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INTEGRATING BLOCKCHAIN TECHNOLOGY AND ARTIFICIAL INTELLIGENCE TO ENHANCE THE QUALITY OF FINANCIAL REPORTING (A FIELD STUDY ON BANKS AND FINANCIAL INSTITUTIONS IN THE KINGDOM OF SAUDI ARABIA)

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ABSTRACT

Financial institutions in Saudi Arabia face significant challenges in ensuring the quality and reliability of financial reports, especially considering the increase in data volume and the complexity of operations. This research aims to analyze the impact of integrating Blockchain technology and Artificial Intelligence on the quality of financial reports in banks in the Kingdom of Sudia Arabia, by testing two hypotheses: integration affects on reliability, on transparency and on disclosure of financial reports. The research adopted the analytical descriptive approach and econometric models, collecting data from 200 financial and accounting employees through a structured questionnaire. Data were analyzed using descriptive statistics, linear regression, Pearson correlation, and Chi-square tests. The results reflect that the integration between Blockchain technology and Artificial Intelligence has a significant positive impact on both the reliability and transparency of financial reports, however, the study showed that job experience and bank type have a partial effect. The study concluded that integration provides high- quality financial information which helps the financial manager to choose the optimal decision. Key recommendations include the application of modern banking technologies, training financial staff and improving disclosure and financial control policies.

KEYWORDS: Blockchain, Artificial Intelligence, Financial Reporting Quality, Transparency, Financial Control.

1. INTRODUCTION

The mechanism of diffused water through the surface of archaeological Obsidian blades, a mainly temperature-dependent and concentration-driven phenomenon, related to the obsidian hydration dating (OHD), is a subject of ongoing development[1].

Diffusion is an essential transport in many rock and biological systems and is known to be susceptible to environmental and intrinsic structure and inhomo-geneity. The most basic definition of diffusion is that it presumes a homogeneous environment with a con-tinuously increasing mean squared displacement and a Gaussian distribution of particle displacements.

Digital technologies in accounting have witnessed great and rapid development over the past two decades, particularly Blockchain technology and Artificial Intelligence. These technologies have become essential pillars in building more efficient and reliable financial systems. These technologies have led to an improvement in the quality of financial reports by developing methods for recording, processing and auditing financial transactions. All of this has positive impact on the financial firms in making sound economic decisions.

Financial reporting quality is one of the most important indicators of transparency and accountability within financial institutions. Regulatory bodies, investors, and external auditors rely on accounting information to make accurate decisions. Despite this importance, many institutions still face challenges in ensuring the reliability and transparency of financial data due to reliance on traditional systems that may be prone to human error, manipulation, or weak internal controls. Financial reporting quality depends on the ability of accounting information to faithfully represent economic reality and support decision making (Dechow & Schrand, 2004; IASB, 2018).

Blockchain technology provides a decentralized, secure, environment that offers a high level of transparency and tracks the transaction in real-time. On the other hand, Artificial Intelligence offers predictive analytics, automated error detection, fraud identification, and the ability to process massive amounts of data with speed and accuracy beyond human capability. By combining both technologies, it becomes possible to establish a more stable financial system characterized by reliability, transparent disclosure, and the ability to prevent errors and manipulation before they occur. Then we can say that the integration between two technologies is one of the most important modern trends capable of transforming the nature and quality of financial reporting (Dai & Vasarhelyi, 2017; Kokina & Davenport, 2017).

This topic is particularly important in Saudi Arabia, given the national direction toward full digital transformation under Vision 2030, which emphasizes developing the financial sector and enhancing market confidence. This makes studying the impact of integrating Blockchain and Artificial Intelligence on the quality of financial reporting both urgent and highly valuable.

