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THE ROLE OF BLOCKCHAIN IN INITIATING DIGITAL ACCOUNTING TRANSFORMATION

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Abstract

Blockchain has an important role in initiating digital accounting transformation. In the digital era, technology has changed many aspects of life, including the world of financial accounting. The role of blockchain in the transformation of financial accounting is very significant. By adopting the latest trends such as cloud accounting, artificial intelligence, and blockchain, companies can gain a competitive advantage. The impact includes increased accuracy, operational efficiency and data security. The use of blockchain in accounting applications is very promising, from simplifying regulatory compliance to improving commonly used double entry bookkeeping. The benefits of blockchain in accounting also include its ability to transparently track the use of supply chain funds, eliminate costs resulting from transactions between bank accounts, and increase security and transparency in accounting information systems. Thus, blockchain provides an opportunity to increase security, transparency and efficiency in accounting information systems, as well as reshape traditional accounting practices in the growing discourse on technology-based transformation in accounting. So, overall, blockchain has a significant role in initiating digital accounting transformation by contributing to increasing security, transparency and efficiency in accounting information systems.

Keywords: Role, blockchain, digital accounting

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INTRODUCTION

In the digital era that continues to develop, blockchain technology has become a hot topic of conversation in various sectors, including the financial industry. Blockchain, as the technology underlying cryptocurrencies such as Bitcoin, has opened up new potential in terms of security, transparency and system reliability. Maiti et al., (2021) showed that bitcoin is the biggest application of blockchain technology that the general public is now aware of. Bitcoin is the first application of blockchain technology, according to Lansiti and R. Lakhani (2017) in the Harvard Business Review. Developed in October 2008 by Satoshi Nakamoto (a pseudonym), it is a virtual currency system that evades central authorities, transfers ownership, and verifies transactions. It is based on a peer-to-peer network over the internet. In an article written by Milosavljevic et al., (2019) it is revealed that an electronic payment what is required is a system based on cryptographic proof, one that does not require the use of middlemen. Blockchain is a technology used to record transactions in a secure, decentralized and transparent manner. Information about these transactions is stored in interconnected blocks and cannot be changed easily. Every block in a chain of blocks has a timestamp and a reference to the block before it "blockchain". This ensures data security and integrity. Blockchain is also not controlled by one party, but is distributed among many computers or "nodes" that work together to verify transactions (Izzo et al., 2022). Desplebin et al., (2021) stated that the blockchain system helps make transactions more open, accountable, safe, fast and efficient. It can replace the bookkeeping function in many accounting systems.

Rapid advancements in digital technology have caused a substantial upheaval in the accounting business in recent years. Traditional accounting methods, characterized by manual data entry and paper/print-based processes, have been replaced by advanced digital technology that offers unprecedented levels of efficiency, accuracy and security (Anis, 2023).

According to Jayasuriya, D. D., & Sims, A. (2023) blockchain is a system in the form of a series of blocks to store every digital transaction. Blockchain is designed to keep records of all transactions that occur so that it is safe and decentralized. This can increase the efficiency of transactions that require a lot of validation so that the inspection process is faster. The existence of Blockchain technology makes transactions that require a lot of validation and verification easier by simplifying the exchange of information, funds, assets, and data. This system provides transparent and lucid transactional data, which

can also be used to identify fraud and errors, because the data that has been sent will be stored permanently and cannot be changed.

The potential of blockchain technology to transform a number of industries has drawn a lot of interest in recent years, including accounting. Traditional accounting systems often face challenges in terms of transparency, security and efficiency. These challenges can lead to errors, fraud, and delays in financial reporting. However, a decentralized, transparent, and secure platform for recording and verifying transactions is provided by blockchain technology. Using the intrinsic qualities of blockchain, such authenticity, transparency, and dependability, this technology can solve some of the issues with conventional accounting systems. According to recent studies, there are a number of advantages to using blockchain technology in accounting (George, K., & Patatoukas, 2021).

