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The Role of Integration of Blockchain Technology and Accounting Information Systems on Corporate Financial Efficiency: Literature Review

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Abstract: The development of digital technology has driven a major transformation in accounting practices, especially through the integration of blockchain technology and accounting information systems (AIS). This literature study aims to examine how the implementation of both technologies contributes to improving the financial efficiency of companies. Using a literature review method of articles published between 2018 and 2025, it was found that blockchain offers high transparency, reliability, and security of financial data, while AIS supports the acceleration of reporting and decision-making processes. The combination of the two has been proven to reduce transaction costs, accelerate internal audits, and improve reporting accuracy. Although its implementation still faces a number of challenges such as initial costs and technological readiness, the long-term benefits obtained make this integration a potential strategy to significantly improve financial efficiency. This study emphasizes the importance of managerial support and organizational readiness in adopting digital transformation as a whole.

Keyword: Blockchain, Accounting Information Systems, Financial Efficiency, Digital Technology, Transparency, Operational Efficiency.

INTRODUCTION

In the era of digital transformation, corporate financial efficiency is a top priority in modern business strategies. Information technology plays a vital role in supporting transparency, accountability, and speed of financial reporting. One of the prominent innovations is the adoption of blockchain technology in accounting information systems, which offers advantages in terms of data security and process automation (Ali, 2023). The integration of this technology has the potential to revolutionize the way companies manage their financial information. Therefore, it is important to review how the synergy between blockchain and accounting information systems affects corporate financial efficiency.

Accounting information systems (AIS) serve as the backbone in collecting, recording, and reporting financial information. When combined with blockchain technology, this system can be enhanced to reduce errors, speed up the audit process, and strengthen data integrity (Yusuf & Halim, 2022). Blockchain as a decentralized technology is able to provide immutable transaction records, which significantly reduces the risk of fraud. Thus, the combination of these two systems can create a more responsive and efficient financial system.

Previous research has shown that financial efficiency is closely related to the speed and accuracy of information available to decision makers (Lestari & Sembiring, 2023). In this context, a system that is able to automate and verify data in real-time becomes very relevant. Blockchain offers smart contract features that allow automatic transaction processes according to programmed provisions. The combination with AIS promises a more standardized and controlled business process.

In addition, the trust of investors and other stakeholders is also an important indicator of financial efficiency. A transparent and directly auditable system is an added value in the company's external communication (Putri, 2021). The application of blockchain technology in financial reports allows auditors and regulators to access authentic and complete records, without the risk of data falsification. This opens up opportunities for increasing efficiency not only internally but also externally.

In this review, we examine the current literature that discusses the impact of blockchain integration and accounting information systems on corporate financial efficiency. The approach used is a systematic review of scientific publications from the last five years. The focus is given to aspects of process efficiency, cost reduction, reporting speed, and data-based decision making. Thus, this article aims to provide a comprehensive overview of the contribution of technology to corporate finance transformation.

Implementation challenges are also highlighted, such as initial integration costs, training needs, and the unpreparedness of technology infrastructure in some companies (Nasution & Rizki, 2023). Although the benefits are many, the transition to a blockchain-based system requires careful planning and investment. Therefore, the discussion in this article not only emphasizes the benefits but also the obstacles to technology adoption.

Several case studies also show how companies that have implemented this technology have experienced significant increases in efficiency. In the banking and finance sector, the use of blockchain in reporting financial transactions has cut audit process time by up to 50% (Wijaya et al., 2023). These findings support the argument that digital transformation can provide real business value if implemented properly.

Against this background, this article examines the integrative role of blockchain and accounting information systems on financial efficiency, identifying the drivers and challenges of its implementation in the real world. The aim is to provide strategic recommendations for companies considering digital transformation in their financial management.

