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Blockchain In Taxation: A Systematic Literature Review (2017-2022)

Pradhika Yudha Dharma
Directorate General of Taxes, Jakarta, Indonesia. Email: pradhika.dharma@pajak.go.id

* Corresponding author: pradhika.dharma@pajak.go.id

ABSTRACT

The rapid evolution of digital technologies has positioned the implementation of blockchain technology in the field of taxation as a uniquely compelling and necessary research topic, given the government's need to enhance the efficiency and security of revenue collection. This paper addresses the current research landscape by presenting a comprehensive Systematic Literature Review (SLR), summarizing the diverse studies that explore the intersection of tax systems and distributed ledger technologies. Following a rigorous screening and selection process covering publications from January 2017 to October 2022, the analysis focused on 16 relevant primary studies, drawn from an initial pool of 326 articles. The synthesis of these studies reveals that the most dominant research themes concentrate heavily on the integration of blockchain for Value Added Tax (VAT), represented by six papers, and for broader general tax administration, which accounts for five papers. Despite the identified benefits—such as increased transparency and security—the review also highlights significant challenges. The most frequently cited obstacles to adoption are critical concerns over data privacy issues, high implementation costs, and the persistent oracle problem, which relates to verifying the accuracy of off-chain data submitted to the blockchain.

Keywords: blockchain, distributed ledger technology, taxation, tax administration, systematic literature review

1. INTRODUCTION

For any government, taxes are the primary source of public funding. As a result, tax collection is always a crucial concern. Although revenue collection is a double-edged sword, the government always strives to collect it. Tax authorities work to make the tax collection process more efficient, while taxpayers work to reduce their tax bases. Importantly, poor tax collection is not a one-sided problem (Demirhan, 2019).

Blockchain is a decentralized digital ledger system operating on a peer-to-peer (P2P) network, built on cryptographic principles and employing Public Key Infrastructure (PKI) along with hashing techniques to ensure data integrity and security (Phadke et al., 2021). Given the technology's benefits, its incorporation into the tax system would be advantageous. In 2017, PricewaterhouseCoopers UK published an industrial paper outlining the key characteristics of blockchain that could be used to improve the tax system (PricewaterhouseCoopers UK, 2017).

- Transparency: By enabling transaction provenance to be tracked, blockchain provides a transparent structure.
- Controllability: Only people who have been identified are permitted access to the network of permits.
- Security: Once digital data has been entered, the digital ledger cannot be changed or

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tampered with. Using blockchain technology, fraud can be easily tracked down. Thus, blockchain helps prevent fraud.

- Real-time data: The immediate availability of the most up-to-date information to all participants in the network simultaneously. This means that any modification made to the data is instantly visible and accessible to all nodes within the system..

Blockchain's application in taxation will enhance tax collection, broaden the tax base, and ensure the accuracy and validity of the information and data used in tax administration. This paper attempts to answer the following Research Question (RQ):

- RQ1: What are the current research subjects on blockchain technology and taxation?
- RQ2: How do we readily implement blockchain technologies in taxation?
- RQ3: Who is involved with blockchain in taxation?
- RQ4: What are the disadvantages of current blockchain applications in taxation?

This paper conducts a comprehensive literature review of existing blockchain technologies and their applications in taxation to provide a holistic understanding of this research domain. The investigation is guided by the systematic principles established by Kitchenham et al. (2009).

This paper offers three key contributions. First, it identifies 16 primary studies on blockchain and taxation, published between 2017 and October 2022. Second, it delivers an in-depth qualitative and quantitative analysis of the current landscape of blockchain adoption in taxation, using data extracted from the selected studies. Lastly, it highlights research gaps and outlines potential directions for future studies, informed by the results of our systematic literature review (SLR).

The remainder of the paper is structured as follows: Section II provides foundational background on blockchain technology and frames the research problems addressed in this study. Section III details the adopted SLR methodology. Section IV presents the findings of the review, and the final section concludes the paper while proposing avenues for future research.

