

Blockchain in Taxation

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Abstract: Since blockchain technology has appeared, it has spread to many areas of the economy. From the legal field, through financial service providers to insurance companies, we meet in a large number of areas this technology. The question arises, when will the first complex blockchain solution appear in the field of taxation? From the corporate sector to the state administration, all sectors are involved and interested in the continuous development of the technology in the taxation process. Can blockchain technology breakthrough the field of taxation? Will it be able to make a breakthrough in technology in the field of taxation?

Keywords: Taxation, Blockchain,

1 Introduction

Taxation has been present in societies since the beginning of human history. It is necessary for the societies to function to determine, record and collect taxes. While the taxation process itself has hardly changed in history, the more the laws and regulations that determine the content of the taxation process are changing. More complex taxation systems increase the number of administrative tasks, causing administrative difficulties for taxpayers. The common goal for everyone is that this process is smooth, traceable, secure and credible. The state is interested in ensuring that planned tax revenues are timely and accurately received in the budget and that the tax authority can also exercise its control function. Businesses are interested in accurately following the tax rules, fulfilling their obligations within the deadline, not having a tax breakdown but also paying taxes, and perhaps the most important ones, at the time of the audit [1].

Today, the latest advances in IT services have reached almost every segment of the economy. Both the corporate and public sector have the latest solutions that not only speed up but make processes even faster. Smart bonds are available in the range of banks, intelligent services for insurers and a well-known concept in business are smart contracts [2].

2 Taxation & Blockchain Technology

2.1 Taxation and technology

In the United States alone, the number of manually submitted returns declined from 31% to 15% between 1999 and 2004. In the US, the spread of the high-speed Internet and the digital procedures applied, such as e-declarations, have clearly promoted the spread of electronic submission of tax returns [3].

The companies themselves have realized that digitalization also affects them. Many FinTech companies offer a digital solution for different business processes. Nowadays, companies are considering the use of blockchains as forward-looking technology and as a possible future technological process. In the long-term, companies expect a much lower cost, greater liquidity, more accurate records and control processes in the long-term [4]. This process is still far ahead of technology, as current technology offers complex solutions for only partial processes.

Why would this technology be avoided in the area of taxation? How can Blockchain Technology be effectively introduced into taxation? Digitalizing taxation means converting analog processes to digital processes. The transformation involves integrating multiple digital processes into the relationship between customers and the authority. The IT mapping of the taxation process has already been solved and is widespread in both the tax administration and the corporate sector [5]. The company's internal integrity makes it possible to generate real-time data completely, so the data element at the base of the process is available at any time. The state of data itself or its change can be monitored in separate systems, and in the case of integrated systems, the relationship between data and data is visible. If we look at the data connection between two units, we are talking about a normal peer-to-peer connection. The more elements we connect to the process, the more integrated the process itself. One of the features of today's integrated systems is that each binding station is connected, but in the case of a change, the interaction between the binding points doesn't automatically occur [6]. That is, the process does not automatically follow the change of information automatically, and the information is not able to appear immediately at all station in the process. Although the process is still at a very early stage, but according to trends in recent years, speeding up digitalization is a good chance for block networks to spread in the field of taxation [7]. In order to understand the blockchains, we have to go back to the main stages of technological development. We distinguish four generations of block lengths.

Cryptocurrencies, the pioneer of bitcoin, is the first level of technology. Process levels are based on the authentication of transactions. The second generation, led by Ethereum, allows intelligent contracts to allow more heterogeneous and lighter

tokenization. Both result in extremely low energy efficiency and lower average block authentication speeds and block transactions. The third generation aims at solving the problems of scalability, speed and, energy utilization with different approaches and techniques. The fourth generation goes far beyond this faster and easier scalability, yet it is competitive from a business point of view. The simple data chain is not flexible enough to meet the corporate environment in which complex data structures are placed in the spreadsheets, the most important role in the structure is to guarantee reliability [8]. Further development of the fourth-generation block network can support enterprise applications and expand the current business-oriented portfolio of data storage, application decentralization, transparency, security, and reliability [9]. When applying blockchains, a very important circumstance must be taken into consideration. Many players in the market provide platform and technology to handle blockchains [10]. At present, there is no standard for blockchains, but of course, there is a question of whether there is a need for a uniform standard at all [11]?

