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Article

Global Challenges of Blockchain Technology Implementation Financial Report Transparency and Accountability

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Abstract: This research aims to examine the challenges in implementing blockchain technology to improve transparency and accountability of financial statements. This research uses the literature study method. This research explores the potential of blockchain in revolutionizing traditional accounting and financial reporting practices to one that leverages technology. Blockchain offers a decentralized record-keeping system that is transparent and immutable, potentially addressing issues of data integrity and reliability of financial statements. Key benefits include improved data security, process transparency, and ease of transaction verification. However, its implementation faces challenges such as technological complexity, high implementation costs, scalability issues, as well as regulatory uncertainty. Integration with existing accounting systems and the need to conform to regulatory standards are also significant barriers. This research concludes that while blockchain promises substantial improvements in the transparency and accountability of financial statements, it requires careful handling of technical and regulatory challenges to optimize its benefits in accounting practices. The results of this study are expected to provide insights for accounting practitioners and policy makers in considering the future implementation of blockchain technology.

Keywords: Blockchain, Transparency, Accountability, Financial Statements.

1. Introduction

In the midst of the rapid development of the digital and technological era, the implementation of efficient and accurate accounting processes faces major challenges in terms of reliability, openness and data security. One of the main problems in the business and economic realm is the transparency of financial reports. Many corporations have difficulty maintaining the integrity of financial information, especially in preventing fraud and data manipulation [1].

Recording, reviewing and submitting financial data is the accountant's responsibility. The field of accounting plays a crucial role in facilitating fast, accurate and careful decision making by various interested parties, including investors, lenders and government agencies. However, as the business world develops and technology advances, accounting practices are now facing new challenges that require creative solutions. One of the latest technological breakthroughs that promises to change the landscape of accounting practice is blockchain technology [2].

Blockchain technology offers a level of transparency and reliability in financial reporting that is difficult to achieve with conventional systems. The presence of blockchain initiated a shift in perspective by introducing a recording system that is decentralized, transparent and cannot be manipulated, in order to overcome problems that have long existed. The use of blockchain in recording and managing transaction data increases the reliability of financial reports and facilitates the verification process by auditors and supervisory bodies. Through the implementation of a distributed recording system, blockchain is able to increase openness and transparency in accounting practices [3].

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Despite the potential that blockchain technology offers, there are several challenges that need to be overcome. The application of this technology requires major changes to existing technological infrastructure and business processes. In addition, aspects of regulation and standardization are crucial factors that require special attention (Pratiwi, 2022) in [4]. Therefore, this research aims to further explore "Global Challenges of Implementing Blockchain Technology in Increasing Transparency and Accountability of Financial Reports".

2. Materials and Methods

This research uses a literature study method to explore the challenges of implementing BlockChain technology in increasing transparency and accountability of financial reports. Literature study is a comprehensive approach to collecting, analyzing, and synthesizing existing research to obtain an in-depth understanding of the topic under study (Sugiyono, 2018). This research uses secondary data sources obtained from credible and relevant literature [5].

3. Results and Discussion

Blockchain technology is a transaction recording system that guarantees security, decentralization and openness [6]. Transaction data is stored in a series of interlocking blocks and is difficult to manipulate. Each block is accompanied by a time stamp and a reference to the previous block, creating a series of blocks or "blockchain". This ensures data security and integrity. The blockchain is not under the control of a single entity, but rather is spread among various computers or “nodes” that collaborate in verifying transactions [7].

Blockchain technology was initially developed for bitcoin and later became a phenomenon in developed countries. Gupta (2018) outlines the evolution of blockchain technology over the last decade, which is divided into five stages of innovation, namely:

1. The first innovation was bitcoin, with digital currency experiments;
2. The second innovation is blockchain, which is consciousnessthat the technology underlying Bitcoin can be utilized separately from the currency and applied to various forms of collaboration between organizations;
3. The third innovation is “smart contracts,” which are realized in a second-generation blockchain system;
4. The fourth major innovation is “proof of stake” or proof of ownership with a purposeto achieve consensus in the blockchain, validate transactions, and ensure compliance with applicable rules;
5. The fifth innovation is blockchain scalingallowing the system to handle larger transaction volumes [8].

The current development of blockchain technology can be categorized into three levels. The first tier, blockchain 1.0, focuses on digital currencies. The second level, blockchain 2.0, includes the use of smart contracts and digital assets. The third level, blockchain 3.0, expands blockchain applications to various fields [9].

Blockchain is well developed in Canada. Even though blockchain has shown significant development in Canada, Marina Niforos in Miller et al (2019) emphasized that blockchain innovation is still dominated by the United States and Europe. The Canadian government has conducted various studies over several years to explore the potential uses of blockchain. However, the regulatory aspect still requires more in-depth study to reach the required level of maturity, both in terms of regulations and implementation, especially if CBDC (Central Bank Digital Currency) will be implemented in the future [10].

Blockchain has the capacity to give rise to a new system environment. The accounting sector has taken an interest in this technology and is actively participating in trials, development and investment. Blockchain brings fundamental changes to the accounting

profession by introducing a revolutionary new method of recording, processing and storing transactions and financial data [10].

