"The Impact of Using Blockchain Technology on Financial Statements to Reducing of Fraud"

Researcher:

Moyasser Menazel ALjboul

Abstract:

This study aimed to investigate the impact of using blockchain technology on financial statements to reducing of fraud in Saudi Arabia. The researchers have used a quantitative and inductive approach for theoretically analyzing the data collected in the study. The study sample included 67 participants of accounting professors and doctors in Saudi Arabia universities. The result showed that there isa positive response to the using blockchain technology on financial statements as a strategic tool for reducing fraud in Saudi Arabia. and the using blockchain technology on financial statements in Saudi Arabia can reduce fraud by about 18%.

Keywords: Using blockchain technology, Financial statement, Reducing of fraud.

Introduction:

In the past few decades, huge globalization has changed the world interested in a small village, which has increased rivalry amongst dissimilar companies and markets, worldwide. The customer at all times makes every effort to get hold of products and services from the right place and values quality and price competition. Thus, companies need to achieve this to reducing of fraud on financial statements.

Digital technologies have been transforming the economy and society in several waves since the 1960s, beginning with the digitization of many business processes, followed by the capture and sharing of large amounts of data, and finally driving a mobile revolution that put computational power in the hands of just over 60 percent of the world's population Van Veldhoven& Vanthienen, 2022).

Furthermore, Society is now in a liminal period for digital technologies, when almost all the benefits of acquiring computing power have been reserved within corporations. IT was basically about following the same business processes that have been in place since the 1950s, but doing it faster, more efficiently, and more securely. And with the widespread distribution of computing power around the world, something shifted. Many of the technologies driven by computational power distribution are about radically redefining how business, economics, and society are defined in the first place. Indeed, putting digital power into so many hands has a huge impact on all aspects of human existence (Denning & Tedre, 2019).

These days, Blockchain technology is a big issue in the world. For instance, one of the familiar Blockchain services is a cryptocurrency, mainly known as bitcoin financial transactions, and has a far-reaching possible to help society and government systems. It has been used in different area such as healthcare, smart contracts, and personal identification. add to that, Blockchain is one of the major trends in emerging technology, and it has been leveraged for social and environmental influence on financial and non-financial transactions (Yun, 2020).

Additionally, Blockchain is created on the Bitcoin protocol, the first peer-to-peer (P2P) electronic item systems that agree to expenditures to be directed online from one object to another without the interference of a financial organization. Accordingly, trust is recognized not by powerful intermediaries, for instance banks, governments, and technology companies, but over mass group effort and clever code on the Blockchain. Further, Blockchain is a transaction file shared by anyone participating in the system. Through cryptocurrency, transactions records are put away as data blocks, which are lock up together cryptographically. It is open to any bulge in the system and every person can enter new entries. In spite of this, new blocks cannot be added deprived of the proof-of-work and contract by the other bulges participating in the system. Herewith, blockchain assurances the accuracy of the information it supplies. Blockchain is unchallengeable; so, once a block is adapted, also it will renew every subsequent block (Cai & Zhu, 2016).

The instrument of blockchain technology can be clarified from its first submission. Bitcoin, a form of digital cryptocurrency, is dissimilar from the old-style currency delivered by governmental financial organizations. Bitcoin is a record, storage account data and their balance, which works as an online organizations account that all user can access, receive, and transmission money. This is dissimilar from a traditional organization, wherein the information is measured by the central expert witness. The ledger of Bitcoin is owned by everybody in the Bitcoin network.

