Jurnal Aplikasi Manajemen, Ekonomi dan Bisnis
Vol. 10, No.1, October 2025
ISSN 2541-1438; E-ISSN 2550-0783
Published by STIM Lasharan Jaya

Information Technology and Its Role in Enhancing the Quality of Banking Services: An Analytical Study on Selected Iraqi Banks in Babylon

Noor Hashim Mohammed[1], Hamid Mohsin Jadah[2]

[1]Imam Al-Kadhum University (IKU)
[2]University of Karbala
nourhashim@iku.edu.iq
hamed.m@uokerbala.edu.iq

ARTICLE DETAILS

History
Received : *August*
Revised Format : *September*
Accepted : *October*

Keywords :
information technology,
quality of banking services,
iraq

ABSTRACT

The aim of this research is to measure the impact of information technology on the quality of banking services. The research problem is centred around assessing how information technology contributes to the development of banking service quality. A questionnaire was used as the primary tool for data collection, with 100 forms distributed among a sample of customers and employees from banks operating in Babylon Governorate. The collected data was analyzed using the statistical software (SPSS).

The study reached a set of conclusions indicating that various dimensions of information technology—namely human resource skills, databases, communication networks, and software—significantly influence the enhancement and development of banking service quality. The study recommends that banks should place greater emphasis on continuously developing their information technology capabilities due to its vital role in improving banking services.

This research is of particular relevance to bank management and decision-makers, as it highlights the importance of information technology and its role in strengthening banking services, ultimately contributing to increased customer loyalty.

Introduction

The banking industry is undergoing a radical transformation in light of the rapid development of information technology (IT), which has become a cornerstone for improving performance and enhancing the quality of services provided to customers. Academic studies have proven that effective investment in banking technologies not only contributes to enhancing internal efficiency but also leads to increased customer satisfaction and achieving substantial competitive advantages (Al-Atwi & Kazem:2024). In the Iraqi context, local research highlights the importance of adopting IT within banks, particularly in governorates such as Najaf and Babil. An empirical study of a group of commercial banks in Najaf, such as Babylon Bank and Rafidain Bank, demonstrated a strong, positive correlation between the use of IT and the quality of banking services. The researchers found that enhancing the technical infrastructure directly reflects improved performance indicators and the quality of the banking experience. The importance of this research lies in its approach to the local context of Babil, drawing on local experiences and practices and drawing inspiration from international theoretical frameworks. It assesses the role of information technology in real banking institutions within the governorate. Its methodology is based on a comprehensive analysis utilizing quantitative and qualitative tools, aiming to uncover the impact of this technology on multiple dimensions, including speed, accuracy, security, satisfaction, and competitiveness (Thamer, *etal.,* 2024).

*Corresponding Author Email Address: *nourhashim@iku.edu.iq*

The expected results are expected to provide practical recommendations formulated in accordance with international standards. These recommendations will guide decision-makers within banking institutions in Babylon toward sustainable digital strategies that enhance service quality and meet customer expectations in a rapidly changing society, free from the reliance on pre-packaged electronic text solutions.

Problem statement

The rapid advancement in the field of information technology has led to numerous changes that have reshaped the global economic landscape, transforming it into a digital economy. The central problem addressed by this research arises from the following main question: Does the use of information technology play a clear role in developing or improving the quality of banking services?

Accordingly, the research seeks to answer the following sub-questions:

a. what is meant by information technology, and to what extent does it influence the banks under study?
b. How is the quality of banking services defined, and what is the level of its key dimensions (reliability, credibility, and responsiveness) in the selected banks?
c. Is there a measurable impact of information technology on the improvement of banking service quality?

Research Significance

The significance of this study lies in the contemporary relevance of banking institutions and the ongoing developments in the banking environment, which necessitate the adoption of information technology to ensure sustainability and competitiveness. The importance of the research stems from its focus on two core variables: the independent variable (information technology) and the dependent variable (the dimensions of banking service quality). Both variables play a critical role in attracting more customers and maximizing profitability. Furthermore, the findings and conclusions of this study are expected to benefit students, scholars, and practitioners interested in enhancing the performance of banking services through technological means.

Research Objectives

This study aims to:

a. Assess whether the quality of banking services meets the expectations of customers interacting with the selected banks.
b. Examine the impact of information technology on the enhancement of banking service quality.
c. Analyze the relationship between information technology and the key dimensions of service quality.
d. Explore the extent to which information technology is applied in the selected banking institutions.

Literature review and Hypothesis Development

Several previous studies have addressed aspects related to this research. Notably: A study by Al-Mukhtar (2010, 22) titled *"Barriers to the Development of Electronic Banking in Libyan Banks"* explored the reality of electronic banking services in Libyan banks. It investigated the motives and challenges hindering their expansion. The study surveyed three groups: 161 bank employees, 276 customers, and 17 central bank employees. The results indicated a relationship between various service quality dimensions (such as responsiveness, convenience, credibility, and security) and the obstacles to electronic banking development. Another study by Joseph *et*

al. (2005) aimed to identify areas of customer dissatisfaction regarding banking technology services. Conducted in the UK, the statistical study concluded that customer satisfaction was high in terms of accuracy, security, responsiveness, and efficiency. However, customers expressed dissatisfaction with the long wait times associated with electronic banking services. The authors recommended that banks increase investments in upgrading their electronic services to better meet customer expectations. In Jordan, Siam (2006) investigated the impact of electronic banking services on bank profitability. The study found a positive correlation between the use of electronic channels and profitability. However, it also highlighted that Jordanian banks were more inclined to expand electronic operations rather than fully digitize all banking activities.

