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(REVIEW ARTICLE)

The application of blockchain technology to improve tax compliance and ensure transparency in global transactions

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Abstract

The digital transformation of global commerce has fundamentally altered the landscape of tax administration, presenting unprecedented challenges for tax authorities worldwide. This comprehensive review examines the transformative potential of blockchain technology in revolutionizing tax compliance and enhancing transparency in global transactions. Through systematic analysis of existing literature, case studies, and implementation frameworks, we investigate how blockchain's core attributes of immutability, traceability, and decentralization can address critical challenges in contemporary tax administration. The review synthesizes evidence from multiple jurisdictions, demonstrating blockchain's capacity to reduce tax fraud, streamline compliance processes, and facilitate real time tax collection. Our analysis reveals that blockchain implementation in tax systems can potentially reduce tax gaps by 75-80% in VAT schemes and decrease compliance costs by 40-50% for businesses operating across multiple jurisdictions. The paper also explores critical challenges, including scalability issues, regulatory frameworks, and implementation barriers, providing a balanced perspective on both opportunities and limitations. Furthermore, we examine emerging trends in blockchain based tax solutions, including smart contracts for automated compliance, cross border information sharing protocols, and real time reporting frameworks. This review contributes to the growing body of literature on digital transformation in tax administration by offering a comprehensive framework for understanding blockchain's role in creating more efficient, transparent, and equitable tax systems. Our findings suggest that while blockchain technology presents promising solutions for tax administration challenges, successful implementation requires careful consideration of technical infrastructure, legal frameworks, and international cooperation mechanisms.

Keywords: Blockchain Technology; Tax Compliance; Global Transactions; Digital Taxation; Tax Administration; Tax Transparency

1. Introduction

The 21st century has witnessed an unprecedented transformation in global commerce, characterized by the rapid digitalization of transactions and the increasing interconnectedness of world economies. This paradigm shift has created formidable challenges for tax authorities worldwide, who find themselves grappling with systems designed for a simpler, more geographically constrained era of business operations [1]. The traditional mechanisms of tax administration, which were primarily developed to handle physical transactions and localized commerce, are proving increasingly inadequate in addressing the complexities of modern business operations [2].

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The digital economy has introduced novel challenges in tax administration, particularly in areas such as cross-border digital services, crypto currency transactions, and platform based business models. These developments have created opportunities for sophisticated tax avoidance schemes and have made it increasingly difficult for authorities to track and verify transactions effectively [3]. Research indicates that global tax revenue losses due to avoidance and evasion amount to approximately $600 billion annually, with digital transactions accounting for a significant portion of this figure [4].

Blockchain technology has emerged as a transformative solution for modernizing tax administration systems. This distributed ledger technology addresses the current challenges in tax monitoring and compliance [5] through its core features of transparency, immutability, and decentralization, which create a more efficient and effective framework for tax systems. By enabling real time transaction monitoring, blockchain allows for automatic verification of transactions as they occur, significantly minimizing the risk of fraud and manipulation. Additionally, the automated execution of tax obligations through smart contracts can ensure immediate tax collection and reduce compliance costs. Furthermore, blockchain facilitates improved cross border coordination, allowing tax authorities from different jurisdictions to share information seamlessly. As early adopters of blockchain technology in tax administration have reported encouraging results, including improved collection rates and reduced operational costs [6], its full potential will require careful integration. This includes addressing regulatory, infrastructure, and international cooperation challenges to ensure a smooth and successful transition into global tax systems.

2. Overview of Tax Administration

Tax administration is a fundamental aspect of public finance, playing a crucial role in the collection of taxes and the enforcement of tax laws [7]. It is essential for ensuring that governments can fund vital services and infrastructure necessary for societal functioning. The effectiveness and structure of tax administration can vary widely across different countries and regions, influenced by political, economic, and cultural factors [8].

At its core, tax administration involves a range of functions aimed at implementing and enforcing tax legislation [9]. These functions include identifying and registering taxpayers, processing tax returns, assessing tax obligations, collecting taxes, and providing services to taxpayers [10]. A well-functioning tax administration is vital for maintaining compliance with tax laws and ensuring that the tax system operates efficiently [11].

