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The impact of implementing blockchain technology on the future of accounting records management

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Abstract
The blockchain technology, or as some call it, Blockchian, represents a real revolution in the world of financial trading. However, its impact extends beyond financial trading to become a comprehensive technology that can be relied upon to create an integrated system, similar to the Internet system we are accustomed to. It operates on a peer-to-peer system, meaning transactions are conducted between users of this technology without any intermediary. It is a decentralized technology, meaning there is no central authority controlling the operations conducted through it, and no governmental entities, for example, exerting control over its processes. This implies that it is an encryption technology, where the data or money transmitted through it is anonymous.

From this stemmed the research problem: Does the adoption of blockchain technology affect the future of accounting records management? The research aimed to define the concept of record-keeping under single-entry, double-entry, and triple-entry systems. The researchers concluded that implementing blockchain technology leads to increased real-time clarity, efficiency, transparency, and verifiability, thereby reducing costs. The researchers recommended the necessity of providing all the essential requirements in our local environment to work on implementing blockchain technology to keep pace with recent technological advancements.

Keywords: Blockchian, environment, implementing

Introduction
Blockchain technology, also known as distributed ledger technology (DLT), represents a true revolution in the world of financial trading. However, it extends beyond financial trading to become a comprehensive technology that can be relied upon to create an integrated system like the internet system we are accustomed to. It is based on a peer-to-peer system, meaning transactions are conducted between users of this technology without any intermediary. It is a decentralized technology, meaning there is no entity that controls the operations conducted through it, and there are no governmental bodies, for example, that regulate its affairs. In other words, it is an encryption technology, meaning that the data transmitted or the funds exchanged through it are anonymous.

First: Research Problem
The research problem can be identified by answering the following question: "Does the adoption of blockchain technology have an impact on the future of accounting record-keeping?"

Second: Research Goal
This research aims to achieve the following.

1. Scientific analysis of the concept of blockchain technology and the characteristics that distinguish this technology and its mechanism of operation.
2. Explanation of the concept of smart contracts and the possibility of transitioning from paper-based records to electronic records.
3. Identification of the concept of record-keeping under single entry, double entry, and triple entry accounting systems.

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Third: Research Hypothesis

The research is based on a hypothesis that there is a possibility to benefit from the application of blockchain technology with all its features and harnessing it to serve the process of record-keeping by providing the necessary requirements. The research is based on the following main hypothesis.

Primary Hypothesis: "There is a significant relationship between blockchain technology and the future of accounting record-keeping.

From this primary hypothesis, the following sub-hypotheses emerge.

Sub-Hypothesis 1: There is a significant correlational relationship between blockchain technology and the future of accounting record-keeping.

Sub-Hypothesis 2: There is a significant causal relationship between blockchain technology and the future of accounting record-keeping.

Fourth: Research Importance

The importance of the research stems from the significance of the subject of blockchain technology (Blockchian), as it addresses the reality of the problems affecting technological advancements and the potential for utilizing them to solve these problems and achieve a high level of transparency for evaluating governmental performance.

Fifth: Research Community

The research sample was randomly selected and limited to a community of university professors, holders of advanced degrees, and a group of auditors working in the Public Audit Bureau. Table (1) illustrates the ages of the sample.

Table 1: Number and Percentage of Ages of the Research Sample

Age / Sample	25 to 30	31 to 40	41 and above	Total
Number	7	11	25	43
Percentage	16%	26%	58%	100%

Source: Researchers' Data

Table (2) illustrates the educational attainment of the research sample.

Table 2: Number and Percentage of Educational Attainment of the Research Sample

Educational Attainment / Sample	Master's	Doctorate	Total
Number	8	35	43
Percentage	19%	81%	100%

Source: Researchers' Data

Table (3) illustrates the years of experience for the research sample.

Table 3: Number and Percentage of Years of Experience for the Research Sample

Years of Experience Sample	1 - 10 years	11 - 20 years	21 years and above	Total
Number	9	15	19	43
Percentage	21%	35%	44%	100%

Source: Researchers' Data

Second Section: Concept and Characteristics of Blockchain Technology

First: The Concept of Blockchain Technology

Blockchain technology is based on the idea of a distributed database of records or a general ledger for all transactions or digital events executed and shared among the participating parties. Each transaction is verified by the majority of participants in this system (Crosby *et al*; 2015: 3) [12].

Some see blockchain technology as the general ledger for all transactions using Bitcoin, as it continues to grow by miners adding new blocks to it (approximately every 10 minutes) to record the latest transactions. Consequently, blocks are added to the blockchain in a linear and chronological order. In other words, blockchain technology can be generally considered as a giant dataset for recording all assets and an accounting system for their transactions on a global scale, encompassing all forms of assets held by parties worldwide (Melanie; 2015: 12-13).

Furthermore, blockchain technology serves as a secure digital transaction technology aimed at ensuring the application of fair practices in the current era of globalization. This technology processes transactions and stores data similarly to any other computer system but in a unique way that offers remarkable benefits, enabling us to overcome the challenges imposed by today's reality. Blockchain technology operates through three advantages (Vinay *et al*. 2017: 6) [5]:

1. **Decentralization:** There is no preference for one location over another. This technology lacks a centralized clearinghouse where computers need to be physically close to conduct transactions. All transactions occur with the same speed regardless of their origin location worldwide.
2. **Immutability:** The record is permanent. The aim of this permanent record is to protect transactions. When multiple computers worldwide participate in processing a transaction, if one of these devices is compromised, it will not affect the rest of the computers connected to the blockchain technology.
3. **Lack of control by any party:** No party has control over blockchain technology globally. The blockchain is managed through fair consensus, providing all parties with equal levels of responsibility and capability.

