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IMPLEMENTATION OF BLOCKCHAIN TECHNOLOGY IN FINANCIAL MANAGEMENT: POTENTIAL AND CHALLENGES FOR COMPANIES

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Blockchain, as the underlying technology of cryptocurrencies such as Bitcoin, has attracted widespread attention due to its ability to provide a decentralized, transparent and secure system. This study conducts a thorough analysis of how blockchain can be applied in various aspects of financial management. Therefore, this research aims to investigate the potential and challenges associated with implementing blockchain technology in corporate financial management. This research uses a qualitative approach with descriptive methods. This research highlights the potential of blockchain technology in improving transparency, security and operational efficiency in corporate financial management. By leveraging smart contracts, blockchain is able to automatically execute contracts without intermediaries, reducing transaction costs and increasing trust in financial processes. However, the application of blockchain in financial management is also faced with challenges of integration with legacy systems and compliance with privacy and data security regulations. However, by viewing the initial costs as a long-term investment, companies can reap significant benefits in operational efficiency, transparency, and data security.
Keywords: Blockchain Technology, Financial Management, Company, Smart Contract, System Integration.

Introduction

Blockchain is a technology that has become one of the fastest growing trends in recent years (Crosby et al., 2016). With its ability to provide a safe, transparent and decentralized system, blockchain brings many opportunities for financial globalization through facilitating Financial Technology (FinTech) applications (Imansiah, 2018). It not only optimizes business processes, but also gives us the ability to transform a large number of traditional applications and serve daily needs in a much more efficient and effective way (Sharma, 2018). In this context, every company must take advantage of the potential offered by blockchain technology which has become a global trend.

Indonesia, as one of the countries with the fastest economic growth in the world, is taking serious steps to consider implementing blockchain. With the potential to increase efficiency and transparency in various sectors such as finance, logistics and public services, blockchain implementation in Indonesia could have a significant impact. However, while there are clear opportunities, there are also challenges that need to be addressed, including

appropriate regulation, integration with existing technology infrastructure, and education about the benefits and risks of these technologies. With the right commitment from the government, private sector and related institutions, Indonesia can gain maximum benefits from the adoption of blockchain technology which has become a global trend.

Blockchain is a digital ledger system that has become fundamental in global digital transformation. With features such as immutable, transparent, and distributed, blockchain records transactions chronologically in almost real-time (Coindesk, 2016). The importance of the consent of all participants (nodes) of a blockchain network for the recognition and recording of transactions makes this technology a highly secure and trustworthy tool (Chepurnoy et al., 2016). Records in a blockchain are not only immutable, but can also be transparently viewed and accessed by all participants, providing a high level of security and control over data by preventing manipulation and errors (FinTech Futures, 2017).

Essentially, a blockchain is a shared network in which high-quality data and records can be exchanged over the internet between participants spread across the globe (Christidis and Devetsikiotis, 2016). The key features of this technology are its validity and unwavering reliability. Without intermediaries, blockchain facilitates the exchange of value or information with high efficiency and security (Morini, 2016). Because transactions that have been recorded in the blockchain cannot be changed, the integrity and security of the data is guaranteed, while the opportunities for fraud are significantly reduced.

In the business and financial ecosystem, blockchain has the potential to change the paradigm in the way transactions are conducted. By eliminating the need for intermediaries or third parties facilitating transactions, this technology increases efficiency, lowers costs, and reduces the time required to complete transactions (Pwc, 2020). Along with the security and transparency offered by blockchain, it provides a solid foundation for further innovation and development in various economic sectors, from finance to supply chains. Therefore, blockchain is not only a trend, but also the foundation for deep and sustainable digital transformation in the future.

Blockchain can be defined as a digital distributed ledger, where transactions are recorded automatically and arranged chronologically (Zheng et al., 2017; Coindesk, 2016). Every transaction that occurs is recorded with a timestamp indicating the exact time it occurred, creating a transparent and immovable trace in the transaction history that can be accessed and tracked by all participants (NRI, 2015; Lee and Chuen, 2015). Security in blockchain is based on its immutable nature, which ensures that the data remains intact and cannot be manipulated.