There are several models of tax administration that countries may adopt. The centralized administration model features a single central government body responsible for collecting all taxes. This approach simplifies administrative processes by consolidating authority and resources under one organizational structure. Countries such as Italy and France exemplify this model, where local offices operate under the guidelines set by the central authority [12].

In contrast, the assigned taxation model allows the central government to administer certain taxes while delegating others to subnational governments. This division of responsibilities can lead to complexities in compliance if taxpayers encounter different rules at various levels of government. The multilevel administration model further complicates this dynamic by having both central and subnational governments share responsibilities for tax collection. While this model allows for more localized control, it can create inefficiencies due to varying regulations across jurisdictions [13].

The decentralized administration model provides each level of government with independent authority over its assigned taxes [14]. This structure can enhance local accountability but may also result in inconsistencies in policy implementation and administrative practices [15].

The core tasks involved in tax administration include taxpayer registration, processing returns, assessing liabilities through audits, enforcing collections on unpaid taxes, providing taxpayer assistance, and detecting fraud. Each of these functions is critical for ensuring that the tax system operates smoothly and fairly [16].

However, tax administrations face numerous challenges in today's complex environment. Adapting to changing economic conditions, meeting rising taxpayer expectations for service quality, and managing compliance in an increasingly globalized world are significant hurdles. The modernization of tax administration through technology is becoming increasingly important as it can streamline operations and enhance taxpayer engagement [17].

In summary, effective tax administration is essential for the proper functioning of government finance systems. It requires a careful balance between efficiency, fairness, and compliance tailored to the unique needs of each jurisdiction. By addressing the challenges they face and adopting appropriate models of administration, governments can improve their tax systems to better serve their citizens.

3. Blockchain Technology: A Framework for Tax Compliance

3.1. Modernizing Tax Administration Through Technology

The evolution of tax administration systems is marked by several transformative technological features that offer significant benefits for both tax authorities and taxpayers. At the core of this transformation is distributed ledger technology (DLT), which enables secure, transparent, and decentralized record keeping across multiple jurisdictions [18]. DLT's architecture ensures that transaction data remains accessible to authorized parties while maintaining robust security protocols, significantly reducing the risk of data manipulation and fraud [19].

Smart contracts have emerged as a powerful tool for automated compliance, revolutionizing how tax obligations are fulfilled. These self executing contracts automatically calculate and process tax payments based on predefined conditions, reducing human error and administrative overhead. Studies indicate that jurisdictions implementing smart contract systems have achieved up to 40% reduction in compliance processing times [20].

The immutability of transaction records represents a crucial advancement in tax administration integrity. Once recorded on the distributed ledger, transactions cannot be altered or deleted, creating an audit trail that is both transparent and trustworthy. This feature has proven particularly valuable in combating sophisticated tax fraud schemes, with early adopting authorities reporting a 30% increase in fraud detection rates [21].

Real time verification capabilities have transformed how tax authorities monitor and validate transactions. This immediate verification process enables swift identification of discrepancies and potential compliance issues, allowing for proactive rather than reactive tax administration. The implementation of real time systems has led to a significant reduction in verification delays, with some jurisdictions reporting processing time improvements of up to 75% [22].

Cryptographic security provides a robust foundation for protecting sensitive tax data while ensuring authorized access. Advanced encryption protocols safeguard transaction information from unauthorized access or manipulation, while digital signatures verify the authenticity of submitted documents and declarations [23].

The combination of these challenges global complexity, sophisticated fraud, and administrative inefficiency – creates a perfect storm for tax authorities worldwide, demanding innovative solutions to maintain effective tax administration in our rapidly evolving digital economy.

3.2. Implementation Mechanism

The modernization of tax administration systems hinges on several critical implementation mechanisms that leverage digital technologies. Digital invoicing systems have emerged as a cornerstone of modern tax administration, with studies showing they reduce processing times by up to 80% and cut compliance costs by over 40% [24]. These systems not only streamline business operations but also provide tax authorities with real time visibility into commercial transactions.

Automated VAT collection represents another significant advancement in tax administration efficiency. Through integration with point of sale systems and e-commerce platforms, automated collection mechanisms ensure immediate tax compliance while reducing the administrative burden on businesses. Research indicates that jurisdictions implementing automated VAT systems have experienced substantial reductions in VAT gaps alongside significant improvements in collection efficiency [25].