Schmitz, J., & Leoni, G. (2019) stated that blockchain has an important role in initiating digital accounting transformation. In the digital era, technology has changed many aspects of life, including the world of financial accounting. The role of blockchain in the transformation of financial accounting is very significant. By adopting the latest trends such as cloud accounting, artificial intelligence, and blockchain, companies can gain a competitive advantage. The impact includes increased accuracy, operational efficiency and data security. Blockchain applications in accounting include immutable record keeping, real-time auditing, fraud detection, and increasing the security of financial transactions. Blockchain provides a decentralized ledger/ledger that cannot be manipulated so as to increase the transparency and the safety of monetary exchanges. Blockchain technology has great promise for accounting applications, from streamlining regulatory compliance to enhancing double entry bookkeeping, which is widely used.

The benefits of blockchain in accounting also include its ability to transparently track the use of supply chain funds, eliminate costs resulting from transactions between bank accounts, and increase security and transparency in accounting information systems. Thus, blockchain provides an opportunity to increase security, transparency and efficiency in accounting information systems, as well as reshape traditional accounting practices in the growing discourse on technology-based transformation in accounting. So, overall, blockchain has a significant role in initiating digital accounting transformation by contributing to increasing security, transparency and efficiency in accounting information systems (Yıldırım, A. A., & Kelten, 2021).

RESEARCH METHOD

This research in-depth investigates the role of blockchain in initiating digital accounting transformation using a literature review approach. The results include a thorough understanding of the role of blockchain in initiating digital accounting transformation. Literature analysis involves an in-depth review of literature related to the definition of blockchain, the advantages of blockchain in digital accounting, the application of blockchain in accounting, the potential and challenges of blockchain technology in digital accounting. With a strong conceptual foundation, this research makes an important contribution to enriching the discussion regarding the role of blockchain in initiating digital accounting transformation in this article.

RESULT AND DISCUSSION

Blockchain Definition

Blockchain is a decentralized database system used to record digital transactions safely and transparently. This system works by storing each transaction in blocks that are connected to each other and interact with each other via a computer network. Blockchain is a digital system that allows the creation of a distributed ledger that allows several users in a peer-to-peer network to exchange assets and information directly without the use of a reliable middleman (Maesa et al., 2019). Blockchain has characteristics that differentiate it from other technologies. These characteristics include a decentralised shared ledger that records transactions between parties, enables multiple authors to record transactions, removes the need for trust, validates transactions by parties that don't need to be individually trusted, and is unmanageable (Ghiro et al., 2021). According to Sahai, A., & Pandey, R. (2020) blockchain characteristics include: a) immutable digital records, where transaction Activities are unchangeable and based on cryptographic principles; b) consensus mechanisms, in which network members collaborate to execute or add transactions to the blockchain system without the assistance of a third party; c) identity and ownership, in which the system uses cryptographic concepts to demonstrate its ownership and prove its ability to interact with the blockchain.

According to Ghiro et al., (2021) blockchain is a collection of data that is linked using cryptographic techniques. Blockchain is also a chain on a distributed network is a list of multiple parties sharing an encrypted digital database that is kept in blocks. Each and every network transaction is logged, checked, and kept in a database. Transactions are propagated to all participants

in the network, a transaction log is created and cannot be changed. The term "blockchain technology" was initially used in 1991 by Stuart Haber and W. Scott Stornetta. It was later developed by an unidentified individual by the name of Satoshi Nakamoto, and it served as the foundation for the development of the well-known cryptocurrency known as Bitcoin. With the popularity of bitcoin and digital currencies, blockchain technology is starting to be applied in various systems and fields other than finance. Blockchain technology which is decentralized and safe in data manipulation and hacking makes blockchain very attractive to apply in the Internet of Things (IoT) era.