As well, the of blockchain technology showed in figure (1) can allow the system to be changed into a storage medium on the base of technology and to manage it without any central management or expert witness controls. In spite of this, these features also establish the parts of the system that be given the most criticism. For the reason that, it carries with it important unease about the process of a system that cannot be measured from both the enterprises and the state and about

the right of entry of each member to the data. This, despite the fact using the improvement and rewards of blockchain technology, take away two basic classifications or application procedures to the agenda (Gokoglan et al., 2022).
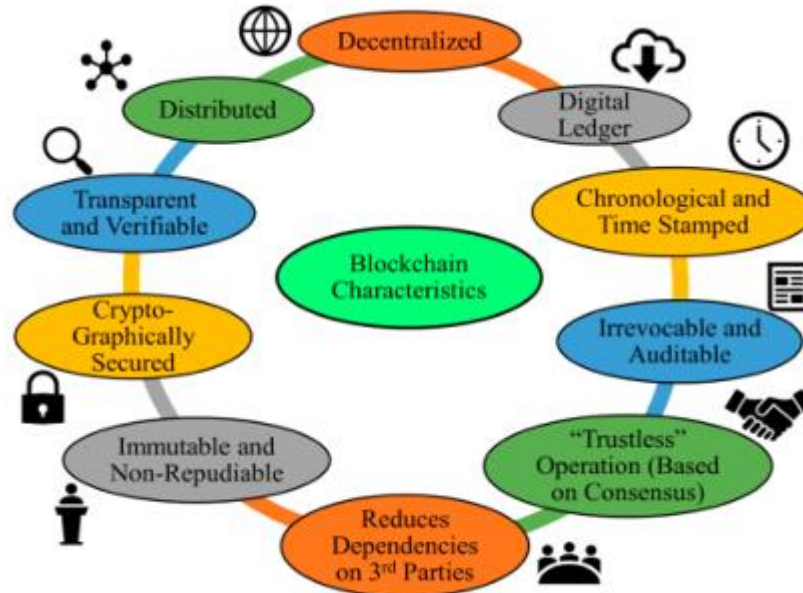
figure (1) features of blockchain technology. Source: (Gokoglan et al., 2022).

Al Shanti and Elessa (2022) study aimed to know the impact of digital transformation on the quality of accounting information and the efficacy of corporate governance through the deployment of blockchain technology in banks. To gather data from "Jordanian banks' financial analysts, auditors of shareholders' accounts, and financial managers in the field research community, data lists were developed". The statistical evaluation of the responses to the survey listing questions for the sector studies for the primary guess work discovered that the imposition of oblivion was rejected and the opportunity speculation was accepted. In terms of acceptance, the virtual revolution towards using the blockchain era in Jordanian banks be caused by in the development of accounting data. the result also showed that there aren't any considerable variations within the common solutions of the 2 classes of the examiner pattern relying on the feature, became accepted, point to that the virtual transformation towards the software of the blockchain era in Jordanian banks contributes to improving the nice of accounting statistics at a considerable stage of 5%. In order to gain the benefits of blockchain technology in rising the quality of accounting information and strengthening corporate governance, a numerical transformation to its application in commercial operations is suggested.

Moreover (Chang et al., 2020) study aimed to examine the impact and revolution of FinTech and Blockchain in the financial industry and demonstrates the main characteristics of such technology. Then, we present three critical challenges as well as three ethical issues about using Blockchain technology. the analysis results suggested that knowledge hiding was due to affective, behavioral and cognitive evaluations. The interviewees also provided several recommendations and success factors to overcome current issues in Blockchain adoption.

The Benedetti et al (2020)study aimed to develop conceptual designs for blockchain applications to reduce corporate fraud, and the study used a multi-level framework that features blockchain technology (Information storage, Information flow, Information processing, Information promotion, and financial and information integration) as appropriate to reduce corporate fraud. The results show that blockchain can reduce fraud and increase transparency, significantly improving trust in financial reporting. The results also show that the blockchain infrastructure can significantly improve the existing monitoring system and provide added value in detecting, deterring and documenting potential fraud.

Add to that, Roszkowski's study (2020) investigated the causes related to scrutiny of financial scandals and provided advice on how emerging technologies can provide solutions to them explaining specific developments in the field of financial technology that contribute to the reliability of financial information for equity investments. The results show that blockchain, IoT, smart contracts and artificial intelligence solutions have different functions and can effectively solve many financial

reporting and audit related problems. Also, they have a strong potential to enhance the reliability of information in financial statements and to change the way companies operate in general.

Thus, this study aims to investigate the impact of using the blockchain technology on the financial statements to reducing of fraud in Saudi Arabia.