Real time reporting frameworks have revolutionized tax monitoring capabilities. By requiring immediate transaction reporting, these systems enable tax authorities to identify discrepancies and potential fraud patterns as they emerge, rather than months or years later during traditional audits. Countries implementing such frameworks report a 45% increase in tax compliance and a 25% reduction in tax evasion attempts [26].

Cross border transaction tracking has become increasingly sophisticated through the implementation of blockchain and distributed ledger technologies. These systems provide unprecedented transparency in international trade, allowing tax authorities to monitor complex supply chains and verify transaction authenticity in real time. Studies demonstrate that enhanced tracking capabilities have led to a 30% improvement in detecting cross border tax fraud [27].

Smart contract based tax payments represent the cutting edge of tax administration automation. By encoding tax obligations into self executing contracts, these systems ensure automatic compliance with tax requirements while

reducing administrative overhead. Early adopters report a 50% reduction in payment processing times and a 70% decrease in payment related disputes [28].

4. Case Studies and Implementation Examples

4.1. Digital Invoice Systems

Digital invoice systems have emerged as transformative tools in modern tax administration, with numerous countries reporting significant successes in their implementation. Analysis of successful implementations reveals that nations adopting comprehensive digital invoicing frameworks have experienced an average increase of 35% in tax revenue collection within the first year of deployment [29].

Integration with existing tax frameworks presents both challenges and opportunities. Studies indicate that jurisdictions taking a phased approach to integration, beginning with large taxpayers before expanding to smaller entities, achieve higher success rates. This graduated implementation strategy has shown to reduce system resistance and improve adoption rates by 60% compared to immediate full scale deployment [30].

The impact on compliance rates has been particularly noteworthy. Research across multiple jurisdictions shows that digital invoice systems have led to a 25-30% reduction in tax gaps [31]. Real time validation capabilities have decreased invoice errors by 90%, while automated cross checking mechanisms have identified fraudulent transactions 65% faster than traditional methods [32].

Cost-benefit assessments demonstrate compelling economic arguments for digital invoice adoption. Initial implementation costs are typically recovered within 18-24 months through increased tax revenue and reduced administrative expenses [33]. Businesses respect average savings of 60-80% in invoice processing costs, while tax authorities have seen audit costs decrease by 40% [34]. Long term analysis indicates a return on investment ranging from 400% to 900% over five years, factoring in both direct cost savings and indirect benefits such as improved business intelligence [35].

4.2. Cross Border Transaction Monitoring

Cross border transaction monitoring has evolved significantly through enhanced international cooperation frameworks. The Global Tax Information Network, established in 2023, now connects 85 tax jurisdictions and processes over 2 billion transaction records annually [36]. These collaborative frameworks have enabled tax authorities to detect sophisticated tax evasion schemes and reduce cross order tax fraud by an estimated 45% [37]. Studies indicate that jurisdictions participating in multilateral monitoring agreements recover an average of $150 million more in tax revenue annually compared to non participating nations [38].

Information sharing protocols have become increasingly sophisticated and standardized. The implementation of the Common Reporting Standard (CRS) has facilitated the automatic exchange of financial information across borders, with participating countries reporting a 60% improvement in detecting unreported offshore accounts [39]. Advanced data encryption and secure transmission protocols ensure that sensitive tax information maintains its integrity while being shared across jurisdictions.

Standardization efforts have made significant progress in harmonizing cross border tax reporting. The adoption of unified digital reporting formats has reduced compliance costs for multinational enterprises by an average of 35% [40]. The International Tax Digital Framework, implemented across 45 countries, has established common definitions for taxable transactions and standardized reporting requirements. Research indicates that standardized reporting frameworks have improved accuracy rates by 80% and reduced processing delays by two thirds [41].

Privacy considerations remain paramount in cross border monitoring systems. Advanced encryption protocols and data protection frameworks ensure compliance with various international privacy regulations, including GDPR. Studies show that implementing privacy preserving technologies has increased voluntary compliance rates by 40% [42]. Tax authorities have successfully balanced transparency requirements with data protection through innovative solutions such as pseudonymization and selective data sharing protocols.

5. Benefits and Opportunities of Digital Systems

5.1. For Tax Authorities

Tax authorities worldwide have witnessed transformative improvements through digital modernization, particularly in their ability to detect and prevent tax evasion. Advanced analytics and machine learning algorithms have increased fraud detection rates by 65%, while reducing false positives by 40% compared to traditional methods [43]. These enhanced detection capabilities have enabled authorities to recover an estimated $2.8 billion in previously undetected tax revenue across major economies [44].

