



Exploring The Blockchain Potentials For The Tax Economy

Author |

O. M. Atoyebi, S.A.N

Managing Partner, Omaplex Law Firm
atoyebi@omaplex.com.ng



The immutable nature of blockchain, its ability to automate control systems as well as increase transparency and precision of transaction data, and having a decentralised base, places its importance as potentially revolutionising and having the prospect of radically transforming taxation as we know it.

Although blockchain is predominantly utilised in the financial sector today, its value is noticeably more being that it is widely associated with cryptocurrencies. While cryptocurrencies might not exist without blockchain, blockchain has a wider range of applications beyond crypto; real estate processing systems, music royalties tracking, anti-money laundering tracking systems, medical data security, real-time IoT operating systems, content creation, are a few usages of blockchain currently at play today.

The taxation economy is one of the sectors that needs to keep pace with the rapid growth of technology to improve the economies of nations and increase the standard of living of its adherents. The Organisation for Economic Co-operation and Development (OECD) has identified technological advancements and digitization as leading transformation and adjustment in tax systems.¹ Taxation is one of the major sources of

¹ Organisation for Economic Cooperation and Development, *Tax Administration 2017: Comparative Information on OECD and Other Advanced and Emerging Economies* (OECD Publishing, 2017).



government revenues, and as an integral part of the effective functioning of the state, the quest for bettering and improving taxation is infinite. Reforms in the taxation sector have the potential to spread across other public sectors. This paper sets out to examine blockchain and its design while exploring its potential for the tax economy.

Blockchain

While many are familiar with bitcoin and other digital assets, the same is not the case for the underlying technology upon which they are built: the blockchain technology. A Blockchain is an open-source ledger containing information that is replicated and distributed across computers that are joined in a peer-to-peer network.² It is an immutable and distributed digital record of transactions or data stored in multiple places on a computer network. Its immutable nature means it is trusted to be accurate and precise, while its distributed nature protects it from being breached³.

Simply, it creates a record of the transaction, traceable, verifiable, and accessible only by the approved parties to the transaction. A single store of transactions is called a "*block*," which is a permanent, unalterable record preserved and distributed in a digital ledger. Any new transactions related to the original one can be added to the block as a distinct block, creating an interrelated *blockchain* of transactions and counterparties, tidily represented in the single ledger, and shared by all approved parties⁴.

This database, being decentralised, is managed by multiple parties and is known as a Distributed Ledger Technology (DLT). Thus, a blockchain is a type of DLT with an immutable cryptographic signature known as a *hash*⁵. The properties of a DLT include (but are not limited to) the following:

- It is programmable—for example, smart contracts;
- It is secured—information is individually encrypted;
- It is distributed—all participants have access to the ledger in real time;
- It is immutable—records are unchangeable.

² Peer-to-peer (P2P) is a decentralized communications model in which each party has the same capabilities and either party can initiate a communication session.

³ Nick Darlington, 'Blockchain For Beginners: What Is Blockchain Technology? A Step-by-Step Guide' <<https://blockgeeks.com/guides/what-is-blockchain-technology/>> Accessed 3 November, 2021.

⁴ Jurgen G, Introducing Blockchain Technology To The World Of Tax <<https://medium.com/@jurgeng/an-introduction-to-blockchain-technology-tax-567e536767ec>> Accessed 3 November, 2021.

⁵ A hash is a function that meets the encrypted demands needed to solve for a blockchain computation.





- It is time-stamped—all transactions have a time stamp;
- It is anonymous—participants are either anonymous or pseudonymous;
- It is unanimous – participants agree to the accuracy of the record⁶.

The essence of blockchain, therefore, is that it eliminates the need for a centralized system regulated by an intermediary and allows parties to a transaction to share information directly amongst each other in a secured manner. Potentially, all types of data can be stored on blockchain, allowing it to be modified to fit different systems and industries, taxation systems inclusive.

