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PROBLEMS OF THE BLOCKCHAIN TECHNOLOGIES INTRODUCTION INTO THE ECONOMY OF RUSSIA

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Abstract

The article is devoted to the analysis of the use of blockchain technologies in the modern digital economy in the world and in Russia. A brief definition of the blockchain and the possibilities of using this technology in the system of modern economic and financial relations is given. Among the outlined circle of problems, the following are considered: the possibilities of using bitcoin in the shadow economy, the difficulties of taxing the mining and trading of cryptocurrencies, fraudulent activities related to projects of initial coin offering, the lack of a steady course and mass speculation, low profitability of cryptocurrency mining due to current electricity tariffs. The circle of the main problems of this industry is consistently highlighted and possible solutions are proposed. Special attention is paid the possibilities of XRP token use as a payment currency bridge and as a spam protection tool on the basis of the RIPPLE network. The important advantages of using blockchain for the further development of the digital economy of individual states and the world as a whole are emphasized.

1. Introduction

In the 21st century, mankind uses various technologies and computer equipment everywhere. Digital technologies for people has become an indispensable assistant in work, life and all areas of activity. But any technological innovations caused distrust, and before the day-to-day implementation of any product, a significant amount of time had to pass for its adoption.

The same situation is happening in Russia and the whole world as a whole regarding blockchain technologies and everything connected with them (Kazanskaya & Nalesnaya, 2019). In this article we try to figure out what is blockchain and application areas that are closely related to it.

At first glance, it seems that the blockchain has little connection with the economy, but looking at recent events, as all state leaders are trying hard to master and to remove these technologies from the shadow sphere, it becomes clear that the connection is obvious. If we go deeper and study the money supply that is circulated in this area and is not taxed, the interest from the state part becomes clear, as well, in addition, these technologies can be actively used in many government structures, banks, making life much easier for all subjects of variable business processes (Begashev, 2014; Kazanskaya & Kompaniets, 2015; Shevchenko et al., 2016).

2. Blockchain and the most important products made on its basis

Blockchain itself is nothing more than a topology, which is a continuous sequence of blocks of information built up according to certain mathematical rules, most often, these block chains are stored on different PCs independently of each other. The first projects on this technology were developed back in the 90s, but then they were not widespread throughout the world. Bitcoin, which began its work in 2009, became a serious product on the basis of the blockchain; further, we will talk about bitcoin and other cryptocurrencies, implying the blockchain industry by them, this generalization is not true, since the blockchain is not limited only to cryptocurrencies, but at present this area is the most promising.

We can describe the problems and solution methods in this area and will try to explain the main problems and methods of their solution in a brief and simple manner as possible through the prism of the engineering profession experience, and the consequences of these blockchain decisions use on the part of both the world economy and the economy of a specific country, namely Russia.

Bitcoin is a peer-to-peer payment system that uses the unit of the same name to record transactions. Cryptographic methods are used to ensure the functioning and protection of the system, but all information about transactions between the system addresses is available in clear text. The system is decentralized and has an administrator. Instead of the usual hierarchy, the technology of distributed ledger (Digital public ledger) is used (Nalesnaya & Babikov, 2019; Shestopalova, 2016).

3. Shadow markets currency

Everyone who heard about Bitcoin and read its history of appearance and creation will immediately say that this is the currency of shadow markets. They will be right partly, bitcoin was really actively used in black markets and this can easily be explained. Any transactions, for instance, through bank cards,

electronic wallets, transfers, etc. are open to special services, subjects involved in illegal activities could easily be found by the details of bank cards or electronic wallets and detain all counterparties in this chain. Bitcoin, on the other hand, had a number of interesting features, all information about transactions is public and completely unencrypted, anonymity is achieved by an absolute lack of personal information, a person on a bitcoin network is no more than an address and 2 key sets. For greater anonymity, people created separate addresses for each transaction, used VPN services that replaced IP addresses, bitcoin mixers were also introduced into the system, which made it absolutely impossible to deanonymize the user by mixing many transactions into one.

Everything that the criminal sphere brings to the world should not be accepted by society, but many cryptocurrencies have changed the vector of their development after a while, in a search to conduct legal activities. The first problem is the anonymity and high criminality of cryptocurrencies.

All operations of exchanging cryptocurrencies into the usual money for everyone occur either through crypto exchanges or through exchangers. For the first sight everything is very simple, crypto exchanges that use verification when registering with a passport or any other document need to be allowed, anonymous exchanges must be blocked in Russia and the whole world.

