

# BLOCKCHAIN TECHNOLOGY AND ITS ROLE IN ENABLING CONTINUOUS AUDITING

## AN ANALYTICAL STUDY OF THE OPINIONS OF A SAMPLE OF ACCOUNTING SCIENCE SPECIALISTS AT AL-MUTHANNA UNIVERSITY

BY

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### Abstract

The research aims to highlight the increasing interest of academic and professional researchers in digital transformation technologies, most notably Blockchain Technology (Block Chain), and to clarify its role in activating one type of financial auditing, namely Continuous Auditing. To achieve this objective, the descriptive-analytical methodology was adopted due to its suitability for the nature of the research. A questionnaire was used as a tool for data collection and analysis. The population size consisted of 120 accounting specialists at Al-Muthanna University. A random sample of 92 questionnaires was distributed, of which 89 were returned completed, and 3 were invalid. The researchers employed Cronbach's alpha coefficient, normal distribution tests, and SPSS software version 25 (SPSS.V.25). The study reached several conclusions, the most important of which are: there is a significant effect of Blockchain Technology on continuous auditing at the surveyed university. The clear lack of interest in digital transformation technologies, especially Blockchain Technology, by the surveyed university leads to and significantly affects the weak interest in activating continuous auditing due to the unavailability of necessary requirements, particularly technological infrastructure, training, and awareness for personnel, in addition to the required technical expertise. The research recommended the necessity of providing the requirements for implementing continuous auditing processes through the establishment of an independent management for internal audit departments and the availability of qualified and experienced human resources capable of handling information in an electronic environment. It also emphasized the need for the availability of ready programs and technologies to achieve the objectives of auditing operations, such as Blockchain Technology .

**Keywords:** Blockchain Technology, Continuous Auditing.

### Introduction

The world today is witnessing significant developments in the economic, administrative, social, and technological business environment as a result of the Fourth Industrial Revolution, denoted as (4.0). This revolution has produced numerous digital transformation technologies, the most prominent of which is Blockchain technology. Blockchain is considered a vital resource, no less important than human and physical resources. It serves as an essential tool for automatic data verification and significantly contributes to preventing fraud and manipulation of information, particularly financial information. Consequently, this technology provides several benefits to the auditing profession and auditors' work,

especially when practicing continuous auditing, which is a type of financial audit focusing on the gradual transformation of audit processes and procedures into automated auditing using information and communication technology and digital transformation technologies. Therefore, this research highlights the role of Blockchain technology, one of the digital transformation technologies, in activating continuous auditing. The study is divided into four sections: The first section addresses the research methodology; the second section presents the theoretical framework of Blockchain technology and its role in activating continuous auditing; the third section covers the practical aspect through the study and analysis of the role of Blockchain technology in activating continuous

auditing; and the research concludes with the fourth section, which discusses the main findings and recommendations reached by the researchers.

#### Chapter One / Research Methodology

##### 1-1Research Problem :

The research problem centers on highlighting that traditional procedures and methods are no longer compatible with auditing processes, particularly continuous auditing, in the era of information technology where digital transformation techniques provide information in large quantities, at high speed, and with greater objectivity than before. Among the most prominent of these techniques is Blockchain technology. Accordingly, the research problem is represented by the following question :

Does Blockchain technology have a role in activating the continuous auditing process?

##### 1-2Research Importance :

The importance of this research lies in focusing on one of the modern accounting and auditing topics, which constitutes a new addition in the field of auditing work through the use of one of the modern digital transformation techniques represented by Blockchain technology, and clarifying its role in activating the continuous auditing process, which is considered the latest type of financial auditing.

##### 1-3Research Objectives :

- 1 .To clarify the cognitive foundations of Blockchain technology .
- 2 .To clarify the cognitive foundations of the continuous auditing process .
- 3 .To study and analyze the role of Blockchain technology in activating the continuous auditing process.

##### 1-4Research Hypothesis :

Based on the research problem, the researchers will attempt to prove or refute the following hypotheses :

First Hypothesis: There is a statistically significant correlation between Blockchain technology and the activation of continuous auditing in the researched university .