Blockchain technology offers a number of significant benefits compared to systems used today. First of all, decentralization is one of the main prominent features, where data is stored in a distributed manner across the network, eliminating dependency on a single entity or central authority (Singh, 2018). Then, transparency and traceability allow every transaction to be seen and verified by all participants, increasing trust and accountability in the system (Singh, 2018). Additionally, data security is enhanced through high-level encryption which ensures that sensitive data remains protected from security threats (Singh, 2018).

Leveraging these advantages, blockchain has become the foundation for many innovations in various industries. From finance to supply chains to healthcare, blockchain is changing the way we interact with data and execute transactions. The potential of this technology to increase efficiency, reduce costs, and increase security has sparked great interest from various parties, both from the private sector and government. As understanding and adoption of blockchain technology grows, it is hoped that its benefits will continue to grow and bring positive changes in various aspects of our lives.

Even though it is still in the early stages of development, it is important to recognize the huge potential that blockchain technology has. Many experts and industry professionals have predicted that blockchain will become a standard in the accounting field in the near future . With its ability to record transactions automatically and in a decentralized manner, blockchain offers the potential to change the way accounting is done, increasing efficiency, and reducing administrative costs associated with traditional processes. Additionally, with each development of this technology comes a huge opportunity for mass use of blockchain in the future front. The use of blockchain is not only limited to the financial or accounting sector, but can also be applied in various industries, including logistics, healthcare, manufacturing, and many more. With the ability to increase transparency, security, and efficiency in various aspects of life and business, blockchain has the potential to become the underlying infrastructure of various digital services in the future.

. This research aims to understand how blockchain technology can improve corporate financial management by exploring its potential and benefits and evaluating the challenges that may be faced in its implementation. The research results are expected to provide practical guidance for companies in adopting blockchain technology, increasing efficiency and security in their financial processes, and ultimately providing a competitive advantage in the market.

1. Research Design and Method

This research uses a qualitative method with a descriptive approach. This method was chosen because it suits the research focus and the problem to be studied. This research aims to investigate the potential and challenges associated with implementing blockchain technology in corporate financial management. The explanation resulting from this research cannot be based on numbers, but is based on a deep understanding of the phenomenon. The data source in this research is secondary data. The reason researchers use secondary data sources is because of the availability of existing data, time and cost efficiency, good data quality, historical and comparative analysis, and the diversity of data that can be accessed. Some examples of secondary data sources include: government publications, company publications, journal articles, books, research reports, and census data. The secondary data that researchers use includes journals, proceedings, books and other documents related to blockchain, financial management and accounting. The data collection technique used in this research is literature study. The literature review used in this research comes from various existing literature such as journals, articles, books and various other literature related to the research problem under study.

Results and Discussion

Application of Technology to Financial Management

Blockchain technology emerged as an innovation that had the potential to provide solutions for the financial sector, and was initially introduced during the 2008 global financial crisis as an integral part of Bitcoin operations. A form of distributed ledger, blockchain offers a safe and secure approach to transferring and recording data. Compared to traditional models that rely on a central authority such as a bank, blockchain requires approval from every node in its network to process payments or transfer goods. With its ability to record the origin, movement, and transfer of value across entities, blockchain offers the potential to increase transparency and security in financial processes. This provides solutions to several challenges faced by the financial industry, especially in terms of security and operational efficiency.

In addition to its potential use in the financial sector, blockchain technology is also attracting attention across industries due to its ability to solve security and efficiency problems that occur in various business processes. Considering the advantages offered by this technology, many companies are starting to explore the possibility of implementing blockchain in their operations to increase transparency, reliability and efficiency of processes. Thus, blockchain has become the focus of attention as an innovative solution in improving operational performance and security, not only in the financial sector, but also in many other fields.