Blockchain technology is based on two fundamental concepts: the business network and the shared ledger. Through these concepts, members exchange valuable goods through the shared ledger, which is owned by each member. Its content and substance are agreed upon with others. The business network represents a decentralized working method based on the peer-to-peer principle and branching points formed by market participants. It verifies the identity of counterparts and conducts transactions to reach consensus. The shared ledger serves as the true source of truth for companies conducting transactions using blockchain technology. All transactions occurring in the business network are recorded in the shared ledger. There is a necessity for duplicate copies, with each participant having their own copy. Access to the shared ledger is managed according to authorized permissions, with participants having read-only access (Kybercell; 2018: 29) [4].

The blockchain, also referred to by some as the "trust chain," is a database that utilizes cryptography to construct a decentralized, distributed, and interconnected electronic ledger. It arranges data in a chronological order that is immutable and tamper-proof. It is characterized by transparency, speed, and ease of operations. Additionally, it allows the involved parties to participate in its construction, verify its accuracy, and maintain it according to self-regulating systems and operational instructions.

Blockchain technology is a recently developed digital innovation aimed at addressing the trust gap in transactions between unknown parties without the need for a third-party intermediary. The current mediation model acts as a trust intermediary between contracting parties through documentation, rights preservation, and certification authorized by an official governing and regulatory system for relationships within a society. These institutions derive their regulatory authorities from it. Today, specialized government institutions, banks, and licensed financial institutions primarily undertake this task as one of the most crucial regulatory pillars in any country. These institutions, in the current model, are characterized by attributes such as neutrality, trustworthiness, responsibility, and the ability to perform tasks efficiently and effectively. Based on these qualities, they are authorized to conduct authentication processes between contracting parties (Ahmed; 2018: 6-7) [1].

Blockchain technology provides a method for untrusted parties to reach an agreement on the shared digital ledger. This shared digital ledger is crucial because digital assets and transactions can theoretically be easily counterfeited and duplicated. Therefore, blockchain technology can solve this problem without the need for a trusted intermediary (Beti Cung; 2018) [7].

Although this technology will liberate large numbers of people worldwide from the dominance of banks of various kinds and their excessively high costs, banks themselves can benefit from it to make their operations more accurate, cost-effective, and secure. Blockchain technology will become the heartbeat of the financial system, as it will lead to a reduction in banking fees and minimize human errors, thus fortifying the global economy against financial bubbles (Kybercell; 2018: 30) [4].

Some view blockchain technology as a ledger that displays the account history, which is copied and distributed to every participant in this technology. It creates authenticity and privacy for identity using encryption algorithms. Additionally, it serves as a decentralized protocol for joint control and verification of transactions, where blocks are connected in the chronological order of their occurrence, providing a way to analyze transactions. Information will be in digital media, meaning the elimination of manual and paper documents. Blockchain technology represents the capability to track and transfer value in the form of assets and/or funds securely, with it being displayed promptly and on the same lines as information transmission using technology. This could bring about radical changes in the way businesses are conducted, altering not only the nature of individual institutions but entire industries and their supply chains. Data recording as an advanced ledger containing exchanges, confirmations, contracts, and invoices for more than a few thousand computers is thus compiled into limited and encrypted obstacles in a chain that uses complex accounts. This ledger can be shared, updated, and changed by majority consensus. In other words, there is the possibility of verifying the accuracy of records without using central authority. Consequently, it changes the way accounting and auditing are traditionally conducted (Anit *et al*., 2019: 1) [6].

Secondly: Mechanism of Blockchain Technology

Blockchain technology is a special type of database that fundamentally differs from existing technologies due to its decentralized data storage. This is crucial as data storage in blockchain is distributed across many points spread throughout the network, called nodes. Current systems, on the other hand, store their data on centralized specialized devices known as servers, as illustrated in Figure (1) below.

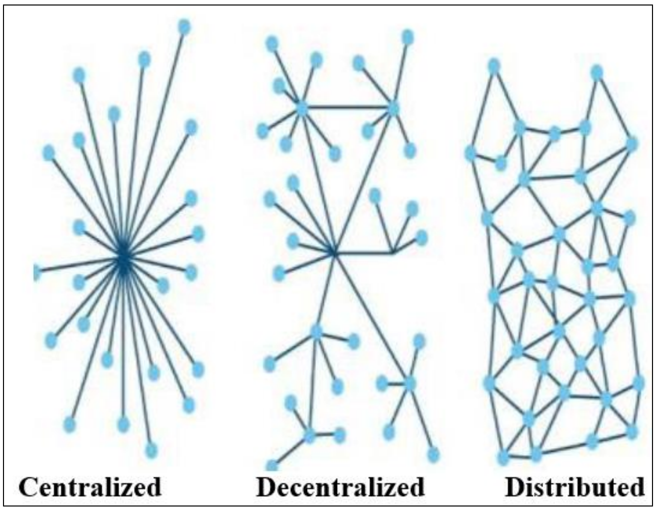

Fig 1: Storage Systems in Blockchain Technology

Source: Ahmed, Munir Maher. "Blockchain Technology and Its Impact on the Islamic Finance Sector."

University of Malaya Research Journal, Kuala Lumpur, Malaysia, 2018, p. 7.

The points illustrated in Figure (1) are called nodes, which are high-capacity computing devices capable of storage and processing. Nodes are divided into two types: heavy nodes and light nodes. Their main task is to verify the authenticity of transactions occurring within the network, enforcing them based on consensus rules, in exchange for a reward determined by the system. These nodes encrypt each transaction and link it to the previous one using encryption technology. They also prevent tampering, as depicted in Figure (2), which shows the interconnection of blocks through the use of a public key for identification across the network and a private key owned solely by the transaction initiator. This encryption is carried out using ECC (Elliptic Curve Cryptography) for secure data transfer, a technique widely adopted by financial institutions worldwide to safeguard their data and privacy.

