

The Impact of Applying Blockchain Technology on Enhancing the Reliability and Quality of Accounting Information: A Field Study on a Sample of Iraqi Banks

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Abstract

This paper focuses on the influence of implementing Blockchain technology to improve the quality and reliability of accounting information in Iraqi banks, considering the issues of weak transparency, high risk of errors and manipulation, and reliance on traditional systems to process financial information. The significance of the research is connected to the increasing role of contemporary digital technologies in the creation of accounting information systems and in enhancing the efficiency of financial and banking performance. The research adopted a descriptive-analytical approach, whereby a field study was conducted on a sample of employees within Iraqi banks, such as accountants, auditors, and administrators, with the aim of determining their awareness of the significance of blockchain technology and quantifying the effect of its application in enhancing the quality of accounting information. The data were gathered through a questionnaire and examined using relevant statistical techniques in order to test the research hypotheses. The paper establishes that the application of blockchain technology has a statistically significant positive effect on improving the reliability and quality of accounting information, in terms of improving data accuracy, decreasing the possibilities of manipulation, and increasing the degree of transparency in financial transactions. It was also found that, in addition to enhancing internal control systems, the technology supports the auditing process through the creation of an immutable digital record that allows the tracking of financial transactions at all times. Moreover, the results demonstrate that the adoption of blockchain technology by Iraqi banks in the context of digital transformation is necessary, and that this technology should be supported by the necessary technical and legislative frameworks and the training of accounting and banking staff in order to increase the predictability and quality of accounting data and to facilitate financial decision-making.

Keywords: *Blockchain; quality of accounting information; information reliability; Iraqi banks.*

1. Introduction

The modern business world has been characterised by rapid evolution due to major improvements in information and communication technology, which have been evidently manifested in accounting information systems and in the manner in which financial reports are prepared and presented. Considering these digital changes, there is a need to investigate the contemporary technologies that help improve the reliability and quality of accounting information so

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that it can better satisfy the needs of information users such as investors, management, and regulatory bodies, and help them make sound economic decisions.

Blockchain technology is regarded as one of the brightest technological advances to have emerged in recent years. It is based on a distributed digital register that enables the storage of financial and economic operations in a secure, transparent, and tamper-resistant way. The technology is known for its ability to offer a high degree of reliability and transparency, along with the possibility of tracking and verifying financial transactions in real time; for this reason, it is gaining increasing significance in many spheres, including accounting, auditing, and financial information systems.

The desire to use blockchain technology in the accounting sphere has become quite widespread, as this technology provides numerous benefits in terms of forming accounting information systems and enhancing financial reporting quality. It can be implemented to minimise accounting errors, curb the chances of manipulating financial data, and make the process of conducting audits and reviewing financial data more efficient by maintaining a reliable and consolidated digital record of all financial transactions. In addition, blockchain enables increased transparency and financial disclosure, thus increasing the trust of investors and stakeholders in the accounting information presented by organisations.

Considering the trends observed in the international economy and the rising tendency towards digital transformation, it is now necessary to examine the opportunities of implementing such modern technologies in the Iraqi business context, specifically in the banking sector, as these institutions are relevant to economic activity and the attraction of investment. Improving the reliability and quality of accounting data in these banks will help improve the efficiency of the financial market and boost investor confidence in published financial data.

Based on the foregoing, this research aims to discuss how the application of blockchain technology can improve the reliability and quality of accounting information of a sample of Iraqi banks by examining the correlation between the use of this technology and the quality of the accounting information disclosed. Another objective is to explain how blockchain technology can be used in the creation of accounting information systems and the enhancement of transparency and reliability within financial reporting, in a way that is compatible with the demands of the current business setting and conducive to economic decision-making.

Moreover, the research is a valuable addition to the accounting literature concerning the use of modern digital technologies in accounting, and offers a scientific framework that can be applied by both firms and government in creating their accounting systems and improving the quality of financial information in the Iraqi financial market.

2. Research Methodology

2.1 Research Problem

Accounting information is regarded as one of the best sources relied upon by investors, management, and stakeholders in making various economic choices. Thus, the quality and reliability of such information is a core element in increasing confidence in financial reports and transparency in financial markets. Nevertheless, most companies continue to experience difficulties with the accuracy and reliability of the accounting information reported, owing to flaws in older accounting information systems, which include the possibility of manipulating data, the lagging of transactions, and the low effectiveness of internal control systems.