Cryptocurrency exchanges through crypto exchangers are much more difficult to control. Each PC user can set himself a "cold" wallet and exchange tokens with his usual money from it. There is only one method of dealing with exchangers - blocking and constant monitoring of the emergence of new ones.

Also, the option of creating a system of state exchangers with the lack of anonymity and the possibility of exchanging only for state currency is real, which will provide additional support to the ruble (since most exchanges take place with the dollar, and then only possible exchange into rubles). In addition, creating a system of cold wallets based on state institutions is a very simple task, when a user receives a state cold wallet, they can automatically become a crypto-tax payer. The state will take a commission for conducting exchange operations, just as any exchangers and exchanges do at the moment.

4.   Trading and production cryptocurrency profit taxation

Reasoning about non-state digital currencies seems absurd and far from the real economy. For understanding, we will give some statistics.

On 02.24.2020, the cryptocurrency market capitalization reached $ 250 billion (Ethereum Market Capitalization historical chart). To understand how large this amount is, the market capitalization of a Russian company listed on stock markets is about $ 576 billion (Babikova & Khanina, 2016; Official website of Integrated Global Data, 2020). The numbers are just shocking.

Now the market is suffering a long decline and capitalization has fallen dramatically, but still shows good growth rates.

Also, about 24 million video cards are currently involved in cryptocurrency mining. The production level only in the Ethereum network at the moment reaches 180 Th/s, which amounts to $ 862 thousand per day, although the price of all currencies is extremely low today (Official website of Integrated Global Data, 2020).

Now the interest of all state governments to this untaxed business sphere with huge revenues is becoming clear.

The answer could be simple, it's needless to tax users in state currency, tax authorities need to take the tax rate as a percentage of profits in the extracted currency. The complexity of mining is constantly growing – earlier, to solve the block, the power of one ordinary computer was enough, now people unite in huge teams – pools, mine blocks together and share the profit among all the "workers" of the pool, and the pool, in turn, takes over its functioning the percentage, usually it is from 1 or 2%, but often pool workers are deceived – the pool takes much more. The simplest model of a state taxation should be built on the next principle. Tax authorities do not need to take money at every step, they need to become one of the already familiar links in the cryptocurrency mining chain. The state should become a huge pool, uniting its citizens, because there is much more trust to the state than to anyone else (business or social structures). Moreover, the organization of the pool does not require extra costs, even an ordinary home computer can handle it (Ethereum Hashrate historical chart, 2020; Tsagan-Mandzhieva, 2017).

The state should also ensure a transparent exchange of cryptocurrencies through the creation of state cryptocurrency exchanges, thereby they will be able to collect taxes from traders, a similar model in Russia has been actively used in the field of bookmaking (users of League Betting, 1X Bet pay profit tax).

5. The ICO projects fraud

The next problem with cryptocurrencies is the so-called ICO projects based on the blockchain of some currencies. ICO, Initial coin offering (initial offer of coins, initial placement of coins) is a form of attracting investments in the form of selling to investors a fixed number of new units of cryptocurrencies received by a single or accelerated issue. This problem was encountered at the time of the rapid development of ICOs on the Ethereum blockchain, projects started their activity, gained money and disappeared, all investors were deceived.

The state should take care of creating services involved in the analysis and selection of all ICO projects. All suspicious projects should not receive further promotion, those who do not arouse suspicion can conduct their activities. Criminal liability for fraudulent activities with digital assets should be introduced (Dolgieva, 2018).

Also, restrictions on the amount of investments in ICO projects for individuals and legal entities should be introduced, which is now happening in Russia and several other countries (Dolgieva, 2018).

6. The lack of a steady course and mass speculation

Many coins have a serious idea and plan for its implementation; at the initial stages, the price of a coin is low, but with an increase in the number of users and the size of the network, the price begins to rise. So for example there is an XRP token on the RIPPLE network being the internal currency.

RIPPLE allows users or enterprises to conduct cross-currency transactions in 3-5 minutes. All accounts and transactions are cryptographically secure and algorithmically verified. Payments can only be authorized by the account holder, and all payments are processed automatically, without any third parties or intermediaries. RIPPLE instantly checks the balance and accounts for transferring payments and sends a notification of payment with a minimum delay (within a few seconds). Payments are irreversible and there are no refunds. XRP cannot be frozen or captured. While since 2014, anyone could open an account with

RIPPLE, by 2015, identity verification procedures were introduced. The RIPPLE Path Finder is looking for the fastest and cheapest path between two currencies. If the user wants to send a payment from USD to EUR, this can be a "one-step" path directly from USD to EUR, or it can be a multi-path way, possibly from USD via CAD via XRP to euros. Finding the path is designed to find the cheapest conversion cost for the user. As of May 14, 2014, RIPPLE gateways allowed deposits in a limited number of currencies (USD, EUR, MXN, NZD, GBP, NOK, JPY, CAD, CHF, CNY, AUD), several cryptocurrencies (BTC, XRP, LTC, NMC, NXT, PPC, XVN, SLL) and some products (gold, silver, platinum).

