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THE ROLE OF APPLYING BLOCKCHAIN TECHNOLOGY IN THE ACCOUNTING AND AUDITING PROFESSIONS, AND THE OPPORTUNITIES AND CHALLENGES THEY FACE - A PROSPECTIVE STUDY

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Abstract:

The research aims to identify the opportunities and challenges facing the accounting and auditing professions when applying the economic unit of Blockchain technology, which is one of the emerging technologies with high transparency in the presentation of data and information, as it has a decentralized structure capable of achieving integration in the data stored in it, as well as its ability to quickly accomplish sending and receiving data in a short time, the blockchain has made a huge change in the traditional transactions via the Internet by eliminating intermediaries or verifying the authorities, and in order to achieve the goal of the research and test its hypotheses, and due to the changes caused by this technology, a questionnaire form was designed addressed to a number of auditors in Baghdad and the provinces, who would provide information that benefits the objectives of the research, as it was relied on a set of statistical methods to analyze the questionnaire form represented by frequencies, the percentage of the description of the research sample, the arithmetic mean, and the standard deviation, the research has reached a set of results, including that the application of trust chains contributes to the reduction of personal judgments and accounting estimates, in addition to that it works to reduce audit risks in terms of obtaining audit evidence and improve its efficiency and effectiveness, and it also helps in obtaining immediate reports and contributes to achieving transparency through the possibility of tracking the progress of transactions unlike traditional accounting systems .

Keywords: blockchain, bitcoin, accounting, auditing.

INTRODUCTION:

Traditional accounting methods are no longer able to keep pace with the changes that occur in the business environment, and it has become necessary to adopt modern methods capable of achieving the goals of economic units, overcoming deficiencies in accounting and administrative systems, and contributing to outperforming competitors, and the ability to meet the needs of customers represented in obtaining advanced, high-quality, low-cost products, in addition to its ability to achieve the profits aspired by the unit, and to achieve this, the economic unit must work on using modern methods that organize and facilitate the process of disclosing its information transparently and exchanging it between customers and suppliers, and this is what is known as Blockchain Which is a recent revolution in the world of automation, and experts promise people through it radical changes in various sectors, as it aims to facilitate cooperation between customers and suppliers because the information that is exchanged is of high quantity and quality in order to obtain more detailed data on operational processes, It dispenses with the human element in routine and tedious work. Blockchains are characterized by their ability to record, store and retrieve data that helps reduce the time required for financial transactions and reduces the costs of preparing them in the long run. Blockchain also helps to bring about profound changes in auditing, as auditors will need much less time to conduct audits, and more time to review, design and check how information flows between systems, and to conduct audits at regular intervals. Accordingly, Blockchain helps to conduct audits continuously and correctly.

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The first topic: research methodology, previous studies, and the contribution made by the current research

First: research methodology

1- Research problem: The research problem stems from the economic units' lack of knowledge of the challenges and opportunities facing the accounting and auditing professions when applying Blockchain technology. The research problem results in the following question:

- What are the opportunities and challenges facing the accounting and auditing professions when applying the economic units of Blockchain technology?
--- Does the lack of application of the economic units of the blockchain technology affect the quantity and quality of information needed by the parties related to these units?

2-**Research objectives:** The research aims to achieve the following:

- Identifying the foundations of knowledge of Blockchain technology.
-Shedding light on Blockchain technology and its impact on the opportunities and challenges facing establishments' accounting and auditing professions.
-Identify the extent to which the economic units are aware of blockchain technology's application and its impact on the auditing and accounting professions.

3-The importance of the research: The scientific importance of the research stems from the role that Blockchain technology plays in the field of the accounting and auditing professions, and the opportunities and challenges facing this technology when applied in economic units.

4-Research Hypothesis: The research seeks to achieve the following hypotheses:

-The first hypothesis: the opportunities facing the accounting profession when using chains of trust.
-The second hypothesis: the opportunities facing the auditing profession when using chains of trust opportunities.
-The third hypothesis: Some challenges prevent the use of trust chains in accounting and auditing.

Second: previous studies

1-A study (Al-Shatnawi and Al-Dulaimi, 2018) entitled (The Impact of Open Accounting Records Policy as One of the Cost Management Mechanisms in Achieving the Competitive Advantage of the Jordanian Public Shareholding Industrial Companies): The study aimed to test the impact of the open accounting records policy as one of the cost management mechanisms in achieving the competitive advantage of the industrial public shareholding companies in Jordan, to achieve the objective of the study, a field study was conducted by surveying the opinions of a sample of accountants of the industrial public shareholding companies in Jordan, and standard deviations, arithmetic averages, and a simple linear regression analysis test were used to test the hypotheses and achieve the objectives of the study...