Blockchain technology fundamentally operates on the concept of majority consensus in building its network. If any attempt is made to disrupt, breach, or fabricate information within the system, self-executing commands follow the consensus rule, which dictates following the longest chain of verified transactions approved by all nodes in the network. Any transaction not unanimously verified for its authenticity and accuracy is considered aberrant and is not adopted by the system (Ahmed; 2018: 7-9) [1].

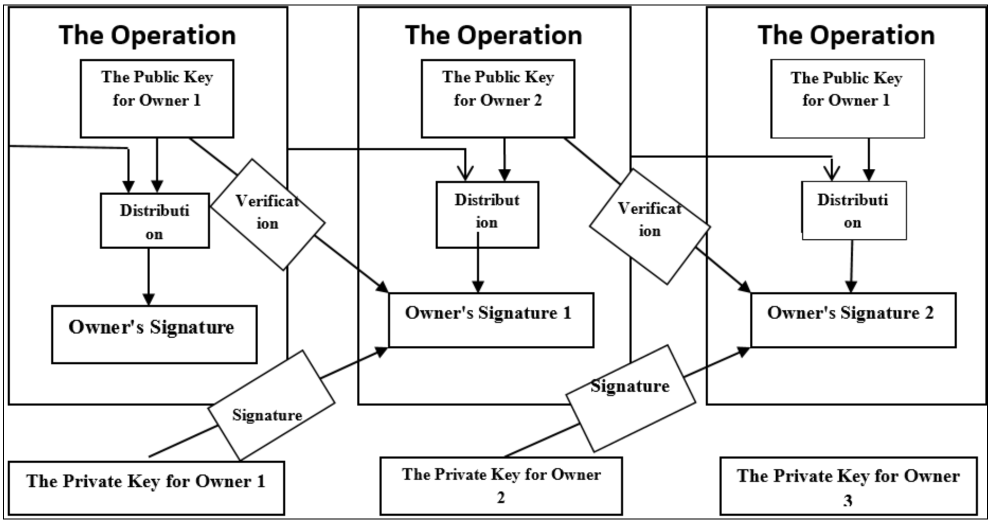

Fig 2: Interconnection of Blocks within Blockchain Technology

Source: Ahmed, Munir Maher. "Blockchain Technology and Its Impact on the Islamic Finance Sector." **University of Malaya Research Journal, Kuala Lumpur, Malaysia, 2018, p. 8.**

Thirdly: Characteristics of Blockchain Technology

Blockchain technology simplifies the following aspects (Anit *et al*., 2019: 1) [6]:

1. **Logistics:** By increasing real-time visibility, efficiency, transparency, verifiability, and thus reducing costs.
2. **Asset Aggregation:** By making assets non-replicable and reducing transportation fees, hence reducing disputes.
3. **Capital Market:** By increasing settlement time, altering credit flows, nullifying settlement costs through transparent and verifiable records.

Ahmed (2018: 12-15) [1] identifies a set of characteristics unique to Blockchain technology that enable the development of its applications

1. Distributed & Decentralized: Blockchain technology relies on a distributed and decentralized network where data storage, verification, processing, and transfer are not dependent on a central authority.
2. Open Source: Meaning the technology is open to anyone, allowing its use in any desired application by individuals.
3. Immutable: Records are preserved in a state where changes are not intended. This is pivotal in voting, registration, and property transfer operations.
4. Transparent: Everyone has the ability to access information intended to be transparent.
5. Autonomy: Each node in the network is independent and unaffected by others.
6. Efficiency: Achieved through:

- **Speed:** Faster data transfer compared to current systems.
- **Cost Reduction:** Automation of processes eliminates the need for compliance officers, who perform routine tasks that computers can perform faster and more accurately.
- **Security:** No recorded instances of hacking have been proven so far, while many cases of bank and operational system breaches have been documented.

Others argue that Blockchain technology possesses the following characteristics (Beti Cung; 2018) [7].

1. **Scalability:** Blockchain technology requires all participants to maintain up-to-date copies, meaning the database itself is held by thousands of nodes. This is somewhat inefficient and contradicts the logic behind cloud computing, which leans towards a single database accessible by multiple nodes. It's not necessary for these nodes to retain their own copy of the database.
2. **Anonymity:** In the early days of Blockchain implementation, it was associated with illicit activities, as with any emerging technology. Despite the public availability of Blockchain records, the global and decentralized nature of the network means that no entity can shut it down, freeze funds, or reverse transactions. In those early days, it became very difficult to link a Bitcoin wallet to a specific individual, even if there was evidence of the wallet being used for illicit activities.
3. **Economic Viability:** One of the keys to making Blockchain technology applicable in the long term is ensuring that transactions can be executed with minimal fees. High fees make it difficult to persuade potential users to join Blockchain usage.
4. **Fourthly:** Smart Contracts and Transition from Paper-based to Electronic Records.

Smart contracts are a method that enables the execution of deals and the inclusion of securing all details by relying on the features of Blockchain such as fairness and security. These contracts can range from simple matters like a receipt or a financial option contract, to more complex instruments that make them appear more like a mini-computer program than a conventional financial tool (Viney *et al*. 2017: 7) [5]. Others argue that smart contracts automate the contracting process, enabling the execution and performance of contractual promises without human intervention. This contributes to reducing trade management costs, minimizing human errors, accelerating contract execution, and providing more secure documentation. However, despite the numerous advantages, the most significant drawbacks are the difficulty of changing these standardized contracts when needed, resulting in losses due to the inability to accommodate exceptional cases, the difficulty of immediate modification for adaptation, and the challenge of resorting to the judiciary in case of disputes, as well as the transfer of power to programmers, making contracts submissive rather than smart (Ahmed; 2018: 13) [1].