XRP is a cryptocurrency of the RIPPLE network, which exists only in the RIPPLE system. Currently, 1 XRP is subdivided into a million units, called drops. 100 billion XRPs were originally created and will not be created anymore. Other assets in the RIPPLE network, other than XRP, are debt instruments (liabilities) and exist in the form of "balances". RIPPLE users are not required to use XRP. However, each RIPPLE account requires a margin of 20 XRP, which is explained by spam protection (Official website of RIPPLE, 2020).

6.1. Using XRP as a payment bridge

One of the specific functions of XRP is a bridge currency, which may be needed if a direct asset exchange is not available at a certain time, for example, when dealing with two rarely traded assets. The RIPPLE XRP network is freely sold for fiat money or cryptocurrencies. At the same time, RIPPLE is aimed at payments and exchange transactions, and not at maintaining XRP as an alternative currency. In April 2015, RIPPLE Labs announced that a new feature called auto bridging was added to RIPPLE in order to facilitate the actions of market makers for rarely traded assets. This feature is also designed to provide more liquidity.

6.2. Using XRP as a spam protection tool

When a user conducts a financial transaction in a non-native currency, RIPPLE charges a transaction fee. The purpose of the fees is to protect the network from DoS attacks, making them too expensive for hackers. If the operations were completely free, the attackers could create large volumes of "registration spam" (that is, requests for creating accounts) and "transaction spam" (that is, empty transaction requests) in an attempt to overload the network. This can cause the registry size to become unmanageable and prevent the network from quickly processing legitimate transactions. Thus, to participate in the trade, each RIPPLE account must have a margin of 20 XRP, for each transaction a commission is set at a rate of 0.00001 XRP. This transaction fee is not assigned by anyone - decommissioned XRPs are destroyed and cease to exist. The transaction fee increases if the user conducts operations at a tremendous speed (several thousand per minute) and decreases after a period of inactivity.

As we see from the description, the XRP token cannot be mined and its quantity will constantly decrease, and everything that exists in a limited amount and is actively used is becoming more expensive, therefore, with the growth of the network, the XRP price will increase significantly, that was observed in 2018 (Aigubov & Magomedtagirov, 2017; Official website of RIPPLE, 2020).

And there are a lot of similar coins, each has its own idea and global project. The situation that has been observed throughout 2018 – the crisis of digital currencies – is a sad consequence of speculation and

mass fraud. At the moment, many coins could not be used in a real life and they were bought to resell more expensive, and were mined to be more likely to be exchanged for any other real monetary assets.

If the state follows the path described in section No. 2, then the percentage of the commission that will be taken for the work of the state pool can become a digital reserve and ensure the stability of the exchange rate. Also, the state can begin the promotion and use of crypto assets in government bodies and give the opportunity to pay for government services with digital assets.

7. The price of electricity

When mining cryptocurrency, a huge amount of electricity is used for which you have to pay. At the moment, the profitability of production with current electricity tariffs and cryptocurrency rates is approaching zero. From the summer of 2017 to the current moment, profitability has fallen 20 times, a significant impact was exerted by the price of electricity in the central regions of the country. It is well known, that the problem of high-quality power supply is very urgent for Russia, since there are great losses in electric networks, there are theft of electricity (Tatyana et al., 2018).

Each miner is essentially an individual entrepreneur engaged in an unusual type of activity and this industry needs a state assistance. All miners will pay taxes if the state works properly to provide an assistance in this area. Now it is just necessary to introduce differentiated tariffs for electricity for miners. If the price of electricity is lower, then liquidity increases, idle equipment starts working again and brings income to both the entrepreneur and the state in the form of a tax on the state pool and commissions for conducting cryptocurrency exchange transactions into rubles (Morev et al., 2019; Tsagan-Mandzhieva, 2017).

There is a lack of an understanding the cryptocurrencies importance in the modern world. 50 years ago no one could even think of a network that would unite all people in the world and give them access to all world information, but it happened, today no one can imagine life without the Internet. Blockchain and cryptocurrencies are a similar story, but few economic subjects understand it yet. We are witnessing the emergence of a new global digital economy that has the future, and which technologies will be able to solve a lot of problems previously impossible for the entire global economy and the economy of each state separately.

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