Considering the rapid advancement in information technology, blockchain has become one of the contemporary technologies that can help mitigate most of the issues surrounding accounting information systems. The technology is based on a distributed digital register marked by a high degree of security and transparency, which enables financial operations to be documented in a format that is very difficult to hack or modify once recorded. In this regard, the use of such technology in the accounting profession can help enhance the quality and reliability of accounting information by minimising accounting mistakes and maximising transparency in keeping records of financial transactions.

Although blockchain technology has grown in significance in the creation of accounting systems at the international level, its application remains low in the Iraqi business world, especially in the banking industry. In addition, there are limited field studies on the effects of using this technology to promote the quality and reliability of accounting information in the Iraqi setting, a fact which necessitates scientific studies that further explain the potential role this technology can play in shaping accounting information systems and the effectiveness of financial reporting.

Accordingly, the research problem is represented by an attempt to answer the following main question:

What is the impact of applying blockchain technology on enhancing the reliability and quality of accounting information in Iraqi banks?

2.2 Importance of the Research

This study is significant because the value of contemporary digital technologies, specifically blockchain technology, has been rising in the creation of accounting information systems and the enhancement of the quality of financial reporting in the modern business environment. The relevance of the research can be outlined in the following aspects:

- **Scientific importance:** The research adds value to the accounting literature covering the use of modern technologies by highlighting the importance of blockchain technology in improving the reliability and quality of accounting information. This offers a knowledge framework that can be applied in future research in the accounting field and in accounting information systems.
- **Practical importance:** The paper shows the potential to exploit blockchain technology in creating accounting information systems within the banking industry, in a manner that increases the transparency and reliability of financial reports and strengthens investor and stakeholder trust in accounting information.
- **Economic importance:** The investigation emphasises the importance of modern technologies in enhancing the quality of financial information, which supports the efficiency of Iraqi banks and improves investment and economic decision-making.
- **Professional importance:** The research offers real-world insights to accountants, auditors, and regulatory bodies on the need to embrace modern technologies, especially blockchain, in shaping accounting practices and enhancing the quality of financial information.

2.3 Research Objectives

This study seeks to achieve a set of objectives, which are as follows:

- To clarify the concept of blockchain technology, its key characteristics, and the possibility of its application in the accounting field.
- To identify the concept of the reliability and quality of accounting information and the main characteristics that distinguish it in financial reports.
- To analyse the current state of the use of modern technologies in accounting information systems in Iraqi banks.
- To measure the impact of applying blockchain technology on enhancing the reliability of accounting information in the banks included in the research sample.
- To examine the role of blockchain technology in improving the quality of accounting information and increasing the level of transparency in financial reporting.
- To provide a set of recommendations that contribute to supporting the adoption of blockchain technology in the accounting environment in a way that enhances the efficiency of accounting information systems and the quality of financial reporting.

2.4 Research Model and Hypotheses

2.4.1 Research Model

The research model addresses its variables: blockchain technology, which is considered the independent variable, while the reliability and quality of accounting information represent the dependent (response) variable. The relationship between these variables is illustrated in the diagram below.

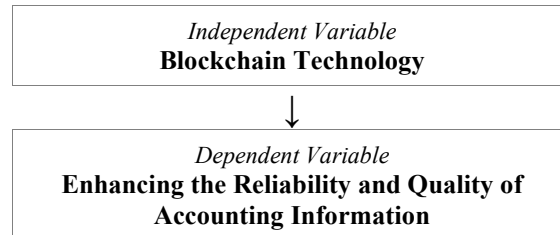


Figure 1: The Hypothetical Research Model

Source: Prepared by the researcher.

2.4.2 Research Hypothesis

In light of the research model, the following main hypothesis is proposed:

H1: There is a statistically significant impact of applying blockchain technology on enhancing the reliability and quality of accounting information in the banks included in the research sample.

