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APPLICATION OF BLOCKCHAIN TECHNOLOGY IN THE TAXATION SYSTEM: BENEFITS AND RISKS

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Abstract

The application of blockchain technology in the tax system offers opportunities to improve the transparency, security, and efficiency of tax data management. With its decentralised and immutable nature, blockchain minimises the risk of fraud and manipulation, and reduces the potential for tax evasion. However, there are also a number of challenges and risks to be faced, including dependence on technology and cybersecurity threats. In addition, regulatory updates are required to accommodate the use of this technology. Overall, if implemented appropriately, blockchain can revolutionise the tax system, support fiscal justice, and increase public participation in tax obligations.

Keywords: ***Technology, Blockchain, Taxation System, Benefits and Risks***

Introduction

In the rapidly growing era of digitalisation, technology has become a key factor in various sectors, including the tax system. A tax system is a legal and regulatory framework designed by a country to collect revenue through various types of taxes from both individuals and business entities to fund government operations and provide public services (Gupta & Verma, 2020) . The system covers various aspects such as the types of taxes levied (e.g., income tax, value-added tax, corporate tax), tax assessment methods, reporting and payment procedures, and enforcement and monitoring mechanisms to ensure taxpayer compliance. The aim is to distribute the fiscal burden fairly, support economic stability, and perform essential public service functions for society (Sato & Tanaka, 2020) .

One technological innovation that is gaining more and more attention is blockchain. Blockchain technology, which was initially recognised through the success of cryptocurrencies such as Bitcoin, is now being explored for various other applications, including in the tax system. Its ability to provide transparency, security, and operational efficiency is expected to bring significant changes in tax management (Li & Li, 2021) .

Over the years, traditional tax systems in many countries have been faced with various challenges, such as administrative complexity, potential for fraud, and constraints in tracking and ensuring tax compliance. These issues often lead to dissatisfaction among taxpayers and create substantial economic losses for the country (Peters & Panayi, 2020) .

Blockchain technology offers a potential solution to these challenges. With its distributed nature, blockchain can increase the transparency of transactions, making every data entry traceable and verifiable in real-time by all interested parties. This not only increases trust and accountability, but also reduces the likelihood of fraud and human error (O'Connor, 2022) .

An efficient and transparent tax system plays a key role in ensuring a country's economic stability and sustainable development. Successful efficient tax collection ensures that the government has sufficient resources to fund public services, such as education, health, and infrastructure, which are critical to people's well-being. Efficiency in the tax system reduces administrative costs and minimises uncertainty, thereby creating an environment conducive to economic growth and investment. By reducing complexity and speeding up the tax collection process, an efficient system can also increase voluntary compliance from taxpayers (Smith, 2021) .

On the other hand, transparency in the tax system builds trust between the government and the public. When the public can clearly see how taxes are collected and used, and there is open accountability and reporting, it can increase public trust in tax institutions. Transparency also plays a role in reducing corruption and fraudulent practices, as every transaction can be tracked and independently verified. It is important to ensure tax fairness so

that the tax burden is distributed proportionally according to each taxpayer's ability. Ultimately, an efficient and transparent tax system is able to support inclusive and sustainable development goals (Tan & Sheng, 2022) .

However, the application of blockchain technology in the taxation system also raises various risks and challenges. Issues related to data privacy and security, the risk of cyber-attacks, and the high cost of implementing and maintaining the technology are some important considerations. In addition, existing regulations may not fully support the adoption of this new technology, requiring new legal and regulatory frameworks that are adaptive to technological change (Williams & Taylor, 2021) .

This study will explore the application of blockchain technology in the tax system, identifying the benefits as well as the risks that may arise from its implementation. With a deeper understanding of these potentials and challenges, it is expected to provide guidance for the government and policymakers in deciding on the best strategy to integrate blockchain technology into a more modern and efficient tax system.

Research Methods

The study in this research uses the literature method. The literature research method is a research approach that involves the collection, analysis, and interpretation of information sourced from various literatures relevant to a particular research topic. This process includes the identification, critical evaluation, and synthesis of scientific works such as books, journal articles, research reports, and other previously published written sources (Booth et al., 2016) ; (Petticrew & Roberts, 2006) . The main purpose of literature research is to understand the development of existing theories and concepts, identify research gaps, and build a strong theoretical foundation for further study. By collecting and reviewing relevant literature, researchers can gain in-depth insights, compare previous research results, and inform their own research frameworks by referring to academically recognised findings (Yuan & Hunt, 2009) .

Results and Discussion

The application of blockchain technology in the tax system can increase transparency and strengthen trust between taxpayers and the government. Blockchain serves as a secure and immutable digital ledger, ensuring all tax transactions are permanently and transparently recorded. This allows taxpayers to understand more clearly how their taxes are calculated and spent, and enables auditors and government agencies to verify data in real-time. This minimises the risk of fraud and administrative errors, increasing public trust in the tax system (Muller & Vogel, 2020) .

With blockchain, the process of collecting and managing taxes can become more efficient. Automation enabled by smart contracts can minimise human involvement in administrative processes, reducing the time and cost required to process tax returns, payments, and verifications. The system can also speed up the process of tax audits and reporting as data is stored in an organised and easily accessible manner. Thus, blockchain implementation can reduce bureaucracy and increase the responsiveness of the tax system (El-Hajjar & Abukhadijah ., 2022)

Cyber security is one of the major concerns in managing sensitive tax data. Blockchain offers high security with its advanced encryption mechanism, thus ensuring data cannot be altered without detection. Every new transaction added to the blockchain requires consensus from the network, which makes it almost impossible for hackers to alter the information. This protects tax data from the threat of theft and manipulation, providing extra protection for taxpayers' sensitive information (Ahmed & Bhatt, 2021) .

