

Legal Issues of Using Blockchain Technology in the Issue and Circulation of Cryptocurrency

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ABSTRACT

The article discusses the legislative regulation of digital products based on distributed registry technology - the blockchain. In particular, much attention is paid to the legal regulation of the issue, storage, exchange, purchase and sale of cryptocurrency. The study is based on a modern scientific methodology, including the doctrinal method, systematic approach and legal cybernetics, analysis of legislation and a comparative approach, legal statistics, legal forecasting. The novelty is the development, based on the systematization of foreign experience, regarding universal approaches to the legal regulation of mining and the cryptocurrency market. The specific problems of each sector of the activity on the issue and use of cryptocurrencies, as well as the main risks, were identified. The result of the study includes the identification of key aspects of the legal regulation of cryptocurrencies in different jurisdictions; determination of the content of the mechanism of their legal regulation; proposals regarding changes in domestic legislation on the regulation of mining and the cryptocurrency market. The content of digital law as a new emerging sub-sector is indicated. Conclusions are drawn about the need for a legislative framework for the functioning of the digital market, including the cryptocurrency business. According to the authors, this is fundamentally important for full-fledged market integration in the global economic space, as well as the formation of a framework for the uniformity of digital law at the level of different jurisdictions.

Keywords: *digital law, cryptocurrency, blockchain, legal regulation*

1. INTRODUCTION

New types of social relations objectively appear in connection with global scientific and technological development. Information technologies penetrate into all spheres of public relations, transforming processes and procedures, which necessitates the harmonization of legal regulation, the formation of digital law, in general. Cryptocurrency as an object of law for Russia is a new phenomenon.

1.1. Related Work

There are no grounds for legal equating cryptocurrencies with existing objects of legal regulation. There have been many discussions earlier about the similarity of cryptocurrency with securities, goods, money, precious metals, but it does not fully fit into any legal construction related to other property.

Cryptocurrency is a special and specific object of law, and the absence of unambiguous legal norms significantly reduces, on the one hand, its investment attractiveness, and on the other hand, creates legal conflicts.

One of the key issues, in our opinion, is the legal regime for mining and storing cryptocurrencies in the virtual space, their circulation and use as a means of payment. The legal regulation of mining and the activities of mining farms in the Russian legal field is uncertain, there are also no legally fixed concepts of "mining", "cryptocurrency", "cryptocurrency market", "digital transaction (transaction)".

1.1.1. Manual interactive assumption generation

The digital transformation of the public, real and financial sectors determines the inevitability of changes in the mechanism of their legal regulation, the revision of legal techniques and technologies. In the global dimension, the rapidly growing ICT capabilities that allow creating and using network effects are ahead of the legal interpretation of digital actions and the definition of criteria for their compliance [1]. New mature start-ups appear in the cryptocurrency segment, digital products are offered on cryptocurrency exchanges that are gaining increasing market shares, thereby forming a new industry of crypto services, but which falls into a "legal vacuum" on many issues [2].

In 2014, Ethereum cryptocurrency (ETH) appeared, supporting the creation of smart contracts - special computer algorithms that transmit information when predetermined events occur. Features of the Ethereum protocol significantly expanded the functions of cryptocurrencies and gave a new round to the development of the entire crypto economy. Now you can create "add-ons" on top of the blockchain, the functioning of which takes place on the ETH blockchain. The purpose of the "add-ons" is different, for example, the release of their own cryptocurrencies or the creation of decentralized applications. Thus, cryptocurrencies appeared serving the blockchain platform for creating decentralized applications. In them, cryptocurrencies are technical units of account for ensuring the movement of information [3]. At the turn of 2018-2019, in a global context, there was a trend towards the development of legislation in order to integrate cryptocurrency exchanges into the existing financial system, to simplify transactions in cryptocurrencies for legal entities and individuals, exchanging them for fiat money. This is due, inter alia, to the development and adoption of AML / CFT standards in the implementation of financial measures to combat money laundering.

According to the recommendations of the FATF, when assessing the possibility of illegal actions with virtual digital assets, countries should proceed from a risk-based approach, which consists in requiring virtual asset service providers to identify, evaluate, apply effective measures to minimize the risks of money laundering and terrorist financing. The need to license or register virtual asset service providers in at least the jurisdictions that are created.

1.1.2. Problems of Legal Regulation of cryptocurrency

Regulation of the issue and circulation of cryptocurrency, as noted in the review of the Bank of Russia, should include measures, in particular: registration (licensing) of exchange sites; user identification by AML / CFT; taxation of cryptocurrency turnover participants; reporting on sites; establishing minimum capital requirements for exchange sites; consumer rights Protection; responsibility for violation of established requirements [4]. The positive aspects of cryptocurrency regulation are: firstly, statistical information on the use of cryptographic currencies, on the basis of which the practice of its application is monitored; secondly, for the purposes of AML / CFT [5] control of operations with cryptocurrency and their identification; thirdly, the possibility of introducing restrictions on the volume and list of operations with cryptocurrency; fourth, arbitration and liability.

Applying, by analogy, the existing norms of Russian civil law, we can talk about cryptocurrency mining in the context of Art. 137 of the Civil Code of the Russian Federation - as about obtaining fruits, products or income from the use of a thing (miner). "Mining is a contract. A

suitable analogue under Russian law may be a public contract (Article 426 of the Civil Code of the Russian Federation). Under the terms of the contract, the system (the community of all participants in the blockchain) pays a certain amount of remuneration in the form of cryptocurrency to any person fulfilling the technical conditions (mining). Obtaining cryptocurrency as a result of mining, in fact, is the same as receiving fiat money for performing any services, work, or any other conditions. Acceptance is carried out at the expense of opportunistic actions (carried out "automatically"). Persons who are not engaged in mining, but register a "wallet", also join the contract (Article 428 of the Civil Code of the Russian Federation). The question of the legal nature of the remuneration itself is also a topic of controversial discussion and interpretation.