Second Hypothesis: Blockchain technology has a significant impact on activating the continuous auditing process in the researched university.

##### 1-5First: Spatial Boundaries of the Research :

Al-Muthanna University was selected as the research site for the purpose of conducting the applied aspect therein.

##### Second: Temporal Scope of the Research :

The questionnaire forms were distributed for the period from 11/3/2025 to 25/3/2025 .

##### 1-6Data and Information Sources and Research Methodology :

The research was conducted based on data and information collected from the following sources :

##### First / Theoretical Sources :

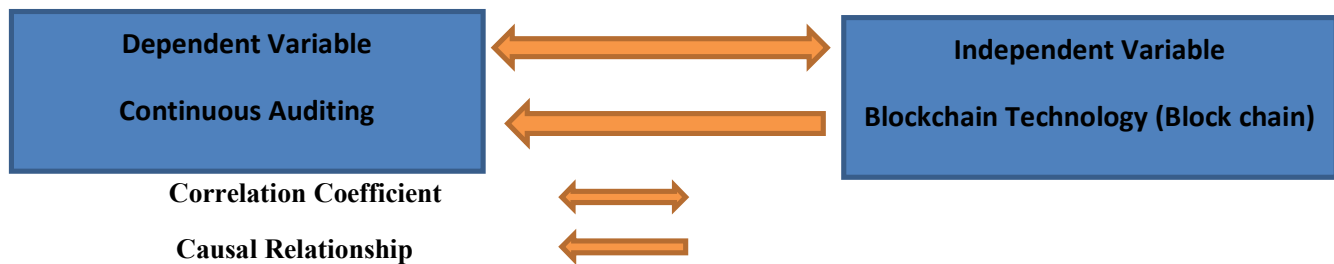
The deductive research method was relied upon by utilizing books, research papers, journals, theses, dissertations, and both Arabic and foreign articles obtained by the researchers from libraries and the global information network (Internet) .

##### Second / Practical Sources :

The questionnaire form was relied upon; (92) questionnaires were distributed, (89) were answered, and (3) were invalid. These were distributed to a number of specialists in accounting sciences at Al-Muthanna University. The SPSS.V25 program was used to test the hypotheses .

1-7 Research Conceptual Model

**Figure (1) Hypothetical Research Framework**



Source: Prepared by the researchers

## Chapter Two / The Theoretical Framework of Blockchain Technology and Its Role in Enhancing the Continuous Auditing Process

### 2-1Blockchain Technology: Its Origin and Concept

At the end of October 2008, an individual (of unknown identity) under the pseudonym Satoshi Nakamoto published a research paper that established a new and significant direction in the field of cryptography. This method contributed to overcoming the double-spending problems inherent in traditional financial transactions. Although the term "blockchain technology" was not explicitly mentioned in this research paper, its fundamental structure was described as a chain of fragmented timestamps, where each timestamp consists of the cryptographic hash of the previous one (Raouf and Khalil, 2023: 255) .

This technology began to materialize practically with the initial launch of the crypto currency Bitcoin, which

allowed users to conduct financial transactions in a decentralized manner, i.e., without the intervention of a third party (Srivastava et al., 2018:3). Linguistically, blockchain technology is commonly referred to as the "blockchain," "chain of trust," or "digital ledger chain." This technology constitutes a type of distributed electronic database that represents ledgers capable of retaining and storing all information such as records, events, and transactions, and can implement rules that contribute to updating this information (Janusz et al., 2017: 243).

