

The Use of Blockchain Technology for Smart Contracts in Future Business Agreements

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ABSTRACT

The rapid advancement of technology in the digital era has prompted many companies to develop their businesses in line with current trends, one of which is by applying blockchain technology to smart contracts. This technology is a derivative of Cryptocurrency, which has become a trend in asset trading. The blockchain system in Cryptocurrency enables smart contracts to be designed to operate autonomously through blockchain technology using programming languages translated into legal language. This study aims to analyze the legality of using blockchain technology for smart contracts as legal products in the digital era and to assess the effectiveness of blockchain technology on smart contracts in business agreements between companies in Indonesia. This research employs a normative juridical method, focusing on the prevailing legal regulations related to the legality and effectiveness of using blockchain technology in smart contracts. The study concludes that the potential of blockchain for smart contracts is significant, given its efficiency and practicality, which can also reduce transaction costs. However, its implementation still needs to adapt to existing technologies, be easily accepted by society, and have stronger legal guarantees in its application.

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1. INTRODUCTION

Blockchain has evolved into a paradigm applicable to various industries, such as wealth management, the public sector, and intellectual financial sectors[1]. **One type of fintech** that is believed to transform the future of the global financial industry is blockchain [2]. Each new transaction can be linked to previous transactions in an immutable chain, ensuring data integrity without a central authority [3]. The security of transactions and data storage using blockchain can help prevent fraud and data breaches, aligning with Shariah principles in protecting asset owners' rights[4].

As the creator of blockchain, Satoshi Nakamoto enhanced existing technology initially designed for digital currency systems, which has now expanded to encompass various other technological fields[5]. The **background** is technopreneurship aims to utilize blockchain financial systems must overcome various technological challenges to achieve success[6]. These entrepreneurs need to continually learn about technology, keep up with regulatory developments, build robust infrastructure, ensure data security and privacy, and increase

awareness of blockchain benefits[7]. This **research aims** to understand the intersection of technopreneurship and blockchain within the financial industry. It focuses on developing a comprehensive understanding of the technology and its strategic impact on society and the environment[8].

Despite the potential of blockchain technology, there are significant barriers to its widespread adoption[9]. These include technological limitations, regulatory issues, and the lack of standardization protocols[10]. The research **findings** highlight the need for standardized protocols, regulatory clarity, and scalable technological development to fully realize blockchain's potential. By addressing these **gaps**, the study provides novel insights into effective strategies for integrating blockchain technology into financial technopreneurship, thereby contributing to the strategic development in this dynamic landscape[11].

2. LITERATURE REVIEW

2.1. Strategy

The concept of strategy is a comprehensive and integrated plan that links the strategic advantages of a company with environmental challenges, designed to ensure that the primary goals of the organization are achieved through proper implementation by the organization itself[12].

2.2. Development of Technopreneurship

The development of technopreneurship involves formulating models and strategies for its advancement. Higher education institutions are likely to foster technopreneurship education in the future[13].

2.3. Technopreneurship

Technopreneurship is a process within an organization that prioritizes innovation and continuously identifies core problems, solves these issues, and implements solutions to enhance competitiveness in the global market[14]. The terms "technology" and "entrepreneurship" form the word "technopreneurship," representing a synergy between strong technological capabilities and a comprehensive understanding of entrepreneurial concepts[15].

2.4. Blockchain

Blockchain is a distributed ledger technology that is immutable and offers opportunities for digital certification and information exchange through computer networks. Blockchain was created by Satoshi Nakamoto in 2008 and initially used as a public ledger for cryptocurrency transactions in Bitcoin[16].

3. RESEARCH METHODS

3.1. Data Collection Methods

In qualitative studies, data analysis techniques constitute a systematic process aimed at selecting, categorizing, comparing, synthesizing, and interpreting data to build a comprehensive picture of the phenomenon under study. Qualitative data consists of information and descriptions in prose form, which are then linked to other data[17].