In Indonesia, the use of blockchain technology has gone beyond the cryptocurrency sector. In the banking industry, PT Bank Central Asia Tbk (BCA) has adopted blockchain for internal use to increase the speed of payment transactions and simplify back office processes. Among state-owned companies, PT Pos Indonesia is also studying the potential of blockchain by developing Digiroin, a current account service based on this technology. Apart from that, blockchain has also penetrated the tax sector. In Indonesia, OnlinePajak, a tax inspection service provider, has implemented blockchain technology in its operations. Several characteristics of blockchain presented by Kshethri (2021) in [11] among others:

1. Decentralization

   The decentralized blockchain system is able to increase transparency in transactions, as well as build a sense of trust. This technology eliminates the need to involve a trusted third party in the value transfer process. As a result, transactions can be carried out more efficiently, both in terms of time and cost.
2. Immutability (cannot be changed)

   An object that has been created and recorded in blockchain software code becomes permanent. The object cannot be modified, deleted, or faked. This characteristic allows transactions in the blockchain to be thoroughly checked, thereby increasing the level of openness and accountability in the system.
3. Cryptography-based authentication

   Blockchain technology implements user identity verification through cryptography-based digital signatures. Each user has a private key, which is a long string of random alphanumeric codes, to sign transactions. The system also generates a public key from the private key, enabling the exchange of information between users. These two types of keys play an important role in maintaining security and facilitating communication in a blockchain network.

Blockchain indirectly offers various benefits that automate transaction processes, increase security and transparency. This is possible because blockchain technology has been integrated with value exchange protocols, cryptographic algorithms, and peer-to-peer networks[10].Blockchain's influence on financial practices is also visible in increased transparency and accountability [12].

The use of blockchain technology allows financial institutions to streamline their financial reporting and accounting systems. This not only reduces potential risks, but also increases the value provided to customers and interested parties. (Chowdhury et al., 2023; Jindal & Chavan, 2023). Recording transactions in the blockchain guarantees data reliability and transparency, in line with the fundamental principles of accounting systems. Furthermore, blockchain implementation can improve authenticity, security and risk management in financial activities, ultimately strengthening and ensuring the sustainability of accounting processes. Specifically, higher levels of blockchain usage correlate with reduced transaction processing times, increased data accuracy, and improved audit capabilities [13].

Blockchain transparency is a medium that is recorded publicly and can be seen by everyone involved. By using blockchain, it is very easy to trace transactions from their source and ensure that everyone involved is accountable[14].In accounting, the application of blockchain technology can increase data security and transparency. With an immutable distributed ledger, the risk of data loss or falsification is reduced, and interested parties can easily verify transactions [15].

The use of blockchain in a company's internal operations encourages greater openness. This openness plays an important role in strengthening a culture of compliance in the work environment. The result is a more open and honest work atmosphere, which in turn can have a positive impact on overall company performance. (Huang, 2023).

Although blockchain offers increased transparency and accountability as its main advantages, companies need to exercise caution in managing access to sensitive information. It is important to limit access to authorized parties and implement a reliable encryption system to protect data from misuse. The use of blockchain is hampered primarily by regulatory ambiguity. Many companies are reluctant to implement blockchain as a whole because there are no definite regulations regarding its use in the financial industry. This uncertainty covers various things, including compliance with information security standards, maintaining privacy, and law enforcement related to digital transactions [16].

While there are many benefits of using blockchain technology, we must remember that there are several global challenges that hinder the adoption of the technology. Some of these problems include:

1. Challenges related to legal and legislative aspects

   The legislatures of most countries have not yet established clear laws to control financial transactions carried out via blockchain technology. Therefore, financial institutions will not use this technology widely until there are clear regulations governing the rights of all parties and transaction mechanisms. But countries like Germany and Japan have done well in this regard, passing some good guidelines and laws, which are considered as a starting point to solve this problem [17].

   Differences in regulations and compliance between countries can be a serious obstacle. Because blockchain is a technology that involves cross-border data exchange, different regulations in each jurisdiction can make uniform implementation difficult. Organizations need to understand and adapt to the regulatory framework applicable in their operational areas to ensure compliance and avoid potential legal conflicts [18].
2. Money laundering

   One of the most significant problems faced by legislative authorities around the world is money laundering, especially when used to support terrorism and financing illegal activities such as human and drug trafficking. International organizations see cryptocurrencies and other new financial technologies, such as blockchain, as ideal venues for carrying out suspicious transactions. Every financial institution must start using this technology, ensuring their operations are secure, and getting to know the other parties they transact with.
3. Complexity

   Its application to financial accounting systems requires in-depth understanding because blockchain technology is still very new and complex.
4. Cost

   System development, implementation, and maintenance are all part of the cost of implementing blockchain in a financial accounting system.
5. Scalability

   Scalability is one of the main issues when using blockchain technology in accounting. As transaction volume increases, blockchain network performance may decrease, so a solution must be found.
6. Integration with existing accounting systems

   It is important to adapt existing accounting systems to blockchain technology without disrupting ongoing accounting processes because integration with blockchain technology can be difficult and require a lot of effort.

In the future, blockchain is expected to take over many accounting functions, especially in terms of calculations and bookkeeping which are often prone to human error. Nevertheless, the accounting profession will not disappear. Instead, accountants will shift to business advisory roles, leveraging their professional judgment to help organizations face financial challenges in the digital era. This capability is an aspect that cannot be replaced by technology such as blockchain. (Pimentel 2020). In accounting, the application

of blockchain technology has a lot of potential, especially in terms of increasing the transparency and accountability of financial reports. However, regulatory and technical issues must be addressed carefully to achieve the best results.

4. Conclusion

By using blockchain technology in accounting and financial reporting, there are many opportunities to increase the transparency and accountability of business financial reports. By using blockchain, a more secure, transparent and verifiable recording system can increase the reliability and integrity of financial data. Although blockchain has a lot of potential, it also faces several important problems. To maximize its benefits in increasing transparency and accountability of financial reports, efforts are needed to overcome this problem. This includes changes in accounting practices, regulatory changes, and the development of technical solutions.

Although blockchain has the potential to transform accounting and financial reporting, implementing it requires a careful and planned approach. Accounting practitioners, technology developers and regulators must work together to address current issues and leverage technology to increase the transparency and accountability of financial reports.

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