2. RELATED WORKS

2.1 Background

A blockchain is a collection of records known as blocks. Through various cryptographic mechanisms, these blocks are connected. Each block is recognized by its hash, confirmation time, and data. A hash function produces a hash value, and only effective hash functions are used in blockchain technology. Each alteration to a block invalidates all subsequent blocks because it updates the hash of the most recent block. This sequence of connected blocks refered to as blockchain (Biørn-Hansen et al., 2017).

A blockchain is run by numerous participants, known as "nodes," each of which keeps a copy of the data. The remaining nodes and the blockchain are secure and unaffected even if one node is compromised or altered (Guru et al., 2021). Most nodes will have different contents than the compromised node, which is the cause. In an ideal network, each node would be connected to every other node, creating a distributed network. However, a node can only have so many connections, which makes the network decentralized.

A consensus mechanism allows all participating nodes—malicious or honest—to agree on the contents of a blockchain. Honest nodes are participants that follow the established protocol rules and validate transactions according to the network's agreed-upon standards. In contrast, malicious nodes attempt to manipulate the network by introducing false transactions, executing double-spending attacks, or otherwise compromising the blockchain's integrity. The security of blockchain systems is predicated on the assumption that honest nodes control the majority of the network's computational power or stake, thereby ensuring that malicious actors cannot gain enough influence to compromise the system's integrity. A consensus mechanism must have the following characteristics: A transaction should be live and persistent if it is accepted or rejected by an honest party. If this happens, all other honest nodes will eventually perform the same action (Nijsse & Litchfield, 2020). Consensus algorithms come in a variety of forms (Sankar et al., 2017), like

Proof-of-Stake (PoS), Proof-of-Burn, Proof-of-Weight, Proof-of-Activity, Delegate Proof of Stake (DPoS), Proof-of-Importance, Proof-of-Capacity, Byzantine Fault Tolerance (BFT), Practical Byzantine Fault Tolerance (PBFT), Proof-of-Elapsed-Time (PoET), and Proof-of-Work (PoW). Several parameters, such as the type of blockchain, transaction rate, scalability, participation fees, and level of trust, have been used to differentiate various consensus models.

2.2 Related Works

Nascimento et al., (2021) research discuss the use of permissioned and permissionless blockchain networks, the use of blockchain platforms as the foundation for implementation in the tax sector, such as Etherium and HyperLedger, the consensus mechanism employed, the use of tokens, and the use of blockchain technology as a method of tax payment are some of the outcomes of this research.

A review of the literature on the application of blockchain technology to taxation and public finance was conducted by some researchers (Khan & Syed, 2019). One of their study goals is to determine whether blockchain deployment in the public sector, including taxation, is feasible. This article examines and evaluates the use of blockchain in taxation in Indonesia, Brazil, Estonia, and other nations. This study also discusses the tax system's effects due to the existence of cryptocurrency. It was further stated that the Value Added Tax (VAT) is one of the tax issues where the adoption of blockchain technology would have a significant impact. VAT will be closely tied to the recording of transactions and the parties involved in them.

Although these studies have reviewed the potential and feasibility of blockchain in taxation, there has not been a systematic literature review that comprehensively maps research topics, implementation models, stakeholders involved, and implementation challenges within a single, complete framework based on primary studies within a specific time frame. Therefore, the novelty of this article lies in presenting a qualitative and quantitative synthesis of the recent literature (2017-2022) to answer four interrelated research questions, thereby identifying research gaps and providing guidance for future research.