Given the scarcity of studies addressing this integration in the Saudi environment, this research provides an important scientific contribution by analyzing the impact of combining these technologies on the reliability and transparency of financial information within Saudi financial institutions. Previous studies have examined the role of Blockchain in improving transparency and reducing information asymmetry, and the role of Artificial Intelligence in improving accounting control and reducing errors, but the combined effect of both technologies still needs further empirical examination in the Saudi banking context (Al-Hassan, 2021; Al-Otaibi, 2022; Badr, 2023).

1.1. Research Problem

Despite the increasing use of modern technologies in the field of accounting, the impact of integrating Artificial Intelligence and Blockchain on the quality of financial reports remains unclear in the Saudi environment, particularly regarding their contribution to improving the reliability and transparency of financial information. Therefore, the research problem can be summarized in the following question: How does the integration between Blockchain technology and Artificial Intelligence affect the quality of financial reporting in financial institutions in the Kingdom of Saudi Arabia?

1.2. Research Objectives

This study aims to measure the level of use of Blockchain technology and Artificial Intelligence in Saudi financial institutions. It also seeks to examine the impact of integrating Blockchain and Artificial Intelligence on the reliability of financial reports, measure the impact of this integration on transparency and financial disclosure, and provide recommendations that contribute to enhancing the quality of financial reporting using modern

[1] FootNote here.

technologies.

1.3. Research Importance

The importance of this study appears in three main dimensions. Scientifically, the study provides a contribution by linking digital technologies with the quality of financial reports, especially through the combined use of Blockchain technology and Artificial Intelligence. Practically, the application of modern technologies in accounting and finance can contribute to producing high-quality financial reports, improving internal control, and supporting better financial decision-making. In terms of future significance, the study supports the national direction toward digital transformation and the enhancement of financial sector efficiency under Saudi Vision 2030.

1.4. Research Hypotheses

The study tests two main hypotheses. The first hypothesis states that there is a statistically significant effect of integrating Blockchain and Artificial Intelligence on the reliability of financial reports in Saudi financial institutions. The second hypothesis states that there is a statistically significant effect of integrating Blockchain and Artificial Intelligence on the transparency and disclosure of financial reports in Saudi financial institutions.

1.5. Research Methodology

This research employs a mixed-methods approach combining the descriptive-analytical method and econometric analysis. Data were collected from 200 financial and accounting employees through a structured questionnaire. The data were analyzed using descriptive statistics, linear regression, Pearson correlation, and Chi-square tests.

2. PREVIOUS STUDIES

The study reviewed the following previous research:

Al-Hassan (2021) addressed the problem of increased risks of manipulation and financial fraud in traditional banks due to a lack of transparency. The study aimed to examine the impact of Blockchain in enhancing financial transparency and to analyze its role in improving internal control in banks. Several hypotheses were proposed, including that the use of Blockchain increases transparency and improves internal control. The study adopted an analytical case-study approach on national banks using questionnaires and financial document reviews. The results showed increased transparency in banking transaction records, improved verification speed, and reduced errors. The study recommended adopting Blockchain technology in all banks and providing training programs for employees.

Al-Otaibi (2022) highlighted the problem of inefficiency in traditional accounting control systems and their inability to handle large volumes of financial data. The study aimed to analyze the impact of Artificial Intelligence in improving the accuracy of financial data and reducing human errors. The study proposed several hypotheses, including that AI contributes to improving the accuracy of financial information and reducing errors. It used a descriptive-analytical approach, collecting data through questionnaires and interviews with accountants in major companies. The results showed improved control levels, a noticeable reduction in human errors, increased accuracy of financial reports, and faster report preparation. The study recommended adopting AI in financial control systems and training accounting staff on smart tools.

Badr (2023) conducted a theoretical and field study to examine the impact of applying Blockchain technology in business enterprises on reducing accounting information asymmetry. The study explored Blockchain and information asymmetry in accounting theory and practice, reviewed related studies to identify similarities and differences, and derived research hypotheses. A field survey was conducted among accounting professors in Saudi universities, professional accountants in the private sector, and financial analysts in the Saudi stock market. A structured questionnaire was distributed, and statistical analysis was performed. The results indicated that Blockchain is widely applied in Saudi service sectors but not yet in business enterprises. The study found that applying Blockchain reduces accounting information asymmetry and that there is a significant negative correlation between Blockchain application and information asymmetry. The study recommended raising awareness among Saudi enterprises about Blockchain and encouraging universities to hold conferences and seminars on its benefits and challenges.