Definitions of blockchain technology have varied widely among authors and researchers. Table 1 below presents these definitions:

Table (1) Definitions of Blockchain Technology

Definition	Researcher Name	Sequence
It is a digital ledger whose purpose is to record all financial transactions occurring between various parties, whether individuals, entities, or economic units. It is distributed among these parties as they use a shared database, with each party maintaining its own copy of the digital ledger.	(CPA&AICPA,2017:3)	1-
It is a technological protocol through which data is exchanged directly between different relevant parties within the network without the need for an intermediary. Participants in the network interact with encrypted identities anonymously; each transaction is encoded and added to an immutable transaction chain that is distributed across all network nodes.	Inghirami, 2019:3)(	2-
It is a decentralized database that primarily relies on encrypting transaction data in blocks, then forming immutable chains, aimed at proving the rights and ownership of the related parties with ease of verification, accessibility, and reliability of presentation.	)Al-Jakhlab, 2021:5(	3-

From the foregoing, the researchers consider that Blockchain technology is one of the modern digital transformation technologies that enables the trading of transactions and digital currencies away from the risk of manipulation or hacking. It represents a type of decentralized database, meaning there is no third party to verify transactions, as each related party holds their own copy of this database.

Blockchain technology is characterized by several features, as follows: (Hany, 2019:109)

1 .Decentralization: Blockchain technology relies on decentralization through a decentralized ledger distributed among the relevant parties, enabling all users participating in the network of this technology to process data. This helps reduce time.

2 .Immutability: This is the ability to guarantee the integrity of transactions and data, as they become unchangeable through a chain of blocks that are permanently stored as long as the participating user maintains network continuity.

3 .Transparency: Blockchain provides a high level of transparency by sharing transactions with all their details among participating users who have authorized access to these transactions and data simultaneously. There is no need for a third party; instead, a complete transaction record is displayed with full reliability and in a timely manner, effectively eliminating opportunities for fraud.

4 .Enhanced Security: Blockchain technology offers a high level of security by relying on an infrastructure suitable for public use, providing full protection against any malicious attempts to alter data.

5. Efficiency: Blockchain is among the most efficient digital transformation technologies in terms of lower cost, speed of settlement, and risk processing.

## 2-2 Components of Blockchain Technology

Blockchain technology consists of several fundamental elements, as follows:

1 -Blocks: These are the building units of the chain and represent a set of tasks or operations intended to be performed or executed within the chain (Arab & Warshwan, 2021: 120). Each block accommodates a specific amount of operations or information and does not accept more than this amount, so that these data can be finalized or processed. Subsequently, a new block is created and linked to its predecessor. The primary objective is to prevent the execution of fictitious transactions within the blocks, as this could cause the chain to be halted or frozen from recording and completing transactions (Khalifa, 2018: 2).

2 -Block Code (Hash): This is the DNA that distinguishes the blockchain, sometimes referred to as the digital signature representing a code generated through an algorithm within the software (Al-Safri, 2020: 116).

3 -Timestamp of the Block: Represents the precise timing at which the block was generated within the blockchain, including the day, hour, minute, and second (Arab & Warshwan, 2021: 120).

4 -Transaction: This is the sub-operation that occurs within a single block in the blockchain and represents the individual command executed within the block. Together with all other individual commands, it constitutes the block. itself (Sumaya & Dhahabiya, 2021: 216)

## 2-3 Concept of Continuous Auditing

Continuous auditing is considered one of the relatively modern auditing approaches, having first appeared more than two decades ago. This approach became a necessity in the context of electronic processing of financial transactions. In 1999, a joint committee formed between the American Institute of Certified Public Accountants (AICPA) and the Canadian Institute of Chartered Accountants (CICA) developed a methodology for continuous auditing that enables auditors to provide written assurance Regarding any transaction falling within the responsibility of the management of the economic unit, through the use of a set of reports issued officially and immediately or shortly after the occurrence of the transactions subject to examination or audit (Orumwense, 2017:19-20), this

committee reached three conclusions in its research report as follows: (Kurt et al., 2014:2)

- 1 .The continuous auditing process is implemented by adhering to certain interrelated conditions, such as audit procedures based on a high level of automation.
- 2 .The expertise of practitioners, academic research, and guidelines issued by standard-setting bodies or authorities can effectively contribute to the development of continuous auditing services.

3 .The demand for information to support more reliable, accurate, and timely decision-making has necessitated reliance on continuous auditing; however, the auditing profession must be prepared to achieve and adopt this type of audit.