Blockchain technology can be viewed as a ledger or a master ledger, where features such as fairness and stability are considered suitable advantages expected to be available in record systems, especially public records. This technology provides the opportunity to verify whether an element is uniquely proven, such as a single owner of a specific car. This feature is useful and appropriate internationally within a particular state, as it assists in routine operations such as asset transfers. Moreover, it is crucial from an international perspective as it provides a single source of truth when conducting transactions in an unfamiliar environment (Viney *et al*. 2017: 7) [5].

The first step in transitioning from a paper-based system to an automated system does not necessarily have to involve a shared ledger for all accounting entries. Therefore, Blockchain technology will have high-level significance as it will represent a source of trust. Consequently, accounting procedures will be gradually completed, starting with securing the integrity of records, followed by audit trails that can be tracked with high precision. Eventually, the transition to what is known as automated auditing may become a reality. Thus, we will notice that Blockchain technology has the ability to change the nature of accounting today, meaning it serves as a means to automate accounting operations to a large extent according to regulatory requirements. There are many starting points towards harnessing this technology, which may lead to a series of new applications built on each other, resulting in unprecedented new services (Deloitte; 2016: 4-5) [8].

Chapter Three: Evolution of Accounting Record-Keeping Process

First: Bookkeeping under Single Entry Theory

The single entry theory of bookkeeping deals with only one dimension, representing the rights and obligations of the owner to determine capital. In other words, bookkeeping under single entry theory relies on a single dimension representing the maximization of the owner's wealth. Here, the primary reliance will be on the equation of the balance sheet alone. In order to determine the operating result or activity under single entry bookkeeping, the following equations are used:

Capital at the beginning of the period = Assets at the beginning of the period - Liabilities at the beginning of the period

Capital at the end of the period = Assets at the end of the period - Liabilities at the end of the period

The operating result or activity is determined by comparing the capital at the beginning of the period with the capital at the end of the period, taking into account additions and withdrawals.

The activity result = Capital at the end of the period - Capital at the beginning of the period - Additions + Withdrawals

If there is an increase in capital at the end of the period compared to the beginning of the period, this means that the result is net profit. Conversely, if there is a decrease in capital at the end of the period compared to the beginning of the period, then the result will be a net loss. This model of record-keeping is commonly used in individual projects only and is not suitable for large or medium-sized projects due to the difficulty of determining business results and financial position fairly (Ijiri; 1986: 745-746) [9].

Secondly: Bookkeeping under Double Entry Theory

Vernon Kam asserted in his book that there are two fundamental reasons for the emergence of double-entry bookkeeping in the thirteenth century AD:

The first reason is that double-entry bookkeeping is a natural outcome of advancement and response to the needs of that time.

The second reason is a special situation in the city-states of Italy that necessitated the emergence of double-entry bookkeeping at that time, in light of three social forces: spiritual capitalism, economic-political events, and technological inventions (Kam; 2000: 22-23).

Double-entry bookkeeping gained great fame with the publication of Luca Pacioli's book titled "A Study in Mathematics, Analytical Geometry, Proportion, and Proportionality" in 1494 AD. It reflects the formula "debit what comes in, credit what goes out" and the formula "credit what is given, debit what is received". It is a two-dimensional system that allows classification into a set of categories, meaning it requires binary classification. Thus, we find that the logic behind the double-entry system is based on the principle of duality "every transaction or flow has two aspects: debit and credit" (Belkaoui; 2009: 93-94).

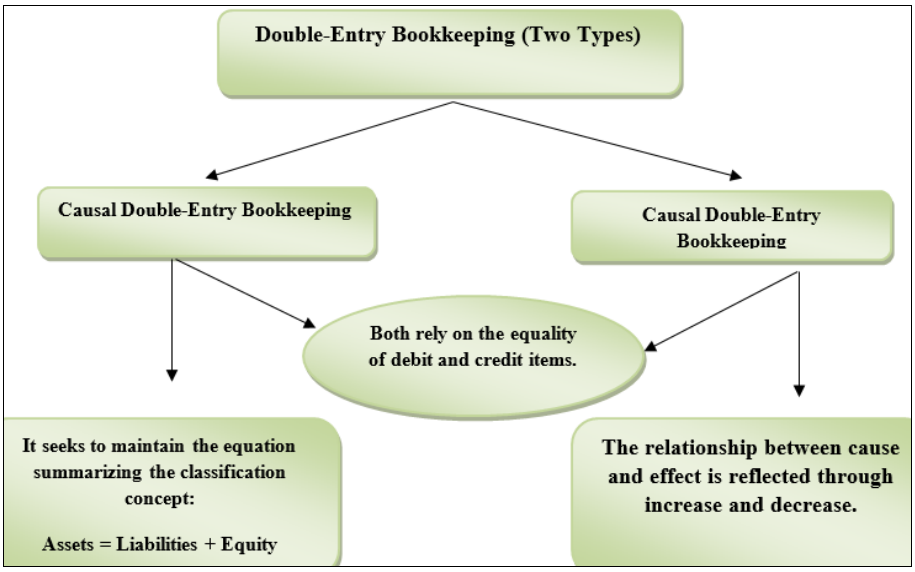

Fig 3: Logic behind Double-Entry Bookkeeping

Source (By the researcher): Belkaoui, Ahmed Riadhi. "Accounting Theory". **Translated by Riyadh Al-Abdullah. Dar Al-Yazouri Scientific Publishing and Distribution, Amman, Jordan, 2009, p. 94.**