The blockchain work process begins when a transaction occurs. When someone makes a transaction, the transaction information will be distributed to a peer-to-peer (P2P) network consisting of various nodes (individual computers). In a decentralized blockchain system, there is no reliance on a central authority to validate the authenticity of the data. Instead, a validation process occurs between the nodes to verify the validity of the information. Once a transaction is verified by the nodes and proven valid, it is combined with other transactions to form a new block of data in the main ledger. This new data block is then added to the blockchain, where the information is stored permanently and distributed to all participants in the network. The information in the blockchain can be accessed by anyone who has access to the network. Thus, the transaction is complete (Queiroz, M. M., Telles, R., & Bonilla, 2020).

Blockchain Advantages in Digital Accounting

According to Fullana, O., & Ruiz, J. (2021) applying blockchain in the world of digital accounting, the economy will become more open and advanced. Maximum security, speed and ease of transactions are things that must be prioritized in an accounting system. In order to achieve this goal, elements of the financial industry are starting to look at blockchain. Blockchain technology was created by Satoshi Nakamoto in 2008. Then, it was first used for the cryptocurrency bitcoin.

The following are the advantages of blockchain in digital accounting (Bonsón et al., 2019):

1. Providing a Wide Range in Financial Access
   Every institutional organization or company certainly needs an accountable accounting system. In this case, blockchain has an important role as a real time accounting technology with intensive monitoring. All monitoring is done through its own server, not a central server. That way, blockchain becomes a bridge for anyone, whether they trust each other or not.

The next impact is that the application of blockchain can attract investment from multinational bankers, venture capitalists and the public. This means that organizations or companies that use blockchain-based accounting can achieve wider financial access. Of course, with wider access to finance, organizations or companies can grow rapidly. There are no more restrictions, worries when making transactions, and worries about fraud among investors and recipients of capital. However, the challenge is that blockchain users must be careful in adding nodes to the network. Make sure, you recognize the node. The reason is, the more nodes that access data, the less confidentiality the blockchain will have.

2. Guarantee Safe Transactions
   Blockchain works with a unique decentralized cryptographic technique. When a particular block is used by someone, the system automatically provides validation. This means that other people do not claim the blockchain code. Not only that, a blockchain-based accounting system ensures data can be read by several databases. In fact, the identity of a blockchain user or account can be known with a digital signature. This signature is also the key to unlocking data and access history. The security of blockchain users is also guaranteed with digital certificates. The aim is to prevent unauthorized people from accessing data. This is because the work of digital certificates supports individual identification settings.
3. Creating an Accurate and Transparent System
   Accounting accuracy and transparency in organizations and companies is needed to build credibility. If it is only written in a cash book or internal computer, other users automatically cannot see it. Sometimes, this raises suspicions within the company. Therefore, the blockchain records all transactions, stores them permanently, and ensures that all users can see the history. So, is data that is not monitored by a third party still safe? The key to securing data is to increase users. When transactions are distributed to all users, they will be verified through the system. The data that has been verified is then combined with previous records to be linked according to chronology.
4. Reduce Supply Chain Costs
   Supply chain costs are part of company accounting that determines the success of financial management. If there is waste in supply chain costs, the company could experience losses. This is where blockchain accounting comes into play; transparently track the use of incoming and outgoing supply chain funds. The cool thing is, blockchain is able to eliminate costs

resulting from transactions between bank accounts and payment processes. Those costs are included in additional profit. In this way, companies can save maximum funds. That is a review of the benefits of blockchain in digital accounting systems. Considering the rapid development of blockchain, it is time for accountants to improve their abilities to be able to manage this technology well. Because, blockchain is just a tool whose success in implementation depends on the user.