2-A study (Maji, 2022) entitled (The Importance of Blockchain Technology and its Impact on Enhancing the Security of Accounting Information Systems): The study aims to clarify the technology of trust chain and the developments of its uses, in addition to identifying the accounting perspective of Blockchain and the possibility of using it in accounting work and its importance in enhancing the security of accounting information systems. The study concluded that there is an impact of Blockchain technology on the security of accounting information systems and that its use leads to the support of cloud storage technology.

3-A study (Treiblmaier, 2018) entitled: (The Impact of the Blockchain on the Supply Chain: A Theory-Based Research Framework and a Call for Action)

The study aimed to identify the impact of trust chains on the supply chain and focused on bridging the research gap related to the potential effects of Blockchain on supply chain management, as well as motivating the discussion of solutions to the potential impact of trust chain technology on supply chains. To achieve this goal, the study presented four economic theories through a framework for theorizing, in which these theories were used to derive research questions related to the field of industry.

The similarity of the current research with previous research in many variables, including chains of trust, accounting, and auditing, but what distinguishes this research is the definition of economic units of the importance of opportunities and challenges resulting from the use of the technology of chains of trust on both the accounting profession and the auditing profession, as the current study is applied in local and supplying Iraqi and Arab libraries with studies that discuss developments in the business environment in the time of the Internet and modern information technology.

The second topic: The theoretical aspect

First: the knowledge bases of Blockchain chains

World Economics & Finance Bulletin (WEFB)
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Vol. 24, July 2023
ISSN: 2749-3628

1-The emergence and concept of Blockchain technology:

Initially, blockchain technology was designed to create an electronic payment system without the need for a financial intermediary, represented by Bitcoin and other consecutive currencies, and the topic came into force in 1991 when Stuart Haber and Scott Stornetta put a seal on digital documents that cannot be accessed or manipulated using a series of encrypted blocks to make the sealed documents within a specific time frame, In 1992, the Merkel Tree was combined to design the technology and collect several documents into one block, and this technology paved the way for the birth of a cryptocurrency, Bitcoin (MGI, 2022: 1008). In 2009, Blockchain technology was developed under the pseudonym of Satoshi Nakamoto through his famous research on the electronic cash system in Helsinki, Finland, to solve the problems of double spending without relying on another party through the digital currency Bitcoin (The Blind People, 2020: 16).

Blockchain technology has many definitions. It has been defined as a distributed, decentralized ledger in which transactions are recorded and added to create records that are protected from tampering and permanent (Treiblmaier, 2018: 549), and it is also known as a three-faceted database (information, encryption, and a face print) that constitutes an electronic record distributed on a network of computers between two parties without the need for a third party or intermediary to organize the transfer of information and contents (Ismail, 2021: 33), In the same context, it was defined as a technological protocol that allows direct exchange of data between the various contracting parties within the network without the need for intermediaries through the interaction of network participants with encrypted identities (anonymously), and each transaction after encoding is added to an immutable chain of transactions:

- Data: It means the data that is recorded in the blocks and varies according to the type of chain. An example of this is the Bitcoin blockchain.

-Hash function: converts the input of any length into an output of a fixed length, as it serves as an identifier for each block and is specific to this block, such as a fingerprint, and the hash function has an essential role in detecting any changes that may occur to the block.

-A hash of the previous block: Each block contains the hash of the previous block, which constitutes the chain that links the blocks together.

2- Types of Blockchain Technology :

Three types of Blockchain technology can be summarized as follows: (Bou Akl Haddouche, 2019: 137)

-Public Blockchain: This type is available to anyone. It is not uncommon for a public chain to hide the identity of all associated participants. One of the advantages of this openness is the ability to resist piracy or control capital from central systems. Public distribution of the chain enables each participant to see the movement of all transactions and all account balances.

-Private BlockChain: Only users who have been enabled by administrators can access the private blockchain. This chain is secured by user rights and passwords and is mostly used between parties who trust each other to avoid tampering with the contents of the chain.