Thirdly: Bookkeeping under Triple entry theory

Bookkeeping under double entry theory does not represent a closed system that rejects any expansion. On the contrary, it is an open and expandable system with the ability to expand towards bookkeeping under triple entry theory by integrating a new dimension or axis. This requires a framework containing analytical details about the mutual relationship between these three dimensions: wealth (measured in dollars), momentum (measured in dollars per month), and power (measured in dollars monthly per month). Here, the concept will shift from debit = credit to another concept, debit = credit = credit. The first dimension, wealth, is accessed through the relationship between assets and liabilities (after maximizing the wealth aspect in bookkeeping under single entry theory), while the second dimension, momentum, is accessed through the relationship between expenses and revenues. The second dimension represents income, which is a tool to determine the relationship between revenues and gains on one hand, and expenses and losses on the other hand, and it is used as a second dimension in bookkeeping under double entry theory, representing the fundamental basis of the double entry concept. Starting from it and expanding towards accounting for power as a third dimension, also known as negative recording, the relationship between these three dimensions and the measurements for each dimension are illustrated in Figure (4) below.

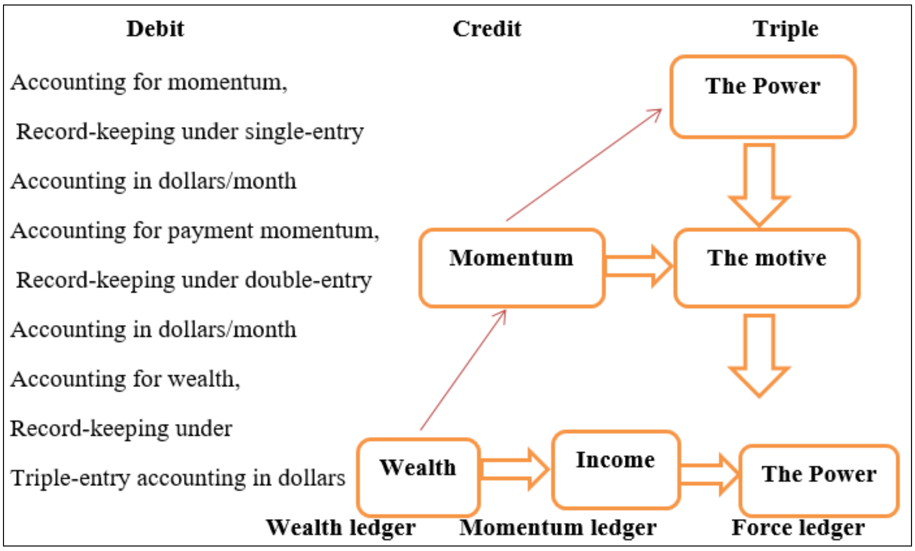

Fig 4: The Relationship between the Three Dimensions for Bookkeeping under Triple Entry Theory

Reference: Ijiri, Yuji, A Framework for Triple – Entry Bookkeeping, The Accounting Review, Vol. LXI, No 4, USA, 1986, p749.

Fourthly: The Relationship between Blockchain Technology and Triple Entry Theory

Developments in accounting have been limited since the adoption of Double Entry Bookkeeping. While Enterprise Resource Planning systems and the digitization of accounting have provided many benefits and efficiencies, they still rely on the same old Double Entry system. Consequently, they are susceptible to the same risks and inefficiencies of the old system. Future developments have made Triple Entry Accounting a reality that will change entire industries, shifting demands towards digital knowledge in various sectors. This includes significant reductions in cases of internal and external fraud, increased trust and utility in financial information, as well as impacts on automation and reliability (Mahir & Rasmus, 2018: 45) [10].

The researchers argue that the foundation of Blockchain technology relies on encryption using a sophisticated mathematical system that is difficult to breach or tamper with, which is fundamentally different from the encryption used in Triple Entry Bookkeeping. The latter relies on three new terms used to express the mechanism of implementing the three dimensions.

Chapter Four... Presentation and Analysis of Survey Results

First: Descriptive Statistics Results

This chapter aims to present and analyze the results of the field study conducted by the researchers, using descriptive statistical tools. This includes the mean to determine the extent of agreement of the selected sample with the survey questions. Standard deviation was used to estimate the absolute dispersion of the sample respondents' answers around the mean to assess relative dispersion. The researchers used a Likert scale, which is an ordinal scale, with numbers entered into the Statistical Package for the Social Sciences (SPSS) representing weights (Strongly Agree=5, Agree=4, Neutral=3, Disagree=2, Strongly Disagree=1). The researchers identified the level of responses based on the arithmetic means by assigning them to any category. As the research questionnaire relies on a Likert five-point scale, the researchers determined the weighted mean of the scale by first determining the length of the interval, which is equal to the result of dividing 4 by 5. This is because 4 represents the number of intervals (from 1 to 2 is the first interval, from 2 to 3 is the second interval, from 3 to 4 is the third interval, and from 4 to 5 is the fourth interval), while 5 represents the number of choices. Dividing 4 by 5 yields an interval length (category) of 0.8, and the distribution is according to Table (4).

Table 4: Items of the Likert Scale

S	Weighted Mean	Level
1	1 to 1.79	Strongly Disagree
2	1.8 to 2.59	Disagree
3	2.6 to 3.39	Neutral
4	3.4 to 4.19	Agree
5	4.2 to 5	Strongly Agree

***Source*:** Prepared by the researchers.

The questionnaire consisted of 27 questions divided into two axes. The first axis was for the first variable labeled "Blockchain Technology," which included 14 questions. The second axis included the second variable labeled "Future of Accounting Record-Keeping," comprising 13 questions. A total of 43 questionnaires were received through an electronically designed survey. The arithmetic mean and standard deviation for the total variables are shown in Table (5).