2.5 Research Methodology, Data Collection Methods, and Research Sample

2.5.1 Research Methodology

The study adopts a descriptive-analytical approach, due to its suitability for the nature of the research, which aims to analyse the impact of applying blockchain technology on enhancing the reliability and quality of accounting information in Iraqi banks. This approach allows for an accurate description of the phenomenon under investigation and the analysis of the relationships between its variables (blockchain technology as the independent variable, and the reliability and quality of accounting information as the dependent variable), leading to the derivation of results and the testing of the research hypothesis using appropriate statistical methods.

2.5.2 Data Collection Methods

The methods used to collect the necessary data and information for this study relied on two sources:

- **(a) Secondary sources (theoretical aspect):** The researcher covered the theoretical aspect using available sources, including books, peer-reviewed scientific journals, university theses (master's and doctorate), working papers, and relevant Arab and international conferences related to the research topic. The researcher also utilised international information networks (the Internet) and specialised scientific databases such as Scopus, Web of Science, and Google Scholar.
- **(b) Primary sources (field aspect):** The field aspect was addressed through a questionnaire designed using a five-point Likert scale to measure respondents' opinions regarding the level of blockchain technology application, the reliability of accounting information, and the quality level of accounting information. The questionnaire was distributed to the sample members, collected after completion, and then analysed statistically using SPSS software.

2.5.3 Research Sample

The research sample included a group of employees in the selected banks, such as accountants, internal auditors, financial managers, and IT department staff. The sample was selected using either simple random sampling or purposive sampling (depending on accessibility) to ensure adequate representation of the research population.

2.6 Research Population

The scope of the research includes the spatial boundaries represented by a sample of Iraqi banks, as shown in the following table.

Table 1: Research Population and Sample

S	Bank Name	S	Bank Name
1	Ashur International Investment Bank	6	Kurdistan International Islamic Bank
2	Gulf Commercial Bank	7	Middle East Bank
3	Iraqi Investment Bank	8	Al-Mansour Investment Bank
4	Bank of Baghdad	9	Iraqi Commercial Bank
5	Mosul Bank for Development and Investment	10	Al-Muttahad Investment Bank

Source: Prepared by the researcher.

3. Theoretical Framework of the Study

3.1 Blockchain Technology

3.1.1 Concept of Blockchain Technology

Blockchain technology is characterised as a secure and distributed database. It functions as a transaction ledger that prevents manipulation of transaction information, so that the transfer of information is safe and accurate. It is therefore a transparent and decentralised register that allows information to be stored, processed, and recorded in such a way that all parties can track data over a secure network. This means that all transactions logged into the network are maintained immutably from the moment the network is created. New transactions are organised into batches at certain time intervals, known as blocks, and are then connected by a mechanism referred to as mining, creating a chain of blocks — hence the name “blockchain” [1].

From an accounting perspective, [2] defined blockchain as a large spreadsheet used to register all assets, and as an accounting system for managing all types of assets by all parties in the world. Meanwhile, [3] defined it as a distributed, decentralised public ledger capable of validating and storing all transactions that flow through it; that is, the ledger is owned by no single party, but by a distributed group of network users.

Based on the foregoing, the researcher perceives blockchain technology in accounting as a spreadsheet that captures digital transactions and events, confirms them, and creates ownership rights in order to achieve reliability and credibility.

3.1.2 Importance of Blockchain Technology

The role of blockchain technology is becoming more significant in the modern business world because of the benefits it brings to the development of information systems and the efficiency of financial and administrative processes. Its importance can be summarised as follows [4]:

- **Enhancing reliability and credibility:** Blockchain offers an unalterable digital register, which enhances the integrity of information and minimises the possibility of manipulation or falsification, especially in financial and accounting contexts.

- **Increasing transparency:** The technology enables concerned parties to view transactions explicitly, thus making financial operations transparent and increasing users' trust in the data.
- **Improving information system efficiency:** Blockchain makes transaction recording and verification quick and lightens dependence on conventional procedures, thus enhancing accounting information systems.
- **Reducing operational costs:** Blockchain reduces the administrative and financial expenses of carrying out traditional transactions by reducing the number of players involved in providing services.
- **Enhancing information security:** It relies on advanced encryption techniques, providing a high level of protection against breaches and cyber threats.
- **Supporting auditing and control processes:** Blockchain provides a detailed chronological account of all transactions, which simplifies audits and improves the effectiveness of internal control.
- **Improving the quality of accounting information:** With this technology, users can obtain the information needed to make sound economic decisions, because it allows the delivery of precise and timely information.