Proposed Conceptual Framework

The study adopts a hypothetical model that assumes a relationship between the components of information technology (human resource skills, databases, communication networks, and software) and the dimensions of banking service quality (reliability, credibility, and responsiveness). This model guides the analytical approach of the research and frames the hypotheses to be tested empirically.

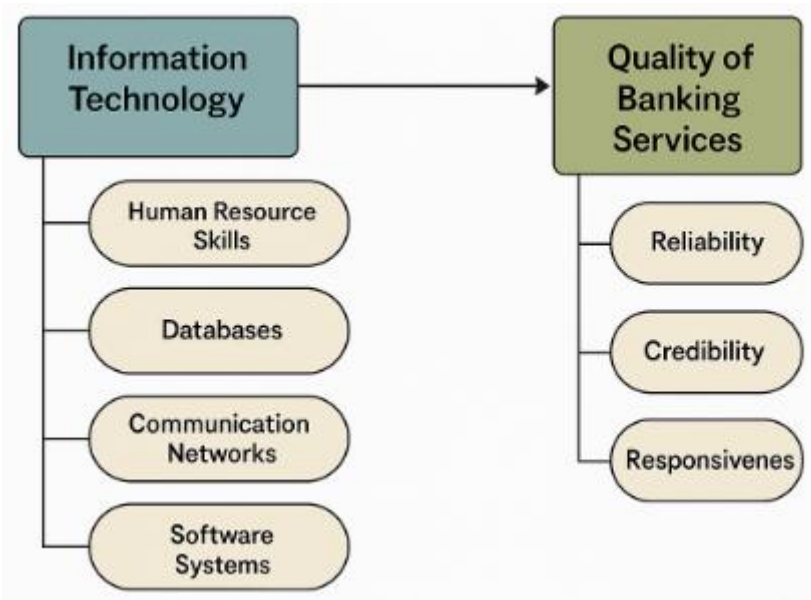


Figure (1): Proposed Conceptual Framework of the Study. To further clarify the conceptual model, the following explanation is provided:

a. Independent Variable:
Information Technology, which encompasses the following components:
- Human resource skills
- Databases
- Communication networks
- Software systems

b. Dependent Variable:
Quality of Banking Services, measured by the following dimensions:
- Reliability
- Responsiveness
- Credibility and Security

Research Hypothesis

This study addresses its central problem through the following main hypothesis:
"Information technology has a positive and significant effect on improving the quality of banking services**."**
From this main hypothesis, four sub-hypotheses are derived:

a. Hardware components and software systems have a significant and positive impact on enhancing banking service quality.
b. Databases have a significant and positive impact on enhancing banking service quality.
c. Communication networks have a significant and positive impact on enhancing banking service quality.
d. Human resource skills have a significant and positive impact on enhancing banking service quality.

Concept of Information Technology:

In recent years, the global banking sector has witnessed significant developments in the nature of services it provides. These advancements differ substantially from traditional banking services, as banks are now striving to innovate, create, and offer new financial services aimed at gaining customer satisfaction and, ultimately, earning their trust. This trust, in turn, contributes to strengthening customer relationships and increasing the volume of transactions. To achieve this goal, it is essential to ensure high-quality banking services, as service quality has become a cornerstone of modern banking operations. Accordingly, banks have increasingly focused on delivering high standards of service, recognizing that quality has become a key competitive advantage and a pathway to leadership and distinction in the financial market (Jadah & Al-Husainy, 2019).

The integration of information technology into banking operations has significantly transformed the nature of banking services, enabling their continuous development and alignment with the rapid advancements occurring in the financial sector. As a result, electronic banking has emerged as a prominent outcome of this digital evolution, reshaping the way banks interact with and serve their clients.

Technology refers to the means and activities used by humans to develop and transform their environment to suit their needs and desires. Linguistically, technology can be defined as the science of techniques or the study of technical arts. Technically, technology is the optimal application of knowledge in various sectors such as industrial, agricultural, social, and economic fields (Altomayy, 2009:171). According to Hellriegel (2001:396), technology consists of tools, procedures, means, and techniques used to convert inputs into outputs represented by goods and services. Thus, technology is a set of physical and non-physical methods used to transform inputs (materials and information) into outputs like goods and services, which can be employed to improve the quality of banking services.

Information is data endowed with credibility and provided for a specific purpose, presented within a clear and defined context (Al-Sairafi, 2009:4). It is also defined as a collection of organized and coordinated data in a synthetic manner that provides a specific meaning and a coherent structure of ideas and concepts enabling humans to benefit from it to gain knowledge and make discoveries (Romney & Steinbart, 1997:713). Information is processed data transformed from meaningless raw data into meaningful concepts that assist in decision-making (Al-Sharman, 2004:14). Hence, information is a set of facts and concepts obtained from various sources, collected, organized, and analyzed to extract what can be used in decision-making.

Likewise, Information Technology (IT) according to Hellriegel, *et al*. (1999), refers to computer-based systems designed to help organizations and their human resources in data

collection, storage, retrieval, processing, and transmission. It is also defined as a systematic and orderly method used to apply various bodies of knowledge after organizing and arranging them within a specific system aimed at finding appropriate solutions to scientific tasks (Al-Wadi, 2011:270). Additionally, it is described as a technical language, science, and method to achieve practical purposes, rather than just a set of tools used to provide everything necessary for human life and welfare (Musan, 2001:8).

But researcher Robbey (1986:516) defined IT as all types of software, hardware, and equipment related to computing and communication, whether personal computers, phones, or management information systems. According to Knott & Waites (1997:1), IT is a term used to describe a range of products and systems that process, manage, and generate information using computer technology. Slack et al. (1998:282) described IT as the means used to collect, store, analyze, process, distribute information, and communication networks. Scherhorn et al. (2000:242) described it as a combination of mechanisms and systems used to collect data, store, analyze, disseminate, and broadcast it to convert it into information. Turben (1999:19) viewed IT as hardware, databases, software, and communication networks.