-Double blockchain: It is a mixture of public and private chains of blocks. The goal of the public chain is cooperation and coordination, while the private chain targets privacy in the first place.

3- Advantages of Blockchain:

The use of the blockchain has many advantages, the most important of which are: (Al-Shatnawi and Al-Dulaimi, 2018: 8)

- Improving the administrative-accounting function of the economic unit.
- Assists in negotiating prices with clients due to their knowledge of cost structures.
- Developing strategic relationships in the short and long term.
- Disclosure of cost data leads to the diagnosis of production cost elements as well as resource costs and helps in achieving effective management of costs outside the company's organizational boundaries.
- Assisting in determining the priorities of the parties to the supply chain and coordinating their actions, which leads to reducing conflicting goals among them.
- Facilitate the exchange of information between the parties to the supply chain.

4-The steps of the blockchain:

The principle of blockchain work is summarized in the following basic steps: (Maalla and Zarqa, 2021: 3)

-Someone requests a transaction.

-The requested transaction is distributed and transmitted to the interconnected network of nodes.

-The network of nodes verifies the status of the user and the validity of the requested transaction.

-The new transaction is linked with previous transactions after confirming its validity, and a new block of data is created in the record.

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 24, July 2023
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-The new block is linked to the previously existing blockchain in a permanent and non-modifiable manner, and the transaction is then completed.

Second: the use of blockchains in the accounting profession

The use of blockchain technology can lead to

1-The ability of Blockchain blocks to register, store and retrieve data and reduce the costs of their numbers in the long run and secure them as a result of their encryption and the difficulty of deciphering their algorithms and penetration, and the quality and safety of the financial statements stored on them due to the input operations are open to all relevant parties, it is characterized by its ability to maintain the financial statements and the possibility of renewing and updating them constantly as the data is kept as one block and thus the data is updated and thus the data is updated According to the last modification and the latest input process according to the time sequence (Ahmed, 2021: 15).

2-Blockchain represents the next logical evolutionary step for accounting, as the establishment can record its transactions directly in a common record, instead of keeping them in separate records based on transaction receipts, and all entries are distributed electronically and sealed cryptographically, and therefore falsifying or destroying them to hide activity is not possible in practice (Alan, 2016: 5).

3-A change like the skills required in accounting as a result of the abolition of some routine work and double-entry, and the expansion of other areas such as advisory services and other activities of value and an increase in transparency rates, which requires a change in the accounting skills required for economic units that have large transactions based on Blockchain, as well as reducing the area of biased professional judgment on the part of accountants, resulting from the conflict of interests between the goals of management and the provision of reliable information for decision-making (Michèle, 2017: 6).

4-Accounting in real time: When the establishment uses digital currency as a medium of exchange, all its normal business transactions will be published and the ledger will be visible and accessible to the shareholders, customers, lenders, and other interested parties. Thus, anyone at any time can collect the transactions of the unit in the form of income statements and the general budget, and they will no longer need to rely on the financial statements prepared by the unit and the auditors, and this will have enormous benefits on increasing investors' confidence in the integrity of the financial data, and although this is useful in producing financial statements and reports, the presence of Real-time recorded input also has significant implications for productivity and business analytics (El Sharkawy, 2019: 21).

Third: The use of blockchains in auditing: The use of chains of trust is reflected in the auditing process through:

1-Blockchain helps bring about profound changes in the audit method, as auditors will spend much less time conducting audits, and more time designing, reviewing, and verifying how information flows between systems, and by conducting audits at regular intervals, Blockchain and machine learning will help conduct audits continuously and correctly, which helps in identifying trends and missing data early, allowing problems to be addressed proactively, rather than reported interactively (Amy2018, p.8).

2-As for Nakhal, he believes that the use of blockchains leads to (Nakhal, 2020: 17) :

a- The need to verify digital assets.

b- Emphasizing the compatibility of the information on the chain with that in the physical world. Despite the advantages found in the digital blockchain, some transactions took place on the chain but did not take place in the physical reality, such as inventory transactions that may have taken place on the chain but the inventory has not yet been received, or that a fraudulent transaction did not result in an actual transaction. This requires the auditor to ensure the effectiveness of the internal control system to ensure obtaining an appropriate guarantee regarding transactions on the chain instead of testing transactions directly.