Definitions of continuous auditing have varied and diversified among authors and researchers. Table (2) below illustrates definitions of this type of audit:

Table (2) Definitions of Continuous Auditing

Definition	Researcher Name	Sequence
It is a type of financial auditing through which conclusions are drawn via a series of successive, synchronous, and continuous reports on all new developments. This assists decision-makers in making and taking decisions within a short period to keep pace with ongoing developments and updates.	(Chiu et al ,2014 :41)	1-
It is an automated audit testing procedure conducted within the economic unit on a regular and real-time basis, with results then directly reported electronically to the management of the economic unit.	(Stevens,2016:7)	2-
It is a method used by internal and external auditors to perform audit-related activities characterized by continuity.	(Weins et al ,2017 :49)	3-

From the foregoing, the researchers consider continuous auditing to be one of the most modern types of financial auditing, implemented and executed through reliance on a computer system in real time. The objective of this type is to examine and monitor data flow continuously for all new events within the system as they occur, which assists decision-makers in making and taking their decisions as quickly as possible.

#### **2-4Blockchain Technology and Its Role in Activating the Continuous Auditing Process**

Blockchain technology enables economic units and auditing firms to develop their programs to extract transaction data effectively and continuously in order to facilitate the process of continuous auditing. Moreover, granting external parties restricted access to data through this technology allows auditors to access and perform real-time verification throughout the

fiscal year, thereby enabling continuous auditing activities. The employment of accounting and auditing offices, as well as economic units, of blockchain technology and its integration with the auditing process provides auditors with information related to any changes occurring in transactions, their dates, and the responsible parties. Consequently, this employment constitutes one of the pillars of continuous auditing.

Despite conducting continuous auditing under blockchain technology, auditors are required to apply professional standards when analyzing accounting estimates and other estimates presented by management in the preparation of financial statements. Although there are multiple sources of data verification under blockchain, it is expected that the external auditor will still need to evaluate and test the internal controls of the economic unit to verify the accuracy and reliability of all sources of financial information (Zabon and Al-Ghurban, 2023: 188).

A comparison between auditing procedures according to the traditional method and continuous auditing procedures under blockchain technology is presented in Table 3 below: (Vakulchyk&Brayko, 2021: 68).

**Table (3) Comparison of Audit Procedures According to the Traditional Method and Continuous Audit Procedures under Blockchain Technology**

**Section Three / Practical Aspect (Measurement of Research Variables and Testing of Research Hypotheses)**

Continuous Auditing under Blockchain Technology	Traditional Method	Audit Procedures	ت
Evaluation of complete databases using Blockchain	Examination of documents, records, or tangible assets	Verification of Documents and Records	1-
Use of RFID tags representing transmitting and receiving devices that continuously generate response signals to valid electronic requests created by Blockchain	Supervision of operations and procedures performed by others	Observation (including Inventory)	2-
Continuous monitoring and detection of all process violations within the system, followed by establishing links between data flows inside Blockchain	Requests for information from knowledgeable persons inside or outside the entity; analysis and response to requests	Inquiry and Confirmation	3-
Enables tracking of all data and execution of automated calculations at specified time intervals	Verification of the arithmetic accuracy of all document amounts and primary accounts or performing independent calculations	Number of Calculations	-4
Automatic and continuous copying of all transactions, followed by identification of deviations	Repetition and verification of procedures	Repetition of Execution	-5
Continuous real-time data filtering using statistical and economic methods.	Analysis of trends and significant financial indicators; study and analysis of deviations and conflicting relationships	Analytical Procedures	-6

This section aims to complement the theoretical aspect with a practical field component through which the role of Blockchain technology in activating the continuous auditing process can be studied and analyzed. This is achieved by clarifying the sample community represented by Al-Muthanna University and the research sample consisting of a number of specialists in accounting sciences at Al-Muthanna University, as well as the methods of analyzing the obtained data to reach conclusions using a set of

necessary statistical techniques for testing the research hypotheses.