In summary, technology is a body of knowledge derived from scientific research that humans employ to save time, effort, and cost. Information Technology includes the physical components of computers, ready-made software, communication networks, and other devices required for processing, storing, organizing, displaying, sending, and retrieving information efficiently, quickly, and accurately.

Importance of Information Technology

In recent years, researchers and strategists have predicted an information revolution, which has now become a real and practical reality. We now live in an information age characterized by the ability to generate new knowledge, which is the main driver of economic and social growth. This new era is distinguished by the presence of computers everywhere, global communication networks, and electronic publishing, making the information age a tangible reality. This reality translates into unprecedented job opportunities for information professionals who know how to organize and utilize information assets and possess analytical and technical skills to understand information strategies for all types of organizations (Elliot, 2000:5).

Therefore, the use of information technology significantly supports achieving several strategies, including (O'Brien, 2000:16):

a. Cost Leadership Strategy: IT helps reduce costs in production, customer service, marketing, and more, leading to increased profits.
b. Differentiation Strategy: By developing ways to use IT specific to institutions, they can distinguish their products and services from competitors, improving their competitive ability.
c. Innovation (Creativity) Strategy: Through modern working methods, IT plays a key role in creating barriers against shifts in power balances between the institution and its suppliers, changing the bases of competition, raising production efficiency, and creating competitive advantages.

Due to the large size and wide economic activities of many business organizations, which result in the production of massive amounts of diverse data, the need for IT has increased to operate these data and produce useful information.

Strategic Objectives of Information Technology

Information technology can achieve several objectives at both government and private sector levels across various fields and departments, including the following:

a. Enhancing transparency and reducing fraud and errors.

b. Providing accurate and up-to-date information to enable sound decision-making.
c. Optimizing the use of time more efficiently.
d. Simplifying organizational procedures and operations, making them clearer and more effective.
e. Aiming to solve problems faced by employees within the organization.
f. Facilitating the transmission of information and data from sender to receiver in the shortest possible time, at the lowest cost, and with the highest accuracy.

Characteristics of Information Technology

a. Interactivity: IT users can act as both receivers and senders of information simultaneously.
b. Cost-effectiveness: Electronic processing of information significantly reduces costs compared to manual processing.
c. Timeliness: Information should be available at the appropriate time for users' needs, which requires minimizing the time needed for data processing. This is achievable through computer technology, which enables accurate information retrieval promptly. IT enhances the speed of banking operations and reduces procedural steps, while also allowing customers to quickly access services such as balance inquiries, fund transfers, and exploring banking products.
d. Accuracy**:** Computers consistently produce precise information with minimal technical or human error, and these errors are negligible compared to the vast amounts of data processed manually.
e. Flexibility: IT users can benefit from its services while on the move via various communication means. It also allows for the transfer of information across different media, such as converting audio messages to printed text, with the ability to control communication systems.
f. Speed: One of the most notable advantages of computers is their speed, which can vary but can reach millions of operations per second in some types.
g. Reducing Distances**:** Thanks to IT, the world has become like a small village with diminished geographical boundaries, as electronic connectivity has brought places closer together virtually.

Components of Information Technology

Information technology consists of four main components:
a. Hardware and Software: These include physical devices used for input, processing, output, storage, and the physical media connecting these parts. The computer is an electronic device that executes instructions, performs calculations and logical operations on data, processes it, and produces results (information) useful in various work fields. It is a system capable of managing information processing, storage, retrieval, and transmission.
b. Human Resource Skills: Qualified and trained personnel are essential to perform different IT activities. Human resources must have diverse skill levels and competencies depending on the system's nature and functions. Training the workforce is crucial, even though extensive facilities may not be readily available, making effective employee training a necessity.
c. Communication Networks: These are means used to send and receive data and information. They consist of multiple stations located in different places, connected via media that enable users to conduct transmission and reception. The World Wide Web (WWW) is an extensive network of interconnected documents accessible through web browsers, facilitating the transfer of diverse types of information including programs, news, audio, video, and text.
d. Databases: These are collections of interrelated data or information stored on physical media such as hard drives, floppy disks, or tapes. Building interconnected local, regional, and international databases is a prerequisite for applying IT. Using databases enhances the accuracy and speed of accessing information and generating reports. Therefore,

management should leverage databases and develop their management systems to integrate with other IT capabilities effectively.

Impact of Technology on Banking Services:

Technological advancements in banking have led to significant changes and developments. The economic impact of new technologies depends on their adoption rate and how well banks and financial institutions assimilate them. Banks have become among the foremost users of IT, benefiting from it by improving service delivery, expanding banking services, and increasing operational efficiency.

Some key effects of modern technology on banking organizations include (Mohammed & Mohsin, 2024):

a. Technology acts as a double-edged sword for managers; while it enhances operational efficiency and bank performance, it also imposes certain constraints. Simultaneously, it empowers banks to develop and offer new financial products and services to customers.
b. It influences the growth and diversification of banking services, enabling banks to provide a wide array of services tailored to customer needs.
c. Technology impacts banking personnel, requiring them to adapt to these changes by acquiring skills related to electronic banking and fostering creativity and continuous improvement.
d. IT helps banks overcome product and service obsolescence and enables the creation of new services that diversify bank revenues from fees and commissions rather than relying heavily on interest rate margins.

Banking Service Quality

Like other institutions, banking organizations offer various services and play a crucial role in the economic sector. They serve as a means to fulfill the goals and requirements of customers and institutions seeking to deposit their savings.