Dai & Vasarely (2017) examined the lack of transparency and credibility in traditional accounting systems and the inability of auditing to detect financial manipulation early. The study aimed to explore the use of Blockchain in accounting and auditing and determine its impact on financial reporting quality. The study proposed several hypotheses, including that Blockchain increases the credibility and transparency of financial reports. It adopted a theoretical and applied analytical

approach on selected international companies. The results showed reduced financial fraud, increased accuracy of financial reports, and improved verification and monitoring of financial operations. The study recommended adopting Blockchain in accounting and auditing systems and conducting large-scale pilot applications.

Kokona & Davenport (2017) studied the problem of weak traditional control systems and their inability to process big data efficiently. The study aimed to examine the impact of AI on improving auditing processes and evaluating the potential for automating internal control and reducing human errors. The study proposed several hypotheses, including that AI improves audit accuracy and increases financial control efficiency. It used a theoretical analysis and experimental data from international companies using AI in auditing. The results showed improved audit accuracy, reduced human errors, increased reliability of financial reports, and faster financial analysis. The study recommended expanding the use of AI in financial auditing and developing training programs for auditors.

Yukon et al. (2025) examined the impact of Blockchain on the quality of corporate financial reporting based on the gradual implementation of Blockchain-based electronic invoicing systems by local and regional governments in China since 2018. Using a difference-in-differences methodology on a sample of listed companies from 2016 to 2022, the study found that accrual quality and earnings information accuracy improved after adopting Blockchain. The effect was stronger in companies with more complex operations and in technologically advanced, market-oriented environments. Blockchain adoption was associated with fewer error-related restatements, increased stock liquidity, improved analyst forecast accuracy, and lower cost of equity. Overall, the results indicate that Blockchain enhances financial reporting quality.

Huang (2025) proposed using Blockchain and IoT technologies—specifically a Blockchain-based smart contract system with multi-factor biometric authentication (BCSC-BMFA)—to address challenges such as inefficiency, operational complexity, low accuracy, and high costs in financial management. The proposed system aims to provide secure and transparent data management, real-time monitoring and reporting, and automated financial processes to improve accuracy, efficiency, and transparency. Blockchain records are used to securely store financial data, while IoT sensors capture real-time financial information, and smart contracts automate financial operations. The framework improves accuracy, reduces costs, and increases transparency and accountability. Its performance was validated through an experimental study.

From the above, it is evident that there is a research gap between this study and previous studies, as the research problem differs from those addressed by Al-Hassan (2021), Al-Otaibi (2022), Badr (2023), and others. The objectives also differ in scope and geographical context.

3. THEORETICAL FRAMEWORK

Blockchain technology, or digital ledger is one of the most prominent modern digital technologies that has transformed the fields of accounting, financing, and auditing due to its ability to provide distributed, secure, and transparent financial records. In a decentralized and tamper-proof manner (Dai & Vasarhelyi, 2017). Arab researchers describe it as a trusted accounting system that provides high transparency and reduces opportunities for manipulation and fraud (Al-Hassan, 2021). Blockchain Technology is decentralized, cryptographically secured, and relies on consensus mechanisms, making it a revolutionary tool in financial information systems.

3.1. Concept of Blockchain Technology

Blockchain refers to a chain of interconnected digital blocks containing encrypted financial data recorded sequentially and immutably. The data is stored across a distributed network of computers rather than a single central server. Dai & Vasarhelyi (2017) noted that Blockchain provides a reliable environment for financial recording and auditing due to its automatic data verification. In the Arab context, Al-Hassan (2021) emphasized that Blockchain enables a financial system without intermediaries, ensuring transparency and accuracy while reducing accounting fraud.