Table 5: Overall Arithmetic Means and Standard Deviations

Scale / Variables	Arithmetic Mean	Sandard Deviation	Result
Blockchain Technology	4.303	0.802	Agree
Future of Accounting Record-Keeping	3.395	0.849	Agree

***Source*:** Compiled by the researchers using SPSS software.

Through observation of Table 5, it is noted that the arithmetic mean for the first dimension (Blockchain Technology) and the second dimension (Future of Accounting Records) were 4.303 and 3.395, respectively. These means are higher than the hypothetical mean of 3. Additionally, the standard deviations were 0.802 and 0.849, respectively. The results confirm a general agreement among the sample participants regarding the posed questions, as evidenced by the arithmetic means of both variables and the low dispersion in the sample responses indicated by the standard deviations of all dimensions as well.

Firstly, presenting and interpreting the results of the arithmetic mean and standard deviation for the first dimension labeled as "Blockchain Technology," Table 6 illustrates the arithmetic means and the extent of deviation from their mean through the standard deviations for the first dimension of the questionnaire distributed among the sample participants.

Table 6: Ratios, Frequencies, Means, and Standard Deviations for Axis One

S	The Questions	Scale	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Arithmetic Mean	Standard Deviation	Result
1	Blockchain technology serves as a distributed database for records.	Frequency	12	16	12	3	0	3.849	0.486	Agree
		Percentage	27.9%	37.2%	27.9%	7%	0%			
2	Blockchain technology represents the general ledger for all transactions using Bitcoin currency.	Frequency	4	24	10	5	0	3.628	0.817	Agree
		Percentage	9.3%	55.8%	23.3%	11.6%	0%			
3	Blockchain technology continuously grows as miners add new blocks to record the latest transactions.	Frequency	13	17	8	5	0	3.884	0.981	Agree
		Percentage	30.2%	39.5%	18.6%	11.6%	0%			
4	Blockchain technology is a secure digital transaction technology aimed at ensuring fair practices in today's globalized world.	Frequency	12	16	12	3	0	3.860	0.915	Agree
		Percentage	27.9%	37.2%	27.9%	7%	0%			
5	This technology processes transactions and stores data similarly to any other computer	Frequency	8	17	17	1	0	3.744	0.789	Agree
		Percentage	18.6%	39.5%	39.5%	2.3%	0%			

	system but in a unique way that offers remarkable benefits, allowing us to overcome today's challenges.									
6	There is no central authority for Blockchain technology worldwide; all transactions occur with the same speed, regardless of their origin.	Frequency	11	25	5	2	0	4.047	0.754	Agree
		Percentage	25.6%	58.1%	11.6%	4.7%	0%			
7	The primary goal of this permanent record is to protect transactions. If one computer involved in processing the transactions worldwide is hacked, it will not affect the other computers connected to the Blockchain technology.	Frequency	9	22	11	1	0	3.907	0.750	Agree
		Percentage	20.9%	51.2%	25.6%	2.3%	0%			
8	No party has control over Blockchain technology globally; the chain is managed through fair consensus, providing all parties with equal levels of responsibility and capability.	Frequency	16	23	2	2	0	4.233	0.750	Strongly Agree
		Percentage	37.2%	53.5%	4.7%	4.7%	0%			
9	This technology represents a database that uses encryption mechanisms to build a decentralized, distributed, and interlinked electronic ledger, organizing data in a chronological, non-modifiable, or manipulable manner.	Frequency	6	19	14	4	0	3.628	0.845	Agree
		Percentage	14%	44.2%	32.6%	9.3%	0%			
1	If any attempt is made to destroy or hack the system or build false information, self-executing commands follow the consensus order.	Frequency	5	20	16	1	1	3.628	0.817	Agree
		Percentage	11.6%	46.5%	37.2%	2.3%	2.3%			
1	Any operation not agreed upon for its authenticity and accuracy is rejected by the system and considered aberrant, not to be built upon or relied upon.	Frequency	5	7	14	13	4	2.907	1.150	Neutral
		Percentage	11.6%	16.3%	32.6%	30.2%	9.3%			
1	Implementing Blockchain technology leads to increased real-time clarity, efficiency, transparency, verifiability, and thus cost reduction.	Frequency	19	18	4	2	0	4.256	0.819	Strongly Agree
		Percentage	44.2%	41.9%	9.3%	4.7%	0%			
1	When Blockchain technology is implemented, it becomes incompatible with raising transport fees, thereby reducing disputes.	Frequency	15	21	6	1	0	4.163	0.753	Agree
		Percentage	34.9%	48.9%	14.0%	2.3%	0%			
1	Implementing this technology will increase settlement time, changing credit flows, and nullifying settlement costs by making records transparent and verifiable.	Frequency	6	23	9	5	0	3.698	0.860	Agree
		Percentage	14.0%	53.5%	20.9%	11.6%	0%			

Prepared by the researchers using SPSS software.

Based on Table (6), it appears that the percentage of respondents who strongly agreed with the questions in the axis was (68%), while the percentage of those who disagreed was (9%). Neutral responses accounted for (23%). The overall mean for the items of this variable was (4.303) for the first axis, which is higher than the hypothetical mean of (3) out of (5). There was acceptable consistency in responses as indicated by the standard deviation of (0.802). These results suggest an agreement regarding the impact of Blockchain technology on the future of accounting record-keeping. Below is Table (7), illustrating the frequencies and overall percentages for the first axis.

Prepared by the researchers using SPSS software:

Secondly, presenting and interpreting the results of the mean and standard deviation for the second axis labeled "Future of Accounting Records Management," the table (8) illustrates the arithmetic means and the extent of deviation of responses from their mean through the standard deviations for the second axis of the questionnaire distributed among the sample members.