Banking service, conceptually, does not differ significantly from the general notion of service. It represents an activity or work performed for the beneficiary through individuals or machines. It is fundamentally intangible and does not result in the transfer of ownership (Mustafa, 2003). It can be defined as a set of activities and processes that combine tangible and intangible elements provided by the bank, which customers perceive through its features and utility value. These services satisfy their current and future financial and credit needs (Samiha Khallou, 2016).

Kotler and Armstrong defined banking services broadly as activities or benefits offered by a seller to a buyer. By nature, these services are intangible and their sale does not involve transferring ownership of a physical product. Schwartz identified four main dimensions of banking service quality: the banking service itself, the manner of delivery and customer service, and the material and electronic resources available.

Dimensions of Banking Service Quality

Experts vary in defining quality dimensions, and there are multiple aspects to banking service quality. This study focuses on the most essential and influential dimensions related to improving banking service quality:

a. Reliability: This refers to an organization's ability to deliver services correctly from the first attempt, accurately fulfilling service requirements reliably, and fulfilling its promises with minimal errors (Al-Bahi, 2016).
b. Credibility or Security: Organizations, especially banks, aim to gain customer confidence by establishing trust in the bank’s information and the courtesy of its service evaluators.

This dimension emphasizes the importance of trust in services perceived as risky by customers, such as banking and insurance services. Trust forms the connection between the client and the bank, sometimes involving intermediaries like securities brokers or insurance agencies. Some banking policies focus on building trust and loyalty between staff and customers (Shaya and Al-Mousawi, 2016).

c. Responsiveness: In banking service quality, responsiveness means the provider's readiness and willingness to deliver the requested service promptly, assist customers in resolving specific issues within an appropriate timeframe, and respond quickly to customer needs. It also involves a courteous and proper attitude toward customer inquiries and complaints. This dimension balances responsiveness with the dynamic nature of service encounters, especially in face-to-face customer interactions (Aboud, 2014).

Mechanisms for Developing Banking Services

The importance of developing banking services requires understanding the mechanisms through which service quality can be enhanced. This includes the bank's ability to analyze customer preferences and needs and evaluate the success or failure of developed services. Banking services development involves several key mechanisms (Nawal Hilo, 2013):

a. Idea Generation: Continuous search for new ideas that improve banking service quality is essential. These ideas should be innovative and customer-oriented, stemming from interactions between the external environment and the bank itself. The more innovative ideas generated, the higher the chance of identifying applicable solutions that enhance service quality. Banks typically collect ideas from employees, customers, or through collaboration with other banks (Mohsin *et al.,* 2021).
b. Idea Screening: Banks gather ideas randomly, but not all are viable or economically feasible. This stage involves reviewing, narrowing down, and excluding ideas with limited benefits or impractical implementation potential. The focus is on selecting ideas that align closely with customer needs and offer the greatest benefit (Jadah *et al*., 2020)
c. Idea Evaluation: After screening, ideas are studied to assess the bank's ability to implement the services or products and the likelihood of customer acceptance. This includes forecasting economic outcomes and evaluating the potential benefits to the bank. Evaluation is an ongoing process that evolves with improvements in banking service quality (Samer Jalda, 2009).
d. Service Development: At this stage, ideas are transformed into tangible offerings on a trial basis. Banks invest resources to introduce the service to a sample of customers for real-world testing and feedback on features and satisfaction levels. Service development relies on realistic market analysis and identifying changes within the service environment. It aims to meet the needs and desires of new customer segments by expanding the bank's distribution network to previously untapped areas (Hawari and Jalil, 2008).
e. Market Introduction: This marks the service's entry into the banking market and the start of its life cycle. Banks must ensure new services align with market demands, competitive capabilities, and profitability expectations. Effective promotion and the bank's ability to attract new customer segments by improving service features are crucial. Encouraging existing customers to increase their usage rates of current services is also important (Al-Shammari and Abdulat, 2008).

Sources for Developing Banking Services

There are several sources that contribute to the development of banking services, which can be summarized as follows:

Bank Employees

Bank employees represent the primary interface in constant contact with customers. Through their ongoing interactions with clients, they gain comprehensive experience and a deep

understanding of customers' needs. This enables them to accurately interpret these needs and provide the most suitable banking services to clients (Al-Ajarmeh, 2005)

Bank Research Departments

The advancement in banks is evident, as bank management increasingly emphasizes the importance of research departments within their organizational structure. These departments conduct studies related to service development and propose scientific solutions for improvement mechanisms. The bank's management relies on these studies to make strategic decisions aimed at updating and enhancing banking services to maintain competitiveness.

Specialized Institutes and Universities

In developed and major countries, banks maintain continuous collaboration with specialized institutes and universities to benefit from their research outputs and practical expertise. Universities and research institutes are recognized as key practical resources that banks can leverage to improve and innovate their service offerings (Abdullah, 2008).

Improving Banking Service Quality through Information Technology

Banks aiming for growth and to keep pace with economic and financial changes must maintain flexibility in their operational policies and continuously update them according to the nature of their activities. The adoption of information technology by banks has necessitated the formulation of specific regulations that align with the unique nature of digital banking services. For instance, electronic banking services require clear regulations that define the responsibilities of all parties involved and protect users from potential risks associated with these services. Furthermore, banks need to establish an organizational structure characterized by flexibility, which encourages innovation and renewal among employees (Abdul Mohsen, 1987).