3.1.3 Types of Blockchain Technology

There are different types of blockchain, including public, private, and hybrid blockchains.

- **Public blockchains**, such as Bitcoin and Ethereum, are open to everyone, allowing any individual to participate.
- **Private blockchains** are owned and managed by a single entity, restricting participation to specific authorised individuals.
- **Hybrid blockchains** combine features of both public and private blockchains, where certain aspects are controlled privately while others are accessible to the public.

These types are used differently with reference to security and transparency. Public blockchains are both decentralised and transparent, which makes them ideal for uses where collective participation is required without a central authority. Organisations are able to maintain a high degree of privacy and security over sensitive transactions through a private blockchain, because they can fully manage access and data. Hybrid blockchains provide an intermediate option, as organisations can take advantage of the openness and trust of public blockchains while retaining the ability to privately manage sensitive information. Each type is applied to meet specific needs in security, privacy, and decentralisation [5].

3.1.4 Applications of Blockchain Technology

Invoices and financial payments: Blockchain is one of the latest technologies that can be applied to process invoices, manage payments, enter into contractual functions, and keep records that influence the performance of accountants and other financial experts. It specialises in the transfer of ownership of assets and the maintenance of the ledger to acquire finance and accounting data. In general, the accounting profession is concerned with the measurement, communication, and analysis of financial and accounting data to aid decision-making with regard to rights and obligations [6].

Its use in accounting information systems offers verifiable and reliable accounting information, eases the sharing of information between users, and supports real-time and continuous reporting to stakeholders [7].

3.1.5 Dimensions of Blockchain Algorithms

The blockchain system operates according to a set of main dimensions, as follows [8], [9]:

1. **Decentralisation:** Blockchain is based on a distributed architecture managed by no single central node. Information is kept across a network of nodes, which minimises the chance of manipulation or of any one person gaining control over the data.
2. **Transparency:** The technology enables everyone involved in the network to view documented transactions, which adds a level of transparency and makes users more confident in the information.
3. **Immutability:** Transactions are stored in interconnected blocks through encryption, which prevents the alteration or removal of recorded information unless agreed upon by the entire network.
4. **Security:** Blockchain uses cryptographic methods to protect data and transactions, and is therefore not easily subject to hacking and manipulation.
5. **Consensus:** The network uses consensus mechanisms, including Proof of Work (PoW) or Proof of Stake (PoS), to confirm transactions before they are added to the ledger, maintaining the accuracy of the data.
6. **Traceability of transactions:** Blockchain offers the capability of tracking all recorded operations from their beginning, which improves control and accountability.
7. **Smart contracts:** These are computer programs that run automatically when certain conditions are met, supporting the automation of processes and reducing the need for intermediaries.

3.2 Conceptual Approach to Accounting Information Quality

3.2.1 Concept of Accounting Information Quality

The accounting information contained in financial reports constitutes the fundamental basis for planning, control, and making investment and credit decisions. Accordingly, defining the objectives of financial reporting is the starting point for applying the accounting information usefulness approach. For the information in these reports to be useful, it must possess a high degree of quality.

Al-Shirazi defines the quality of accounting information as the key characteristics that useful accounting information should possess. These characteristics help financial-report preparers evaluate the quality of the information produced through the application of accounting methods and techniques [10].

Moreover, [11] noted that the quality of accounting information serves as a criterion for judging the extent to which accounting information achieves its objectives, and can be used as a basis for comparing accounting methods for measuring and disclosing financial statements. Accounting information quality must meet the standard of usefulness, meaning the information's ability to satisfy the requirements of a specific decision.

In this context, the Financial Reporting Committee of the American Institute of Certified Public Accountants (AICPA) indicates that information quality refers to the ability to use information for forecasting and its relevance in achieving objectives [12].

3.2.2 Characteristics of Accounting Information Quality

The characteristics of accounting information quality form key pillars on which financial-statement users base their judgement of the usefulness of the information provided. The aim of these characteristics is to provide accurate and reliable financial information capable of supporting economic decisions. The most important characteristics, according to the conceptual framework of accounting, are as follows [12], [13]:

- **Relevance:** Accounting information is considered relevant when it can influence users' economic decisions by providing predictive or confirmatory value, helping to assess past events or forecast future outcomes.