3-As for Belkhiri and Jumaa, they believe that the use of blockchains leads to (Belkhiri and Hawam, 2022: 14) :

a- Verification of accounting information through multiple nodes during the data loading phase, and no single node will be able to conduct hidden transactions, which means that audit risks will be reduced at the source in terms of audit evidence, and the efficiency and effectiveness of auditing will be improved, and the level of internal control will be achieved as it should be at the same time.

b- This technology provides records that cannot be changed, and accounting policies and estimates can be included in them permanently, which reduces the management's opportunism and its deliberate

World Economics & Finance Bulletin (WEFB)
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Vol. 24, July 2023
ISSN: 2749-3628

interference in the internal and external control systems and profit management.

Fourth: Opportunities and challenges for the accounting and auditing professions

Among the challenges facing the application of blockchains in accounting systems (Hassan, 2020: 94-96):

1-The problem of control or attack 51%: Any modification of the data and information recorded in the Blockchain technology requires the approval of the majority of the participants in the chain, equivalent to 51% of the participants in the chain. While this feature is a feature that benefits the registered information and prevents it from being manipulated and tampered with, it may constitute one of the security problems of this technology, as it is vulnerable to what is known as a majority attack or a 51% attack when a group of participants (in one node) controls a lot of computerized resources in the network, and thus that group dominates the validation and approval of transactions.

3-Illegal activities: In light of the availability of both decentralization, privacy, and anonymity of participants, trust chains can be suitable for the practice of illegal activities, as there are many anonymous buyers and sellers, as well as the possibility of completing money laundering operations when using virtual currencies, as some governments still deal with these currencies as unofficial currencies.

4-Penetration of the system: Penetration of electronic systems is one of the most important obstacles facing electronic databases. Despite the security solutions that currently exist in light of the availability of strong encryption algorithms, electronic security issues are one of the most important factors affecting everyone's decisions regarding sharing personal data and disseminating information in the event of using blockchain systems.

5-Lack of complete understanding of blockchains: One of the biggest operational risks of blockchains is the lack of complete understanding of them, and the reason for this is due to the lack of acceptance of change by some or ignorance of the technology and its characteristics, which leads to delaying the stages of adoption and application.

6-High costs of integration and implementation: The expected savings from the use of blockchain technology are very encouraging, but the initial implementation costs cannot be ignored. The costs resulting from replacing the current systems with future systems are high in terms of the loss of the current systems and the increase in the prices of future systems, in addition to the costs of maintaining, monitoring, and following them up, and training workers to deal with them.

7-Unemployment: One of the most important challenges facing blockchain technology is the reduction of the number of jobs. Accounting systems based on blockchains are designed to replace traditional work such as keeping records and verifying transactions in automatic ways through automated processes. This leads to a reduction in dependence on human elements and then leads to a high unemployment rate.

8-Governance challenges: There is a global agreement on the need to find a theoretical framework for governance based on blockchains for the international community to set limits for this technology to protect society. Which calls for the need for a globally agreed and organized framework for the governance of this technology.

9-Tax accounting: One of the challenges facing blockchain technology is the shortcomings of tax legislation, including the problem of subjecting or exempting applications of trust chains to taxes, the problem of international double taxation, as well as the emergence of an imbalance in tax justice due to the lack of specific tax treatment for the revenues of cryptocurrency exploration and the gains or losses of dealing in them or keeping them, and the absence of specific tax treatment for the use of smart contracts, and it did not include most of the tax legislation for how to report tax when The use of trust chains, and the development of tax systems to accommodate the applications of Blockchain trust chain technology is one of the biggest challenges (Aql and Hamid, 2020: 51).

As for the opportunities in the era of chains of trust, they are represented in the following (Karmia and Ibn Rabi', 2021: 187):

1-As a result of its reliance on non-modifiable databases, once the data is entered into the chain, there will be no possibility to change it through the process of tightly encrypting transactions. It provides secure storage of accounting data, which is reflected in protection from manipulation, which supports accounting governance by reducing agency costs and information asymmetry, and eliminates creative accounting.

2-Ease of access for individuals to information and the possibility of their direct communication with individuals authorized to access the levels of information that they are allowed to see. It allows the sharing of data with those concerned immediately so

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Vol. 24, July 2023
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that all stakeholders can easily access the data. This allows for preparing reports in real-time and thus making appropriate decisions without delay.