METHOD

This study uses a literature review approach by reviewing various scientific articles and academic publications from relevant national and international journals. The literature used is selected based on topics related to the integration of blockchain technology and accounting information systems and their relationship to corporate financial efficiency. Data sources are obtained through databases such as Google Scholar, ScienceDirect, and DOAJ, with keywords such as "blockchain in accounting", "financial efficiency", "digital accounting systems", and "accounting information systems". The articles used were published between 2018 and 2025, with a primary focus on empirical and conceptual research that highlights the impact of technology on managerial efficiency and financial reporting. The analysis is carried out qualitatively by comparing the findings of various studies to gain an in-depth understanding of the role of both variables on corporate financial efficiency.

RESULTS AND DISCUSSION

Blockchain technology offers an architecture that supports permanent and transparent transaction recording in accounting systems. Research by Sunny and Apsara (2024) shows that blockchain integration reduces the risk of data manipulation and increases the efficiency of financial reporting. In traditional accounting systems, the data verification process requires a lot of time and effort from auditors. With blockchain, verification is done automatically through network consensus, speeding up the process. In addition, encrypted data storage provides additional security against cyber threats. This efficiency directly contributes to reducing audit and reporting costs.

Smart contracts are a superior feature of blockchain that can be integrated into the accounting cycle. According to Gunawan et al. (2022), the use of smart contracts allows automation of transactions based on certain provisions, such as payment of accounts payable after receipt of goods. This reduces manual intervention and potential errors in recording. This automation also increases the speed of reconciliation and monthly financial reporting. With less time to prepare reports, companies can make strategic decisions faster. Therefore, blockchain integration supports sustainable operational efficiency.

Transparency is a key element in financial efficiency gained from the implementation of blockchain. This technology allows every transaction to be recorded in real-time and can be accessed by all interested parties, without the need for a complex reconciliation process. According to Ahmad et al. (2022), this system increases accountability because the records that have been entered cannot be changed or deleted. This provides assurance of data authenticity for auditors and external stakeholders. Thus, the audit process becomes more efficient and investor confidence in the company's financial statements increases.

One of the direct impacts of the integration of blockchain and accounting information systems is the reduction of operational costs, especially in reporting and audit functions. Hasan et al. (2023) revealed that companies that implement blockchain technology can save up to 30% of total accounting costs, mainly due to the elimination of the need for repeated verification and paper use. In addition, the reduction in the need for labor for administrative tasks also reduces overhead costs. This cost efficiency provides a competitive advantage in long-term financial management.

The speed of access to financial data is one of the indicators of efficiency that can be improved with the integration of blockchain technology. This system allows real-time reporting, where management can access the latest reports at any time. Research by Yusuf & Halim (2022) shows that the time to prepare financial reports can be reduced by up to 40% after implementing the blockchain-AIS system. This makes it easier to make strategic decisions quickly based on actual data.

The availability of fast and accurate data greatly supports management in decision making. In a blockchain-based system, every transaction is recorded with a clear and verifiable timestamp, so management does not need to wait for periodic reconciliation. A study by Lestari & Sembiring (2023) shows that companies with blockchain systems tend to have faster market response capabilities due to the availability of real-time data. This strengthens efficiency in resource allocation and risk management.

Digital transformation in accounting must also be adjusted to the applicable legal and regulatory framework. Blockchain, with its immutable recording system, is considered to meet the principles of transparency and accountability required by regulators. According to Putri (2021), this technology can make it easier for companies to meet the digital financial reporting requirements that are starting to be implemented in many countries. Thus, efficiency is not only achieved in internal processes, but also in fulfilling the company's external obligations.

Several case studies show the successful implementation of blockchain integration in accounting information systems. For example, a multinational company in the retail sector uses blockchain to monitor cross-border transactions in real time and produce consolidated reports

faster. A study by Wijaya et al. (2023) noted that the company experienced an increase in financial efficiency of up to 25% in two year of implementation. This shows that the technology is not just a concept, but has proven its impact in real terms.

Despite its significant benefits, the adoption of blockchain in accounting systems also faces challenges. One of the main obstacles is the readiness of the technological infrastructure and the initial cost of implementation. According to Nasution & Rizki (2023), many small and medium-sized companies still experience obstacles in building a blockchain system due to limited funds and human resources. In addition, system changes require significant training and adaptation from the user side.