The EU policy on boosting shared accounting technologies emphasizes that any regulatory approach to shared accounting technology should be innovation-friendly and follow the principles of technology neutrality and business model neutrality [12]. The EU doesn't have to regulate the shared accounting technique but must try to eliminate the obstacles to the creation of blockchains [13]. We need to distinguish between Public, Consortium and Closed chains between blockchains. Typical occurrences of the Consortium and Closed chains are chains within the organization, such as banking and interbank networks, but in the case of open chains, typically smart deals are also mentioned [14]. Returning to taxation, the process itself is roughly static and forms a linear process when the whole process of the process is considered so it is decentralized. Examining the individual points of connection, however, involving the associated points, we find centralized units. The expected completion of blockchains in the taxation process can be divided into several phases. Within chains, chains created under integrated corporate governance systems are created within companies, while open chains between the company and the authorities are expected to be mapped [15].

2.2 Processing the data

In the process, the collection, processing, storage and transmission of data is of paramount importance. In the blockchain, data is stored in so-called blocks that behave as small databases. If users add new data to the decentralized database of the blockchain, the new data will be stored in a new block [16]. When creating blocks, a chain is created, which is actually called a blockchain. The blockchain is valid if the so-called Primary Block, the first block created, starts and if all the transactions with the data are valid. From any block of the chain, there is only one straight path leading to the first block. In each block, the system stores not only the data but also all the operations within the system with the data. Transactions

executed are not carried out in such a way that actual data movement is effected between each block, but the system assigns it to the individual data in the block that stores them, to which user is entitled to possess. The system uses the digital signatures of each user to store the data stored in the blocks and determines which user is entitled to have over a dataset stored in a given block [17].

Blockchain Technology is based on a decentralized network that does not have a central entity or any other external entity that performs an external audit of transactions with data stored in it. The blockchain is not stored by a central data manager, but virtually all users are stored on their own computers. There is a special situation in data and information storage because, in the current process, companies and tax authorities are also storing taxation documents in their own systems. This circumstance raises new forms of data management and storage. Exactly the structure of the data and databases on which taxation is based. A processing and storage structure should be established that allows unrestricted access to authentication, access, and control to the actors in the chain. Blockchain can authenticate the origin, traceability and, transparency of transactions in accordance with tax requirements. In the taxation process, this provides faster administration and faster control.

At present, the process has many opportunities and challenges for the public and corporate sectors. It is necessary to set up a working group capable of measuring key areas of the whole process [18]. Ensuring that the information carried by the elements of the process can't be retrospectively modified makes it unnecessary to verify the transaction by a third party. By examining the blockchains and the technology behind them, the challenges generated by the process are highlighted, on the one hand, the transactions and distributed databases. Particular attention should be paid to the handling of private and private data, which is a special challenge [19]. As the storage and data management process change fundamentally, attention should be paid to the environment of the blockchains. If some blocks in the blockchain are also used to store personal data, the question may arise as to who is considered a data controller in this case. A data controller is primarily a person who determines the purpose of managing personal data, makes and executes decisions about it.

Since we are talking about a decentralized network that does not have a central entity that has a supervisory right over system operation and data transactions, as the blockchain is concerned, data management is practically done by individual users. Therefore, each user who blocks and data stored in the system is considered a data manager in connection with the blockchain. Later, the user who has added the data to the system receives exclusive access privileges over the data stored in the blocks, so he can determine which transactions will be used to execute the transactions. If the transaction permits the disposal of the privilege over the personal data stored in the block to another user, from which time the user who receives the data will obtain the exclusive provision over the data and thus will qualify as a data controller.