3-Adding a new dimension to financial accounting through distributed records and the use of triple entry instead of double entry (debit/credit) will improve the quality of accounting information by reducing human errors and fraud to the lowest levels, with accuracy in terms of ownership of assets, date of acquisition, and tracking of the inventory process through a more accurate view of the resources available to the economic unit and its obligations towards others..etc. This increases the transparency, audibility, and reliability of accounting information.

4-Reducing control costs through the automatic control of operations and reducing the costs of accounting work and the costs of keeping accounting books through the centralization of the data resource.

5-Achieving the integration of accounting information systems, as the distributed ledger is a large integrated database that offers new opportunities for data extraction and analysis similar to those provided by project resource planning (ERP) systems in the past, and real-time access to performance-related data provides opportunities for management accountants and financial advisors to recommend immediate corrective actions.

6-Smart contracts allow the abandonment of intermediaries and thus get rid of corruption and fraud resulting from a third party.

7-Blockchain is devoid of traditional time-consuming business such as bookkeeping, posting, etc., which provides more time for interpreting financial statements and providing more advice, as well as allowing adding more value to client's business, as major accounting firms provide consulting as a separate accounting function, unlike small and medium accounting firms that have fewer resources, and therefore are unable to divide traditional accounting aspects and advisory services into separate functions, but with the help of Blockchain, the provision of advisory services has become available (David, 2017, 9).

8-It leads to a reduction in earnings management. "Actual" real-time accounting on Blockchain would greatly reduce accounting fraud and manipulation of reported profits. Managers cannot use strategies such as postponing sales contracts to a prior reporting period or depreciating operating expenses, which must be disbursed immediately and paid for future periods. Analysts will not need to exert much effort to assess the fair values of the economic unit's share, as they will have the real information for this task, and the potential effects of these changes lead to Managers managing their units differently if earnings management becomes more difficult (Yermack, 2016: 29).

From the foregoing, it can be said that blockchains are among the modern technologies and that their use may result in high costs due to human errors when entering data and the possibility of penetration despite the difficulty of the penetration process and its high costs. It is not governed by legal frameworks regulating its use and therefore there are concerns related to accounting information and its quality, which requires more restrictions and guarantees for the quality of the information stored on it and conducting the audit process on its basis and ensuring complete impartiality and independence at the internal and external levels, as well as the need for accountants and auditors with a great deal of knowledge and skill Familiarity with accounting, auditing and information systems .

The third topic: presenting the results of the field study

First: Description of the population, sample, and research tool

The research community represents a sample of auditors in Baghdad and the provinces. As for the size of the sample, it amounted to (67) auditors, and they were chosen intentionally and intentionally at a rate of (60%) of the total society. Table (1) shows the distributed and returned forms:

Table (1): The questionnaires distributed and returned from the research sample

distributed forms	The returned forms	Percentage
67	60	90%

1-Research tool: The questionnaire was adopted as one of the approved tools in data collection, as it included two parts, the first of which was devoted to the demographic information of the research sample, and the second part concerned the main axes of the research variables (chains of trust, opportunities from using trust chains in the accounting profession and the auditing profession, and challenges) through three sets of questions.

2-**Statistical methods:** A set of statistical methods were used according to the program (SPSS) and my agencies: (percentage, frequencies to describe the

World Economics & Finance Bulletin (WEFB)
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Vol. 24, July 2023
ISSN: 2749-3628

research sample, the arithmetic mean, and the standard deviation), as well as measuring the stability of the questionnaire questions. The results of the sample on the study population were this is done using one of the stability coefficients, including Cronbach's Alpha coefficient, The stability coefficient takes a value between zero and one. In the absence of stability in the data, the value of the coefficient will be zero, but if there is complete stability in the data, it will equal the value of one correct coefficient. As for the validity, it means that the scale measures what was set to measure it, and it is possible to calculate the validity coefficient by calculating the root of the stability coefficient, as the value of Cronbach's Alpha coefficient is 0.8967, which is a very good value, meaning that the scale gives the same results with a probability of 0.8967 if re-applied e on the same sample and for all questions.

3-Analysis of the characteristics and characteristics of the research sample: The first part of the questionnaire contained several questions related to the demographic characteristics of the nature of the individuals responding to the questionnaire. The aim is to give an impression that enhances the confidence in the results that have been reached, as in Table(2).