- **Faithful representation:** This means that accounting information accurately, completely, and neutrally reflects economic reality. It should be free from material error or bias, and includes completeness, neutrality, and freedom from error.
- **Comparability:** This allows users to compare financial information across different periods or between multiple entities, aiding performance evaluation and decision-making.
- **Verifiability:** This refers to the ability of independent parties to verify the accuracy of accounting information, thereby enhancing confidence in the reliability of financial data.
- **Timeliness:** Accounting information should be provided in a timely manner so that it is useful for decision-making; delayed information reduces its value.
- **Understandability:** Information should be presented clearly and systematically, making it easy for users with reasonable accounting knowledge to comprehend.

3.2.3 Objectives of Accounting Information Quality

The main objectives of accounting information quality can be summarised as follows [14]:

1. **Providing relevant information for decisions:** to provide information directly relevant to economic decisions, assisting users in evaluating the alternatives available and selecting the right choice.
2. **Improving reliability and credibility:** to make information free of errors and bias, so that it represents economic reality and generates greater user trust.
3. **Achieving transparency and disclosure:** to provide financial information in an understandable and clear way, with full disclosure of material financial events and transactions.
4. **Ensuring comparability:** to allow users to compare the financial performance of a company across different periods or with other companies.
5. **Providing timely information:** to present accounting information on time without compromising the decision-making process, ensuring it is convenient to use.
6. **Enhancing understandability:** to ensure that information is presented in a clear and structured way that can be easily understood even by non-specialised users.
7. **Facilitating control and accountability:** to provide information that supports judging and holding management responsible, increasing the efficacy of internal control systems.
8. **Minimising information asymmetry:** to help close the information gap between management and stakeholders, making the market fairer and more efficient.

3.2.4 Standards for Measuring Accounting Information Quality

There are several standards for measuring the quality of accounting information, which can be generally outlined as follows [15]:

- **Accuracy:** The quality of accounting information can be determined by its degree of accuracy. The higher the accuracy, the greater the quality and value of the information in representing historical facts or forecasting future events.
- **Usefulness:** Usefulness consists of two elements: the correctness of the information and the ease of its use. It can take the form of formal usefulness, meaning that the closer the content and format of the information match the decision-maker's requirements, the higher its value.

- **Effectiveness:** Effectiveness refers to the extent to which an economic unit achieves its objectives using specific resources. From this perspective, the quality of information can be defined in terms of how effectively it helps achieve the objectives of the economic unit or decision-makers using allocated resources.
- **Predictive ability:** This refers to the capability to use past and present information to anticipate future events and outcomes. Such predictions can be employed in planning and decision-making, and the quality of accounting information is reflected in its predictive power and its ability to reduce uncertainty.
- **Efficiency:** Efficiency is the attainment of the targets of the economic unit with the lowest possible consumption of resources. Some scholars emphasise the concept of economy in information systems, seeking to optimise the quality of information at the lowest possible cost in order to enhance its value.

3.3 The Interrelated Relationship Between Blockchain Technology and the Reliability and Quality of Accounting Information

Accounting information systems have undergone tremendous change in the digital-transformation environment, and blockchain technology has proved to be a new technology that can revolutionise the manner in which financial data is captured and processed. The technology is based on a distributed and immutable digital register that documents transactions in a safe and transparent way, increasing the quality and reliability of accounting data.

According to study [16], blockchain technology improves the credibility of accounting data through its immutability. Using encryption, transactions are documented in networked blocks, making it difficult to manipulate or modify data once recorded. This has a positive effect on the reliability of accounting information and minimises accounting fraud and manipulation. The use of consensus mechanisms to verify transactions also makes data accurate and correct prior to recording, which further contributes to increased trust in the results of the accounting system.

Meanwhile, study [17] stated that blockchain technology enhances the quality of accounting information by strengthening its essential qualitative characteristics, especially relevance and faithful representation. Blockchain can offer information that is updated in real time, which means that it is timely and influences economic decisions. Additionally, the transparency provided by this technology enables every authorised party to view financial information, thereby increasing the clarity, understandability, and comparability of financial information.