Table 7: Frequencies and Overall Percentages for Axis One

Scale	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Frequency	141	268	140	48	5	602
Percentage	23%	45%	23%	8%	1%	100%

Table 8: Frequencies, Ratios, Means, and Standard Deviations for the Second Axis

S	questions	the scale	Totally agree	I agree	Neutral	I do not agree	I totally disagree	Arithmetic mean	standard deviation	The result
1	The process of keeping records under a single entry depends on one dimension, which is maximizing the owner's wealth, and there is a possibility of expanding towards keeping records under a double entry.	Repetition	7	20	14	2	0	3.766	0.568	I agree
		The ratio	16.3%	46.5%	32.6%	4.7%	0%			
2	The process of keeping records under double entry depends on two dimensions: maximizing the owner's wealth and determining profit, and there is a possibility of expanding towards keeping records under triple entry.	Repetition	8	29	6	0	0	4.047	0.575	I agree
		The ratio	18.6%	67.45	14%	0%	0%			
3	The process of record-keeping under the triple entrant depends on three dimensions: Wealth, Momentum and Force. There is a possibility of expanding to record-keeping under the quadruple entrant.	Repetition	10	17	16	0	0	3.860	0.774	I agree
		The ratio	23.3%	39.5%	37.2%	0%	0%			
4	The process of keeping records under triple entry requires the use of vocabulary that differs from the familiar vocabulary in accounting.	Repetition	10	29	2	2	0	4.093	0.683	I agree
		The ratio	23.3%	67.4%	4.7%	4.7%	0%			
5	The process of keeping records under triple logging requires encryption using a special vocabulary that differs from the encryption used when applying blockchain technology.	Repetition	6	17	16	4	0	3.581	0.851	I agree
		The ratio	14%	39.5%	37.2%	9.3%	0%			
6	In order for us to move to having four dimensions, we will need a new qualitative shift in the technological development accompanying the record-keeping process	Repetition	7	20	14	2	0	3.744	0.789	I agree
		The ratio	16.3%	46.5%	32.6%	4.7%	0%			
7	Before the advent of Block Chain technology, there was no possibility of implementing the process of record keeping under the triple entrant.	Repetition	6	20	13	4	0	3.977	1.011	I agree
		The ratio	14%	46.5%	30.2%	9.3%	0%			
8	With the emergence of blockchain technology, it has become possible to easily implement blockchain technology.	Repetition	5	18	16	4	0	3.744	0.875	I agree
		The ratio	11.6%	41.9%	37.2%	9.3%	0%			
9	There is potential to apply triple-entry record keeping in the local environment.	Repetition	8	19	14	2	0	3.814	0.879	I agree
		The ratio	18.6%	44.2%	32.6%	4.7%	0%			
10	Implementing record keeping under triple registry requires cadres with advanced scientific qualifications.	Repetition	7	21	11	4	0	3.721	0.854	I agree
		The ratio	16.3%	48.8%	25.6%	9.3%	0%			
11	There is a need to teach the process of record keeping under triple enrolment to graduate students.	Repetition	9	21	9	4	0	3.767	0.811	I agree
		The ratio	20.9%	48.8%	20.9%	9.3%	0%			
12	There is a need for attempts to implement the process of record keeping under triple entry in auditing offices and the provision of financial and accounting services	Repetition	8	20	11	4	0	3.558	0.825	I agree
		The ratio	18.6%	46.5%	25.6%	9.3%	0%			
13	The move towards using new vocabulary in accounting science will lead theorists towards trying to develop accounting science	Repetition	15	18	4	6	0	3.651	0.841	I agree
		The ratio	34.9%	41.9%	9.3%	14%	0%			

The researchers prepared the data by using the SPSS software

Based on Table 8, it is evident that the percentage of those who agreed on the level of questions in the second axis was 67%, compared to a percentage of 7% for those who disagreed. Neutral responses accounted for 26%. The overall mean for the items of this variable was 3.395 for the second axis, which is higher than the assumed mean of 3 out of 5. There is a consistent average in responses indicated by a standard deviation rate of 84.9%. These results suggest an agreement regarding the impact of blockchain technology on the future of accounting records management. Below is Table 9, which illustrates the frequencies and overall percentages for the second axis.

Table 9: Frequencies and Overall Percentages for the Second Axis

Scale	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Frequency	106	269	146	38	0	559
Percentage	19%	48%	26%	7%	0%	100%

The researchers prepared the data by using the SPSS software: Secondly, testing and analyzing the correlation between research variables:

The first step in determining the relationship between variables is to identify the basic research variables and the nature of the relationship between them. We have two variables: the first is the independent variable represented by blockchain technology, and the second variable is the dependent variable represented by the future of accounting record-keeping. The validity of the research hypotheses related to the correlation between research variables, formulated based on the research problem, was verified. Statistical methods specific to the Pearson correlation coefficient were used to determine the types of relationships between research variables. The statistical program (SPSS) was used to test the correlation relationships between the main variables. Table (10) illustrates the results of the Pearson correlation coefficient values for the assumed research variables.

Table 10: Pearson Correlation Coefficients between Research Variables

Dependent Variable / Independent Variable	Future of Accounting Recordkeeping	Level of Morale
Blockchain Technology	0.065	0.679

The researchers prepared the data by using the SPSS software

From Table (10), it is evident that the correlation coefficient between the independent variable represented by "Blockchain Technology" and the dependent variable represented by "Future of Accounting Record Keeping" is 0.065, with a significance level of 0.679, which is greater than the significance level of 0.05. This indicates a weak positive correlation between the research variables.

Thirdly, testing and analyzing the regression relationship between the main research variables:

An investigation was conducted into the impact relationship according to the multiple regression equation between the independent variable represented by "Blockchain Technology" and the dependent variable represented by "Future of Accounting Record Keeping". The results of the regression equation obtained from the questionnaire conducted by the researchers are shown in Table (11).