Application of Blockchain in Accounting

The blockchain concept was initially applied to the world of bitcoin, but a paradigm has emerged, and this concept can be used in various industrial fields starting from the public sector, the financial industry, supply chains, intellectual property management, and so forth. For example, if one is discussed in more depth in the general financial sector, blockchain technology has been successfully applied, especially in the creation of crypto-assets such as Bitcoin and Ethereum. The application of blockchain in finance enables fast and secure transfer of digital assets without intermediaries, reducing transaction costs and speeding up cross-border payment processes. Regarding the way it works in implementing the system of blockchain technology, blockchain will allow data to be transferred directly and without the need of middlemen between many network users. Every transaction will be coded and appended to an unchangeable sequence of transactions dispersed over all ledgers (nodes), so enabling the chain to be protected against modifications. Every transaction's related data is entered into a digital ledger, copies of which are kept separately by network users, and all of the records in the network are permanently timestamped, encrypted, and unchangeable (Pascual Pedreño et al., 2021).

Related to the use of blockchain technology in companies that manage the accounting sector, it will result in the creation of a new accounting information system that keeps track of ledger validation of transactions. Blockchain transactions encompass not only financial transactions between two entities but also the movement of accounting information within an organization. Naturally, by providing accounting data to relevant people directly managers, auditors, creditors, and stakeholders this system may generate reports in real time (Pascual Pedreño et al., 2021). One feature of the blockchain is smart contracts, which function as automatic controls to keep an eye on the accounting process in accordance with preset guidelines. Blockchain is also capable of utilizing data analysis to identify trends and other relevant

information. By using this kind of system, managers, accountants, business partners and investors can collaborate actively to verify all transactions that have occurred. Before blockchain technology was developed as it is today so that it could be applied in various sectors, in fact in the accounting field there was a system that was similar to the blockchain that we know today and this system was created through a concept called triple-entry by Yuji Ijiri because he realized that there are still weaknesses in the double entry system which was the previous system, namely that it still uses historical data or previous data in predicting what will happen to the company in the future (Pimentel, E., & Boulianne, 2020).

According to O'Leary, D. E. (2019) there is a new equation which is given the concept of Past = Present = Future. The meaning of this equation is that historical transactions in the company's past must be able to represent the company's current condition, as well as company transactions which are expected to provide predictive data about the company's future condition so that they can help stakeholders who want to invest in the company. Furthermore, as a result of an accounting system, financial reports that implement the use of triple entry bookkeeping can also reduce the risk of fraud or other errors because they validate every transaction recorded so that bias does not occur. The Republic of Indonesia's Minister of Finance officially launched e-stamps on October 1, 2021, marking the official launch of blockchain technology in the country. Bank Indonesia initiated the QR Code Indonesia Standard (QRIS), another successful implementation of blockchain technology in Indonesia. In order to extensively use blockchain technology, BI even intends to issue digital rupiah, or Central Bank Digital Currency, in the future. Although the potential of blockchain technology in accounting can be said to be good, there are a number of challenges that need to be overcome, some of which include scalability issues to handle large transaction volumes, integration with existing accounting systems, regulatory complexity related to compliance aspects, and implementation costs. which can be an important factor in making the final decision.

Potential and Challenges of Blockchain Technology in Digital Accounting

Blockchain, as the technology underlying digital currencies such as Bitcoin, has several advantages in the context of digital accounting (Prux et al., 2021):

1. Security

Blockchain provides an opportunity to increase security in accounting information systems. The use of digital certificates in blockchain helps prevent unauthorized access and supports individual identification settings. Transactions are recorded permanently and distributed trustlessly, reducing the risk of tampering and hacking.

2. Transparency
   Blockchain can increase transparency in financial records. All transactions are recorded, stored permanently, and visible to all users, building credibility and reducing suspicion. This technology promises the potential to bring high transparency to the accounting process.
3. Efficiency
   Blockchain can increase efficiency in accounting information systems. Transactions can be recorded automatically and executed using smart contracts, reducing the time and costs required in the financial transaction process. The use of blockchain technology has great promise for accounting applications, from streamlining regulatory compliance to enhancing double entry bookkeeping, which is widely used.
4. Potential for Transformation
   Blockchain has the potential to transform accounting practices through the adoption of cutting-edge technologies, such as artificial intelligence (AI) and data analysis, to increase efficiency and ensure regulatory compliance.