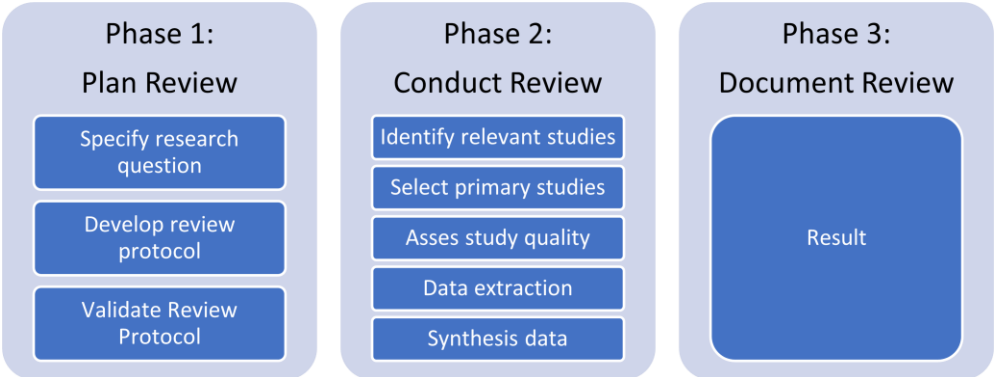
3. SYSTEMATIC LITERATURE REVIEW

With the rapid pace of scientific progress, an SLR identifies and critically examines pertinent studies to address clearly formulated research questions. By organizing the literature into categories, an SLR allows us to provide a visual representation —a mapping of the findings —with the primary aim of presenting a comprehensive overview of the research landscape to identify existing gaps.

Following the framework proposed by Petersen et al. (2008), conducting a systematic mapping study involves five key steps: as shown in Figure 1, the process starts with formulating the research questions, followed by identifying relevant literature, selecting primary studies,

Figure 1

The Steps to Conduct the SLR (Systematic Literature Review)



Notes. Source: Petersen et al. (2008)

extracting the necessary data, and finally answering the research questions while highlighting areas for future investigation.

3.1 Research Questions and Protocol of Development

This section identifies the study topics and explores their motives, as shown in Table 1.

These four research questions (RQs) are arranged in a logical sequence. The review begins with RQ1, which maps the existing research landscape ("What are the topics?"). It proceeds with RQ2 to explore the practical aspects ("How is it implemented?"). Next, RQ3 identifies the actors involved ("Who are the stakeholders?"). Finally, RQ4 evaluates the existing barriers ("What are the challenges?"). This progression allows for a systematic analysis, moving from the general scope of the topic to its specific challenges.

Table 1
Research Questions And Motivations

	Research Questions	Motivation
RQ1	What are the current research subjects on blockchain technology and taxation?	To understand how key research defines "blockchain" in the context of taxation.
RQ2	How do we readily implement blockchain technologies in taxation?	To investigate practical methods for integrating blockchain technology into taxation.
RQ3	Who is involved with blockchain in taxation?	To identify the roles, authorities, capabilities, and responsibilities in blockchain in taxation.
RQ4	What are the disadvantages of current blockchain applications in taxation?	To understand the challenges that blockchain technology in taxation attempts to solve.

Notes. Source: Author's Calculation

3.2 Conduct Review

This study gathered literature from five recognized digital libraries: IEEE Xplore, ACM Digital Library, ScienceDirect, Google Scholar, and SpringerLink. The search covers the period from January 2017 to October 2022.

Table 2 shows the search keywords and quantities for each of the digital libraries chosen.

Table 2
Search Strings and Quantity

Source	Research Questions	Selected Paper
IEEE	(("Document Title":blockchain OR "distributed ledger technology" OR DLT) AND ("Document Title":tax OR taxation)) OR (("Abstract":blockchain OR "distributed ledger technology" OR DLT) AND ("Abstract":tax OR taxation))	6
ACM	(Title:(blockchain OR "distributed ledger technology" OR DLT) AND Title:(tax OR taxation)) OR (Abstract:(blockchain OR "distributed ledger technology" OR DLT) AND (Abstract:(tax OR taxation))	1
SpringerLink	(blockchain OR "distributed ledger technology" OR DLT) NEAR/10 (tax OR taxation)	1
Science Direct	Title, abstract, keywords: (blockchain OR "distributed ledger technology" OR DLT) AND (tax OR taxation)	5
Google Scholar	allintitle: (blockchain OR "distributed ledger technology" OR DLT) (tax OR taxation)	3

Notes. Source: Author's Calculation

3.3 Selection of Primary Studies

Records were initially screened based on their title, abstract, and keywords. Next, this study developed inclusion and exclusion criteria for selecting the obtained content. The inclusion criteria are as follows: (1) a paper providing a solution for applying blockchain in taxation; and (2) a study covering the underlying ideas, frameworks, and practical applications of building blockchain solutions in taxation.