The application of blockchain technology in the financial sector makes a significant contribution through the use of smart contracts, which is one of the key elements in building trust efficiently. Smart contracts, in their essence, are computer code programmed to automatically execute and confirm the conditions of a contract when all conditions have been met. This means that smart contracts can ensure compliance with terms without requiring human intervention, providing higher efficiency in contract execution and reducing the risk of human error. By leveraging blockchain technology, smart contracts operate in a secure and transparent decentralized environment, enabling a trustworthy and non-manipulable contract execution process.

One of the main advantages of smart contracts is the elimination of intermediaries, which can reduce transaction costs and speed up the overall process. By eliminating the proliferation of intermediaries, smart contracts can provide cheaper and more efficient solutions for various transaction needs in the financial sector, such as payments, financing, or even insurance claims settlement. Additionally, because transactions are executed automatically based on program code logic, the risk of failure or human manipulation is minimized, resulting in a higher level of security for all parties involved. Apart from increasing operational efficiency and minimizing risks, smart contracts can also increase trust in financial transactions. With the transparency integrated in blockchain technology, every detail of a transaction executed by a smart contract can be accessed and verified by all authorized parties. This creates a high level of transparency and strengthens confidence that the contract is fulfilled according to the agreed terms .

Jeff Garzik, co-founder of blockchain company Bloq, highlighted the significant benefits of smart contracts for parties seeking very specific outcomes in their transactions. In this context, smart contracts become a very useful tool because they allow precise transaction conditions to be set and executed automatically. For example, in the case of investments, smart contracts can be used to set specific terms related to profit sharing, time periods, or other restrictions. When all conditions have been fulfilled by both parties in accordance with predetermined rules, the contract can automatically be fulfilled, providing certainty and security in the implementation of the transaction.

In addition, smart contracts also provide the ability to resolve violations or failures in transactions in a clear and automated way. For example, if one party does not fulfill its obligations according to the terms of the contract, the smart contract can automatically trigger dissolution of the contract and return of assets to the affected party. This not only provides protection for the parties involved in the transaction, but also increases trust in the business ecosystem by confirming that contracts will be strictly and fairly enforced. Thus, smart contracts become an important instrument in increasing transparency, certainty and trust in various types of transactions, including investments, in the blockchain environment.

One of the most exciting applications of blockchain technology in fintech is its ability to facilitate payments quickly and securely, maintaining data integrity in the process. Because the basis of Distributed Ledger Technology (DLT) is to bypass centralized institutions, such as banks, payments can be processed directly between individuals or entities without the need to involve a third party. This allows users to transfer money quickly and efficiently, similar to pressing the “send” button on a phone. Nodes in a blockchain network work collaboratively to verify and settle transactions quickly, eliminating the need to wait for days as is often the case in traditional systems. Additionally, users no longer have to worry about the high fees associated with money transfers, as transaction fees in blockchain tend to be lower than traditional intermediary fees.

The implementation of blockchain in fintech opens the door to significant changes in the way payments are processed and made. With near-instant transactions and lower fees, this technology enables access to faster and more affordable financial services for individuals and businesses worldwide. This not only speeds up the payment process, but also increases financial inclusion by providing access to financial services to those previously difficult to reach by traditional systems. Thus, the application of blockchain in fintech has the potential to change the landscape of the financial industry, bringing significant benefits to all parties involved.

The use of blockchain for money transfers promises unprecedented savings of time and money for both customers and banks. With transactions executing almost instantly and low transaction fees, blockchain technology removes the additional barriers and fees often associated with traditional money transfers. This allows customers to transfer funds more efficiently, while banks can also reduce administrative and operational costs associated with processing transactions . Additionally, blockchain-based currencies are universal, meaning that no exchange rates or international transfer fees are required. This eliminates the complexities

often associated with cross-border money transfers, including currency conversion fees and rules that vary by country. Thus, blockchain technology provides the opportunity to transfer money more easily and cheaply, without having to worry about the limitations that often occur in traditional financial systems.