Table (2) Characteristics and characteristics of the research sample

Paragraphs	Iterations	Percentage
Males	**54**	**90%**
Female	**6**	**10%**
Total	**60**	**100%**
Qualifier		
Master's degree or equivalent	**44**	**73%**
Ph.D. or equivalent	**16**	**27%**
Total	**60**	**100%**
Years experience		
Less than 10 years	**9**	**15%**
Less than 20 years old	**27**	**45%**
years and 20 over	**24**	**40%**
Total	**60**	**100%**

From the above table, it is clear that the research sample constitutes a high percentage of males (90%), and they hold a master's degree or its equivalent (73%). The percentage of respondents who have experience in the field of accounting and auditing and who have less than 20 years of experience is (40%), followed by a small assumption who have experience of more than 20 years (40%), followed by those who have less than 10 years of experience by(20%).

Second: The results of the field study and their interpretation: The second part of the questionnaire was allocated to a group of questions classified into three directions related to testing research hypotheses:

1-Analyzing and discussing the results of testing research hypotheses: to test research hypotheses, the questions were formulated for three axes. The first relates to the opportunities resulting from the use of chains of trust in accounting and includes (5) paragraphs, while the second axis includes opportunities from using chains of trust in accounting and includes (5) paragraphs. The third axis, relates to the challenges facing the application of blockchains in the field of accounting and auditing professions, noting that the area of the scale was divided as a percentage for each degree of my agencies.

(Fully agree 100% - 80%, agree 79% - 60%, neutral 59% - 40%, disagree 39% - 20%, completely disagree 19% - zero), Table (3) shows the results of the research sample's answers to the first axis of the questionnaire questions.

Paragraphs	the arithmetic mean	standard deviation	Relative importance

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 24, July 2023
ISSN: 2749-3628

The first axis: Opportunities to use chains of trust in accounting			
Chains of trust contribute to changing the roles of accountants	3.71	1.129	81%
Chains of trust help reduce the time and costs required to process financial transactions	3.49	1.222	84%
Chains of trust contribute to data integrity and higher quality	3.54	1.088	83%
Help to get instant reports	3.89	1.168	78%
It contributes to achieving transparency through the possibility of tracking the progress of transactions, unlike traditional systems	3.60	1.158	79%
Total	3.65	1.153	81%
The second axis: Opportunities to use blockchains in auditing			
Contribute to obtaining credible and timely evidence	3.86	1.344	75%
Contribute to the shift to continuous auditing instead of auditing at the end of the year	3.52	1.336	87%
Help reduce human errors and prevent fraud	3.78	1.233	79%
Helps reduce personal judgments and accounting estimates	4.67	0.644	83%
Reducing audit risks in terms of obtaining audit evidence and improving audit efficiency and effectiveness	3.80	1.123	85%
Total	3.93	1.136	82%
The third axis: the challenges facing the application of blockchains in the field of accounting and auditing			
There is a lack of knowledge on how to create and use blockchains, which leads to the necessity of maximizing the expertise of auditors in the field of auditing and information technology systems.	4.58	0.502	93%
Its benefits are uncertain in the absence of a good control system that guarantees the integrity and quality of the data entered	3.96	1.214	87%
High costs of implementation and integration	3.81	1.033	88%
Deficiencies in tax legislation, including the problem of subjecting or exempting applications of chains of trust to taxes	4.44	0.801	92%
Its benefits are uncertain in the absence of a good control system that guarantees the integrity and quality of the data entered	4.34	1.240	78%
Total	4.23	0.958	87.6%

From the analysis of Table (3) it is clear that the arithmetic mean of the research sample individuals for the axis of opportunities from the use of trust chains in accounting is (3.57) and represents (81%) of the area (for the five-fold Curt) used, the aforementioned percentage is located in the area of agreement (81-100)% and accordingly the first research hypothesis was accepted that the use of trust chains in accounting leads to many opportunities, which requires their development, and the answers of the research sample can be analyzed according to the questions of the questionnaire and my agency:

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 24, July 2023
ISSN: 2749-3628

1- The respondents agreed that the use of trust chains contributes to changing the roles of accountants by (81%) in the direction of agreement, and the arithmetic mean value was (3.71), and in the same direction, (84%), with an arithmetic mean of (3.49).
The sample agreed that trust chains help reduce the time and costs required to process financial transactions. They also agreed that trust chains contribute to data integration and high quality, with an agreement rate of (83%) and an arithmetic mean of (3.54).
2-The respondents believe that chains of trust help in obtaining immediate reports, with an agreement rate of (78%) and an arithmetic mean of (3.89). The respondents agreed that it contributes to achieving transparency through the possibility of tracking the progress of transactions, unlike traditional accounting systems, with a ratio of (79%) and an arithmetic mean of(3.6).

