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Utilization of Blockchain Technology in Increasing Transparency and Effectiveness of Financial Audits

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Abstract

Financial audits serve as an important tool to ensure that financial statements are prepared accurately and that organizations fulfill their responsibilities to stakeholders. However, traditional audit approaches often face various obstacles, such as delays in accessing information, potential data manipulation, and a lack of transparency in their implementation. Amid these challenges, blockchain technology has emerged as a promising alternative to encourage a more open, efficient, and reliable audit process. Through a literature review, this paper explores the extent to which blockchain technology can be utilized to improve the quality of transparency and efficiency in the implementation of financial audits. Through the Systematic Literature Review method, the results of the study show that the use of blockchain in audits can provide direct (real-time) audit evidence, minimize the risk of data manipulation, and support the implementation of continuous audits. However, there are a number of obstacles that need to be overcome, including infrastructure readiness, personal data protection, and a regulatory framework that is not yet fully supportive. Therefore, this article provides several recommendations aimed at auditors, management, and regulators so that they can optimize the use of blockchain in a more transparent and accountable reporting and audit system.

Keywords: Blockchain, financial audit, transparency, audit effectiveness, smart contract, continuous audit

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INTRODUCTION

The blockchain concept itself actually existed in the early 90s, precisely from an idea proposed by two scientists: Stuart Haber and W. Scott Stornetta. They created the concept of a timestamp or document time trail that could not be changed by anyone, and this technology was the basis for the development of Bitcoin in 2009. Satoshi Nakamoto modified the Merkle Tree model created by Haber and Stornetta to make it more secure and able to store more data. The secret is in the application of a peer-to-peer network or a series of interconnected computer networks to verify transaction data. Thanks to this development, the Bitcoin currency can be used to buy anything. In 2014, or exactly 5 years after Bitcoin was first born, the concept of Blockchain 2.0 began to emerge. Unlike previous versions of blockchain, this latest technology emphasizes the use of the ability to store and execute smart contracts. Thus, business service providers and individual consumers can make agreements and carry out transactions without the need for third-party intermediaries. Thanks to the development of Blockchain 2.0, more diverse cryptocurrencies have become known to many people. Because of this, many blockchain and cryptocurrency developers are starting to see its potential use in various sectors. This is also evident from the development of StableCoins in 2020, which aims to reduce the volatility of cryptocurrencies in general.

Financial audits play a vital role in an organization's financial monitoring and reporting system. Through this process, entities can ensure that the financial statements prepared have followed applicable accounting standards and provide a true and fair picture of their financial condition. In addition, audits also function as an important mechanism to ensure management accountability to stakeholders, such as shareholders, investors, supervisory authorities, and the general public.

As digital technology advances, various solutions are starting to be developed to address these challenges. One innovation that is currently in the spotlight is blockchain technology. Known for its ability to store data in a distributed, secure, and unmodifiable manner, blockchain offers great potential for use in financial recording and audit systems. This technology is considered capable of guaranteeing data integrity and significantly speeding up the verification process. The use of blockchain technology

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in financial audits is expected to overcome various weaknesses in conventional audits. Blockchain's ability to provide unfalsifiable transaction records that are accessible to authorized parties in real-time can fundamentally improve the integrity of audited data. This not only minimizes the risk of fraud and error but also opens up opportunities for the implementation of continuous auditing and automated audits. Thus, the focus of this research is to analyze in depth how the integration of blockchain technology can significantly improve the transparency and effectiveness of the financial audit process, as well as identify potential challenges and opportunities for its implementation in Indonesia. By adopting blockchain technology, auditors can gain access to transaction data directly and in real-time, thereby reducing dependence on physical documents or previously processed reports. A transparent and encrypted recording system can also reduce the risk of fraud or falsification of information.

The phenomenon that occurs is increasingly urgent to be addressed, considering the various financial scandals and fraud cases that are still occurring, highlighting gaps in the existing control and audit systems. The need for a more robust, secure, and transparent audit method is essential to build public and investor trust. Amidst these needs, blockchain technology has emerged as a promising disruptive solution. With its unique characteristics of being decentralized and transparent, blockchain offers revolutionary potential in recording and verifying financial transactions. Each transaction recorded in the blockchain will form a block that is cryptographically connected to the previous block, creating a secure data chain that cannot be manipulated without detection.

However, the application of blockchain in audit practice still faces various complex challenges. Some of the main issues that need to be considered include the readiness of technological infrastructure, protection of personal data, limited professional personnel who have a deep understanding of this technology, and the absence of regulations that specifically regulate the use of blockchain in the context of auditing. Therefore, further studies are needed to evaluate the potential and obstacles of blockchain implementation in financial audits.