**3-1 Validity and Reliability of the Research Instrument**

The researchers conducted validity and reliability tests for the measurement instrument. The face validity and content validity were verified by calculating the reliability coefficient for the scales using Cronbach's alpha, as shown in Table (4) below:

**Table (4) Cronbach's Alpha Results for Research Variables**

Scale Source	Items	Cronbach's Alpha	Variable	ت
<b>Zaboun and Al-Gharban, 2024</b>	<b>9</b>	<b>0.800</b>	<b>Blockchain</b>	<b>1</b>
<b>Al-Ibrahim, 2015</b>	<b>11</b>	<b>0.911</b>	<b>Continuous Auditing</b>	<b>2</b>
	<b>20</b>	<b>1.711</b>	<b>Total</b>	

Source: Prepared by the researchers based on SPSS V25 software



Table (4) mentioned above shows that the values of Cronbach's alpha coefficient for the research variables are statistically acceptable in descriptive human research, as their values exceed the standard threshold of Cronbach's alpha coefficient of 0.70. Accordingly, these measures exhibit internal consistency.

### 3-2 Statistical Description of the Research Variables

In this section, the research variables for a sample of specialists in accounting sciences at Al-Muthanna

University will be diagnosed and described using the (arithmetic mean and standard deviation) to determine the concentration and dispersion of the responses of the research sample individuals. The response levels were determined according to the arithmetic means and their corresponding categories. To determine the values of the arithmetic means within any level or category, they are compared as shown in Table (5) below:

Table (5) Levels of Arithmetic Mean Values

Response Level	Score Estimate
Very Low	1.80 – 1
Low	2.60 – 1.81
Moderate	3.40 – 2.61
High	4.20 – 3.41
Very High	5.0 – 4.21

Source: (Dewberry, C., 2004:364)

#### First: Statistical Description of the Blockchain Technology Variable

Table (6) Results of the Means and Standard Deviations for the Items of the Blockchain Technology Variable (N=89)

Response Level	Standard Deviation	Mean	Items
Low	0.753	1.98	X1
Low	0.630	2.03	X2
Low	0.688	2.07	X3
Low	0.688	1.93	X4
Low	0.757	2.17	X5
Low	0.822	2.22	X6
Low	0.864	2.19	X7
Low	0.844	1.94	X8
Low	0.907	2.13	X9
Low	0.48222	2.0749	Overall Average

Source: Prepared by the researchers relying on SPSS v25 software

Table (6) above shows the arithmetic means, standard deviations, and response levels for the research sample individuals regarding the variable Blockchain technology. It is noted in this table that the overall mean for this variable reached 2.074, and the standard deviation was 0.482, indicating agreement among the research sample individuals that this variable is low. This reflects the weak interest of Al-Muthanna University across all its colleges in digital transformation technologies, most notably Blockchain technology.

#### Second / Statistical Description of the Continuous Auditing Variable

Table (7) Results of the Arithmetic Means and Standard Deviations for the Items of the Continuous Auditing Variable (N=89)

Response Level	Standard Deviation	Mean	Items
Low	1.143	2.21	Y1
Low	1.105	2.22	Y2
Low	0.959	2.03	Y3
Low	1.087	2.28	Y4
Low	0.951	2.07	Y5
Low	0.882	2.17	Y6
Low	0.746	2.21	Y7
Low	0.953	1.98	Y8
Low	0.892	2.10	Y9
Low	0.978	2.10	Y10
Low	0.812	2.00	Y11
Low	0.69943	2.1256	Overall Mean

Source: Prepared by the researchers relying on SPSS software, Version 25

Table (7) above illustrates the arithmetic means, standard deviations, and response levels of the research sample individuals for the variable Blockchain technology (Block chain). It is observed in this table that the overall mean for this variable reached (2.125) with a standard deviation of (0.699), indicating agreement among the research sample individuals that this variable is low. This reflects the weak interest of Al-Muthanna University, across all its colleges, in one of the contemporary and automated types of financial auditing, namely continuous auditing.

### 3-3 Research Hypotheses Testing

The researchers relied on two statistical tools: the Pearson simple correlation coefficient and Structural

Equation Modeling (SEM) using AMOS V25 software for the purpose of testing the research hypotheses. The Pearson correlation coefficient was used to identify the strength of the correlations between the research variables, while SEM was employed to measure the effect.