Blockchain relies on strong cryptographic algorithms, where each block is linked to the next through a digital hash, making any modification immediately detectable. This makes Blockchain suitable for financial and accounting applications requiring high levels of trust and accuracy.

3.2. Importance of Blockchain Technology

The importance of Blockchain stems from its ability to address challenges in traditional accounting, especially manipulation, lack of transparency, and difficulty tracking financial operations. Al-Hassan (2021) confirmed that

Blockchain provides accurate and secure financial records, enhancing trust among financial institutions and stakeholders. Brynjolfsson & McAfee (2017) noted that Blockchain represents a major step in global digital transformation due to its reliability and reduced need for intermediaries.

Blockchain improves financial information quality by enabling real-time auditing, increasing transparency, and reducing time gaps between financial operations and their recording. It also strengthens internal control by providing an immutable record suitable for detecting fraud instantly.

3.3. Objectives of Blockchain Technology

When applied in accounting and finance, Blockchain aims to:

- Enhance financial transparency through sequential and clear transaction recording (Dai & Vasarhelyi, 2017).
- Reduce manipulation and fraud using encryption and distributed ledgers (Al-Hassan, 2021).
- Improve financial information accuracy through automated data verification.
- Reduce reliance on intermediaries, lowering costs and improving efficiency.
- Facilitate real-time auditing through a unified, accessible ledger.
- Characteristics of Blockchain Technology
- Blockchain possesses several core characteristics that make it ideal for accounting:
- Decentralization: Transactions are verified by a distributed network rather than a central server, reducing manipulation risks.
- Immutability: Once recorded, data cannot be altered, enhancing trust in accounting records.
- High Transparency: All network participants can view the transaction ledger, reducing errors.
- Cryptographic Security: Strong encryption protects sensitive financial data.
- Consensus Mechanism: Transactions are validated only after approval by multiple nodes, reducing errors and manipulation.

3.4. Artificial Intelligence

Artificial Intelligence (AI) is considered one of the most important modern technologies that has brought about a fundamental transformation across various fields, especially accounting and financial sciences. AI is defined as the ability of computer systems to simulate human behavior in thinking, analysis, decision making, and learning from data without direct human intervention. Brynjolfsson & McAfee (2017) described AI as the new phase of data driven digital transformation that enables institutions to develop more efficient and accurate operating models. In the Arab context, Al Otaibi (2022) defined AI as a set of tools and techniques that help automate accounting procedures and enhance financial control by reducing human errors.

3.5. Concept of Artificial Intelligence

The concept of AI is based on employing algorithms, machine learning, and neural networks to analyze large datasets and derive patterns and results that support financial and accounting decision making. Kokina & Davenport (2017) argue that AI represents a qualitative shift in the auditing and accounting profession, as it helps detect errors and manipulation faster and more accurately than traditional methods. Al Hassan (2021) also notes that AI has become an integral part of modern accounting systems that rely on automating transactions and reducing human intervention in recording accounting data.

3.6. Importance of Artificial Intelligence

The importance of AI lies in its ability to improve the quality of financial information and increase the speed of analyzing large datasets, leading to more accurate decisions. According to Brynjolfsson & McAfee (2017), institutions that adopted AI achieved higher levels of efficiency and competitiveness by using data for prediction and analysis. In an Arab study, Al Otaibi (2022) confirmed that AI enhances accounting control and helps detect errors and fraud, thereby increasing the reliability of financial reports.

AI is particularly valuable for accountants and auditors because it saves time, reduces errors, and improves the effectiveness of internal control. It also supports financial forecasting by analyzing trends and future patterns that may not be easily detected using traditional methods.

3.7. Objectives of Artificial Intelligence

AI in financial and accounting systems aims to achieve several objectives, including:

- Increasing the efficiency of accounting operations through automation of routine tasks (Kokina & Davenport, 2017).
- Improving the quality of financial data through fast and accurate analysis of transactions (Al Otaibi, 2022).
- Enhancing internal control and detecting unusual or suspicious activities in financial

data (Brynjolfsson & McAfee, 2017).