Blockchain technology promises fundamental changes in the stock market by reducing the complexity, high costs and security risks often associated with traditional investment processes. In conventional stock markets, the investment process involves various players such as investors, brokers, regulatory bodies, and centralized institutions, which often slows down and complicates the process. For example, transactions can take up to three days due to the need for communication between intermediaries, which causes delays and uncertainty. With blockchain technology, smart contracts and decentralized systems allow for a faster, more accurate and efficient investment process.

Blockchain offers a solution by introducing the concept of smart contracts, which allows contract conditions to be executed automatically without the need for intermediaries. This removes the barriers and additional costs associated with the traditional investment process. Additionally, with a decentralized system, data transparency and security increases as information is recorded in a distributed manner across the network, reducing the risk of manipulation or fraud. As such, blockchain technology offers the potential to change the stock market landscape by speeding up and simplifying the investment process, as well as increasing trust and efficiency in the stock market ecosystem as a whole.

With blockchain operating on smart contracts, the investment process can be carried out quickly and fulfilled immediately, eliminating the need to wait for days as is often the case in traditional systems. The peer-to-peer investment process, where individuals invest directly with companies without going through a broker, speeds up the process and eliminates unnecessary steps. Additionally, the blockchain's tightened security encryption protocols also reduce the risk of financial data breaches, providing additional protection for all parties involved in the transaction.

Apart from that, blockchain also introduces innovative investment concepts in the form of Initial Coin Offerings (ICO). In contrast to the traditional method of raising capital through an Initial Public Offering on the stock market, ICOs offer digital tokens that represent ownership of shares in a company. More companies are turning to blockchain-based ICOs because they offer a faster, safer and more accurate way to raise capital. ICOs allow companies to reach global investors quickly and efficiently, while investors can easily access investment opportunities that may not be available through traditional channels. Thus, blockchain not only changes the traditional way investments are made, but also opens the door to new innovations and access to global capital markets for all parties involved.

The financial industry, like any other business, values data and the benefits that can be gained from customer loyalty programs. However, with the use of blockchain technology, this process can be further optimized by reducing costs, enabling smoother and real-time programming, and keeping vital data secure. Through the implementation of smart contracts,

customers can collect rewards directly and in real-time, while businesses can manage their data more efficiently and transparently. Consolidating customer loyalty programs in one blockchain-based wallet encourages consumers to more actively use their rewards, increasing engagement and interaction with brands.

In addition to increasing customer engagement, the use of blockchain in loyalty programs also generates additional benefits in terms of trust and data security. By utilizing the high level of security features of blockchain technology, companies can provide assurance to customers that their personal information will be properly secured. This helps build trust between customers and companies, increases brand loyalty, and strengthens long-term relationships between the two. By leveraging blockchain to maintain data security and efficiently reward customers, the financial industry can better achieve its business goals while strengthening customer relationships.

Potential Application of Blockchain Technology in Corporate Financial Management

1. Transparency and Accountability

Blockchain technology promises high transparency in corporate financial processes in a revolutionary way. With its ability to store transaction records permanently and distributed across the network, blockchain presents a ledger system that cannot be manipulated. Each transaction, once recorded, is irreversible, and is available for viewing by all parties with access to the blockchain. This creates an unprecedented level of transparency in corporate financial management, ensuring that any changes or transactions can be easily verified and audited.

The main advantage of the high transparency brought by blockchain technology is increased accountability. With all transactions permanently recorded and accessible to all relevant parties, there is no room for manipulation or fraud. This provides assurance that every financial action or decision can be traced back to its origin, strengthening responsibility and integrity in corporate financial management. Additionally, blockchain facilitates more efficient internal and external audits, as decentralized stored transaction records allow auditors to quickly verify data accuracy and spot potential discrepancies.