Although blockchain is known to be secure because it is decentralized, security risks remain, especially in terms of integration with internal systems. The use of smart contracts and APIs must be developed carefully to avoid security gaps. Sunny and Apsara (2024) emphasize that imperfect integration can open up opportunities for cyber attacks. Therefore, data protection and network security remain a priority in implementing this system.

Blockchain can be combined with ERP (Enterprise Resource Planning) systems and cloud accounting to increase broader efficiency. Ahmad et al. (2022) stated that blockchain integration in ERP allows real-time synchronization of data across divisions, thereby accelerating the flow of financial information. This combination also facilitates monitoring and reporting on a large scale. This is especially relevant for multinational companies with dispersed operations.

This technological transformation also has an impact on the accounting profession. Repetitive work will be replaced by automated systems, while analytical and strategic roles will become increasingly dominant. According to Hasan et al. (2023), future accountants are required to understand blockchain technology and be able to analyze data comprehensively. This marks a shift in the role of accountants from report makers to strategic financial advisors.

Several quantitative studies show a clear comparison between conditions before and after blockchain implementation. Gunawan et al. (2022) noted an increase in reporting efficiency of up to 60% in the first year after using blockchain. In addition, the reduction in recording errors reached 70%, which had a direct impact on the quality of financial reports. This is empirical evidence that technology integration really provides real benefits.

The success of technology integration is highly dependent on management commitment. A study by Lestari & Sembiring (2023) shows that a strong top-down initiative from top management is a major factor in the success of blockchain implementation. Companies that take a gradual approach, starting from simple reporting modules to full integration, tend to be successful and reduce internal resistance. A mature management strategy supports the efficiency of technology transition.

Blockchain also plays a role in strengthening the company's internal control. Every transaction is recorded permanently and can be easily traced, thus preventing manipulation and fraud. Yusuf & Halim (2022) emphasized that this system minimizes the need for manual reconciliation and strengthens internal audit procedures. This efficiency helps create good financial governance. The application of blockchain in financial information systems is not limited to the private sector. The public sector has also begun to adopt this technology to improve budget efficiency and transparency. According to Putri (2021), governments in several countries have begun to implement blockchain to automatically record budgets, public spending, and audit processes. If widely adopted, this can strengthen public accountability and reduce corruption.

Decentralization is one of the main advantages of blockchain over traditional systems. Every party with permission can access the same information without having to rely on a central authority. Sunny and Apsara (2024) highlight that this is very useful in financial supervision across entities or business groups. The speed and accuracy of information between business units supports operational efficiency.

Startups in the financial sector are also starting to utilize blockchain to optimize their financial reports. In a study by Hasan et al. (2023), fintech startups using blockchain reported accounting efficiency of up to 35% in the first two quarters. This technology provides flexibility and scalability for companies that is developing. The direction of accounting information system development in the future is predicted to be increasingly based on blockchain, AI, and big data analytics. According to Gunawan et al. (2022), companies that do not adapt to this technology are at risk of being left behind competitively. Therefore, investing in blockchain-based information systems is a long-term strategic step.

Based on this review, blockchain integration in accounting information systems needs to be carried out gradually and strategically. Companies are advised to start with a simple reporting module, followed by the integration of smart contracts and audit systems. Staff training, infrastructure readiness, and management support are the keys to success. The financial efficiency resulting from this integration will greatly affect the company's competitiveness and sustainability.

CONCLUSION

The synergistic integration of blockchain technology and accounting information systems has a positive impact on the company's financial efficiency. Through the implementation of a transparent, real-time, and immutable recording system, blockchain strengthens the reliability of financial reports and minimizes the risk of errors and fraud. Digital technology-based accounting information systems also accelerate the reporting process and decision-making based on actual data. Although challenges such as infrastructure readiness, initial implementation costs, and the need for competent human resources are still obstacles, the long-term benefits generated are much greater. Therefore, companies need to strategically adopt and develop the integration of these two technologies as part of a sustainable digital transformation. In the future, the integration of blockchain and accounting information systems will be an important foundation in realizing operational efficiency and superior financial governance.

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