Table 11: Regression Coefficients

Dependent Variable / Independent Variable	Future of Accounting Recordkeeping			
	Statistical Indicators			
Blockchain Technology	β	Sig	²R	F
	0.65	0.679	0.04	0.174

The researchers prepared the data by using the SPSS software

From Table (11), the computed value of F was found to be (0.174), which is smaller than the critical value of F at (4.96) at a significance level of (0.679). This result indicates that there is an effect of the independent variable (Blockchain Technology) on the dependent variable (Future of Accounting Record Keeping). The value of R-squared (R^2) was (0.004), indicating that the independent variable (Blockchain Technology) explains 0.4% of the variance in the dependent variable (Future of Accounting Record Keeping). The remaining proportion, which is (96.06%), is attributed to other variables not included in the regression model by the researchers.

The coefficient of the slope of the regression angle (β) was (0.065), indicating that a unit change in the independent variable would correspond to a 6.5% change. The significance level was (0.679), which is greater than the significance level of (0.05). This result indicates the significance of the model and confirms the absence of a significant relationship between the explanatory variable and the dependent variable.

Fourthly: Hypothesis Testing

Based on the results presented above, we proceed to reject the main hypothesis, which stated:

Main Hypothesis: There is a significant relationship between Blockchain Technology and the Future of Accounting Record Keeping.

From this main hypothesis, the following sub-hypotheses emerged:

Sub-Hypothesis 1: There is a significant correlation between Blockchain Technology and the Future of Accounting Record Keeping.

Sub-Hypothesis 2: There is a significant causal relationship between Blockchain Technology and the Future of Accounting Record Keeping.

Chapter four Conclusions and Recommendations

First: Conclusions

1. Blockchain technology serves as a secure digital transaction technology aimed at ensuring fair practices in the current globalized world. This technology processes transactions and stores data similarly to any other computer system but in a unique way that offers remarkable benefits, allowing us to overcome today's challenges.
2. This technology has no central authority, so there is no central clearinghouse where computers need to be physically close. All transactions are processed with the same speed regardless of their origin location in the world.
3. Blockchain technology represents the general ledger for all transactions made using Bitcoin. This permanent record aims to protect transactions. Since many computers worldwide participate in processing a transaction, if one of these computers is hacked, it will not affect the other computers connected to the blockchain technology.
4. To gain the trust of citizens, the government must reciprocate trust and be more transparent through various visual and non-visual means to regain lost trust. The government should be open to everyone and demonstrate a high level of accountability and transparency.
5. This technology represents a database that uses encryption mechanisms to build a decentralized, distributed, and interrelated electronic ledger that organizes data in a historical, non-modifiable, or manipulable manner. If there is any attempt to destroy

or hack the system or build false information, self-executing commands follow the consensus order.
6. Implementing blockchain technology leads to increased real-time visibility, efficiency, transparency, and verifiability, thus reducing costs.
7. Implementing this technology will increase settlement time, altering credit flows and nullifying settlement costs by making records transparent and verifiable.
8. The process of recording transactions using triple-entry accounting relies on three dimensions: wealth, momentum, and force, with the possibility of expanding towards quadruple-entry accounting.

Second: Recommendations
1. Raise awareness among various segments of society, especially relevant professional entities, about the benefits of implementing blockchain technology.
2. Provide specialized training courses and conduct workshops on the capability of the local environment to implement blockchain technology and attempt to leverage the numerous advantages of applying this technology.
3. Study the theoretical aspect of triple-entry accounting in accounting departments in faculties of management and economics, whether in undergraduate or graduate studies.
4. Encourage graduate students to delve into such new topics and attempt to link them with new variables related to blockchain technology or triple-entry accounting.
5. Provide all necessary resources in our local environment to work on implementing blockchain technology to keep up with recent technological advancements.

References

1. Ahmed, Maher M. Blockchain Technology and Its Impact on the Islamic Finance Sector. Universiti Malaya Research, Kuala Lumpur, Malaysia; c2018.
2. Belqaoui, Riadi A. Accounting Theory: Riyadh Abdullah's Arabic Version. Dar Al-Yazouri Scientific Publishing and Distribution, Amman, Jordan; c2009.
3. Kam, Vernon. Accounting Theory: Riyadh Abdullah's Arabic Version. Dar Al-Kitab for Printing and Publishing, Mosul, Iraq; c2000.
4. Kubeek Services Arabia. Blockchain: The Heart of the Global Financial System. United Arab Emirates; c2018.
5. Vinay Gupta. Consensus: Building the Future for a Hyper-Connected World through Blockchain Technologies. World Government Summit; c2017.
6. Simon AD, Kasale S, Manish PM. "Blockchain Technology in Accounting & Audit." IOSR Journal of Business and Management. 2019, 21(1). ISSN: 2278-487X, p-ISSN: 2319-7668,
7. Cung B. What is the Blockchain Technology. Cbinsights; c2018.
8. Deloitte. Blockchain Technology: A Game-Changer in Accounting?; c2016.
9. Ijiri, Yuji. A Framework for Triple-Entry Bookkeeping. The Accounting Review, USA; c1986. LXI:4.
10. Mahir, Hambiralovic, Karlsson R. Blockchain Accounting in a Triple-Entry System. Department of Business Administration, Bachelor's in Financial Accounting & Corporate Finance; c2018.
11. Swan M. Blockchain Blueprint for a New Economy. O'Reilly Media, Inc., United States of America; c2015.
12. Crosby M, Nachiappan, Pattanayak P. Blockchain Technology Beyond Bitcoin. Sutardja Center for Entrepreneurship & Technology Technical Report; c2015.