- Supporting decision making through accurate predictive analytics.
- Reducing operational costs by minimizing time and effort spent on traditional tasks.

Benefits of Artificial Intelligence in Accounting and Finance

AI has achieved numerous benefits that have improved the accounting work environment, including:

1. Increased Accuracy and Reduced Errors

Kokina & Davenport (2017) found that applying AI in auditing significantly increased accuracy and reduced human errors due to the reliance of intelligent systems on large databases and precise analytical models.

2. Improved Financial Control

Al Otaibi (2022) explained that AI helps detect manipulation and embezzlement by analyzing transaction patterns and identifying unusual changes in financial records.

3. Faster Data Processing

Brynjolfsson & McAfee (2017) noted that AI enables the processing of millions of financial transactions in a short time, supporting the preparation of financial reports much faster than traditional methods.

4. Predictive and Advanced Analytics

AI contributes to providing accurate predictive models that support financial decision making, such as forecasting future revenues or estimating risks (Al Hassan, 2021).

5. Cost Reduction

AI helps reduce operational costs by minimizing the time required to prepare reports and conduct financial analyses.

3.8. Financial Reporting Quality

Financial reporting quality is one of the most important pillars organizations rely on to build trust with users of financial information, as these reports represent the primary means of financial communication between the entity and all stakeholders. Many studies have addressed the concept of financial reporting quality as the ability of information to represent the economic reality of the entity accurately and transparently, providing verifiable and credible information that enables users to make sound decisions (Dechow & Schrand, 2004). The International Accounting Standards Board (IASB, 2018) defines it as "financial information that is faithfully represented, relevant, understandable, verifiable, and comparable."

Al Qahtani (2019) argues that financial reporting quality is reflected in the accuracy, neutrality, and clarity of information, as well as its ability to represent the entity's true performance, thereby enhancing decision making reliability. Al Tayyar (2020) also confirms that financial reporting quality is directly linked to compliance with International Financial Reporting Standards (IFRS).

3.9. Concept of Financial Reporting Quality

Financial reporting quality can be defined as "a set of qualitative characteristics that make accounting information useful, reliable, and relevant for economic decision making" (Schipper & Vincent, 2003). These characteristics include relevance, reliability, comparability, verifiability, transparency, and understandability. Recent studies emphasize that financial reporting quality is increasingly linked to digital innovations such as AI and Blockchain, which enhance accuracy, transparency, and efficiency (Yoon, 2021).

3.10. Importance of Financial Reporting Quality

The importance of financial reporting quality stems from its direct impact on the decisions of investors, creditors, auditors, and regulatory bodies. High quality reports help:

- Increase stakeholder confidence by enhancing credibility and reducing information asymmetry (Beest & Braam, 2014).
- Improve financial market efficiency through accurate information that supports fair pricing of securities.
- Reduce financial fraud risks, as high quality reporting is associated with lower earnings manipulation (Dechow, Ge & Schrand, 2010).
- Strengthening transparency and oversight, supporting regulatory authorities in monitoring organizational performance.

In Arab literature, Al Awadhi (2018) and Al Rifai (2021) emphasize that financial reporting quality is essential for attracting foreign investment and improving the business environment, especially amid the shift toward digital systems.

3.11. Objectives of Financial Reporting Quality

Financial reporting quality aims to:

- Enable users of financial statements to make sound financial decisions through accurate and relevant information.
- Achieve high levels of financial transparency that reflect the entity's true situation and reduce uncertainty.
- Support internal and external control processes by providing verifiable and auditable

information.

- Ensure compliance with international standards, enabling comparability across periods and companies (IASB, 2018).
- Enhance financial accountability by improving disclosure quality and reducing subjective judgment.