**First / Testing the Correlation Hypothesis (First Hypothesis): Blockchain technology (Block chain) is statistically correlated with the activation of the continuous auditing process at the researched university.**

Table (8) shows the test of the first hypothesis:

Table (8) Results of the Correlation Coefficient between Blockchain Technology (Block chain) and the Activation of Continuous Auditing Process (N=89)

Result	Correlation Coefficient	Dependent Variable	Independent Variable
Supported	**0.637	Continuous Auditing	)Block chain(

.\*\*Correlation is significant at the 0.01 level (1-tailed)

Source: Prepared by the researchers based on SPSS V25 software

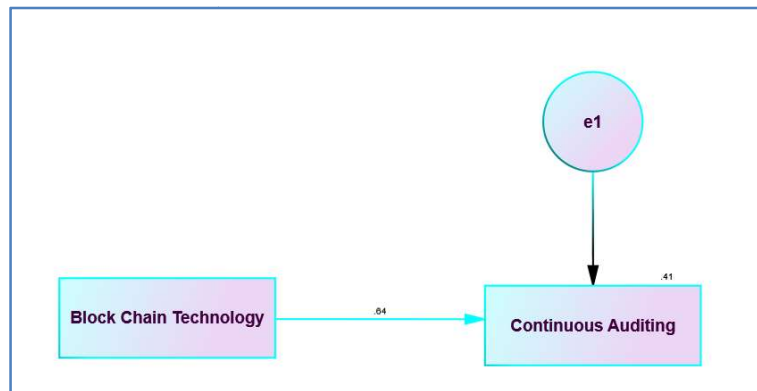
Table (8) mentioned above shows that there is a strong, significant, and positive correlation between Blockchain technology (as the independent variable) and continuous auditing (as the dependent variable), with a Pearson correlation coefficient of 0.637\*\*. This confirms the existence of a relationship between the two variables at the studied university (Al-Muthanna University), based on responses from a sample of

specialists in accounting sciences, at a significance level of 0.01. Accordingly, the first hypothesis is accepted.

Second / Testing the effect hypothesis (the second hypothesis): Blockchain technology has a significant effect on activating the continuous auditing process at the studied university. Figure (2) illustrates the test of the second hypothesis:



Figure (2) Results of the Second Hypothesis Test



Source: Prepared by the researchers based on the AMOS.V25 program

Figure (2) above illustrates the effect values of the Blockchain technology variable as an independent variable on the activation of the Continuous Auditing process as a dependent variable, based on responses from a sample of accounting science specialists at Al-Muthanna University. It is evident that there is a statistically significant effect relationship of the Blockchain technology variable in activating the Continuous Auditing process. The figure shows that the standardized effect value is (0.64), meaning that the Blockchain technology variable affects the Continuous Auditing variable by 64% based on the sample respondents' answers. This indicates that a one standard deviation change in Blockchain technology at the research sample level will result in a 64% change in Continuous Auditing. The clear lack of attention to digital transformation technologies, particularly Blockchain technology, by the surveyed university leads to and significantly impacts the weak interest in activating Continuous Auditing due to the unavailability of necessary requirements, especially

technological infrastructure, training, awareness for employees, as well as the required technical expertise. Moreover, Figure (2) shows that the coefficient of determination ( $R^2$ ) reached 0.41, representing the variance explained by the independent variable Blockchain technology in the dependent variable Continuous Auditing, based on the sample respondents' answers. The complementary percentage of 59% indicates the presence of other factors contributing to the change in the Continuous Auditing variable that were not addressed in the current study. Therefore, the second hypothesis is accepted.