Banking service quality is one of the most important strategies used by institutions to attract and retain customers. Increasing attention to enhancing quality and producing services tailored to customer needs, combined with efficient performance in various institutional functions (production, finance, marketing), and the optimal utilization of resources, human capital, and technology, leads to the highest level of customer satisfaction. A satisfied and loyal customer is essential for the institution's sustained presence and support in the market, demonstrated through continued patronage. Therefore, banking institutions must continuously innovate to improve the quality of their services and achieve greater customer satisfaction.

Description and Analysis of the Research Sample Responses

Independent Variable: Information Technology

The variable of Information Technology was measured through four main dimensions: hardware and software components, human resource skills, communication networks, and databases. Table (1) below shows that the level of enhancement of information technology devices is high. This is confirmed by the mean score of this variable, which reached 4.56—significantly higher than the standard mean of 3—with a standard deviation of 0.807, reflecting good consistency in the responses of the sample members, and an agreement rate of 96.7%. The researcher observed that the organization under study is keen to rely on information technology devices in performing its operations. The level of enhancement of information technology devices is high, as reflected by a mean score of 4.43, which exceeds the standard mean of 3, accompanied by a standard deviation of 0.887. This indicates a good degree of harmony in the respondents' answers and an agreement rate of 88.25%. Researchers noted the

organization's commitment to integrating information technology devices in its work processes.

The hardware and software components achieved a mean score of 4.55 with a standard deviation of 0.89 and a relative importance of 91%. This indicates that the banks included in the study primarily rely on laptops to carry out their tasks, and that these devices are interconnected as a network to facilitate rapid data and information exchange. Human resources recorded a mean of 4.52 with a standard deviation of 0.80 and a relative importance of 90.33%. This suggests that the banks employ individuals who are scientifically and practically qualified in using information technology. Additionally, these personnel possess high expertise and efficiency in IT utilization. Furthermore, the banks organize workshops and training programs aimed at enhancing the skills and knowledge of their employees.

Databases obtained a mean score of 4.33, a standard deviation of 0.84, and a relative importance of 87%. This implies that data is collected from relevant branches and departments, and that employees can access this data in a timely manner. Moreover, the banks handle this data with a high level of confidentiality and security. Finally, communication networks achieved a mean score of 4.43, a standard deviation of 0.81, and a relative importance of 88%. This indicates that the banks are connected through a network of computers that facilitate the exchange of information and data among branches and departments via internet connections. Additionally, email is used for communication with international banks, benefiting from global expertise.

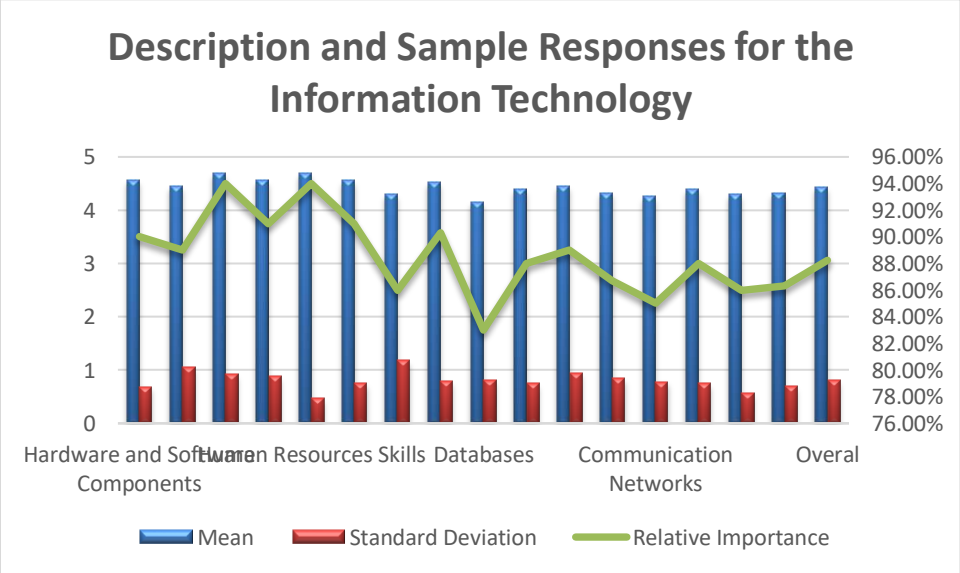


Table (1): Description and Analysis of Research Sample Responses for the Information Technology

IT Dimensions	Standard Statements	Mean	Standard Deviation	Relative Importance
Hardware and Software Components	Sufficient computing devices (PCs) are available in the bank.	4.56	0.688	90.00%
	IT improves the performance of banking functions and activities.	4.45	1.05	89.00%
	The bank primarily relies on computers to perform its operations.	4.7	0.923	94.00%
	Subtotal	4.55	0.887	91.00%
Human Resources Skills	Employees can easily share their information and skills.	4.7	0.47	94.00%

	The bank contracts IT experts to train employees.	4.55	0.759	91.00%
	Employees possess high-level skills and experience in IT.	4.3	1.174	86.00%
	Subtotal	4.52	0.801	90.33%
Databases	The bank continuously updates its data and information to enhance decision-making.	4.15	0.813	83.00%
	Databases are managed by a specialized team using advanced tech for secure access.	4.4	0.754	88.00%
	The bank owns accurate, efficient, flexible, and user-friendly databases.	4.45	0.954	89.00%
	Subtotal	4.33	0.84	86.70%
Communication Networks	Internal operations are supported by internet-based communication.	4.25	0.786	85.00%
	E-mail is used for communication and data exchange.	4.4	0.754	88.00%
	The internet is used to benefit from international banking expertise.	4.3	0.571	86.00%
	Subtotal	4.32	0.7	86.33%
Overal		4.43	0.807	88.25%