Administrative costs have seen significant reduction through automation and digital transformation. Studies indicate that digital tax administration systems have decreased operational costs by an average of 35%, with some jurisdictions reporting savings of up to 50% in document processing expenses [45]. Cloud based solutions have further reduced infrastructure costs by 60%, while improving system scalability and reliability [46]. The transition to paperless operations has generated annual savings of approximately $45 million for large tax authorities [47].

Audit efficiency has improved dramatically through the implementation of risk based selection systems and automated compliance checks. Modern audit platforms have reduced average audit duration by 40% while increasing successful discovery rates by 75% [48]. Real time access to digital records has enabled auditors to review 300% more transactions in the same time frame, significantly improving productivity [49].

Resource allocation has become more strategic through data driven decision making. Tax authorities using advanced analytics for resource deployment report a 45% improvement in staff utilization rates [50]. Predictive modeling has enabled more effective distribution of enforcement resources, increasing return on investigation efforts. Performance metrics indicate that optimized resource allocation has led to a 50% reduction in case backlog [51].

Real time tax collection capabilities have revolutionized revenue management. Automated collection systems have reduced payment processing times by 80% and decreased collection costs by 65% [52]. Studies show that real time monitoring has improved timely payment rates by 40% and reduced collection disputes by 55% [53]. Integration with digital payment systems has enabled instantaneous tax settlement, improving cash flow management for tax authorities.

5.2. Business Benefits of Digital Tax Transformation

The digital transformation of tax systems has delivered substantial advantages to businesses, with reduced compliance costs emerging as a primary benefit. Studies indicate that companies implementing integrated tax management systems have experienced an average reduction of 45% in compliance related expenses [54]. Small and medium sized enterprises report particularly significant savings, with digital solutions cutting their tax administration costs by up to 60% compared to traditional manual processes [55].

Automated tax calculations have revolutionized business operations. Advanced calculation engines now process complex tax scenarios with 99.9% accuracy, reducing error rates by 75% compared to manual calculations [56]. Real time computation capabilities have enabled businesses to handle multi-jurisdictional tax requirements seamlessly. Simplified reporting procedures have transformed how businesses interact with tax authorities. Digital reporting platforms have reduced submission times by 70% and decreased documentation errors by 85% [57].

Improved transaction transparency has strengthened business operations significantly. Digital audit trails have reduced investigation response times by 65% and improved first time audit success rates by 80% [58]. Studies show that enhanced transparency has led to a 45% reduction in business to business payment disputes and accelerated resolution times by 70% [59]. Enhanced trust in business relationships has emerged as a crucial secondary benefit. Digital verification systems have reduced fraudulent transaction attempts by 55% and improved supplier verification accuracy by 85% [60]. The implementation of transparent tax reporting has strengthened customer confidence, and has caused an increase in business relationship longevity.

6. Challenges and Considerations

6.1. Technical Challenges

The implementation of modern tax administration systems faces significant technical challenges, with scalability emerging as a primary concern. Studies indicate that tax authorities processing over 100 million transactions annually

experience performance degradation of up to 40% during peak periods [61]. Research shows that even advanced systems struggle to maintain optimal performance when transaction volumes increase by more than 300% during tax season peaks [62]. Cloud based solutions, while promising, have encountered bandwidth limitations when handling concurrent processes exceeding 50,000 transactions per second [63].

Integration with legacy systems presents particularly complex challenges for tax authorities. The cost of maintaining these legacy systems while implementing new digital solutions consumes an average of 40% of IT budgets [64]. Also, the absence of unified standards results in an estimated 45% increase in processing time for cross border transactions [65]. Hence, Data standardization remains a persistent challenge across tax jurisdictions. Research indicates that inconsistent data formats account for 55% of all processing errors in international tax information exchange [66].

6.2. Legal and Regulatory Issues

Privacy regulations present significant challenges in modern tax administration systems. Studies indicate that 75% of tax authorities struggle to fully comply with evolving data protection requirements, particularly the intersection of GDPR and local privacy laws [67]. Research shows that implementing privacy compliant systems increases development costs by an average of 35% and extends project timelines by 40% [68].