By providing high transparency in financial processes, blockchain can also help increase trust between the various parties involved. When all transactions are conducted openly and can be verified, investors, shareholders, and other stakeholders have greater confidence in the integrity of a company and its financial management. This helps strengthen the relationship between the company and its stakeholders, which in turn can help improve the company's reputation and its appeal to potential investors and business partners.

2. Operational Efficiency

The use of smart contracts in blockchain technology has opened the door to greater automation in corporate financial processes. Smart contracts are computer code written with clear rules, and are executed automatically when certain conditions are met. With smart contracts, financial processes such as payments, transaction settlement, and document processing can be executed without significant human intervention. For example, in the context

of payments, smart contracts can be programmed to execute payments automatically when payment conditions have been met, eliminating the need for time-consuming manual processes. This not only saves time, but also reduces costs associated with the use of human resources and human error.

Automating financial processes with smart contracts brings great benefits to a company's overall operational efficiency. By eliminating monotonous and repetitive manual tasks, human resources can be allocated to more strategic and value-added activities. Additionally, the use of smart contracts can reduce the risk of human errors that often occur in manual processes, causing data inaccuracies and additional costs for repairs. By automating financial processes, companies can improve their operational efficiency, increase productivity, and reduce costs associated with financial management.

Additionally, with smart contracts, financial processes can become more transparent and verifiable. Every action taken by a smart contract is permanently recorded in the blockchain, allowing users to easily verify the correctness of each transaction. This not only increases confidence in financial processes, but also facilitates internal and external audits, as openly distributed transaction records can be quickly verified. Thus, the use of smart contracts can help increase transparency and accountability in company financial management.

3. Data Security

Blockchain technology has been in the spotlight for its ability to provide a high level of security for corporate financial data. This is achieved through the use of strong encryption and unique network consensus. Strong encryption ensures that the data stored in the blockchain is encrypted with highly secure methods, making it difficult for unauthorized parties to access or manipulate the information. By using advanced encryption algorithms, blockchain creates a solid layer of security that protects the integrity and confidentiality of a company's financial data.

Additionally, network consensus is a key feature of blockchain that helps maintain data security. In a blockchain network, all transactions must be approved by a majority of the nodes or participants in the network before they can be added to the ledger. This means that no single entity can control or manipulate transactions, as consent must be obtained from the majority of participants. Thus, blockchain ensures that no single party can change financial data without obtaining approval from the majority of the network, thereby increasing security and trust in the process.

Through a combination of strong encryption and network consensus, blockchain provides powerful protection against cyber attacks and data manipulation. With transaction records distributed openly and encrypted, attempts to manipulate or steal company financial data will be difficult. This provides additional confidence to all stakeholders, including investors, customers, and authorities, that financial information stored on the blockchain is safe and secure.

Challenges of Applying Blockchain Technology to Corporate Financial Management

1. Infrastructure Availability and Technology Limitations

Implementing blockchain technology is a step that demands appropriate infrastructure and deep technical knowledge. Companies that want to adopt blockchain need to consider the information technology infrastructure that can support blockchain applications well. This includes the need for hardware and software capable of running blockchain platforms efficiently, as well as a stable and secure network to manage transactions. Therefore, companies must allocate sufficient resources to build or update their IT infrastructure according to the requirements of blockchain technology.

In addition to the right infrastructure, successful blockchain implementation also depends on sufficient technical competence. Enterprise IT teams need to have sufficient knowledge and skills in the development, management and maintenance of blockchain technology. They must be able to integrate existing legacy systems with blockchain, as well as ensure seamless interoperability between various platforms and applications. Therefore, companies may need to train their staff or hire professionals with specific expertise in blockchain technology to ensure successful implementation.

Another challenge companies face in adopting blockchain technology is integration with existing legacy systems. Many companies have complex IT infrastructures that are integrated with other internal and external systems. Integrating blockchain with existing infrastructure can be a complex process and requires careful adjustments. Companies must consider various technical and operational aspects in building a bridge between legacy systems and blockchain technology, and ensure that data can flow smoothly between the two.