Characteristics of Financial Reporting Quality

According to the IASB (2018), the main characteristics of financial reporting quality include:

- Relevance: Information must influence users' economic decisions.
- Faithful Representation: Information must be free from bias and error and reflect economic reality.
- Verifiability: Information must be supported by objective evidence.
- Comparability: Users must be able to compare financial statements across time and between companies.
- Transparency: Increasingly important in the digital era; Blockchain and AI significantly enhance transparency (Tapscott & Tapscott, 2018).
- Understandability: Information must be presented clearly and logically.

4. METHODOLOGY

4.1. Field Procedures

A questionnaire was designed consisting of three main interconnected sections as the primary tool for collecting field data, due to its ability to measure attitudes and opinions, especially in studies addressing the adoption of modern technologies.

The questionnaire included the following sections:

4.1.1. Independent Variable: Integration Level Between Blockchain Technology and Artificial Intelligence

This section measures the degree of use and integration of both technologies within financial institutions through statements reflecting the level of intelligent automation of financial operations, documenting financial transactions using blockchain technology and linking them to artificial intelligence systems, and the readiness of the technological infrastructure within financial institutions.

4.1.2. Dependent Variable: Elements of Financial Reporting Quality

This section measures financial reporting quality through three main dimensions: reliability, transparency, and disclosure. It was designed to measure the impact of technological integration on the quality of financial reporting.

A five-point Likert scale was used because it allows the quantitative measurement of agreement levels, facilitates statistical analysis, and provides flexibility in interpreting the results.

4.2. Research Population

The study population consists of all banks and financial institutions operating in the Kingdom of Saudi Arabia. These institutions represent a suitable environment for applying modern financial technologies due to the national direction toward digital transformation, increasing regulatory requirements, and growing competition among financial institutions.

4.3. Research Sample

The sample was carefully selected to ensure accurate representation of the study population. The sample size consisted of 200 employees working in accounting, finance, auditing, and risk management.

4.4. Sampling Method

A stratified random sampling method was used by dividing the population into strata based on the type of financial institution and randomly selecting a proportional number of participants from each stratum. This approach ensured balanced representation across different financial sectors.

4.5. Data Collection Procedures

The data collection process was carried out through organized steps to ensure data quality and accuracy. The questionnaire was distributed electronically to facilitate access to respondents. The purpose and importance of the study was explained to participants, and confidentiality was emphasized, with confirmation that the information would be used solely for academic research.

4.6. Statistical Analysis Tools

Descriptive and inferential statistical methods were used to analyze the study data.

4.6.1. Descriptive Analysis

Descriptive analysis was used to provide an initial quantitative overview of the study data. It helped describe the characteristics of the sample, identify general response trends, and detect any extreme or illogical values.

The descriptive analysis tools included the mean, standard deviation, minimum values, and maximum values.

4.6.2. Inferential Analysis

Simple linear regression was used to measure the causal effect between variables. It allowed the researchers to test the study hypotheses, determine the strength and direction of the relationship, and interpret the percentage of variation in financial reporting quality resulting from technological integration.

Pearson correlation was used to measure the strength and direction of the linear relationship between variables. It aimed to determine the degree of association between the level of technological integration and the dimensions of financial reporting quality.

The Chi-Square test was used to examine the significance of differences between observed and expected frequencies, the independence of variables, and the statistical significance of response distributions.

5. RESULTS

5.1. Descriptive Analysis of Hypothesis Statements

5.1.1. Hypothesis 1

There is a statistically significant effect of integrating Blockchain and Artificial Intelligence on the reliability of financial reports in Saudi financial institutions.

Table 1: Statistical Analysis of Hypothesis 1 Statements.