Utilization of Blockchain Technology

Figure 1. Blockchain Technology
Source: AuditPro (2024)

Blockchain audits allow every transaction to be permanently recorded in a digital ledger that authorities can access. With a digital trail that can be verified directly, the risk of data manipulation can be minimized. This provides integrity assurance for auditors, making the audit process more accurate and reliable. Blockchain audits are revolutionizing the financial world by offering greater transparency, efficiency, and reliability than traditional methods. With an immutable transaction trail, real-time verification process, and better system integration capabilities, blockchain is a very effective tool for creating more transparent and reliable finance. For companies looking to improve the reliability of their financial reports, adopting blockchain audits is a strategic and relevant step for the future.

Agency Theory. Agency Theory was developed by Michael C. Jensen and William H. Meckling (1976), which explains the contractual relationship between two parties, namely the principal (owner

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or shareholder) and the agent (manager or company manager). The principal authorizes the agent to manage resources, but there is a potential conflict of interest because the agent may act in his own interests, not in the interests of the principal. This is where the role of audit arises, namely to minimize this conflict and provide assurance to the principal that the financial statements prepared by the agent have been presented fairly.

Blockchain technology functions as a digital recording system that is transparent, secure, and immutable. In the context of auditing, blockchain can strengthen trust between the principal and the agent because the recorded information is permanent and can be accessed by various parties in real time. This reduces the possibility of data manipulation by the agent and reduces agency costs because the need for verification by the auditor becomes more efficient.

With blockchain, a company's financial transactions can be recorded directly and automatically into a decentralized system, allowing auditors and shareholders to verify the authenticity of transactions without having to rely entirely on management reports.

Information Transparency Theory. Information Transparency Theory focuses on the importance of openness and honesty in conveying information, especially in corporate and financial environments. According to this theory, the more transparent an organization is in conveying data and information, the greater the public and stakeholders' trust in the organization. Transparency also supports better decision-making because the information presented is accurate, timely, and relevant.

Blockchain provides a high level of transparency because every transaction data is recorded chronologically, and cannot be deleted or modified without consensus from the entire network. This creates an open information system that can be verified by third parties, including auditors. In the context of financial audits, this transparency greatly assists auditors in assessing the truth and reliability of transactions, as well as detecting potential fraud early on. In supply chain audits, auditors can trace the origin and journey of each item through blockchain records without having to request additional documents from the company, because the data is already transparently available.

METHODS

This study uses a qualitative approach with the Systematic Literature Review (SLR) method. The Systematic Literature Review (SLR) method is a literature review method that is carried out systematically, structured, and planned to collect and analyze existing research related to a particular topic in a comprehensive and organized manner. This approach was chosen to collect, analyze, and synthesize information from various relevant literature sources regarding the use of blockchain technology in financial audits. The Systematic Literature Review (SLR) method is a descriptive qualitative study that uses a literature review approach and is supplemented with primary data through semi-structured interviews. Systematic Literature Review (SLR), or often also called Systematic Review, is a literature review method that is carried out systematically, structured, and planned to collect and analyze existing research related to a particular topic in a systematic and structured manner (Deepublish, 2024). The data sources in this study include primary data and secondary data. Secondary data for this study were obtained from databases such as Google Scholar and Semantic Scholar, focusing on articles published between 2021 and 2025. Literature searches were conducted using keywords related to the article titles, namely "blockchain technology", "financial audit", "transparency", and "audit effectiveness". Literature collection refers to the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidelines. Primary data were obtained through semi-structured interviews with five informants who have experience in the field of audit and information technology, including auditors, blockchain practitioners, and academics. Informants were selected purposively based on their direct involvement with audit issues and blockchain technology.

PRISMA is a set of evidence-based reporting guidelines designed to help authors improve the transparency and completeness of their reports for systematic reviews and meta-analyses. In this process, there are four main steps: identification, screening, eligibility, and acceptance of articles. The first stage, article identification, involves searching for articles from various online sources and other

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literature. Then, in the article screening stage, screening is carried out to eliminate duplicate articles. In addition, at this stage, an initial assessment of the eligibility of the articles is also carried out by extracting important information from the title and abstract of each article (Kitchenham, 2014).

Data analysis was carried out by categorizing the findings from the collected literature based on key themes, such as the benefits of blockchain in auditing, implementation challenges, and impacts on audit transparency and effectiveness and compiling a synthesis of the analysis results to provide a comprehensive picture of the use of blockchain technology in financial audits.