Problem Statement and Research Question

Blockchain technology enables a secure and automated way of accounting for asset ownership, and all participants in the blockchain network have accurate and identical records. Blockchain technology is virtually impenetrable, changing how data is traded, collected, dispersed, and examined. This leads to the creation of a new accounting infrastructure that allows accounting to process a wide range of information in the shortest period of time while implementing global trends in the areas of openness, control and accountability in disclosure. Therefore, the main reasons for integrating blockchain technology into corporate facilities are to eliminate human error, reduce tampering, and reduce fraud in accounting records while saving time and money and increasing operational efficiency (George & Patatokas, 2021).

On the other hand, some academics believe that blockchain technology can provide smart solutions to typical corporate governance inefficiencies, especially in terms of transparency and interaction between shareholders and institutions. Through blockchain technology, accounting information becomes immediately available, which helps in providing timely information, which is the most reliable option for shareholders (Al Shanti & Ellessa, 2023).

Blockchain technology also helps in the accuracy of accounting information and the effectiveness of corporate governance, including data protection, especially sensitive information that may become unsafe, affecting the company's competitiveness. Therefore, the importance of this research comes from the interest in applying blockchain technology in the corporate environment and the trend towards adopting this technology by many global companies across multiple industries to reduce fraud.

Hence the basis of this research and in light of this, the research problem can be formulated as follows: **What is the impact of using the blockchain technology on the financial statements to reducing of fraud in Saudi Arabia?**

Research Hypothesis

Main hypothesis: There is no statistically significant impact of using blockchain technology on financial statements to reducing of fraud in Saudi Arabia.

Research Objectives

The aim of this research is to investigate the impact of using blockchain technology on financial statements to reducing of fraud in Saudi Arabia.

Importance of Research

This study intends to examine the impact of using blockchain technology on the financial statements to reducing of fraud in Saudi Arabia. The researcher is convinced that this research examination may assist academics, practitioners, and organizations' comprehension of the research area. Moreover, this study is important for academics because it makes a contribution to the literature review by improving a comprehensive model to the impact of using the blockchain technology on the financial statements to reducing of fraud in Saudi Arabia. A continued attempt from the academician is required as this subject is still in the beginning stage. Add to that, the recently improved model has not been adopted to the developing countries' context just like Saudi Arabia. Also, from the findings of this study, the researcher would come up with more knowledge and understanding of the elements that impact of using the blockchain technology on the financial statements to reducing of fraud. On another hand, the outcomes of this study are important for the participant's which will lead to a depth understanding, and more information comes up concerning the factors that the impact of using the blockchain technology on the financial statements to reducing of fraud, by providing assistance and hold up by making fair decisions related to the requirement that help the workers and managers to use this system.

The importance of this research comes from the increasing benefit in investigate blockchain technology in the corporate environment and the trend to assuming of this technology by a lot of global companies covering multiple industries.

In addition, bank accounting departments and global audits have been directed to build projects and programs that come up with to the creation of digital transformation and the application of blockchain technology in accounting and auditing.

Methodology

In this study, the researchers have used a quantitative and inductive approach for theoretically analyzing the data collected in the study. They also used an analytical and descriptive approach for understanding the impact of using the blockchain technology on the financial statements to reducing of fraud in Saudi Arabia.

The researchers used primary and secondary data sources, which could be derived using a self-completion questionnaire.

This study was based on 2 data types, i.e., primary and secondary data. The primary data includes the data derived using the questionnaires. However, the secondary data includes all the data that was derived from the field and theoretical studies published in the literature, in addition to books and research articles related to the topic under discussion. This data was used for developing a theoretical framework and defining the dimensions that could be measured. Here, the impact of using the blockchain technology on the financial statements to reducing of fraud in Saudi Arabia. The primary data was collected using the questionnaire and used for measuring the variables and dimensions and determining the study objectives.

The population sample included in the study comprised of accounting professors and doctors in Saudi Arabia universities, totaling (100). The researchers distributed (72) questionnaires to the respondents and collected (70) questionnaires. (3) were rejected due to incomplete answers. Hence, (67) final questionnaires were found suitable for further testing. Table 1 presents the demographic characteristics of the respondents selected in the study.