2.3 Advantages and disadvantages of the blockchains

Blockchain Technology has many advantages and disadvantages at the same time. The most basic advantages of blockchains can be divided into four main groups. These are Trust, Immutability and Transparency, Disintermediation, Lower Costs and, Greater Speeds.

Trust: the information can only be expanded and modified if all elements of the chain allow it. Third-party authentication is not required. In the field of taxation, this is reflected in the fact that changes in the data on which the statement is based will immediately change the accounted data and records, without the need to generate a separate event.

Immutability and transparency: the point is that the information can only be written to the previously existing data, meaning that the new information will only be authenticated if the previous attachments in the process authenticate the new element. This effect can appear in taxation that the tax returns are credible if supported by the supporting data and databases. When a company submits a tax return, this step is verified in such a way that the authority's acknowledgment is linked to the previous chain and thereby exchanges credentials with each other. When a company submits a tax return, this step is verified in such a way that the tax authority's confirmation is linked to the previous chain and mutually authenticates each other.

Disintermediation: No person, company, or organization either exclusively keeps the chain of information forming the entire blockchain alone. While in the present practice tax returns are available in separate information blocks at companies and the same tax returns at the tax office, but in a duplicate file, the two databases are two separate places twice. Spatial distance between stored databases without having an active connection between them. If the sender wants to change the original version, he must generate a modification document and submit it to the authority. With regard to blockchains, this all makes it simpler. On the one hand, the submitted and verified declaration as an accepted, sealed, verified transaction is distributed on each party's database. Neither party can modify the file without affecting the other party's influence immediately [20].

Lower costs and higher speeds are the expectation of the process. The lower cost is expected to be partly due to the development of IT in the long run, and the higher speed is expected to ease the chain of processes. One of the greatest expectations about blockchains is that it can provide confidence among those who do not know each other directly. At present, the data is fragmented in each process of the process, its solution is a step forward and guarantees credibility. In addition to benefits, disadvantageous factors should be highlighted. The leading players in the blockchain phenomenon share common features: unique security and reliability. At the same time, it is necessary to pay a high price: processing requires a lot of energy, causes unacceptable environmental pollution, high

transaction costs and the system is sluggish. It is hardly acceptable with the current level of development of technology and does not provide an obvious technical solution for modern financial and commercial use. Slow running time is caused by the lack of horizontal scalability. Increasing computing performance will only be done by adding new processors instead of replacing the old ones again. Another reason is the current security system of the blockchain. It is designed to prevent anyone from occupying the predominant part of the clusters by making it a non-returnable investment for others as a function of computing energy and, cost. In addition, current blockchains are only simple chains of state changes in data items [21]. Determining the current state of the data requires a full search of the chain. As a result of the system even more deceleration and resource demand. This simple solution doesn't make blockchain suitable for scientific and industrial purposes. The need for sophisticated data systems is becoming more and more challenging. In addition, security measures stop at a certain level of data, thus not guaranteeing users' security. The taxation process depends on the trigger event that caused by the tax effect. The process itself runs from the taxpayer to the tax authority. The question arises of how to safely store the data in the main book, where the tax authorities may leave many unnecessary processes but become more effective. In addition, VAT 2.0 may also appear as linked data [22]. Focusing on the internal operations of companies, it is no longer the question of whether block lengths are coming, but the effects of internal processes? When considering the processes, interaction with authorities should be explored. In addition to corporate culture, organizational networking, confidentiality of data and business risks must be ensured within the organization. In the current processes, despite the favorable practical conditions of digitalization, there is still a lot of paperwork that draws time and energy from the real tasks. However, the process can't be treated on a "black and white" basis, but must also deal with concrete cases that lead to disputes and risks even in current practice. At the same time, real-time accounting allows not only tax authorities, but also the rethinking of corporate financial planning. As the administration itself is getting faster, companies get a competitive edge. Basically, companies are already using internal processes (ERPs) for certain processes but linking them to additional areas, which increases complexity. The first step in the thinking process is to set the terms in a smart contract with the partners, which will allow the tax authorities to check more quickly [23]. Taking into account the technological possibilities and individual tax types, VAT and income taxes can be created either through automatic taxation. The implementation of functionality is largely due to technological connections [24]. For all organizations, it is of the utmost importance that the changes introduced will benefit in the long-term. In order to implement blockchain technology, further development and integration of currently available applications is required. This causes organizational changes and costs. It is by no means a question that technology has a full impact on tax administration processes, but the change itself entails costs. In addition to the cost of introducing the application, the administration model also changes, which affects the process