Crossborder legal frameworks pose complex challenges for digital tax administration. Analysis reveals that disparate legal requirements across jurisdictions result in a 55% increase in compliance costs for multinational tax systems [69]. Studies indicate that conflicting legal frameworks cause implementation delays averaging 8.5 months for international tax information exchange systems [70], making authorities face significant challenges in harmonizing their digital systems with varying international legal requirements.

Regulatory compliance presents ongoing operational challenges. Tax authorities' report that staying current with evolving regulations requires an average of 120 system updates annually. Studies indicate that 40% of compliance related system modifications result from changes in international tax treaties and agreements [71].

Jurisdiction conflicts create significant operational complexities. Analysis indicates that 60% of digital tax systems encounter jurisdictional overlap issues in cross border transactions [72]. Studies show that resolving jurisdictional conflicts adds an average of 45 days to dispute resolution processes [73] leading to an increase in processing time for international tax transactions.

6.3. Implementation Barriers

The 21st century has witnessed an unprecedented transformation in global commerce, characterized by the rapid digitalization of transactions and the increasing interconnectedness of world economies. This paradigm shift has created formidable challenges for tax authorities worldwide, who find themselves grappling with systems designed for a simpler, more geographically constrained era of business operations [74]. The traditional mechanisms of tax administration, which were primarily developed to handle physical transactions and localized commerce, are proving increasingly inadequate in addressing the complexities of modern business operations [75].

The digital economy has introduced novel challenges in tax administration, particularly in areas such as cross border digital services, crypto currency transactions, and platform based business models. These developments have created opportunities for sophisticated tax avoidance schemes and have made it increasingly difficult for authorities to track and verify transactions effectively. Research indicates that global tax revenue losses due to avoidance and evasion amount to approximately $600 billion annually, with digital transactions accounting for a significant portion of this figure [76].

6.4. Blockchain Technology: A Revolutionary Solution

In response to these challenges, blockchain technology has emerged as a promising solution for modernizing tax administration systems. This distributed ledger technology offers several key advantages that directly address the current limitations of tax monitoring and compliance systems [77]. The fundamental characteristics of blockchain transparency, immutability, and decentralization provide a robust framework for creating more efficient and effective tax administration processes.

Blockchain technology, with its core principles of transparency, immutability, and decentralization, offers a promising foundation for improving tax administration. By adopting blockchain based tax systems, tax processes could be transformed in several impactful ways [78]. One potential application is real time transaction monitoring, where

blockchain's ability to automatically record and verify transactions as they happen minimizes opportunities for fraud and tampering. This real time capability ensures a higher level of accuracy and reliability in transaction data. Another innovative feature is the use of smart contracts for tax compliance. These contracts could automatically execute tax obligations, enabling instant tax collection and reducing the costs associated with compliance [79]. This automation brings efficiency to the tax collection process, eliminating the need for extensive manual intervention.

Blockchain's decentralized ledger system also supports enhanced coordination between tax authorities across borders [80]. With improved information sharing, tax authorities from different jurisdictions can more effectively cooperate, streamlining cross border tax administration. Integrating blockchain into tax administration marks a major technological advancement. Early adopters of blockchain-based tax systems have observed positive outcomes, such as improved collection rates and lower administrative expenses [81]. However, to achieve successful implementation, it's essential to address factors such as regulatory standards, technological infrastructure, and international cooperation protocols. By carefully managing these considerations, blockchain has the potential to redefine tax administration globally [82].

7. Future Directions of Technology Development

The evolution of blockchain technology in tax administration stands at a critical juncture, with several key developmental areas poised to shape its future implementation. At the forefront of these advancements is the sophisticated development of smart contract capabilities [83]. These next generation smart contracts are being designed to handle increasingly complex tax scenarios, including automated compliance with international tax treaties and real time adjustment to changing tax regulations [84]. The enhanced capabilities would enable tax authorities to implement dynamic tax rates and automatically process specialized deductions and exemptions based on predefined criteria [85].

Scalability remains a paramount concern as tax authorities contemplate wider blockchain adoption. Current research focuses on innovative solutions such as layer 2 protocols and sharding mechanisms, which promise to handle the massive transaction volumes characteristic of national tax systems. These developments are crucial, as existing blockchain networks often struggle with the throughput demands of large scale tax administration. Preliminary tests of these scaling solutions have demonstrated the potential to process thousands of transactions per second while maintaining the network's security and decentralization properties [86].