Advantages of Blockchain Technology

As is true of all technological advancements, the blockchain has generated a lot of plaudits and incertitude. Though hailed as possibly transforming almost all facets of record keeping, exchange, and settlement, blockchain is still largely unapplied. There remain stumbling blocks to its effective application, especially in technical areas like taxation. Still, it contains properties that justify its status as a "trustless" network. It is "trustless" because it doesn't require trust from the participants. Its trust is predicated upon its enhanced security, transparency, and traceability. It also aids cost-cutting by its increased speed, efficiency, automation and its ability to eliminate or restrict the need for intermediaries. Some of its benefits are adumbrated below:

- **Enhanced security:** by having an end-to-end encrypted system, blockchain technology drastically controls fraud and unauthorised access/activities. Also, its anonymous nature and its permission-conditioned access addresses privacy issues prevalent in transactions. Its distributed rather than central feature also prevents or reduces cyber-attacks.
- **Greater transparency:** being a distributed ledger, data is identically recorded in multiple locations. And all participants who have access to a ledger view the same information at the same time, aiding transparency. The entire history of a transaction is equally available with a time-stamp, thus eliminating windows of fraud.

⁶ Euromoney Learning, 'What is Blockchain?' <<https://www.euromoney.com/learning/blockchain-explained/what-is-blockchain#:~:text=Blockchain%20is%20a%20system%20of,computer%20systems%20on%20the%20blockchain>> Accessed 3 November, 2021.





- **Prompt traceability:** blockchain maintains an audit trail that records the attribution of an asset, data or transaction at every step of its usage. For example, this helps in industries where consumers are concerned with the life cycle of a product as a condition for their patronage, as it helps provide real-time proof of the process.
- **Heightened efficiency and speed:** providing a paradigm shift from paperwork which is process-laden, time-consuming, and susceptible to errors, blockchain provides a more streamlined process where transactions are completed quicker and more efficiently. Clearing and settlement are potentially faster, as there wouldn't be a need to maintain multiple ledgers.
- **Automation:** Transactions can be more efficiently carried with 'smart contracts'⁷. As they reduce human intervention and the need to have a third party to verify the adherence or otherwise of contractual terms. Contracts can be converted to computer codes, which are then stored and replicated on the system and supervised by the network of computers that operate the blockchain⁸.

Blockchain Potentials in Taxation

Tax compliance is a labour-intensive and time-consuming process, often involving a lot of paper work and professionals, thereby driving up costs. The tax payer would ordinarily collate, prepare, and submit their returns, also calculating and deducting their allowable where applicable, while the tax authorities verify, cleanse, and validate the returns before the process is completed. This process drives up costs and needlessly consumes the time of the taxpayers and the authorities. There's also the unending battle between taxpayers and authorities in interpreting and applying tax laws, leading to indecision and risks of audits and even litigation.

The digital age is reshaping taxation as we know it, and this is mirrored by the OECD's attempts to redefine the permanent establishment model into one of significant economic presence, especially in light of the proliferation and growth of big tech. Technology is altering the way tax returns are made and tax information is collated and stored. Blockchain has the potential to

⁷ Smart contracts are basically agreements in the form of computer programs where the terms & conditions of an agreement can be programmed, designed to self-execute themselves.

⁸ IBM, 'Benefits of Blockchain' <<https://www.ibm.com/topics/benefits-of-blockchain>> Accessed 5 November, 2021





redefine the methods of accounting and automating tax information, tax payments, and tax records.

The Global Tax Policy Centre, Vienna⁹, in a report published in 2017, identified that blockchain has the potential to disrupt, or at least, modernize tax payments. And that it can improve tax compliance by ensuring real-time, automated tax payments from the taxpayers to the authority at the consummation of a transaction. This can be done using smart contracts and codes programmed to self-execute themselves upon the satisfaction of some pre-existing conditions. Another example is embedding tax compliance in the process's businesses use to conduct transactions. This has several advantages, including real-time compliance, significant reductions in transaction costs, and the elimination of fraud and tax evasion risks¹⁰.

Use of DLTs and Smart Contracts in Tax

With the successful adoption and application of DLT in systems like electronic proof of identities, customs and excise processing in some parts of the world, and the use of smart contracts in the involvement of third parties in transactions, they could be designed to calculate, withhold, and remit tax from source to the authorities, eliminating the need for tax agents. Other uses include:

- DLT potentially reduces tax fraud. The immutability and transparency of records could strengthen tax compliance and discourage both tax evasion and tax avoidance.
- DLT, infused with smart contracts, would propel real-time tax administration and compliance, aiding computation of tax due and prompt tax remittance;
- DLT allows for the creation of tax registries of tax rulings and advance pricing arrangements, allowing authorities to share information with each other in different jurisdictions. For example, the Income Tax (Country by Country Reporting) Regulations of 2018, were released by the FIRS to determine and regulate taxable digital entities (DLT allows for ease of sharing real-time tax data between countries).