Meanwhile, these are the exclusion requirements: (1) Papers that do not use English as their primary language; (2) Papers that are inaccessible; (3) Papers that focus on cryptocurrencies; (4) Papers that were not published as journal articles, books, or book chapters; and (5) Papers with a meaning other than blockchain used in taxation.

The initial search yielded 326 papers, including 165 from Google Scholar, 87 from SpringerLink, 22 from ScienceDirect, six from the ACM digital library, and 46 from IEEE Xplore. The search found 32 peer-reviewed papers of the highest quality in the blockchain's taxation domain. This study retained just 16 papers as primary studies after eliminating papers based on exclusion criteria.

This study used Zotero citation management software to manage the references and the selection process. A simple quantitative analysis of the extracted data was conducted using Microsoft Excel.

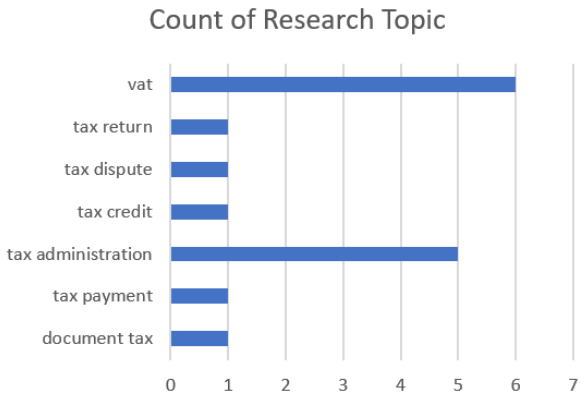
4. RESULTS OF SLR

4.1 RQ1: What Are the Current Research Topics in Blockchain Technology and Taxation?

From the research studied, conclusions can be drawn regarding several research topics that are currently being carried out related to the application of blockchain technology in taxation. The results of the review show that most of the research topics are as follows. Most of the papers, as many as six papers, discuss the implementation of blockchain technology in value-added tax. No less numerous, as many as five papers, discussing the implementation of blockchain technology in tax administration in general, which includes various types of taxes. Then there is one paper each with multiple topics, such as the application of blockchain technology in tax payments, tax credits, settlement of tax disputes, submitting tax returns, and the application of digital stamp duty or document tax. An overview of the number of research topics can be seen in Figure 2. The complete list of selected papers' topics can also be seen in Table 3.

Figure 2

Overview of the Number of Research Topics



Notes. Source: Author's Calculation

4.2 RQ2: How Can We Easily Implement Blockchain Solutions in Taxation?

The application of blockchain technology in the area of taxation can be done in a broad scope, according to the findings of our review. Value Added Tax (VAT) installations are among the most popular. The characteristics of VAT, which are strongly tied to documenting sales transactions of commercial entities, cannot be separated from the number of research studies on this subject.

By employing a Blockchain smart contract, Nguyen proposed a method for invoice authentication. The Decentralized Storage Network uses the InterPlanetary File System protocol to encrypt and store all invoice data. The hash code that DSN returns will be published on the Blockchain network (BCN). The invoice is presented as an encrypted hash code. Through the smart contract, only the vendors and the purchasers would be able to authenticate the