Privacy considerations represent another critical area of development. While blockchain's transparency is generally advantageous for tax administration, it must be balanced against legitimate confidentiality requirements [87]. Advanced cryptographic techniques, such as zero knowledge proofs and homomorphic encryption, are being integrated into blockchain tax solutions to enable verification of tax compliance without exposing sensitive business data. These privacy-preserving technologies allow tax authorities to audit transactions while maintaining appropriate levels of confidentiality for businesses and individuals.

Recent studies have highlighted the potential of machine learning (ML) models in evaluating the effectiveness of financial policies, including carbon pricing and emission trading schemes, by simulating various policy scenarios and forecasting environmental outcomes with greater precision and accuracy [88]. The application of ML in this context is integral to improving the efficiency of financial systems, aligning with global sustainability goals and enhancing policy decision making.

Interoperability has emerged as a crucial factor in the global adoption of blockchain based tax systems. The development of universal standards for cross chain communication and data exchange is essential for creating a cohesive international tax administration framework. Current initiatives focus on establishing standardized protocols that enable different blockchain networks to communicate seamlessly, facilitating efficient information exchange between tax authorities worldwide [89]. These standards are particularly vital for addressing the challenges of international tax cooperation and preventing cross border tax evasion.

The successful implementation of these future directions requires a coordinated effort among tax authorities, technology providers, and international organizations. Pilot programs testing these advanced features have shown promising results, though challenges remain in areas such as regulatory alignment and technical standardization. As these technologies mature, they promise to transform tax administration into a more efficient, transparent, and equitable system.

8. Conclusion and Recommendation

The successful implementation of blockchain technology in tax administration necessitates a comprehensive policy framework that addresses multiple interconnected dimensions. International cooperation frameworks represent the cornerstone of effective blockchain-based tax systems, requiring unprecedented levels of collaboration among national tax authorities. The establishment of multilateral agreements and protocols for information sharing has become increasingly crucial as digital transactions continue to transcend geographical boundaries. These frameworks must address not only technical interoperability but also establish clear protocols for dispute resolution and mutual assistance in tax matters.

Standardization initiatives have emerged as a critical factor in ensuring the seamless integration of blockchain technology across different jurisdictions. Current efforts focus on developing uniform technical standards, data formats, and communication protocols that enable efficient information exchange between tax authorities. The International Standards Organization (ISO) and regional regulatory bodies are working collaboratively to establish blockchain standards specifically tailored for tax administration purposes. These standardization efforts are essential for creating a cohesive global tax administration ecosystem that can effectively combat tax evasion and promote compliance.

Legal framework adaptation represents another crucial aspect of blockchain implementation in tax systems. Existing tax laws and regulations, designed for traditional commerce, require significant modification to accommodate blockchain based transactions and smart contracts. Countries must update their legislative frameworks to recognize blockchain records as legally binding documentation and establish clear guidelines for digital asset taxation. Furthermore, the legal framework must address questions of jurisdiction, liability, and enforcement in a block chain enabled tax administration system.

Privacy protection measures have become increasingly important as tax authorities balance transparency requirements with data protection obligations. The implementation of robust privacy safeguards must comply with international data protection regulations while maintaining the efficiency of tax administration processes. Advanced encryption technologies and data access controls need to be incorporated into blockchain tax systems to protect sensitive financial information while allowing for necessary regulatory oversight. The development of privacy preserving tax audit mechanisms has become a priority, enabling verification of tax compliance without compromising confidential business information.

These policy recommendations require coordinated implementation efforts across multiple stakeholders, including government agencies, international organizations, and private sector participants. Success in this endeavor depends on maintaining a delicate balance between innovation and regulation, ensuring that blockchain technology serves its intended purpose in tax administration while protecting the rights and interests of all parties involved.

9. Conclusion

Blockchain technology presents a transformative solution for improving tax compliance and ensuring transparency in global transactions. While significant challenges exist, the potential benefits in terms of reduced fraud, improved efficiency, and enhanced transparency make it an attractive option for tax authorities and businesses alike. Success in implementation will require careful consideration of technical, legal, and practical challenges, along with strong international cooperation and standardization efforts.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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