⁹ WU Global Tax Policy Center, 'Blockchain for Governments' < https://www.un.org/esa/ffd/wp-content/uploads/2017/10/15STM_Blockchain-101.pdf > Accessed 7 November, 2021.

¹⁰ Ibid





- Transfer pricing operations in related organizations can be easily tracked to specific transactions, providing auditors with an immutable, trustworthy record.
- DLT improves payroll tax computation and payments by eradicating the duplicity of processes and also eliminating human errors.
- The burden placed on employers to remit to payees from a single source would be lifted, and the possibility of employers defaulting would be eliminated. Smart contracts would automate the process and remove this threat.
- Withholding tax on dividends, interest, and royalty payments: On a basic level, the tax would be sent directly to the tax authority. When appropriate, smart contracts could aid in the computation and recovery of foreign tax credits.
- Transfer pricing matters: Transfer pricing processes and compliance could be streamlined all the way down to the specific transaction. Levels of trust between taxpayers and tax administrators could be vastly improved in a context focused on cooperative compliance¹¹.

Block Chain as A Transfer Pricing Tool?

Transfer pricing is the system of actuating prices for goods and services exchanged between subsidiaries, affiliates, or commonly controlled companies that form part of a larger enterprise. It also represents the price of goods and services provided by a division of a company to another within the same company. It obtains in domestic as well as cross-border transactions¹². Multinational businesses deploy it as a method of allocating earnings among their subsidiaries and affiliates that are part of the parent entity. It also provides a loophole for some multinationals to alter their taxable incomes to affect their overall tax liabilities and to also shift liabilities to low-cost tax jurisdictions.

An accurate transaction trail is necessary for tax authorities to effectively track and verify transfers within and between correlated companies. Blockchain could provide a more reliable audit trail. It can be used to show,

¹¹ Jeffrey Owens and Juila de Jong, 'Taxation On the Blockchain: Opportunities and Challenges'.(2017) 87 (6) Taxnotes International; 61.

¹² Shobith Seth, 'Transfer Pricing' < <https://www.investopedia.com/terms/t/transfer-pricing.asp> > Accessed 5 November, 2021.





for instance, where an associated party transaction occurred and the basis upon which it occurred. It has the potential to also show the development, enhancement, maintenance, and protection of intangibles by establishing a trail back to the origin of the value creation. It can be programmed to track the source of software codes and where they are used. It can also aid in making available the aggregate group profit associated with a series of interconnected transactions, simplifying the profit split across the various parties.

The potential for transfer pricing on the blockchain is innumerable. Although there's scepticism about its ability to eliminate the information deficit authorities contend with when auditing transactions involving foreign affiliates, it can lessen the gap by providing details of the supply chain of a multinational, thereby reducing the knowledge gap. It may also improve the dependability of transfer pricing documentation and accounting records, resulting in lower compliance and processing costs¹³.

Payroll Tax (PAYE)

An employer pays payroll tax on behalf of their employee(s). The employer, as the tax agent, withholds it at source and remits it to the tax authorities. This is often a daunting tax for employers, as they are responsible for calculating and transferring the tax payments from their employees' salaries to the relevant authorities. This responsibility comes with attendant consequences in the event of default.

Adopting blockchain in the process immediately relieves employers of this responsibility. An employer only needs to embed in smart contracts the gross amount of their employees' salaries and other relevant tax data into the system. The blockchain would then match the tax data and calculate the correct tax amounts. The net salary would then be automatically transferred to the employee's account and the calculated tax to the authorities. This makes the tax process faster and more cost-efficient. It also relieves employers of the labor involved in manually calculating, withholding, and remitting the tax, especially as employers move up the salary ladder.

Blockchain and Value Added Tax (VAT)

VAT is a form of indirect consumption tax levied on goods and services at each stage where value is added to the supply chain, right from production

¹³ David Slemmer, 'Blockchain Technology And Transfer Pricing' < <https://www.pkfod.com/wp-content/uploads/2018/11/Blockchain-Technology-and-Transfer-Pricing-FINAL.pdf> > Accessed 12 November, 2021.





to the point of final sale. Businesses have to trail, track and document the VAT they pay on their purchases where the goods are to be resold in order to be eligible for a tax credit for the VAT they pay on their return¹⁴.