Table 3
List of Selected Papers

Ref.	Title	Topic
(Wijaya et al., 2019)	Designing a Smart Contract for Electronic Document Taxation	Document Tax
(Fatz et al., 2019)	Towards Tax Compliance by Design: A Decentralized Validation of Tax Processes Using Blockchain Technology	Tax Administration
(Wang, 2020)	Application of Blockchain Technology in Tax Collection and Management	Tax Administration
(Kjellstadli et al., 2019)	Privacy-preserving tax-case processing	Tax Administration
(Demirhan, 2019)	Effective Taxation System by Blockchain Technology	Tax Administration
(Vistro et al., 2021)	Fraud Prevention in the Taxation System of Pakistan Using Blockchain Technology	Tax Administration
(Wang et al., 2021)	Conception of Applying Sovereign Blockchain Technology to Improve Tax Credit Management in Guangdong Province, China	Tax Credit
(Ricci & Mammanco, 2019)	Blockchain Technology to Support Italian Tax Process	Tax Dispute
(Phadke et al., 2021)	A conceptual framework for a Blockchain-based Tax payment financial service	Tax Payment
(Hossain et al., 2020)	Automated Tax Return Verification with Blockchain Technology	Tax Return
(Alkhodre et al., 2019)	A blockchain-based value-added tax (VAT) system: Saudi Arabia as a use case	VAT
(Mohamad & Al Harthy, 2022)	Proposed Architecture of Integrate Blockchain with VAT System in Oman	VAT
(Hoffman, 2018)	Can Blockchains and Linked Data Advance Taxation?	VAT
(Søgaard, 2021)	A blockchain-enabled platform for VAT settlement	VAT
(Wijaya et al., 2017)	A New Blockchain-Based Value-Added Tax System	VAT
(Nguyen et al., 2019)	Digitizing Invoice and Managing VAT Payment Using Blockchain Smart Contract	VAT

Notes. Source: Author's Calculation

invoice without a third party (VAT administrator). The smart contract will determine how much VAT to pay based on the legal invoice. The BCN contains all of the data necessary for the calculation and payment of VAT. Because of the blockchain technology's consensus feature, hackers rarely attempt to alter this data. Additionally, even when there are several synchronous requests for data, access to the data is sped quickly since all data is broadcast using BCN (Nguyen et al., 2019).

An architecture for integrating blockchain with the VAT system was proposed to the tax authority of the Sultanate of Oman. The goal is to strengthen the security level of the transmission of the VAT collection process. Hyperledger and the Ubuntu operating system are used to implement this interaction. To install Hyperledger, the Ubuntu operating system was installed and worked on. They were also able to begin implementing the Smart Contract using Docker, which is compatible with the Hyper Drawer Fabric. To start implementing the required transaction, a channel and chain code were being developed, comprising the details that must be included in each block (Mohamad & Al Harthy, 2022).

In addition to Oman, several other researchers have also proposed designs for implementing blockchain on VAT systems from different countries. Wijaya attempted to suggest a blockchain solution for the Indonesian VAT system. The recommended protocol incorporates the transmission of tax credits into a blockchain system. Since the tax due must be paid before a

tax invoice is produced, the transfer of tax credits makes sure there is no tax due at the conclusion of the reporting period. By combining the tax payment and tax crediting systems and streamlining the way taxpayers submit the required VAT reports, the suggested protocol lowers the risk of tax fraud. The proposed protocol gives the tax authority greater control over the tax crediting mechanism, which reduces the likelihood of fraud. Following additional study, the transaction data provided by taxpayers via the suggested protocol might be utilized to support more accurate executive decisions regarding the tax (Wijaya et al., 2017).

Research suggested a plan for a blockchain-based VAT system for the Kingdom of Saudi Arabia. The Hyperledger Fabric operating system, which connects several supply chain management companies, serves as the foundation for the architectural framework. The network is made up of a group of servers that are peer nodes and request nodes for certificate authorities (CAs). The Saudi VAT collecting system is housed on a cluster that controls and administers all of the logical parts, including the implementation of the consensus process and certifying authority. Similar to that, a collection of interconnected servers running supply chain management software is linked to the cluster by peer nodes (Alkhodre et al., 2019).

In addition to the discussion at the technical level, several studies have chosen to present a more general study that can be applied to the scope of tax administration. Most of the research topics are related to the implementation of databases based on distributed ledger systems, which provide various advantages possessed by blockchain technology. This is considered reasonable because the tax administration system demands high data validity.