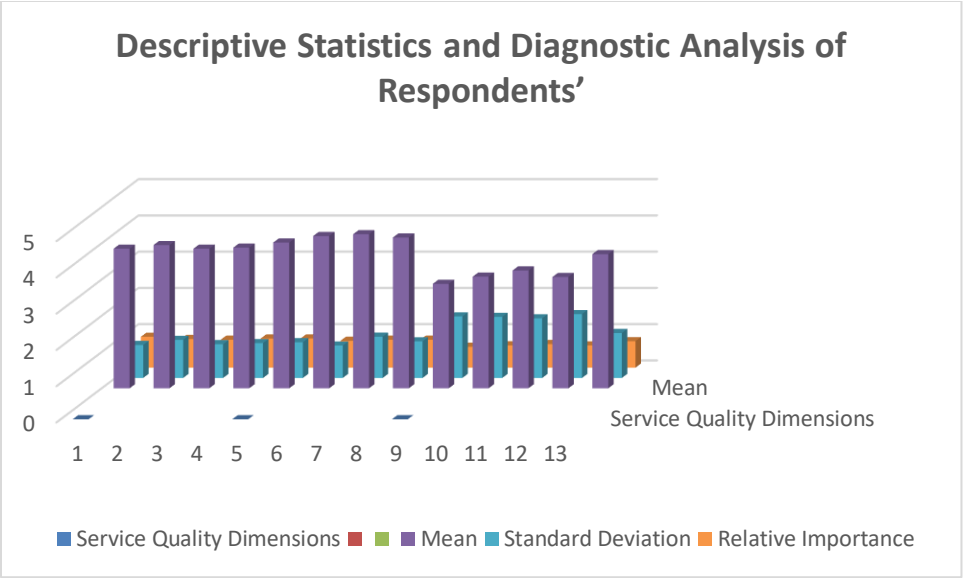
Dependent Variable: Quality of Banking Service

The dependent variable—Quality of Banking Service—was measured using three core dimensions: Responsiveness, Reliability, and Credibility & Security. As shown in Table (2), the overall mean score reached 3.70, which exceeds the hypothetical average of 3.00, accompanied by a standard deviation of 1.24 and a relative importance of 73%. These results reflect a high level of concern and attention among the respondents regarding the quality of banking services.

The Responsiveness dimension recorded a mean value of 3.88, with a standard deviation of 0.96 and a relative importance of 80%. This indicates that bank employees demonstrated a strong willingness to provide services promptly and effectively. Meanwhile, the Credibility and Security dimension achieved a mean score of 4.16, a standard deviation of 1.01, and a relative importance of 77%, signifying the presence of trustworthiness and safety in customer interactions. Respondents emphasized the integrity and honesty in service delivery, as well as the presence of adequate safety systems and procedures established by the banks to safeguard customers' assets.

Finally, the Reliability dimension obtained a mean of 3.07, a standard deviation of 1.76, and a relative importance of 61%, indicating that while banks exhibit a capacity to enhance service quality, there remains room for further improvement in ensuring consistent and dependable service performance.

Table (2): Descriptive Statistics and Diagnostic Analysis of Respondents' Answers for the Quality Dimensions Variable



Service Quality Dimensions	Standard Statements	Mean	Standard Deviation	Relative Importance
Responsiveness	The bank offers inquiry services about transactions through the internet.	3.85	0.91	85.00%
	The good treatment by bank staff encouraged me to request banking services.	3.95	1.05	79.00%
	The bank responds promptly and appropriately.	3.85	0.933	77.00%
	Subtotal	3.88	0.96	80.33%
Credibility (Security)	I feel safe dealing with this bank.	4.02	0.985	80.40%
	I have great trust in the employees.	4.2	0.894	74.00%
	The bank I deal with is highly credible due to the guarantees it imposes on customers.	4.25	1.137	77.00%
	Subtotal	4.16	1.01	77.00%
Reliability	The bank can provide reliable and high-quality service.	2.88	1.697	57.50%
	The bank maintains the confidentiality of customer information.	3.08	1.685	61.50%
	The bank accurately specifies service completion times.	3.25	1.645	65.00%
	Subtotal	3.07	1.76	61.33%
	Overall	3.7	1.24	0.7289

Testing the Research Hypotheses

Analyzing the Impact of Information Technology on the Quality of Banking Services

Table (2) below presents the results of regression analysis assessing the relationship between information technology and the quality of banking services. The findings indicate a statistically and practically significant impact of the hardware and software components on service quality. The computed F-value was 17.537, which exceeds the critical value at the 0.05 significance

level. The Beta coefficient (B) was 0.449, suggesting that hardware and software play an essential role in enhancing banking service quality.

The coefficient of determination (R^2) reached 40.5%, meaning that 40.5% of the variation in banking service quality is explained by hardware and software as perceived by the sample. The remaining 59.5% is attributed to other unknown variables. Additionally, the intercept (a) in the regression equation was 1.458, which is significantly different from zero, indicating a substantial relationship even in the absence of this dimension, reflecting the importance placed on banking service quality in the studied banks. Similarly, the results of the analysis shown in Table (2) revealed a statistically significant impact of human resources skills on the quality of banking services. The calculated F-value was 20.364, again exceeding the tabulated value at the 0.05 level. The Beta coefficient (B) was 0.617, highlighting the pivotal role of employees' IT skills in ensuring high-quality banking services.

The R^2 value was 43.3%, indicating that this percentage of variance in banking service quality is explained by the human resources dimension, while 56.7% of the variance is due to other, unidentified factors. The intercept (a) was 1.654, suggesting a solid relationship between human resource skills and banking service quality, even in the hypothetical absence of this IT dimension. Furthermore, the analysis also confirmed a significant effect of databases on the quality of banking services. The F-value was 16.167, greater than the critical threshold at the 0.05 significance level. The Beta coefficient (B) was 0.419, signifying the influence of database systems on service quality.