3.2. SWOT Analysis

SWOT analysis during the strategic planning phase to identify and examine existing resources, both internal and external[18]. This analysis investigates trends and patterns that may have positive or negative impacts on the business[19].



Figure 1. SWOT Analysis

As shown in Fig 1, SWOT analysis comprises four interrelated elements: strengths, weaknesses, opportunities, and threats[20]. Strengths refer to internal aspects of the organization that provide advantages,

such as effective internal capabilities[21]. Weaknesses, on the other hand, pertain to internal aspects that may hinder progress, such as a lack of resources[22]. Opportunities are external situations that can help the organization grow, such as policy changes or market opportunities[23]. Finally, threats refer to external factors that could jeopardize the organization's success, such as economic changes or strong competitors[24].

4. RESULT AND DISCUSSION

Blockchain can significantly enhance transaction security and data storage, aligning with Shariah principles in protecting asset owners' rights[25]. The integrity of blockchain data is maintained by storing information in interconnected blocks and using encryption to ensure privacy, making the data immutable and tamper-proof by unauthorized parties. This technology can help prevent fraud and data breaches, which is crucial in the financial industry. Additionally, blockchain's transparency allows customers to easily track their transaction history, thus increasing their trust in the financial system. By combining strong cryptography, decentralization, and transparency, blockchain provides a secure and reliable foundation for various applications, ranging from finance to supply chain management.

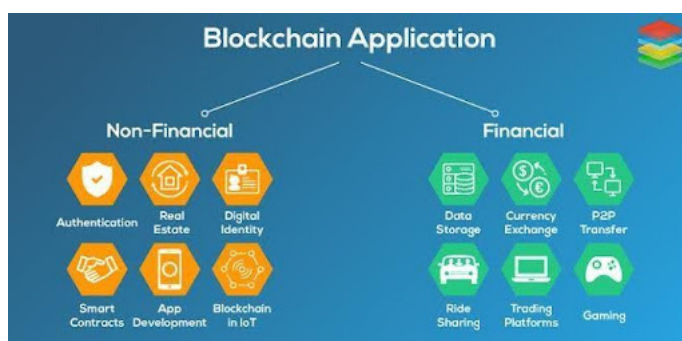


Figure 2. Blockchain Application

Blockchain's high level of transparency enables customers to trace their transaction history effortlessly, enhancing their confidence in the financial system. This transparency, coupled with the improved security, can help build stronger customer trust in financial institutions. Blockchain also has the potential to improve efficiency within financial systems by streamlining processes and reducing the need for intermediaries, thus increasing overall system transparency and efficiency. This enhanced efficiency can lead to greater public trust and wider adoption of blockchain technologies in the financial sector.

The technological limitations of blockchain in the financial industry encompass a range of issues, including the lack of standardization protocols, regulatory challenges, skill gaps, resource constraints, technological shortcomings, security, privacy, and public trust concerns. These limitations hinder the widespread and effective use of blockchain in the financial sector.

The lack of standardized protocols makes it difficult to achieve interoperability between different blockchain systems, while regulatory uncertainties can create barriers to adoption. Additionally, there is a shortage of skilled professionals who can develop and manage blockchain systems, and many organizations lack the resources to invest in this technology. Security and privacy concerns also pose significant challenges, as ensuring the safety of data and maintaining user privacy are critical in the financial industry. Public trust is another major hurdle, as the general populace may be skeptical about the security and reliability of blockchain technology. These challenges make it difficult to integrate blockchain technology with Shariah-compliant financial systems and to enhance public trust in blockchain applications.

The implementation of blockchain can streamline processes, reduce the need for intermediaries, and provide a higher level of transparency, which can further enhance public trust. By improving the overall efficiency and transparency of financial systems, blockchain technology can play a pivotal role in increasing public confidence in the financial industry.