Demirhan's research aims to investigate the possible application of blockchain technology in several tax-related areas, such as payroll taxes, VAT, transfer pricing issues, and tax audits. Blockchain technology that is used to collect payroll taxes will ensure both employers and employees have tax security, and the state tax collection will be accelerated by blockchain technology. By using a blockchain distributed ledger, it is simple to follow the flow of transactions in blockchain-based transfer pricing as well as the identities of all parties involved. For auditors, blockchain technology will bring about significant change. The audit includes not only the control of a transaction but also an examination of the specific dollar amount and the manner in which it is documented and categorized. During a transaction check, the type of transaction—a sale, an expense, a payment to a creditor, or a value-creating activity—is determined. The auditors will spend less time concentrating on these blockchain technology-related issues (Demirhan, 2019).

Wang believes that the current state of blockchain technology, combined with domestic and international practical experience in tax collection and management, will lead to breakthroughs in the application of blockchain technology in taxation areas such as invoice management, tax withholding, and tax credit. Domestically, the Tax Authority proposes gradually conducting trial marketing of blockchain-based electronic ordinary invoices throughout the city and encouraging a small number of selected taxpayers to follow suit in due course. Incorporate taxpayers from various industries into the blockchain-based standard invoicing pilot program (Wang, 2020).

In their study, Vistro et al. offered a solution to the challenge the Pakistani taxation department is currently facing. To stop fraud and create logs for each action taken by senior tax officers and tax practitioners, it is necessary to digitize the tax records currently kept on copy registers and save them in a blockchain distributed ledger database (Vistro et al., 2021).

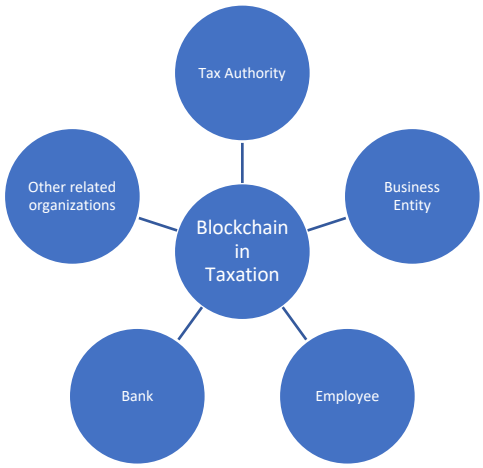
Ricci et al. conducted research with a slightly different object. In their study, they try to find a breakthrough in the tax dispute resolution process in Italy by utilizing blockchain technology. While the implementation of smart contracts secures the validity of the court's ruling and lowers transaction costs associated with the conduct of the tax process, the introduction of trial files within a blockchain network guarantees a higher level of anonymity (Ricci & Mammanco, 2019).

4.3 RQ3: Who Is Involved in Blockchain in Taxation?

Of course, the authority where the change is made will be most involved in its implementation. In this instance, the adoption of blockchain technology in taxation necessitates the complete backing of the government, particularly the relevant tax authorities, as well as, of course, the legislative branch and the public at large. This study identifies at least some of the parties who will be impacted by the start of the deployment of blockchain technology in taxation from the review's findings. The relationship between those entities can be seen in the visualization in Figure 3.

Figure 3

Parties involved in Blockchain in Taxation



Notes. Source: Author's Calculation

1) Tax Authority

The major player in integrating any technology into a nation's tax system is its tax authority. Various forms of help are required from tax authorities during the transition to full implementation. This support can take the shape of several new laws that serve as the foundation for the use of blockchain technology, investments in hardware and software, and sufficient training for all pertinent tax authorities. All of these elements must be ready so that new technology can be used in the future without causing more issues and can be relied upon.

The blockchain instance needed to execute the framework is built and maintained by the government. The regulatory organization established to oversee the blockchain also pays maintenance and operating expenses (Phadke et al., 2021). For a variety of reasons, some studies opt to use a private blockchain (Wijaya et al., 2017, 2019). Because the system will be run centrally if a private blockchain is used, the tax authority's involvement as a party supporting system operation is crucial. The tax authority will serve as the sole node provider responsible for validating in accordance with the selected consensus algorithm, which will necessitate a significant investment of resources.