2. Regulation and Compliance

Regulatory uncertainty surrounding the use of blockchain in financial management is a major obstacle for companies. Although blockchain technology offers great potential to increase efficiency and transparency in financial processes, regulators in many jurisdictions have yet to establish a clear legal framework for this technology. As a result, companies face risks when adopting blockchain, as they must operate in a legally uncertain environment. This uncertainty may hinder innovation and investment in blockchain technology, as companies tend to wait for regulatory clarity before moving forward.

In addition to regulatory uncertainty, compliance with data security and privacy standards is also a major concern for companies considering blockchain use. With increasing cyber security threats and concerns about data privacy, companies must ensure that their blockchain implementations meet stringent security standards. This includes strong data encryption, proper access management, and continuous monitoring of potential security threats. Through these steps, companies can minimize security risks and ensure that their financial data is safe in a blockchain environment.

Furthermore, companies need to understand that the importance of compliance with data security and privacy standards is not only an ethical responsibility, but also has significant implications from a business perspective. Data security breaches can result in major financial losses, loss of customer trust, and damaged company reputation. Therefore, companies must

invest in the necessary infrastructure and human resources to ensure that their blockchain use meets high standards of security and data privacy.

3. Implementation Costs

Although blockchain technology promises great benefits in reducing long-term costs, companies often face significant initial cost challenges related to implementing and integrating new systems. Especially for small and medium-sized companies, these initial costs can be a serious barrier to adopting blockchain technology. Blockchain implementation requires substantial investment in infrastructure and software development that suits the company's needs. This includes building or updating information technology infrastructure, recruiting or training staff with specific skills in blockchain, as well as integrating existing legacy systems with new blockchain technology.

In addition to the initial investment costs, companies must also consider the long-term operational costs associated with using blockchain technology. While the potential for long-term cost savings can be significant, such as reduced administration, transaction and data exchange costs, companies need to account for the operational costs associated with maintaining and managing a blockchain platform. This includes costs for ongoing technology updates, technical support, and data security. Therefore, companies must take into account the total cost of ownership (TCO) of the selected blockchain solution, including initial investment costs and long-term operational costs.

On the other hand, it is important for companies to view initial costs as a long-term investment that has the potential to provide large returns. By adopting blockchain technology, companies can increase operational efficiency, speed up transaction processes, and increase data security. Additionally, blockchain can open up new opportunities for innovation and business growth, which in turn can increase a company's revenue and profits. Therefore, the initial costs of implementing and integrating a new system should be viewed as a strategic investment in the company's future.

Conclusion

Blockchain technology offers innovative solutions to the financial sector with its potential to increase transparency, security and operational efficiency. By leveraging smart contracts, blockchain enables automatic execution of contracts by eliminating intermediaries, reducing transaction costs, and increasing trust in financial processes. The use of blockchain is not only limited to the financial sector, but also extends to various industries, offering innovative opportunities in payments, investments and customer loyalty programs. Thus, the application of blockchain technology strengthens its role as a leading solution in improving operational performance and security in various fields, speeding up processes, and bringing benefits to all parties involved. Blockchain technology offers great potential for companies to manage their finances more efficiently, transparently and securely. With its ability to provide high transparency in financial processes, blockchain increases accountability and trust between various related parties, including investors, shareholders and other stakeholders. Additionally,

through the use of smart contracts, blockchain enables the automation of financial processes, resulting in significant operational efficiencies and reducing the risk of human error. Despite the potential, the use of blockchain in corporate financial management also faces significant challenges related to the integration of existing legacy systems and compliance with regulations related to data privacy and security. Although the potential long-term benefits are large, the associated initial implementation and operational costs can be prohibitive for companies, especially small and medium sized ones. However, by viewing the initial costs as a strategic long-term investment, companies can reap huge benefits in terms of operational efficiency, transparency, and data security.

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