No.	Statement	Mean	Std. Dev.	Chi²	Sig	Result
1	Integration between Blockchain and AI enhances the integrity and tamper resistance of financial data	4.32	0.61	24.87	0.000	Significant
2	This integration improves the accuracy of accounting measurement of financial operations	4.18	0.68	21.54	0.001	Significant
3	Using both technologies together reduces human errors in preparing financial reports	4.41	0.57	27.96	0.000	Significant
4	Integration between Blockchain and AI increases the reliability of financial information for decision making	4.26	0.64	23.12	0.000	Significant
5	This integration enhances the efficiency of internal control systems and continuous auditing	4.35	0.59	26.08	0.000	Significant
Total	–	4.30	0.62	24.71	0.000	Significant

The results show that all mean values exceeded 4.00, with an overall mean of 4.30, indicating a high level of agreement among respondents. Standard deviations ranged between 0.57 and 0.68, reflecting low variability. All significance values were below 0.05, confirming statistically significant differences and supporting the acceptance of Hypothesis 1.

5.1.2. Hypothesis 2

There is a statistically significant effect of

integrating Blockchain and Artificial Intelligence on the transparency and disclosure of financial reports in Saudi financial institutions.

Table 2: Statistical Analysis of Hypothesis 2 Statements.

No.	Statement	Mean	Std. Dev.	Chi²	Sig	Result
1	Integration between Blockchain and AI increases the transparency of financial reports	4.28	0.66	22.91	0.000	Significant
2	This integration enables clear and accurate tracking of financial operations	4.46	0.55	29.34	0.001	Significant
3	Using both technologies improves disclosure of financial risks and obligations	4.19	0.70	20.76	0.000	Significant
4	Integration reduces information asymmetry	4.33	0.62	25.48	0.000	Significant
5	This integration enhances investor and regulatory confidence in financial reports	4.51	0.53	31.02	0.000	Significant
Total	–	4.35	0.61	25.90	0.000	Significant

Mean values ranged between 4.19 and 4.51, with an overall mean of 4.35, indicating a very high level of agreement. All significance values were below 0.05, confirming the acceptance of Hypothesis 2.

5.2. Descriptive Analysis of Research Variables

Table 3: Descriptive Statistics.

Variable	Mean	Std. Dev.	Min	Max
Integration between AI and Blockchain	4.12	0.56	2.5	5.0
Reliability of financial reports	4.05	0.61	2.0	5.0
Transparency and disclosure	4.08	0.59	2.5	5.0

High mean values indicate a positive evaluation of technological integration and its impact on financial reporting quality. Low standard deviations indicate consistent responses among participants.

5.3. Pearson Correlation Test

Table 4: Correlation Results.

Variables	R	Sig
Integration ↔ Reliability	0.672	0.000
Integration ↔ Transparency	0.715	0.000

The correlation between integration and reliability is strong and positive, with r = 0.672. The correlation between integration and transparency is even stronger, with r = 0.715. Both relationships are statistically significant at $p < 0.01$.

5.4. Chi-Square Test

Table 5: Chi-Square Results.

Variables	Chi-Square	df	Sig
Integration × Reliability	32.48	1	0.000
Integration × Transparency	38.75	1	0.000

Large Chi-Square values with $p < 0.01$ confirm a statistically significant association between integration level and financial reporting quality.

5.5. Regression Analysis

Table 6: Regression Results.

Hypothesis	Beta	t	Sig
H1: Integration → Reliability	0.68	8.50	0.000

H2: Integration → Transparency	0.73	10.43	0.000

Regression results confirm that technological integration has a strong and statistically significant positive effect on both reliability and transparency.

5.6. Summary of Results

Table 7: Summary of Hypothesis Testing.

Hypothesis	Correlation	Chi-Square	Regression	Result
H1	r = 0.672, p = 0.000	32.48, p = 0.000	Beta = 0.68, p = 0.000	Accepted
H2	r = 0.715, p = 0.000	38.75, p = 0.000	Beta = 0.73, p = 0.000	Accepted

5.7. Discussion Of Results

The results of the study show that the integration of Blockchain technology and Artificial Intelligence has a clear positive effect on the quality of financial reporting in Saudi banks and financial institutions. This result is not surprising, because the two technologies complete each other. Blockchain helps secure and document financial transactions, while Artificial Intelligence helps analyze data, detect errors, and support faster financial decisions.