2) Business Entity

Business entities as taxpayers are the other group most impacted, both in terms of VAT and corporate income tax. Business entities now have additional responsibilities after the new regulations are implemented, including the need to adhere to the most recent tax regulations. Business entities must modify their tax payment, reporting, and credit methods, as well as several other processes, that will be altered with the introduction of a blockchain-based tax system. Suppose it is decided that the system to be used will take the shape of a private blockchain with business entities acting as consensus participants. In that case, all parties will be required to contribute all necessary resources, like hardware and software, for running the distributed ledger system.

The impact will be significantly greater if blockchain technology is implemented for VAT (Fatz et al., 2019; Søgaard, 2021). This is because the VAT process calls for thorough documentation of all company-related purchases and sales. The administration of taxes on employee income is yet another tax kind that falls under the purview of the corporation. The organization will be a component of the blockchain network that controls the information as a provider of income data for its employees.

3) Employee

The new system's implementation will have an impact on workers as taxpayers as well. Employees will not directly be affected by changes to the VAT process, but this is not the case with employee income tax. Employees will continue to be required to file tax returns to declare all of their earnings and assets. This tax return reporting

process is one of the business processes that can adopt blockchain technology (Hossain et al., 2020).

4) Bank

Banks are organizations that offer financial services. The Bank plays a significant role throughout the entire process of administering taxes. To become one of the suppliers of tax information controlled by the tax authorities, banks might function as parties that serve tax payments. Banks play a significant role in several blockchain-based VAT processes, particularly as the party that supplies tokens as a method of VAT payment in the tax credit process or as a means of paying stamp duty or document tax (Wijaya et al., 2017, 2019).

5) Other related organizations

Several other organizations that can be related include the Tax Court and the Monitoring Bodies. The Tax Court can join the blockchain network if the implementation is also applied to the tax dispute resolution process. The Monitoring Bodies, as a follow-up to regulations, can join the blockchain network to oversee the implementation of tax administration and fraud detection (Ricci & Mammanco, 2019).

4.4 RQ4: What Is the Disadvantage of Current Implementations of Blockchain Technology in Taxation?

1) Privacy

It is possible for people to be re-identified and for sensitive information to be revealed when basic anonymization techniques are utilized, and data is not adequately protected. Furthermore, blockchain technology has difficulties as a result of the General Data Protection Regulation (GDPR) of European Union regulations. Personal data must be destroyed, for example, to comply with the right to be forgotten. Due to the public blockchains' reliance on the records' immutability, it is challenging to enforce this right. Therefore, in typical blockchain systems, support for conventional data erasure is not possible (Kjellstadli et al., 2019).

2) Cost

Blockchain development and upkeep have related costs that frequently need to be covered by higher fees levied by the developers on the users. Even yet, the customer may be persuaded to use the services by incentive schemes like staking incentives or the option to link their tax token accounts to other third-party cryptocurrency trading and lending businesses. Staking and lending would require additional regulatory frameworks and insurance programs (Phadke et al., 2021).

3) Other Income

In the context of taxes on employee income, employee salaries are the primary source of the general tax base. However, there are other sources of income, such as property sales, stock market trading, and inheritance. Currently, there is no further mechanism to be able to combine this information to become a comprehensive database that is stored on a blockchain network (Phadke et al., 2021).

4) Correcting Mistakes

As a desirable design principle, all transactions on blockchains are final by default, ensuring trust through non-repudiation. However, mistakes will inevitably occur while handling business transactions, disputes, and reimbursements. When a party challenges an existing record or when there are multiple conflicting revisions, a layer must be added on top of the distributed ledger data to handle the situation (Hoffman, 2018).

5) Oracle Problem

While the accuracy of the data processing within the blockchain can be verified, this study is unable to confirm the accuracy of the data that has been submitted to the blockchain. The oracle problem is a common name for this open challenge in blockchain applications (Fatz et al., 2019).