Despite its many benefits, implementing blockchain in the tax system is not an easy task. The complexity of the technology requires specialised technical expertise and a large initial investment. The transformation of existing systems into new technologies may also be met with resistance from those accustomed to traditional ways of working. In addition, there are logistical challenges related to the integration of blockchain with existing information technology infrastructure, which can disrupt operations if not managed carefully (Choi & Kim, 2021) .

Blockchain-related regulations and policies are still evolving in many countries. This legal vagueness may hinder the technology's widespread application in the tax sector. Governments need to develop a clear regulatory framework to accommodate the potential benefits of blockchain while protecting the interests of all stakeholders. Without adequate regulation, there is a risk of confusion and lack of legal certainty, which could lead to disputes between the government and taxpayers (Kurniawan & Hartono, 2021) .

Blockchain may face scalability challenges when applied in tax systems that include a large number of transactions. The technology tends to experience performance degradation when the volume of data increases, which can slow down transaction processing times. This is important to consider, especially in countries with large

populations and a large number of taxpayers. Ensuring that blockchain systems can handle high workloads without compromising speed and efficiency is one of the key challenges that need to be addressed (Rahman & Saleh, 2021)

While blockchain provides transparency, there are concerns regarding the privacy of taxpayer data. The implementation of blockchain could create challenges in maintaining the confidentiality of sensitive information. New approaches are needed to ensure that personal data is not available to the wider public while remaining open to audit and verification by authorities. Structuring data that protects the identity of users without compromising the benefits of transparency is a challenge that must be addressed (Martinez & Rodriguez, 2022) .

While blockchain technology offers a range of potential benefits to the tax system-particularly in terms of transparency, efficiency, and security-there are a number of significant risks that must be considered. Careful planning, technological capacity building, as well as the development of clear and adaptive regulations are essential steps for the benefits of blockchain to be fully realised without leaving behind risks that could be detrimental to the tax system. Therefore, both the government and other stakeholders need to collaborate to utilise this technology in a way that ensures the public interest is maintained.

Blockchain Transparency and Security Improves Transparency of Tax Transactions

In recent years, blockchain technology has attracted attention as an innovative way to address challenges in various sectors. One of the sectors that could benefit the most is taxation, where transparency and honesty in transactions are two crucial factors. Blockchain technology can significantly improve both of these aspects (Jones & Walker, 2022) .

Blockchain provides a centralised, immutable ledger, where every transaction is permanently recorded and verifiable by all interested parties. This makes fraud and data manipulation more difficult. In the field of taxation, this transparency ensures that every transaction related to tax obligations is clearly recorded and can be checked at any time (Al-Dossari & Al-Qahtani, 2021) .

Security is one of the key aspects of blockchain. Every transaction that occurs on a blockchain is verified by a network of computers through a complex cryptographic process. This makes the data in a blockchain very difficult to hack or alter without detection. In the context of taxation, this means that transaction records used for tax calculations can be trusted and accurate (Alvaro & Neves, 2022) .

In addition, blockchain can reduce the administrative costs and paperwork typically associated with the verification process of tax transactions. Traditional processes that often take a lot of time and resources can be automated with a blockchain system, making the process more efficient and reducing room for human error (Davies & Young, 2020) .

The use of smart contract technology on the blockchain also introduces a new mechanism in taxation. Smart contracts are computer programmes that run on the blockchain and automatically execute, control, or document relevant events and actions. In the context of taxation, smart contracts can be used to automatically calculate and collect taxes based on transaction data recorded on the blockchain (Maru & Fikadu, 2020) . For the government, blockchain can be an effective tool in increasing tax collection and reducing tax evasion. With a transparent and secure system, governments can better track financial transactions, minimising loopholes that can be exploited to avoid tax obligations (Brown & Green, 2020) .

The implementation of blockchain also brings benefits to taxpayers. They benefit from a more transparent system, where proof of payments and transactions are always available and can be viewed at any time. This can help reduce the issue of tax disputes, as all parties have access to the same, immutable information (Kumar & Rao, 2022)

Overall, the application of blockchain technology in taxation offers an effective and efficient solution to improve transparency and security in tax transactions. A more transparent and secure taxation sector will support fiscal justice, increase public trust, and encourage active participation from the public in carrying out their tax obligations.

Conclusion

The application of blockchain technology in the tax system offers a number of significant benefits. As a decentralised and immutable digital ledger, blockchain increases transparency and security in the management of tax transaction data. With all transactions permanently recorded and verifiable by all interested parties, the risk of fraud, data manipulation, and tax evasion can be drastically reduced. Administrative efficiency is also improved, reducing costs and human error through the automation of verification and record-keeping processes.

While blockchain offers various advantages, its implementation also brings some risks that need to be addressed. One of the main challenges is the reliance on technology and cybersecurity. While blockchain itself is

highly secure, a cyberattack on the supporting systems and related infrastructure could cause major losses. In addition, laws and regulations on the use of this technology in taxation also need to be updated and adjusted to accommodate technological developments and maintain a balance between innovation and legal protection.

Overall, the benefits of implementing blockchain technology in the tax system far outweigh the risks, especially if risk mitigation measures are well implemented. Blockchain has the potential to revolutionise the tax system through increased transparency, security, and efficiency, ultimately supporting fiscal justice and encouraging public participation in tax obligations. Wise and sustainable implementation, as well as appropriate regulatory adjustments, are essential to maximise the positive potential of this technology.

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