The R^2 value for databases was 38.6%, suggesting that this proportion of service quality variance is explained by database-related factors, while 61.4% is due to other unmeasured variables. The intercept (a) also differed from zero, underscoring the strength of the relationship between databases and banking service quality.

Lastly, Table (2) shows a statistically significant effect of communication networks on banking service quality. The computed F-value was 4.412, which exceeds the critical value at the 0.05 significance level. The Beta coefficient (B) was 0.308, indicating that communication networks contribute to improving the quality of services offered. The (R^2) value in this case was 36.8%, implying that this share of the variance in service quality is attributed to communication networks, while the remaining 63.2% is linked to other unexplored variables. The intercept (a) was 2.345, again differing from zero, confirming a meaningful relationship between communication infrastructure and the quality of banking services, even in the absence of this specific IT dimension.

From these results, we conclude that increased investment in information technology—including hardware and software components, human resources, databases, and communication networks—positively contributes to enhancing the quality of banking services. Therefore, the findings support the main hypothesis of the study, as summarized in Table (3), confirming that information technology plays a significant role in enhancing and developing banking service quality in the studied institutions.

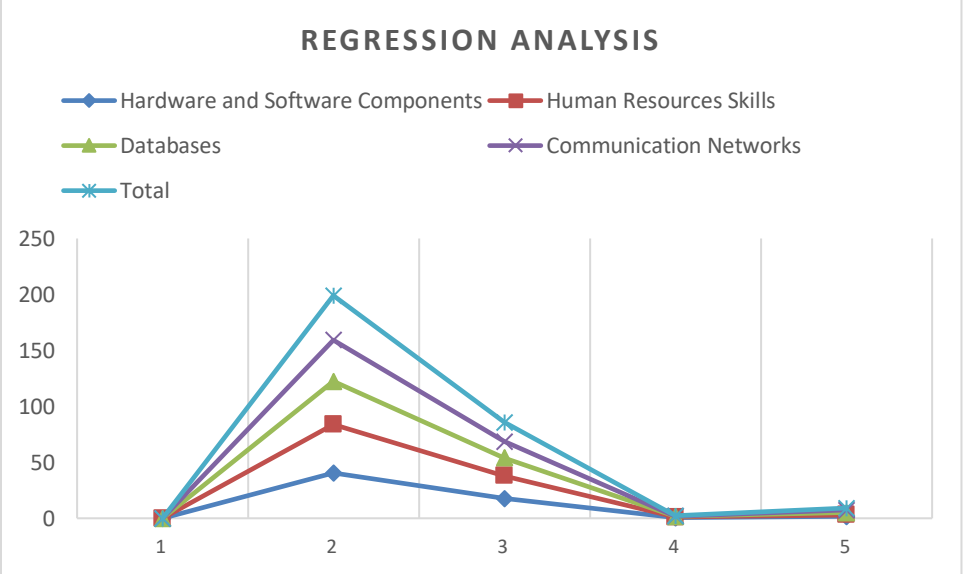


Table (3): Simple Regression Analysis between Information Technology and Banking Service Quality

Independent Variable	Dependent Variable	R^2 (%)	F Value	B Coefficient	Intercept (a)	Significance Level
Hardware and Software Components	Banking Service Quality	40.5	17.537	0.435	1.458	Significant
Human Resources Skills		43.3	20.364	0.617	1.654	Significant
Databases		38.6	16.167	0.419	1.786	Significant
Communication Networks		36.8	14.412	0.308	2.345	Significant
Total		39.8	17.12	0.445	1.811	Significan

Conclusion

The findings of the study highlight the significant role of information technology (IT) in enhancing the quality of banking services, as evidenced by the positive correlation between various IT components and service performance. It is clear that the more advanced and effectively utilized IT systems are, the more they contribute to the overall success and efficiency of banking operations. However, the research also reveals that the bank under study demonstrates limited attention to hiring or involving specialized professionals in the field of information technology, which may hinder the optimal implementation of these systems. Therefore, it is recommended that the bank actively engage qualified IT professionals to handle critical and specialized tasks, ensuring the development and maintenance of robust and efficient systems. Moreover, continued investment in IT infrastructure is essential, as it plays a vital role in supporting the effectiveness and responsiveness of banking services. In addition, transitioning from traditional communication methods to modern electronic channels can significantly enhance the speed and accessibility of information, ultimately leading to improved customer satisfaction and operational excellence.

References

Abdullah, K. (2008). *Banking economics*. Shabab Al-Jami'a Foundation.
Abdulmohsen, T. M. (1987). *A practical approach to enhancing the performance of the banking industry*. Dar Al-Nahda.