5. CONCLUSIONS

This article conducts an SLR to examine the current position of blockchain applications in the taxation sector. This study found 326 articles and chose 16 for in-depth analysis. Most of the evaluations are abstract or theoretical, and most of them examine the possible benefits, costs, or risks of using blockchain in taxes because their implementation

is still in its infancy. This is especially true for blockchain's usage in public services like taxation.

This SLR study provides several key findings. Answering RQ1, the main research topics related to blockchain in taxation are VAT and tax administration. Regarding RQ2, the most widely proposed implementation is through smart contracts for invoice validation and VAT reporting automation. Answering RQ3, the most affected parties are tax authorities, business entities, and banks. Lastly, for RQ4, the main challenges identified include data privacy issues (GDPR), implementation costs, and the oracle problem.

There is still considerable work to be done in this field of inquiry, including addressing potential privacy concerns with the usage of blockchain technology and including more sources of income-related data than just salary.

Implementing blockchain technology will result in a more simplified tax system. Blockchain technology will boost citizens' trust in government, increase government transparency, and make government services more accessible. Blockchain-based solutions will improve the relationship between citizens and government by securely improving and automating procedures while adhering to privacy and confidentiality regulations.

6. IMPLICATIONS AND LIMITATIONS

This study contributes to the growing body of literature on the intersection of blockchain technology and taxation. By providing a systematic literature review, it helps identify research gaps and future areas of study, such as privacy concerns, scalability, and integration with existing tax systems. Furthermore, it offers a framework for evaluating blockchain applications in taxation, which can be expanded upon in future empirical studies. Academics can also explore the socio-economic impact of blockchain-based tax systems and their role in improving tax compliance and reducing fraud.

For tax and business professionals, the study highlights how blockchain technology can streamline tax administration, enhance transparency, and improve compliance. The decentralized and immutable nature of blockchain reduces the risk of fraud and errors in tax reporting. However, the implementation of blockchain-based taxation systems requires significant investment in infrastructure, education, and system adaptation. Companies must be prepared for changes in tax reporting practices and invest in digital transformation to integrate blockchain solutions effectively. Additionally, firms should consider the cost-benefit analysis of adopting blockchain and its impact on their operational efficiency.

Policymakers and tax authorities need to develop a clear regulatory framework for blockchain-based taxation. While blockchain offers increased transparency and security, regulatory bodies must address privacy concerns, data protection laws, and cross-border tax implications. Governments must also ensure that blockchain technology aligns with existing tax regulations and does not create loopholes for tax evasion. Additionally, collaboration between different jurisdictions is necessary to establish global standards for blockchain-based tax administration, ensuring interoperability and consistency in tax compliance mechanisms.

As a call-to-action, the Tax Authority can develop a pilot project for implementing blockchain for validation of e-Invoices or electronic Stamp Duty, in line with research findings (Wijaya et al., 2017, 2019), in addition, it is also necessary to discuss blockchain-based tax data interoperability standards in forums such as the OECD or UN Tax Committee to address the challenges of transfer pricing and the digital economy.

This research has several limitations. The study's search window (January 2017 to October 2022) may have excluded recent developments in blockchain taxation research. The small number of primary studies (16) included in the final analysis limits our conclusions, with most being theoretical rather than empirical studies.

Our focus on academic literature potentially overlooked industry-led initiatives or government pilot projects not documented in scholarly publications. Additionally, the study lacks an in-depth technical assessment of the proposed blockchain solutions' feasibility and scalability in real-world tax systems.

The research also did not adequately address the regulatory and legal frameworks needed across different jurisdictions, leaving cross-border tax implications of blockchain implementation largely unexplored. Environmental sustainability concerns associated with specific blockchain consensus mechanisms were not thoroughly examined.

Future research should address these limitations by incorporating more recent studies and non-academic sources, conducting technical assessments of proposed solutions, exploring regulatory frameworks, and considering environmental sustainability factors in blockchain-based taxation systems.

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