Study [18] suggested that blockchain technology assists in enhancing internal control and auditing systems by facilitating the maintenance of a full chronological record of all transactions, which can be easily consulted to confirm the truthfulness of financial operations. This helps simplify internal and external audit processes, minimises the effort and cost involved in auditing, and makes financial oversight more efficient.

Studies [19], [20] noted that blockchain technology reduces the human factor and information asymmetry by automating account processing through smart contracts that take effect automatically upon reaching a specific condition. This minimises human intervention and the chance of mistakes. Equal access to information for all parties also reduces the informational gap between management and investors, contributing to the effectiveness of financial markets.

Resting on the foregoing, the researcher concludes that the application of blockchain technology leads to improvements in the reliability and quality of accounting information in terms of data accuracy, transparency, and the strengthening of control and auditing systems. This is a good indicator of the effectiveness of financial reporting and facilitates effective economic decision-making.

4. Field Study: Description and Analysis of the Research Sample and Hypothesis Testing

4.1 Introduction

In the field research, the researcher used a questionnaire specifically developed to test the research hypothesis. The questionnaire was divided into two major parts: the first part concentrated on blockchain technology, and the second part concerned the reliability and quality of accounting information.

The items in both sections were measured using a five-point Likert scale, ranging from 1 (“strongly disagree”) to 5 (“strongly agree”), as shown in the following table. A total of 140 questionnaires were distributed to the research sample. The following section provides a description of the participants in the questionnaire sample.

Table 2: Five-Point Likert Scale Ratings

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

The neutral midpoint of the five-point Likert scale = $(1 + 2 + 3 + 4 + 5) / 5 = 3$ points.

4.2 Description of the Research Sample

Table 3: Distribution of the Sample Individuals by Gender

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Female	54	38.4	38.4	38.4
Male	86	61.6	61.6	100
Total	140	100	100	

Table 4: Distribution of the Sample Individuals by Educational Level

Degree	Frequency	Percent	Valid Percent	Cumulative Percent
Diploma	15	10.7	10.7	10.7
Bachelor's Degree	55	39.3	39.3	50.0
Master's Degree	50	35.7	35.7	85.7
Doctorate / PhD	20	14.3	14.3	100
Total	140	100	100	

Table 5: Distribution of the Sample Individuals by Field of Study

Specialisation	Frequency	Percent	Valid Percent	Cumulative Percent
Accounting	83	59.3	59.3	59.3
Business Administration	29	20.7	20.7	80.0
Financial and Banking	22	15.7	15.7	98.6
Economics	4	2.9	2.9	82.9
Project Management	1	0.7	0.7	99.3
Teacher	1	0.7	0.7	100
Total	140	100	100	

4.3 Questionnaire Reliability Test

After completing the description of the sample, the researcher verified the reliability of the scale by calculating Cronbach's alpha coefficients using SPSS. The results were as follows.

Table 6: Cronbach's Alpha Coefficients for Testing Questionnaire Reliability

Dimension	Variable	Cronbach's Alpha
First dimension	Blockchain technology	88.8%
Second dimension	Reliability and quality of accounting information	64.9%

4.4 Descriptive Statistics Results

After verifying the validity and reliability of the scale, the researcher distributed the questionnaire to the sample individuals. The results of the descriptive statistics for the responses obtained are presented below. In Tables 7 and 8, each response category shows the frequency followed by its percentage in parentheses.

The first dimension relates to blockchain technology.

Table 7: Sample Responses to the Items of the Blockchain Technology Dimension

Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Std. Dev.	C.V.	Rank
X1	66 (47%)	65 (46%)	7 (5%)	2 (1%)	0 (0%)	4.393	0.654	0.149	8
X2	45 (32%)	87 (62%)	6 (4%)	2 (1%)	0 (0%)	4.250	0.601	0.141	5
X3	50 (36%)	82 (59%)	7 (5%)	1 (1%)	0 (0%)	4.293	0.594	0.138	2
X4	50 (36%)	78 (56%)	9 (6%)	3 (2%)	0 (0%)	4.250	0.669	0.157	9
X5	56 (40%)	67 (48%)	12 (9%)	5 (4%)	0 (0%)	4.243	0.757	0.179	10
X6	72 (51%)	60 (43%)	7 (5%)	1 (1%)	0 (0%)	4.450	0.627	0.141	3
X7	71 (51%)	58 (41%)	10 (7%)	1 (1%)	0 (0%)	4.421	0.658	0.149	7
X8	70 (50%)	65 (46%)	4 (3%)	1 (1%)	0 (0%)	4.457	0.592	0.133	1
X9	72 (51%)	57 (41%)	10 (7%)	1 (1%)	0 (0%)	4.429	0.659	0.149	6
X10	68 (49%)	64 (46%)	7 (5%)	1 (2%)	0 (0%)	4.421	0.624	0.141	4
Overall (mean / std. dev. / C.V.)	4.361	0.425	0.114						

Source: Prepared by the researcher based on the SPSS statistical analysis output.