Analysis Result

This section introduced the analysis of the data that was collected through questionnaires. Questionnaires were analyzed using the SPSS.

Respondents' Profile

The study sample included 67 participants. Given the frequency of the study sample, which is a total of 67, table (1) shows that the number of males reached 46 and by 69%, while the number of females reached 21 and 31%, it is noted that the majority of the sample is male. On other hand, the number of samples of the age distribution of 18-25 was 9 and by 13.4%, from 26-35 was 31 and by 46.4%, from 36-45 was 16 and by 24%, and 46 and above 11 and by 16.4%.

Finally, the number of experiences from 5 years or less reached 7 and 10.4%, while the number of 6-10 years reached 48 and 71.6%, from 11-15 years reached 8 and 12%, and the 16 years and more reached 4 and by 6%.

Table 1: Socio-demographic characteristics of the participants (N= 67).

Variable	N (%)
Gender	
Male	46(69%)
Female	21(31%)
Age	
18-25	9(13.4%)
26-35	31(46.4%)
36-45	16(24%)
46 and above	11(16.4%)
Years of experience	
5 years or less	7(10.4%)
6- 10 years	48(71.6%)
11- 15 years	8(1.9%)
16 years and more	4(6.0%)

Validity and Reliability

Cronbach alpha coefficient was calculated to measure the questionnaire variables and verify their validity, which means the strength of the correlation between the measurement paragraphs. In addition, the Alpha coefficient is given with a good estimate of reliability. In this research, the Cronbach alpha equation was applied to verify the reliability of the questionnaire. Although there are no standards for the appropriate alpha values, in practice, an alpha that is greater than 60.0 is considered acceptable. Where the using blockchain technology variable had the highest value, which reached 0.934 while reducing fraud on financial statements in Saudi Arabia variable obtained the lowest value, which reached 0.927. The questionnaire as a whole obtained a value of 0.982, which reflects the consistency of all the paragraphs of the questionnaire.

Descriptive Statistics

This section will present a descriptive analysis that shows the sample's responses to statements that indicate the impact of using the blockchain technology on the financial statements to reducing of fraud in Saudi Arabia.

This scale is divided into levels according to questionnaire weights, as the following categories:

• Weak Agreement = from 1 to 2.33

• Good Agreement = from 2.34 to 3.66

• Strong Agreement = from 3.67 to 5.

First: Using the Blockchain Technology on Financial Statements

This part stands for employee extent toward using the blockchain technology on financial statements. table (2) shows the answers of accounting professors and doctors in Saudi Arabia universities toward the using the blockchain technology on financial statements.

Table (2): accounting professors and doctors in Saudi Arabia universities toward the using the blockchain technology on financial statements

Statement	Mean	SD
From your point of view, as a specialist in accounting, Blockchain technology was able to gain business confidence and credibility because it provides a high level of security on financial statements.	4.30	.798
From your point of view, as a specialist in accounting, Blockchain technology was able to gain business confidence and credibility because it provides a high level of transparency on financial statements.	4.31	.743
From your point of view, as a specialist in accounting, Blockchain technology was able to gain business confidence and credibility due to the possibility of tracking data recorded across the business network and the ease of matching accounts and information records on financial statements.	4.15	.803
From your point of view, as a specialist in accounting, Blockchain technology was able to gain business confidence and credibility because of its ability to save a lot of costs while maintaining a high level of efficiency on financial statements.	3.85	.744
From your point of view, as a specialist in accounting, Blockchain technology was able to gain business confidence and credibility because of ensuring the reliability of information and data on financial statements.	4.54	.586
From your point of view, as a specialist in accounting, Blockchain technology was able to gain business confidence and credibility due to the ability to adapt more quickly to the latest standards, regulations, and rules that are established within companies on financial statements.	4.15	.857