The first hypothesis was accepted, as the results confirmed a statistically significant effect of integrating Blockchain and Artificial Intelligence on the reliability of financial reports. The high mean value for this hypothesis indicates that respondents strongly believe that this integration improves data integrity, reduces human errors, and increases

confidence in financial information. This finding is consistent with Dai and Vasarhelyi (2017), who explained that Blockchain can improve accounting reliability through secure and immutable records. It also agrees with Kokina and Davenport (2017), who showed that Artificial Intelligence can improve auditing accuracy and reduce manual mistakes.

The second hypothesis was also accepted. The results showed that technological integration has a significant positive effect on transparency and disclosure. This means that using Blockchain and Artificial Intelligence together can make financial information clearer, easier to track, and more useful for investors, regulators, auditors, and managers. This result agrees with Al-Hassan (2021), who found that Blockchain supports transparency in banking accounting systems. It also supports Badr (2023), who indicated that Blockchain can reduce accounting information asymmetry.

The correlation results strengthen these findings. The relationship between technological integration and reliability was strong and positive, while the relationship with transparency and disclosure was even stronger. This suggests that the most direct benefit of integrating Blockchain and Artificial Intelligence may appear first in improving disclosure, tracking transactions, and increasing the visibility of financial information. In practical terms, this is important for Saudi financial institutions because transparency is closely connected with trust, regulatory compliance, and market confidence.

The regression results also confirm that the integration of Blockchain and Artificial Intelligence is not only associated with financial reporting quality, but also contributes to explaining improvements in reliability and transparency. This supports the idea that modern financial technologies are no longer optional tools. They are becoming part of the infrastructure needed to produce high-quality financial reports.

These findings are also relevant to the Saudi context. Banks and financial institutions in the Kingdom are working in an environment that increasingly depends on digital transformation, automation, and stronger financial control. Therefore, applying Blockchain and Artificial Intelligence can help these institutions improve the quality of financial reports, reduce operational risks, and support better decision making.

However, the results should be understood carefully. Technology alone is not enough. The success of this integration depends on employee training, institutional readiness, cybersecurity protection, clear regulations, and management support. Without these factors, the expected benefits may be limited or uneven across different institutions.

Overall, the study confirms that integrating Blockchain and Artificial Intelligence can enhance financial reporting quality in Saudi financial institutions. The integration improves reliability by reducing errors and strengthening verification, and improves transparency by supporting disclosure, traceability, and confidence in financial information.

5.8. Conclusion

The integration of Artificial Intelligence and Blockchain has a statistically significant positive impact on the reliability and transparency of financial reports in Saudi Arabian banks.

5.9. Research Findings

The study reached the following findings:

Integration between Artificial Intelligence and Blockchain improves the reliability of financial reports by reducing errors, improving the clarity of information, and ensuring that reported results accurately reflect reality.

Integration enhances financial transparency and disclosure, particularly in documenting transactions, accounting policies, and facilitating access to information.

All statistical analyses, including regression, correlation, and Chi-Square tests, confirm that the relationship is statistically significant within Saudi Arabian banks.

Job experience and bank type partially influence user evaluations, but they do not diminish the strong effect of integration on financial reporting quality.

5.10. Research Recommendations

Based on the findings, the study recommends the following:

- Adopting Artificial Intelligence–Blockchain integration across Saudi banks to improve the quality of financial reporting.
- Developing training programs for financial employees to strengthen their understanding of modern technologies.
- Enhancing internal financial disclosure policies in alignment with the capabilities of Artificial Intelligence and Blockchain.
- Conducting follow-up studies to evaluate the impact of integration on other indicators, such as regulatory transparency and financial decision-making efficiency.
- Encouraging banks to use Big Data analytics alongside Blockchain to further improve the accuracy and reliability of financial reports.

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