In the same context, the second axis came about the chances of using blockchains in auditing, and with an agreement rate of (82%) of the five-year Curt scale used, the percentage lies in the area of complete agreement (100-81%), while the arithmetic mean was (3.93), and the answers of the sample came:
a-The research sample agreed that chains of trust contribute to obtaining credible and timely proof of evidence, with an agreement rate of (75%) and an arithmetic mean of (3.86), and the respondents believe that they contribute to the transition to continuous auditing instead of auditing at the end of the year, with an agreement of (87%) and an arithmetic average of(3.52) The research sample also agreed that chains of trust help reduce human errors and prevent fraud by (79%) and with an arithmetic average of(3.78).
b-The respondents agreed that chains of trust help reduce personal judgments and accounting estimates by (83%) and with an arithmetic average of (4.67), in addition to that the respondents believe that chains of trust work to reduce audit risks in terms of obtaining audit evidence and improve the efficiency and effectiveness of auditing with an agreement of (85%) and an arithmetic mean of(3.80)
As for the third axis, the challenges facing the application of blockchains in the field of accounting and auditing, the arithmetic average of the answers of the sample was (4.23), which represents (87.6%) of the five-pointed Curt scale used, so the aforementioned percentage falls in the area of full agreement (100-81)%, and the answers of the sample were as follows:
1-Respondents believe that the first challenge facing trust chains is the existence of a lack of knowledge in how to create and use blockchains, which entails the need to maximize the auditor's expertise in the field of auditing and information technology systems by (93%) and with an arithmetic average of (4.58). 44), as for the challenge that ranked third, it represented the lack of legal frameworks governing chains of trust, and therefore there are concerns related to accounting information and its quality, with the agreement of the respondents at a rate of (88%), with an arithmetic average of (3.81).
2-The sample answers regarding the high costs of trust chains in terms of implementation and integration were represented in the fourth challenge with an agreement rate of (87%) and an arithmetic mean of (3.81). As for the benefits of trust chains being uncertain in the absence of a good control system that guarantees the integrity and quality of data entered, it came in the fifth rank with an agreement of (78%) and an arithmetic mean of(4.34)
Accordingly, the three research hypotheses are accepted

The fourth topic: conclusions and recommendations

First: conclusions

1- Chains of trust help reduce the time and costs required to process financial transactions, in addition to their ability to achieve data integrity and high quality.
2- Chains of trust contribute to achieving transparency through the possibility of tracking the progress of transactions, unlike traditional systems.
3- The use of trust chains contributes to changing the roles of accountants and also contributes to achieving data integration and high quality, as well as obtaining instant reports that contribute to achieving transparency through the possibility of tracking the progress of transactions, unlike traditional accounting systems.
4- Chains of trust contribute to obtaining credible and timely proof of evidence, and it also contributes to the shift to continuous auditing instead of auditing at the end of the year, as well as helping to reduce human errors and prevent fraud.

World Economics & Finance Bulletin (WEFB)
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Vol. 24, July 2023
ISSN: 2749-3628

5- Trust chains help reduce personal judgments and accounting estimates, in addition to reducing audit risks in terms of obtaining audit evidence and improving audit efficiency and effectiveness.
6- The respondents believe that the first challenge facing chains of trust is the lack of knowledge in how to create and use chains of blocks, which entails the necessity of maximizing the auditor's expertise in the field of auditing and information technology systems, with a rate of (93%) and an arithmetic mean of(4.58).

Second: Recommendations

1- Invite economic units to adopt the philosophy of trust chain technology as one of the modern technologies that help maintain the integrity of data and protect the information, and urge these units to establish an information network that includes information on customers and suppliers.
2- The need for professional accounting organizations to publish working papers in the field of using Blockchain as it is a secure cloud network through which deals and transactions are recorded as well as digital currencies.
3- As a result of a lack of knowledge in how to create and use blockchains, therefore, it is necessary to maximize the auditor's expertise in the field of auditing and information technology systems.
4- Working on issuing instructions to apply the technology of chains of trust due to deficiencies in tax legislation, including the problem of subjecting or exempting applications of chains of trust to taxes, in addition to the lack of legal frameworks governing chains of trust, and therefore there are concerns related to accounting information and its quality.

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