From your point of view, as a specialist in accounting, Blockchain technology was able to gain business confidence and credibility due to decentralization, as there is no central authority that controls the technology on financial statements.	4.28	.755
From your point of view, as a specialist in accounting, Blockchain technology was able to gain business confidence and credibility due to the automation of transactions through smart contracts, which increases efficiency and speeds up the process further on financial statements.	4.30	.759
From your point of view, as a specialist in accounting, Blockchain technology was able to gain business confidence and credibility due to the reduction of fraud and the stability of records on financial statements.	4.18	.815
From your point of view, as a specialist in accounting, Blockchain technology was able to gain business confidence and credibility due to reducing the time in the process and reducing human error on financial statements.	4.43	.722
Total Mean and Standard Deviation	**4.24**	**.249**

In the above table (2), it appears that the general mean of all statement related to\ the using the blockchain technology on financial statements is (4.24), which reflects a high agreement. Moreover, the standard deviation value is (.249), which is standard and reflects coming together on the response of the sample. The highest mean is (4.54) for statement number 5 "From your point of view, as a specialist in accounting, Blockchain technology was able to gain business confidence and credibility because of ensuring the reliability of information and data on financial statements." which reflects high agreement and the lowest mean was (3.85) for statement number 4 "From your point of view, as a specialist in accounting, Blockchain technology was able to gain business confidence and credibility because of its ability to save a lot of costs while maintaining a high level of efficiency on financial statements. In general, the sample attitude toward the statement was positive; thus, the participants were agreeing at using the blockchain technology on financial statements is good for organization financial statements.

Second: Reducing of Fraud on Financial Statements

This part stands for employee extent toward using the reducing of fraud on financial statements. Table (3) shows the answers of accounting professors and doctors in Saudi Arabia universities toward the reducing of fraud on financial statements.

Table (3): accounting professors and doctors in Saudi Arabia universities toward the reducing of fraud on financial statements

Statement	Mean	SD
From your point of view, as a specialist in accounting, any organization must be able to gain Avoid or discourage related party transactions to reducing of fraud on financial statements.	4.12	.844
From your point of view, as a specialist in accounting, any organization must be reconciling agency bank accounts every month to reducing of fraud on financial statements.	4.28	.794
From your point of view, as a specialist in accounting, any organization must be restricting use of agency credit cards and verify all charges made to credit cards or accounts to ensure they were business-related to reducing of fraud on financial statements.	4.30	.835
From your point of view, as a specialist in accounting, any organization must be providing Board of Directors oversight of agency operations and management to reducing of fraud on financial statements.	3.87	.776
From your point of view, as a specialist in accounting, any organization must be preparing all fiscal policies and procedures in writing and obtain	4.55	.585

Board of Directors approval by Include policies and/or procedures to reducing of fraud on financial statements.		
From your point of view, as a specialist in accounting, any organization must be ensured that agency assets such as vehicles, cell phones, equipment, and other agency resources are used only for official business to reducing of fraud on financial statements.	4.10	.837
From your point of view, as a specialist in accounting, any organization must be protecting petty cash funds and other cash funds to reducing of fraud on financial statements.	4.49	.683
From your point of view, as a specialist in accounting, any organization must be protecting checks against fraudulent use to reducing of fraud on financial statements.	4.16	.809
From your point of view, as a specialist in accounting, any organization must be protecting cash and check collections to reducing of fraud on financial statements.	4.13	.796
From your point of view, as a specialist in accounting, any organization must be avoided or discourage related party transactions to reducing of fraud on financial statements.	4.33	.766
Total Mean and Standard Deviation	**4.23**	**.186**

In the above table (3), it appears that the general mean of all statement related to the reducing of fraud on financial statements is (4.23), which reflects a high agreement. Moreover, the standard deviation value is (.186), which is standard and reflects coming together on the response of the sample. The highest mean is (4.55) for statement number 5 "From your point of view, as a specialist in accounting, any organization must be preparing all fiscal policies and procedures in writing and obtain Board of Directors approval by Include policies and/or procedures to reducing of fraud on financial statements." which reflects high agreement and the lowest mean was (4.10) for statement number 6 "From your point of view, as a specialist in accounting, any organization must be ensured that agency assets such as vehicles, cell phones, equipment, and other agency resources are used only for official business to reducing of fraud on financial statements. In general, the sample attitude toward the statement was positive; thus, the participants were agreeing at using the blockchain technology on financial statements on reducing of fraud on financial statements.