With security, transparency, efficiency, and potential for transformation, blockchain technology offers a variety of advantages that can improve accounting information systems.

Blockchain technology has emerged as an exciting innovation in recent years, with the potential to change the way various industries operate. One area that has great potential to benefit from this technology is the field of digital accounting. Blockchain can provide reliability, security, and transparency in financial records and reporting processes. However, as with any new technology implementation, there are several challenges that must be overcome in adopting blockchain in an accounting environment (Maffei, M., Casciello, R., & Meucci, F. (2021):

1. Regulations and Compliance
   One of the main challenges in adopting blockchain technology in accounting is the regulatory and compliance aspect. Currently, many jurisdictions do not yet have a clear legal framework regarding the use of blockchain in financial reporting and auditing. In some cases, there is confusion about

how digital assets recorded on a blockchain should be treated from a tax and legal perspective.

2. Security and Privacy
   Although blockchain is renowned for its high security, no system is completely free from security threats. Implementation of blockchain technology in accounting must consider security challenges related to unauthorized access to data, computer attacks, and potential leaks of personal data. Additionally, there is the question of how to maintain the privacy of sensitive information in transactions recorded on the blockchain, especially in the context of financial reporting that requires large amounts of open data.
3. Integration with Existing Infrastructure
   Many accounting organizations have invested resources in existing technology infrastructure, including established accounting software systems. Integrating blockchain technology with existing infrastructure can be challenging. This involves implementation costs, time, and training required to ensure compatibility between the new blockchain system and existing systems.
4. Scalability
   Scalability is an important factor in the implementation of blockchain technology in accounting. As transactions grow and the volume of data that must be handled grows, blockchain infrastructure must be able to handle the load without sacrificing speed and efficiency. Issues such as slow transaction times and high transaction costs in blockchain networks must be addressed for this technology to be widely adopted in an accounting context.
5. Industrial Acceptance
   The final challenge is industry acceptance of blockchain technology in accounting. Despite its great potential, there are still concerns and uncertainties among accounting stakeholders about the effectiveness, reliability and cost of implementing blockchain technology. Increased awareness and education will be important to ensure that accounting professionals understand the benefits and challenges of using this technology.

Blockchain technology promises many benefits in increasing reliability, security and transparency in accounting. However, the challenges described above must be overcome before this technology can be widely implemented in an accounting context. Efforts to develop a clear regulatory framework,

maintain data security and privacy, integrate the technology with existing infrastructure, increase scalability, and increase industry awareness will be important steps to overcome these challenges and harness the full potential of blockchain technology in accounting (Chowdhury et al ., 2023).

CONCLUSION

Blockchain has an important role in initiating digital accounting transformation. Blockchain technology, along with artificial intelligence and data analysis, has reshaped traditional accounting practices and offers actionable insights for multinational companies operating in the digital era. In the context of financial accounting, blockchain provides a significant impact by increasing transparency, security and operational efficiency of companies

Blockchain technology provides several specific benefits in the accounting context:

1. Transparency and Security: Blockchain provides a decentralized and unmanipulated ledger, increasing the transparency and security of financial transactions
2. Operational Efficiency: The use of blockchain in accounting applications promises low transaction costs and can improve commonly used double entry bookkeeping
3. Intensive and Real-Time Monitoring: Blockchain has an important role as a real-time accounting technology with intensive monitoring, which can increase efficiency in accounting information systems.

Although blockchain offers many benefits, there are several technological and legal challenges that must be overcome before blockchain can be fully incorporated into the world's financial record-keeping systems. However, accounting's unique combination of technical and business knowledge makes accountants well-suited to help design blockchain-enabled environments and solutions. With the adoption of current trends such as cloud accounting, artificial intelligence, and blockchain, companies can gain competitive advantages in financial accounting transformation, including increased accuracy, operational efficiency, and data security. Blockchain technology provides opportunities to increase security, transparency, and efficiency in accounting information systems, and although there are still challenges to overcome, accountants have an important role in designing solutions that blockchain can rely on.

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