Table (9) below presents the measurement model outputs for the effect of Blockchain technology on the activation of the Continuous Auditing process:

Figure (2) illustrates the test of the second hypothesis:  
Table (9) Model Outputs Measuring the Impact of Blockchain Technology on the Activation Process of Continuous Auditing

P	C.R-Value	S.E	Estimate	Path
***	7.761	0.119	0.925	<div style="display: flex; align-items: center;"> <span style="color: red; font-size: 1.2em; margin-right: 10px;">←</span> <div> (X) Blockchain Technologyhain (Y)Continuous Auditing </div> </div>

Source: Prepared by the researchers based on AMOS.V.25 software

Table (9) above indicates that the increase in reliance on Blockchain technology by (0.925) contributes to supporting and activating the continuous auditing process by the same magnitude, with a standard error of (0.119) and a critical value of (7.761). The

aforementioned Table (9) reinforces the acceptance of the second hypothesis.

#### Chapter Four

##### First: Conclusions

This chapter addresses the most important conclusions of the study, as follows:

1 -The research results showed that all the arithmetic means for the study variables, Blockchain technology (independent variable) and continuous auditing (dependent variable), were low, which indicates that Al-Muthanna University, in all its colleges, pays limited attention to digital transformation technologies, most notably Blockchain technology, and one type of contemporary and automated financial auditing, which is continuous auditing.

2 -The research results showed that the relationship between Blockchain technology and continuous auditing was strong, positive, and statistically significant; that is, the greater the awareness of accounting specialists at Al-Muthanna University regarding the operation of Blockchain technology, the more it will contribute to activating continuous auditing.

3- There is a significant impact of Blockchain technology on continuous auditing at the researched university, as the clear weak interest in digital transformation technologies, especially Blockchain technology, by the university under study, leads to and significantly affects the weak interest in activating continuous auditing due to the lack of necessary requirements, particularly technological infrastructure, training, and awareness for the working personnel, in addition to the required technical expertise.

4 -The adoption and implementation of Blockchain technology contribute to obtaining immediate reports, as the auditor's process of submitting the audit report will shift from traditional reports to timestamped reports that will be visible to all members of the chain.

5 -Continuous auditing is a type of financial auditing and represents a contemporary approach aimed at developing traditional auditing by relying on an automated work environment. Continuous auditing also contributes to ensuring the detection of errors and reducing instances of fraud, forgery, and illegal practices.

### **Second: Recommendations**

Based on the conclusions reached, the research has identified a set of key recommendations, including:

1 -It is necessary to focus on providing the required resources for accounting professionals to adopt and implement Blockchain technology, as it is a secure cloud network through which transactions and deals are recorded and executed, in addition to its use for digital currencies. These processes are carried out quickly, securely, and efficiently, and are characterized by generating digital reports with high transparency.

2- The requirements for implementing continuous auditing should be provided through the establishment of an independent management for internal audit

departments and the availability of qualified and experienced human resources capable of handling information in an electronic environment. Additionally, it is necessary to have ready programs and technologies to achieve the objectives of auditing processes, such as Blockchain technology.

3 -The necessity of the presence and collaboration of specialists in accounting sciences from the faculty members of the Accounting Department in the Colleges of Administration and Economics at Iraqi universities, as well as practitioners of the profession including accountants, auditors, and professional and regulatory associations, in preparing joint research in the field of accounting and auditing within the electronic work environment. Additionally, the necessity of applying this research in light of the changing environment of professional practice in Iraq, and organizing training courses by institutions and universities for accountants and auditors in Iraq.

### **References and Sources**

#### **First: Arabic Sources**

##### **A- Journals and Periodicals :**

- 1 -Alaa Abdul Wahid Dhanon. (2016). Continuous auditing practice according to the Technology Acceptance Model: An analytical study of a sample of Iraqi auditing offices. *Journal of Economics and Administrative Sciences*, 22(92), 294-294 .
- 2 -Harraq, Somaya, Latrash, &Zahbiya. (2021). The role of Blockchain technology in enhancing the efficiency of international payments: A case study of Singapore and Canada's cross-border payment experience using Blockchain - Jasper-Ubin project. *Entrepreneurship for Business Economics*, 7(3), 212-231 .
- 3 -Khalifa, 2018, Blockchain: A revolution in the world of finance and management, *Academic Papers Journal*, Issue 3, 1-7 .
- 4 -Darwish Mustafa Al-Jakh. (2021). The extent of accountants' knowledge of Blockchain technology and their expectations of its impact on accounting. *IUG Journal of Economics & Business*, 29 .(2)
- 5- Zaboon, Haider Mohammed & Al-Gharban, Fatima Saleh. "The impact of using Artificial Intelligence technology on the quality of external auditor work" A field study in some