Hypotheses Discussion
Main hypothesis: There is no statistically significant impact of using blockchain technology on financial statements to reducing of fraud in Saudi Arabia.

To test the main hypothesis, the simple regression test was used to test the impact of using blockchain technology on financial statements to reducing of fraud in Saudi Arabia, and the relationship between the independent variable (using blockchain technology on financial statements) on the dependent variable (reducing of fraud). Table (4) shows the findings of the correlation between the independent variable (using blockchain technology) and the dependent variable (reducing fraud on financial statements in Saudi Arabia).

The R-value (.426a) refers to the correlation between the independent variable (using blockchain technology) and the dependent variable (reducing fraud on financial statements in Saudi Arabia). R square for reducing fraud on financial statements in Saudi Arabia indicates that 18% of change or variance in the reduction of fraud in Saudi Arabia can be expressed by using blockchain technology, and the other remaining percentage (82%) is expressed by other factors.

The value of sig (0.000) is less than the significant level (α=0.05), which shows that there is an important relationship between using blockchain technology and reducing fraud on financial statements in Saudi Arabia, and according to Beta values (.426), the type of this relationship is positive which means that any improvement and increased on using blockchain technology on financial statements will increase reducing fraud on financial statements in Saudi Arabia. The correlation among the variables is assumed by the following association:

$Y = 2.883 + 0.318. X1$

Table(4): Correlation and Variance between using blockchain technology and reducing fraud on financial statements in Saudi Arabia

Variables	B value	F	R	R Square	Adjusted R Square	Std. Error of the Estimate	Sigma	Beta
Constants	2.883	14.409	.426[a]	.181	.169	.16986	.000	.426
reducing fraud on financial statements in Saudi Arabia	.318							

According to the above explanation, this hypothesis is not accepted, which means that there is a positive response to using blockchain technology on financial statements as a strategic tool for reducing fraud in financial statements in Saudi Arabia.

Conclusion

Based on the above results, the researchers concluded that the participants were agreeing at using the blockchain technology on financial statements on reducing of fraud on financial statements. A positive response was noted to the using blockchain technology on financial statements for reducing fraud in Saudi Arabia can reduce fraud by about 18%. The researchers further stated that the Using Blockchain Technology on Financial Statements are a very important variable that highest the effect of reducing of Fraud. In a similar study, Benedetti et al (2020) study observed that the blockchain infrastructure can significantly improve the existing monitoring system and provide added value in detecting, deterring and documenting potential fraud. Also, Roszkowski's study (2020) show that blockchain have different functions and can effectively solve many financial reporting and audit related problems. Moreover, blockchain have a strong potential to enhance the reliability of information in financial statements and to change the way companies operate in general.

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"أثر استخدام تقنية البلوكشين على البيانات المالية في تقليل الاحتيال"

إعداد الباحث:

ميسر الجبّول

الملخص:

هدفت هذه الدراسة إلى التحقيق في أثر استخدام تقنية البلوكشين على البيانات المالية في تقليل الاحتيال في المملكة العربية السعودية. استخدم الباحثون منهجًا كميًا واستقرائيًا لتحليل البيانات التي تم جمعها في الدراسة. شملت عينة الدراسة 67 مشاركًا من أساتذة وطلاب الدكتوراه في الجامعات السعودية. أظهرت النتائج أن هناك استجابة إيجابية لاستخدام تقنية البلوكشين على البيانات المالية كأداة استراتيجية لتقليل الاحتيال في المملكة العربية السعودية. ويمكن أن يقلل استخدام تقنية البلوكشين على البيانات المالية في السعودية الاحتيال بنسبة تقارب 18 .%

الكلمات المفتاحية: استخدام تقنية البلوكشين، البيانات المالية، تقليل الاحتيال.