As shown in the table above, the weighted mean for the first dimension is high, exceeding the neutral midpoint of the scale (3 points). The standard deviation is very low at 0.425, and the coefficient of variation is 0.114, indicating a high degree of convergence among the items in this dimension from the perspective of the sample. At the detailed level, all items recorded means higher than the scale midpoint. Item X8 recorded the lowest coefficient of variation in this dimension (0.133), with a mean of 4.457 and a standard deviation of 0.592, indicating strong agreement that the adoption of blockchain technology is highly relevant to enhancing the quality of accounting information.

The second dimension relates to the reliability and quality of accounting information.

Table 8: Sample Responses to the Items of the Reliability and Quality of Accounting Information Dimension

Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Std. Dev.	C.V.	Rank
X1	41 (29%)	63 (46%)	27 (19%)	6 (4%)	3 (2%)	3.950	0.924	0.234	10
X2	53 (38%)	75 (54%)	9 (6%)	3 (2%)	0 (0%)	4.271	0.678	0.157	7
X3	51 (36%)	80 (57%)	7 (5%)	2 (2%)	0 (0%)	4.300	0.574	0.124	5
X4	63 (45%)	73 (52%)	5 (4%)	0 (0%)	0 (0%)	4.421	0.531	0.132	3
X5	64 (46%)	68 (49%)	8 (5%)	0 (0%)	0 (0%)	4.400	0.587	0.138	6
X6	58 (41%)	79 (56%)	3 (2%)	0 (0%)	0 (0%)	4.393	0.536	0.126	2

Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Std. Dev.	C.V.	Rank
X7	77 (55%)	57 (41%)	4 (3%)	1 (1%)	0 (0%)	4.500	0.624	0.137	4
X8	77 (55%)	61 (44%)	6 (4%)	0 (0%)	0 (0%)	4.536	0.537	0.117	1
X9	61 (44%)	54 (39%)	19 (14%)	3 (2%)	2 (1%)	4.221	0.823	0.198	8
X10	67 (48%)	67 (48%)	5 (4%)	0 (0%)	0 (0%)	4.436	0.587	0.130	9
Overall (mean / std. dev. / C.V.)	4.343	0.320	0.074						

Source: Prepared by the researcher based on the SPSS statistical analysis output.

The table above shows that the weighted mean of the second dimension is 4.343, which is higher than the neutral midpoint of the scale (3 points). The standard deviation is very low at 0.320, and the coefficient of variation is 0.074, indicating a very high degree of convergence among the items from the perspective of the sample. At the detailed level, all items recorded means higher than the scale midpoint, confirming that the sample individuals effectively contribute to improving the reliability and quality of accounting information through the adoption of modern technologies, including blockchain.

4.5 Hypothesis Testing and Research Findings

H1: There is a statistically significant effect of applying blockchain technology on enhancing the reliability and quality of accounting information in the banks included in the research sample.

The main hypothesis can be tested using the following linear regression model:

$$AQ = B_0 + B_1 \times BT + \varepsilon$$

- BT = Blockchain Technology (independent variable).
- AQ = Reliability and Quality of Accounting Information (dependent variable).
- ε = estimation errors (statistical residuals).
- B₀ = the regression constant (value of the dependent variable when the independent variable equals zero).
- B₁ = the slope of the regression function (the effect of the independent variable on the dependent variable).

Table 9: Effect of Blockchain Technology on Enhancing the Reliability and Quality of Accounting Information — Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.498	0.413	0.242	0.267

a. Predictors: (Constant), BT. b. Dependent variable: AQ. Source: Prepared by the researcher based on SPSS output.