value of the system. The question arises whether companies can preserve or even increase the value of their processes? There is no separate process for blockchain effect measurements, but one possible way to measure artificial intelligence is the question. The positive result of technology may differ due to the diversity of business models [25]. We need to look at what business size you should use the process. Individuals and small and medium-sized businesses can't count on cost-effective returns, but they are already in large corporations. With regard to the whole process, it is possible to achieve a breakthrough success if more actors are involved in the process [26]. To do this, check the taxation process within the company processes as part of the process. Business process methods can be modeled by an index number and can be based on the possible pattern of AI measurements, and the effects of block lines can be quantified [27].

2.4 Control the process

By measuring this process, not only the interactions between the individual interfaces, but the entire process can be mapped. After quantifying all the parameters that can be considered, the processes checked by the block and the block channel can be compared and the difference between them can be measured [28]. Since not only the taxation process itself has to be examined but also the individual tax types within it, the efficiency gains for each tax item are expected to reach. This assumption can be verified when the technology will offer a practical solution for each tax category as well. One of the most important points of the taxation process is control. It is in the interest of both companies and the tax authorities that tax registers are accurate and easily controllable. The tax shortages found by the tax authorities may arise from professional error, but also from deliberate fraud. The role of blockchain technology in preventing tax evasion is raised [29]. In order for the application to appear in practice in the field of taxation, many challenges need to be answered. Beyond the technological background, the legal background is also needed. Transfer pricing within a group of companies and cross-border transactions pose a special challenge [30]. Because of blockchain technology provides real-time data in payment methods. The method used can also affect the financial processes of companies [31]. Technology is able to provide real-time data, so it may be that in the future public finances will also change the tax periods of taxation [32].

Conclusions

Focusing on the internal functioning of companies is no longer the question of whether the blockchain will arrive but the effects of the internal processes of companies? When reconsidering the processes, interaction with authorities should be explored. Within the organization, besides corporate culture, the organizational network, the confidentiality of data and the business risks that arise must be taken care of. In the current processes, despite the favorable practical conditions of

digitalization, there is still a lot of paperwork that draws time and energy from the real tasks. Artificial Intelligence can make a breakthrough in two important points. One of the key breakthroughs is that verbal tax cases are clearly classified, and the other important milestone is that, leaving human involvement, the process can be even more reliable. The introduction of the process can't be predicted in a timely fashion because of the important point. One is that the spread of blockchain systems has not yet occurred and their current usability requires high energy and a lot of costs.

On the other hand, data serving the technology can still be manipulated easily, which is a possibility of cheating. The subject "Blockchain in Taxation" is a very wide topic. Regardless of whether we are examining the entire taxation process or analyzing just one business activity within a company, many parameters need to be investigated. The usefulness of the application of technology is required through all kinds of transmitters. What happens to direct and indirect taxes, and what automation can be used by reversed taxation? From an institutional, legal and technological point of view, it is also expected that all types of taxes will only be activated step-by-step. The joint interest of the corporate and government sectors is a common step towards technology to explore the potential and limiting factors of technology. Does blockchain technology make a breakthrough in taxation?

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