VAT is one of the largest sources of government revenue¹⁵, and also the most complicated to implement. As a result, tax authorities are constantly developing systems for the effective assessment and collection of VAT in order to realise more revenue and bridge the loopholes in the system.

The current VAT systems across the world are fraught with a range of issues. It is dependent on the trust and compliance of businesses to calculate and remit the correct amount of VAT due to the authorities. The calculations are not real-time, as returns and settlements are aggregated over a period of time; monthly, quarterly, or annually. They are therefore reliant on arbitrary dates like that of the one on invoices.

It is also difficult for authorities to tax VAT payments, resulting in fraud and misappropriation. It is even more complicated in the case of cross-jurisdictional transactions, as each country maintains its own ledgers, making it almost impossible to procure complete data on VAT movement¹⁶. In light of these difficulties, blockchain poses a breather to the VAT ecosystem, particularly for recording and reporting. Some of the potential benefits include:

- **Real-time trail:** where both the seller and buyer have the same copies of the VAT-related data, there would be no room for differences. Transactions on the blockchain are trackable in real-time, making the transaction a whole lot quicker and the information more reliable.
- **Single use:** this eradicates the problems around duplication of entries, as all parties involved have a real-time date of the transaction.
- **Transparency:** transactions executed on smart contracts reduce the possibility of fraud and tampering. This allows the authorities to obtain

¹⁴ Investopedia, 'Value-Added Tax (VAT)' < <https://www.investopedia.com/terms/v/valueaddedtax.asp> > Accessed 11 November, 2021.

¹⁵ It is currently the crux of a dispute between the Federal Government of Nigeria and a few states as at the time of writing this article.

¹⁶ Richard Thompson Ainsworth and Mussan Alwhohaibi, 'Blockchain, Bitcoin, and VAT in the GCC: The Missing Trader Example' < https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2919056 > Accessed 14 November, 2021.





reliable data on each transaction and aids in assessing tax credits for businesses.

- **E-signature:** as all transactions have to be digitally signed, it makes them more trustworthy and safer than a paper signature or e-mail approval.
- **Administrative effectiveness:** the administrative burden of businesses is significantly reduced, saving time and the cost of accounting services. As the blockchain calculates and registers what the item is, the value of the transaction and its provenance, taxpayers get the burden of VAT amount calculations on invoice level and VAT amount due on tax return level taken away¹⁷.

Comment

Blockchain is a revolutionary technology with the unending potential to increase transparency, reduce administrative bottlenecks, and lower transaction and filing costs in the tax economy. These, however, must be augmented with adequate confidentiality measures, data and privacy protection, and a top-tier underlying infrastructure. Although the proposed submissions and solutions are worth the hype, they must undergo critical examination and assessment from the technical, regulatory, and legal perspectives in order to provide a well-rounded, fit-for-purpose improvement to the tax economy.

An incubation period and platform for testing the efficacy of a blockchain platform built to solve a particular period is advised (regulatory sandboxes to be precise). Currently, as further research and development on the actual potential of blockchain is underway, blockchain is best suited to areas in which data must be distributed across a wide network, composed of unrelated and untrusted parties, with data integrity as an overriding objective. As shown above, some fields of taxation appear particularly promising and compatible with blockchain. They include payroll taxation, VAT, and transfer pricing matters, all of which could benefit from increased transparency, compliance, and the reduction of transaction costs through smart contracts.

¹⁷ Jurgeng G, Introducing Blockchain Technology To The World Of Tax <<https://medium.com/@jurgeng/an-introduction-to-blockchain-technology-tax-567e536767ec>> Accessed 3 November, 2021.





The transition of blockchain from its dominant use in the world of cryptocurrencies to a much more complex and crucial system like that of taxation would be a daunting task. Privacy concerns, lack of uniform standards, lack of infrastructure, limited scalability for transactional purposes, and the decentralized nature of blockchain are just a few of the issues raised by experts.

Nevertheless, the development and improvement of blockchain is ongoing, and it has yielded results at an unprecedented level.

Contributor |



Ibrahim Wali

Banking and Corporate Finance Group
ibrahim.wali@omaplex.com.ng