The table above shows the model summary for the hypothesis. The correlation coefficient (R) between the variables is 0.498, representing a moderate strength of relationship. The coefficient of determination (R²) is 0.413, meaning that the independent variable, blockchain technology, explains 41.3% of the variance in the dependent variable (reliability and quality of accounting information). The standard error of the estimate is 0.267, which is very low; a lower value indicates fewer errors and a better-fitting model.

Table 10: Analysis of Variance (ANOVA) for Testing the Hypothesis

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	3.531	1	3.531	47.439	0.000
Residual	10.732	137	0.078		
Total	14.263	139			

Source: Prepared by the researcher based on SPSS output.

The ANOVA table shows that the calculated F value is 47.439, which is higher than its tabulated value at the relevant degrees of freedom (3.94 at the 5% level). The significance level (Sig.) of the test is 0.000, lower than the accepted error threshold in the social sciences (0.05), indicating that the statistical model used to test the hypothesis is appropriate.

Table 11: Regression Coefficients for the Main Hypothesis

Model	B	Std. Error	Beta	t	Sig.
(Constant)	2.715	0.228	—	12.345	0.000
BT	0.358	0.052	0.498	6.738	0.000

Source: Prepared by the researcher based on SPSS output.

According to the regression coefficients table, the regression constant (B0) is 2.715 and the regression slope (B1) is 0.358, which means that the independent variable influences the dependent variable. The positive value of B1 indicates a direct relationship: an increase of one unit in the independent variable (blockchain technology) results in an increase of approximately 0.358 units in the dependent variable (reliability and quality of accounting information), holding other factors constant. The significance value for the independent variable is 0.000, which is less than 0.05, providing sufficient evidence to accept the hypothesis and confirm that blockchain technology has a statistically significant impact on enhancing the quality and reliability of accounting information.

5. Conclusions and Recommendations

5.1 Conclusions

Through the results of the field study and statistical analysis, the researcher reached the following conclusions regarding the effect of implementing blockchain technology in improving the quality and reliability of accounting information:

1. The implementation of blockchain technology has a significant positive value in improving the reliability of accounting information by minimising the manipulation of financial data and increasing the accuracy of bank transactions.
2. Blockchain technology enhances the quality of accounting information by strengthening its core qualitative characteristics, especially relevance and faithful representation, while also contributing to the improvement of other qualities such as timeliness and verifiability.
3. The use of blockchain technology leads to greater transparency in banking business, since the real-time sharing and availability of information to the relevant parties makes users more confident in the financial information.
4. Blockchain application improves the internal control systems of Iraqi banks by creating an unalterable online record that enables the monitoring and auditing of financial operations.
5. The implementation of this technology can streamline and refine financial auditing procedures and save the time and effort needed to carry out review procedures, since it depends on credible and regularly updated data.
6. Human errors and information asymmetry are mitigated by blockchain technology through the automation of accounting using smart contracts.
7. There is variation in the awareness of Iraqi banks regarding the significance of blockchain technology, which implies that more training and awareness are required in this area.
8. Blockchain technology implementation is critical because it considerably enhances the effectiveness of financial and banking performance and contributes to efficient and objective economic decision-making.

5.2 Recommendations

In light of the conclusions reached, the following recommendations are proposed:

1. Blockchain should be implemented within the context of digital transformation in Iraqi banks, on a gradual basis, as the technology is relevant to increasing the reliability and quality of accounting information.
2. Additional technical infrastructure should be provided to handle blockchain applications, such as up-to-date computing systems, networks, and databases.
3. Emphasis should be placed on educating accountants, auditors, and banking-industry employees on how to use blockchain technology, through specialised training courses and workshops.
4. Iraqi regulatory bodies should set policies and regulations governing how blockchain technology is applied in the banking industry, to ensure safe usage and data security.
5. Efforts should be made to integrate blockchain technology with existing accounting information systems in order to enhance the efficiency of financial processes and minimise errors.
6. Internal control and electronic auditing systems should be built around the characteristics of blockchain, resulting in improved transparency and reduced risk of financial fraud.
7. Employees of Iraqi banks should be made aware of the significance of blockchain technology and its advantages in enhancing the quality of accounting information.
8. It is recommended that further research be conducted to identify the factors that hinder blockchain implementation in the Iraqi setting, including technical, regulatory, and human factors.

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