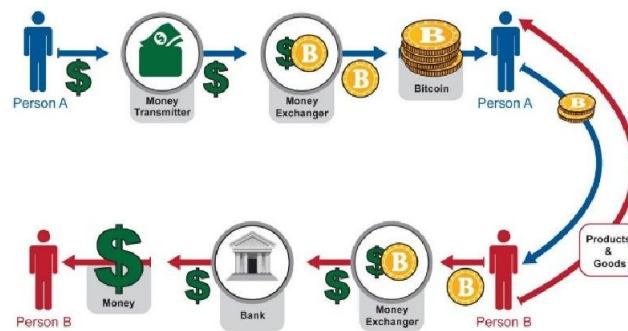


Figure 3. Crypto Trading Mechanism

This fig 3 particularly crucial in the financial industry because unsecured data can lead to significant losses. Blockchain technology has the potential to enhance efficiency and transparency in financial systems by enabling faster and easier transactions. This increased efficiency and ease of use can bolster public confidence in the financial system.

Efforts to enhance data encryption, strengthen access control mechanisms, and develop innovative data privacy solutions are crucial for building trust and encouraging the widespread adoption of blockchain technology. Blockchain still faces significant challenges in addressing data security and privacy, which are critical in the financial industry. Furthermore, the technology has limitations in overcoming public trust issues, which are essential for its broader adoption in the financial sector. Building public trust in blockchain is a vital factor in driving the technology's widespread adoption. Increasing transparency, education, and collaboration with various stakeholders can help mitigate skepticism and build public confidence in blockchain.

Using SWOT analysis, strategies for developing blockchain-based technopreneurship in the financial industry can be implemented more effectively. These strategies can enhance transaction security and data storage, improve efficiency and transparency in financial systems, and increase public trust. However, these strategies must also consider current technological limitations, challenges in addressing data security and privacy, and issues in overcoming public trust. By addressing these factors, the adoption and integration of blockchain technology in financial technopreneurship can be significantly improved.

The strategic integration of blockchain technology in financial technopreneurship holds significant promise but also faces numerous challenges. To fully harness the potential of blockchain, it is imperative to address technological limitations, regulatory hurdles, and public trust issues. By focusing on enhancing security measures, improving transparency, and fostering collaboration among stakeholders, the financial industry can effectively leverage blockchain technology. This will not only enhance the efficiency and security of financial transactions but also build greater public confidence in blockchain applications, paving the way for more widespread adoption and innovation in the sector.

5. CONCLUSION

The development strategy of blockchain-based technopreneurship in the financial industry holds significant potential for enhancing transaction security, data storage, efficiency, and transparency in financial systems, as well as increasing public trust. However, challenges such as protocol standardization, regulatory issues, and current technological limitations must be addressed. The **research aims** to bridge the **gap** between current practices and the potential of blockchain technology. In a SWOT analysis, the strengths identified include transaction security, data storage, efficiency, transparency in financial systems, and public trust. The weaknesses are current technological limitations, challenges in addressing data security and privacy, and overcoming public trust issues. The opportunities lie in improving transaction security, data storage, efficiency, and transparency, while the threats include technological limitations and challenges in data security, privacy, and public trust.

To synthesize the SWOT analysis, the strategy for developing blockchain-based technopreneurship in the financial industry must consider the identified strengths and weaknesses, as well as the opportunities and threats. The strategy should focus on enhancing transaction security and data storage, improving efficiency

and transparency in financial systems, and increasing public trust. The **findings** that addressing technological limitations, regulatory challenges, and public trust issues through targeted measures is crucial for effective implementation.

To optimize the development of blockchain-based technopreneurship in the financial industry, companies and institutions should focus on strengthening technological infrastructure through investment in research and development and collaboration with technology providers. It is also important to work with regulators to create a supportive legal framework, and to conduct educational campaigns and training programs to improve public and workforce understanding and skills. Additionally, enhancing security protocols and conducting regular audits are essential to ensuring data privacy. Transparent marketing strategies and customer feedback collection can help build trust. Developing innovative financial solutions that align with Shariah principles and expanding markets through international partnerships will create new business opportunities. Regular SWOT analysis should be conducted to evaluate and adjust the implemented strategies, ensuring success and sustainability in the face of environmental and technological changes.

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