To ensure the validity of the findings, researchers will triangulate by comparing the results of the literature analysis with semi-structured interviews conducted with informants. This aims to obtain a more in-depth and comprehensive perspective on the use of blockchain in financial audits.

Based on the results of the analysis, this study will provide recommendations for auditors, management, and regulators to optimize the use of blockchain technology in financial audits, as well as identify steps that need to be taken to overcome existing challenges. With this research method, the thesis can provide a significant contribution to the understanding of the use of blockchain technology in increasing the transparency and effectiveness of financial audits.

RESULT AND DISCUSSION

The results of this study were obtained from literature analysis and semi-structured interviews with informants who have experience in auditing and blockchain technology. The use of blockchain technology in financial audits increases the transparency of financial reports. Every transaction recorded in the blockchain is permanent and can be accessed by authorized parties in real-time. This allows auditors to verify data more easily and quickly. Blockchain offers a secure and unmodifiable recording system. With strong encryption, the risk of data manipulation can be minimized, thereby increasing the integrity of financial reports. Blockchain technology allows auditors to access data directly without having to rely on previously processed reports. This speeds up the audit process and reduces the time required for verification. One of the main challenges in implementing blockchain technology is the readiness of the existing technological infrastructure. Many organizations do not yet have a system that supports blockchain integration into their audit process. Although blockchain offers security, personal data protection remains a concern. The use of blockchain must comply with applicable data protection regulations to ensure that sensitive information is not misused. Lack of Understanding and Limited Professional Staff with a Deep Understanding of Blockchain Technology are obstacles to implementation. Many auditors have not been trained in using this technology, so an adequate training program is needed.

The results of this study indicate that the use of blockchain technology in financial audits has significant potential to increase transparency and effectiveness of the audit process. With its unique characteristics of being decentralized and transparent, blockchain can overcome various weaknesses that exist in conventional audit methods. The transparency resulting from the use of blockchain is especially important in the context of auditing, where the accuracy and reliability of information are key. With real-time access to transaction data, auditors can perform more efficient verification, thereby reducing the risk of errors and fraud. This is in line with the theory of information transparency, which states that the more transparent an organization is, the greater the public's trust in it.

However, the challenges faced in implementing blockchain technology cannot be ignored. Infrastructure readiness and personal data protection are issues that need to be addressed seriously. Organizations must ensure that they have adequate systems in place to support blockchain integration, as well as comply with applicable regulations to protect sensitive data. In addition, the importance of training and skills development for auditors in the use of blockchain technology cannot be underestimated. Without sufficient understanding, the potential benefits of this technology will not be maximized. Therefore, ongoing training programs must be a priority for organizations looking to adopt blockchain technology in their audit processes. Overall, this study makes a significant contribution to the understanding of how blockchain technology can improve the transparency and effectiveness of

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financial audits. By addressing existing challenges and harnessing the potential of this technology, organizations can build more robust, secure, and transparent audit systems, which in turn will increase stakeholder trust and organizational accountability.

The use of blockchain technology in financial audits offers many benefits, including increased transparency, data security, and efficiency of the audit process. However, challenges such as infrastructure readiness and personal data protection must be addressed to maximize the potential of this technology. The study recommends that auditors, management, and regulators work together to optimize the use of blockchain in financial audits, as well as develop the necessary training programs to improve understanding and skills in this technology.

CONCLUSION

This study has explored the use of blockchain technology in improving the transparency and effectiveness of financial audits. Based on literature analysis and semi-structured interviews with informants who are experienced in the field of audit and blockchain technology, it can be concluded that blockchain technology allows for permanent transaction recording that can be accessed in real-time by authorized parties. This increases the transparency of financial reports and makes it easier for auditors to verify data. Data Security and Integrity With a secure and unmodifiable recording system, blockchain minimizes the risk of data manipulation, thereby increasing the integrity of financial reports. Audit Process Efficiency The use of blockchain allows auditors to access data directly without relying on previously processed reports, thereby speeding up the audit process and reducing the time required for verification. Implementation Challenges Despite its many benefits, the application of blockchain technology in financial audits faces challenges, such as the readiness of technological infrastructure, protection of personal data, and a lack of understanding and skills among auditors. Recommendations for Development: To maximize the potential of blockchain technology, organizations need to address existing challenges and develop ongoing training programs for auditors. Collaboration between auditors, management, and regulators is also essential to optimize the use of blockchain in financial audits.

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