- auditing offices in Baghdad, Nisq Journal, Volume 37, Issue 2.
- 6 -Al-Safri, 2020, The Use of Chain Blocks in the Maintenance of Intellectual Property Rights : Use of Blockchain Technology in Protecting Intellectual Property Rights ,Journal of Economic, Administrative and Legal Sciences, 4(5), doi: 10.26389/ajsrp.m130919.
  - 7 -Arab & Rashwan, 2021, The Impact of Using Blockchain Digital Ledger Technology on the Environment of Accounting Transactions, Cihan University-Erbil Journal of Humanities and Social Sciences, 5(2), 118-134.
  - 8- M.M. Mustafa Saher Raouf, 2023, Measuring the Feasibility of Using Blockchain in Monitoring the Performance of Industrial Supply Chains and Its Role in Achieving Competitive Advantage: An Exploratory Study of the Opinions of a Sample of Academics in Iraqi Universities, Journal of Business Economics for Applied Research, 5(2).
  - 4 -Inghirami, I. E. (2019). Accounting information systems in the time of blockchain. In Conference: Itais 2018 Conference (pp. 1-16).
  - 5 -Janusz J. Sikorski, Joy Haughton, Markus Kraft (2017) "Blockchain technology in the chemical industry: machine-to-machine electricity market," Appl. Energy 195 (2017) 234–246.
  - 6 -Kurt, Ganite&Marsap, Beyhan&Ucma, Ugba, Ph.D., (2014), The possible Effects of Organizations' Corporate Accountability Sense on Continuous Auditing: the Case of Ise100, European Journal of Accounting, Auditing and Finance Research, Vol. 2, No. 1, pp. 50-63.
  - 7- Orumwense, Jones Osasuyi, (2017), Implementation of Continuous Auditing for the Public Sector in Nigeria, Journal of Accounting, Business and Finance Research Vol. 1, No. 1, pp. 19-23.
  - 8 -Srivastava, Abhishek, et al. "A Distributed Credit Transfer Educational Framework Based on Blockchain." 2018 Second International Conference on Advances in Computing, Control and Communication Technology (IAC3T). IEEE, 2018.
  - 9 -Stevens, Elspeth, (2016), Considerations for Implementation of a Continuous Audit Program in Health Care Internal Audit: How Data Analytics Can Provide Further Value to Internal Audit Functions in Health Care, Master's Thesis in Biomedical Informatics, Presented to the Department of Epidemiology, the Oregon Health & Science University, and School of Medicine.
  - 10 -Vakulchyk, O., & Brayko, V. (2021). Prospects and Problems of Integration of Blockchain Technology into Accounting and Auditing. Scientific Opinion: Economics and Management, 1(71). doi: 10.32836/2521-666x/2021-71-11.
  - 11- Weins, Sebastian, Alm, Bastian, Wang, Tawei, (2017), An Integrated Continuous Auditing Approach, Journal of Emerging Technologies in Accounting, Vol. 14, No. 2, pp. 47–57.

## Secondly / Foreign Sources:

### A. Books :

- 1 -Dewberry, C. (2004) Statistical Methods for Organizational Research: Theory and Practice. Routledge, New York, 364 .  
<https://doi.org/10.4324/9780203414897>

### B. Periodicals and Researches :

- 1 -Chiu, V., Liu, Q., & Vasarhelyi, M. A., (2014), "The development and intellectual structure of continuous auditing research," Journal of Accounting Literature, Vol. 31, No. 1-2.
- 2 -CPA & AICPA, (2017), "Blockchain Technology and Its Potential Impact on the Audit and Assurance Profession".
- 3 -Hany F. Atlama,b, Gary B. Willsa (2019) "Technical aspects of blockchain and IoT," Advances in Computers, ISSN 0065-2458. All rights reserved. Available.