097	0.857	0.926	0.000

The results in table (9) clearly demonstrate that information security has a statistical positive effect on the level of trust users have in electronic banking services in Iraq with a 0.01 significance level. The results indicate that there is a very strong statistical positive relationship between information security and the level of user trust in electronic banking services in Iraq. In addition to this, it can be seen that the independent variable (information security) can explain 85.7% of the variation in the dependent variable (user trust), therefore; the findings show that for each one percent increase in the level of application of information security, the level of trust of the users towards electronic banking services in Iraq will increase by 1.543%. This shows that the study's major hypothesis is valid.

First sub-hypothesis: There is a statistically positive effect of the information security on the security as a dimension of user trust in electronic banking services in Iraq.

Table 10: Results of the Simple Linear Regression Model for Testing the First Sub-hypothesis

b	t	F	R ²	r	P-VALUE
0.511	**41.690	**1738.024	0.785	0.886	0.000

From Table 10 it can be seen clearly that information security has a statistically significant positive effect on "security" as one dimension of user trust to use online banking in Iraq at the .01 significance level; there exists a high, statistically significant positive relationship between information security and "security" as one dimension of user trust to use online banking in Iraq; it was demonstrated that the independent variable "information security" explained 78.5% of the variations in the dependent variable "security", as one dimension of user trust to use online banking in Iraq; it was indicated that for each 1% increase in the amount of the information security application, the amount of "security", as one dimension of user trust to use online banking in Iraq will increase by 0.511%. These results confirm the validity of the study's first sub-hypothesis.

Second Sub-hypothesis: There is a statistically significant impact of information security on satisfaction as a dimension of user trust in electronic banking services in Iraq.

Table 11: Results of the Simple Linear Regression Model for Testing the Second Sub-hypothesis

b	t	F	R ²	R	P-VALUE
0.511	**51.143	**2615.650	0.846	0.920	0.000

As demonstrated in Table (11), it has been established that there are statistically significant positive effects of information security on satisfaction as one of the dimensions of user trust to electronic banking service in Iraq at the 0.01 level. The results indicate a very strong statistically positive correlation exists between information security and satisfaction as one of the dimensions of user trust to electronic banking service in Iraq; and the independent variable (Information Security) explained 84.6% of the variations that occurred in the dependent variable (Satisfaction as one of the dimensions of User Trust). It was shown that for each 1% increase in the application of the level of Information Security, Satisfaction as one of the dimensions of user trust in electronic banking service in Iraq increased by 0.511%; and this supports the validity of the second Sub-Hypothesis of this Study.

Third Sub-hypothesis: There is a statistically significant impact of information security on the ability to meet obligations as a dimension of user trust in electronic banking services in Iraq.

Table 12: Results of the Simple Linear Regression Model for Testing the Third Sub-hypothesis

b	t	F	R²	r	P-VALUE
0.521	**40.569	**1645.881	0.775	0.881	0.000

From Table (12), it can be seen that there are statistically significant positive effects of information security on users' ability to fulfill their obligations as one of the dimensions of users' trust toward electronic banking services in Iraq at the 0.01 level. A very strong positive statistical correlation exists between information security and users' ability to fulfill their obligations as one of the dimensions of users' trust toward electronic banking services in Iraq. The results indicate that information security has an explanatory power of 77.5% regarding the changes in users' ability to fulfill their obligations as one of the dimensions of users' trust toward electronic banking services in Iraq. For each 1% increase in the application of information security, users' ability to fulfill their obligations as one of the dimensions of users' trust toward electronic banking services in Iraq increased by 0.521%. Therefore, the validity of the third sub-hypothesis of this study is proven.

Findings

1. The results show a moderate degree of information security applications used in e-banking services in Iraq, with an average score of 3.12 and standard deviation of 1.07.
2. There is a moderate degree of users' trust in electronic banking services in Iraq, with an average of 3.10 and a standard deviation of 1.04, and also there is a moderate degree of users' trust in three dimensions (security, satisfaction, meeting obligations)
3. Information Security has a statistically significant positive influence on Users' Trust in Electronic Banking Services in Iraq at 0.01 significance level. It is demonstrated that for each one percent increase in the use of information security application, User's Trust in Electronic Banking Services in Iraq will increase by 1.543%, indicating the validation of the study's major hypothesis.
4. Information Security has a statistically significant positive influence on Security as a dimension of User's

Trust in Electronic Banking Services in Iraq at 0.01 significance level. It is demonstrated that for each one percent increase in the use of information security application, Security as a dimension of User's Trust in Electronic Banking Services in Iraq will increase by 0.511%, indicating the validation of the study's First Sub-Hypothesis.

5. Information Security has a statistically significant positive influence on Satisfaction as a dimension of User's Trust in Electronic Banking Services in Iraq at 0.01 significance level. It is demonstrated that for each one percent increase in the use of information security application, Satisfaction as a dimension of User's Trust in Electronic Banking Services in Iraq will increase by 0.511%, indicating the validation of the study's Second Sub-Hypothesis.
6. Information Security has a statistically significant positive influence on Ability to Meet Obligations as a dimension of User's Trust in Electronic Banking Services in Iraq at 0.01 significance level. It is demonstrated that for each one percent increase in the use of information security application, Ability to Meet Obligations as a dimension of User's Trust in Electronic Banking Services in Iraq will increase by 0.521%, indicating the validation of the study's Third Sub-Hypothesis.

Recommendations

7. To protect confidentiality of users' financial & personal info work to apply technologies such as encryption.
8. Work on investing more money in Cybersecurity so you can maintain your Electronic Banking Services Continuity and reduce Downtime.
9. Work on training Employees, and establishing clear, transparent customer communications regarding risks and security procedures so that you can develop an organizational security culture that is aware of security risks and increase confidence.
10. Work on improving your Applied Information Security Systems to ensure availability of data/information to authorized Users at the right time when it is required.

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