Aboud, S. M. (2014). Measuring the dimensions of banking service quality from the customer's perspective using the gaps model. *Iraqi Journal for Market Research and Consumer Protection, 6*(1).
Al-Abadi, B. A. M. (2006). *The role of information systems in supporting decision-making* [Master's thesis, Technical Education Authority – Administrative Technical College].
Al-Ajarmah, T. (2005). *Bank marketing* (1st ed.). Dar Al-Hamed.
Al-Atwi, M. H. Y., Ali, A. Y., & Kazem, A. R. (2024). The role of information technology in enhancing the quality of banking service (Applied research on a sample of commercial banks operating in Najaf Al-Ashraf). *Al-Ghary Journal of Economic and Administrative Sciences, 20*(00), 1707–1732. https://doi.org/10.36325/ghjec.v20i00.17050.
Alawi, A. F. (n.d.). *Information and communication technology: A strategic approach in the knowledge economy*.
Al-Bahi, S. M. S. (2016). *The impact of electronic banking service quality on customer satisfaction: A field study on the Jordan Islamic Bank – Amman* [Master's thesis, Middle East University].
Al-Daradkeh, M., & Al-Shibli, T. (2002). *Quality in modern organizations* (1st ed.). Safa Publishing and Distribution.
Al-Husainy, N. H. M., & Jadah, H. M. (2021). The Effect of Liquidity Risk and Credit Risk on The Bank Performance: Empirical Evidence from Iraq. *IRASD Journal of Economics*, *3*(1), 58-67.
Al-Jubouri, M. I. A. (2008). *Quality management systems* (1st ed.). Iraq.
Al-Lami, G. Q. D. (2007). *Technology management: Concepts, approaches, techniques, and practical applications*. Dar Al-Manahij.
Al-Lami, G. Q. D. (2009). *Technology management: Concepts, approaches, techniques, and practical applications*. Dar Al-Manhaj.
Al-Sairafi, M. (2009). *Information technology*. University Thought Publishing.
Al-Shammari, N. M. N., & Abdul-Lat, A. F. Z. (2008). *Electronic banking: Tools, applications, and obstacles to expansion* (1st ed.). Dar Wael.
Al-Sharman, Z. M. (2004). *Management information systems* (1st ed.). Safa Publishing and Distribution.
Al-Toumi, A. (2009). *Globalization: Its aspects, philosophy, and impact*. Houma Publishing and Distribution.
Al-Wadi, M. H., & Al-Wadi, B. M. (2009). *Knowledge and e-management and their contemporary applications*. Safa Publishing and Distribution.
Bresh, A. (n.d.). Banking service quality as a means to enhance bank competitiveness. *North African Economics Journal*, Hassiba Ben Bouali University, (3).
Chase, R. B., Davis, M., & Aquilano, N. J. (2003). *Fundamentals of operations management* (4th ed.). R.R. Donnelley & Sons Company.
Elliot, G., & Striking, S. (2000). *Business information technology: Systems theory and practice*. Longman Modular Texts in Business and Economics.
El-Sayed, I. M. (1989). *Information systems for managerial decision-making*. Faculty of Commerce, Alexandria University, Arab Modern Office.
Fouad, R. (2009). *The impact of liberalizing banking services trade on bank competitiveness* [Master's thesis, University].
Hallo, N. (2013). *The role of information technology in developing banking service quality: A case study of the Algerian National Bank (Oum El Bouaghi – Branch 316)* [Bachelor's thesis, Faculty of Economic Sciences].
Hellriegel, D., & Jackson, S. (1999). *Management* (8th ed.). South-Western College Publishing.
Hellriegel, D., Jackson, S. E., & Slocum, J. W. (1999). *Management* (9th ed.). Southwestern College Publishing.
Houari, M., & Jalil, A. (2008). *Bank marketing: A strategic analysis*. Al-Mohammedia Publishing.
Jadah, H. M., & Al-Husainy, N. H. M. (2019). *The role of tourism sectors in promoting the sustainable development of the Iraqi economy: An applied study on the five-star hotels in Holy*

Karbala. Conference paper in The Eleventh International Conference, University of Kerbala, The Role of Universities in Achieving the Government Program (2018-2020).
Jalda, S. (2009). *Commercial banks – Banking marketing* (1st ed.). Osama Publishing, Jordan.
Joseph, M., Sekhon, Y., & Others. (2005). An exploratory study on the use of banking technology in the UK. *International Journal of Bank Marketing, 23*(5), 397–413.
Khalou, S. (2016). *Measuring the quality of banking services in commercial banks: A field study comparing CPA and BEA banks (2015–2016)* [Bachelor's thesis, Faculty of Economic Sciences].
Kotler, P., & Armstrong, G. (1996). *Principles of marketing services*. Prentice Hall.
Messen, M. (2001). *Economic management of institutions*. Sahel Publications.
Mohammed, N. H. & Mohsin, H. (2024). The Impact of Academic Governance on Quality of Education in Iraqi Private Universities. *The Middle East International Journal for Social Sciences, 6*(3), 9–19.
Mohsin, H. J., Alghanimi, M. H. A., Al-Dahaan, N. S. H., & Al-Husainy, N. H. M. (2020). Internal and External Determinants of Iraqi Bank Profitability. Banks and Bank Systems, 15(2), 79-93.
Mostafa, M. M. (2003). *Strategic marketing of services* (1st ed.). Publishing and Distribution House.
O'Brien, J. A., & Marakas, G. M. (2008). *Management information systems* (9th ed.). McGraw–Hill/Irwin.
Romney, M. B., & Steinbart, P. J. (1997). *Accounting information systems* (8th ed.). Prentice Hall.
Shiyaa, A. A. H., & Al-Mousawi, R. A. M. (n.d.). The impact of banking service quality dimensions on customer behavior in choosing commercial banks. *Journal of Administration and Economics, 3*(10), Higher Institute for Accounting and Financial Studies, University of Baghdad.
Siam, A. (2006). *The role of electronic banking services in the profitability of Jordanian banks* [Master's thesis, Al-Balqa Applied University, Amman College for Administrative and Financial Sciences].
Thamer, H., Mardan, Z. A., Hassan, E., Zuhair, Q., & Obaid, R. (n.d.). The role of information technology applications represented by electronic payment and distribution services in improving the quality of banking performance: A field study on a sample of Iraqi banks. *The Journal of Contemporary Issues in Business and Government.*
Touati, A. B. A. (2010). *Obstacles to the development of electronic banking in Libyan commercial banks*. Amman.