From the technical aspects, mining is a method of mining cryptocurrency, which is based on solving mathematical problems using powerful computers, through a special program (miner), followed by decryption of the next block of the chain, to receive rewards in the form of corresponding digital coins, and crediting them to the address wallet or account. This Bitcoin wallet address can be "cold" stored on a computer, a "hot" online wallet, or a crypto exchange wallet. The features of distributed databases that allow you to create a new generation of electronic money, as you know, are decentralization and anonymity.

Depending on the demand for cryptocurrency and the difficulty of producing new "coins," during forking, forking is carried out on copies of bitcoin or new cryptocurrencies when a different exchange rate is set depending on the rate of issue or hashing. Hard forks, cardinal separation of the network and transformation of the algorithm by updating the Bitcoin network are possible, which leads to the reorganization of the blockchain or the emergence of a competing blockchain.

1.1.2.1. Private and Public Blockchain.

The blockchain industry, in general, is characterized by extremely high dynamism, it affects the value of individual assets and the functioning of the crypto market as a whole, but the main transactions are with Bitcoin and Ethereum [6].

According to experts of Russian mining [7], mining on our own equipment, working with cloud mining services is technically simpler. The creation of mining data centers and downloads occur gradually, part of the area is loaded by own miners, and part is given for hosting. Thus, the business gets the opportunity to quickly return investments, diversify risk / Bitcoin mining is currently the most widespread, however, other cryptocurrencies (altcoins) are increasingly involved in the issue and turnover, and also go to the ICO (Initial Coin Offering) crypto-exchanges / Despite regulatory uncertainty and pronounced market volatility, digital token sales have become an important activity in the capital markets over the years.

According to some estimates, token sales compete with traditional IPOs and venture capital markets. According to a leading expert in the field of digital assets, K. Lewis, “the risk of a violation created by blockchain technology for the existing regulatory framework may be less dramatic than its ability to violate the entrenched interests of traditional market participants (for example, securities)” [8].

Rapid development in the global economy is receiving distributed registry technology - the blockchain, which is relatively new to Russian practice. The legal attitude of blockchain projects is debatable by lawyers, at the same time there is a contradiction, legal risks and illegitimacy of decisions on blockchain projects (including the issue and sale of cryptocurrency) are due to the lack of legal regulation. The lack of uniform standards and legal regulation leads to legal, technical and financial inconsistency among stakeholders, the implementation of the norm will occur gradually. From the point of view of Arslanov K.M., the reform of the legal institution of blockchain relations presupposes an already more or less solid legal basis for the corresponding legal structure [9].

2. RESULTS

Based on the context, blockchain is seen as a technology, a distributed decentralized registry-protocol of interaction. Cryptocurrencies do not need banking intermediation due to the use of blockchain technology. Using the blockchain, there is no need for a server or a central authorized body, which can significantly reduce the cost of physical values carriers. The main difference between public and private blockchains is the level of access that is granted to participants. For complete decentralization, public blockchains are completely open. Anyone can participate by adding or checking data. The most common examples of a public blockchain are Bitcoins (BTC) and Ethereum (ETH). Both of these cryptocurrencies are created using open source computer codes that can be viewed and used by anyone.

Private blockchains are much more scalable, since only a few nodes are authorized and responsible for data management, so the network is able to process more transactions. Decision making is much faster due to centralization. However, the centralization of the private blockchain is one of its biggest weaknesses. The blockchain was introduced to eliminate centralization, and the private blockchain contradicts this.

Trust in a private blockchain network depends on trust in authorized sites. They must be trustworthy as they verify transactions. The validity of the records also cannot be independently verified. Security is another issue with a private blockchain. With fewer hosts, it is easier for attackers to gain control of the network. Unfortunately, a private blockchain is more at risk of hacking or data manipulation.

Blockchain as an implementation option of a network of distributed registries contains information about digital actions (actions in the digital space), which are grouped in

accordance with one or another criterion. Thus, the scope of the blockchain in the part of the distributed registry is very wide: the financial sector, the banking sector, education, international trade and logistics, marketing and building business models, politics and sociology, personnel management and management, electronic platforms, energy, customs, transport and navigation, development and construction, ecology and nature management, crime prevention in various fields, intellectual property management and copyright protection, etc. [10].

Until recently, blockchain was an innovation known to a narrow circle of specialists in several countries, and now this technology is relevant for the global economy. In some countries, such as Venezuela, virtual currency plays an important role even in the everyday life of ordinary citizens. In the Republic of Belarus, cryptocurrencies participate in civil circulation, are alienated and transferred to another entity, i.e. under republican law, cryptocurrencies do not apply to intangible goods that are inalienable and non-transferable.

Although blockchain plays a much more prominent role in society, it remains a relatively nascent technology that has existed for less than 10 years. The issue of blockchain regulation arose precisely because technology began to penetrate actively into those areas of the economy where intensive regulation, financing, investment, raising capital and transactions, and money transfer have developed.

We note the main advantages of distributed registry technology: the novelty of information encryption methods; mutual authentication of information by the parties; smart contracts; universality of information sources, relevance and completeness of data; data set uniformity; distributed records; reduction of information risks; making transactions in real time [11, 12].

Blockchain security is provided cryptographically. An important issue in the practical use of blockchain, and distributed ledger technology, in general, is the effective management of cryptographic keys for accessing data. Loss and disclosure of keys can lead to irretrievable financial losses, losses due to gaining access to information. The confidentiality of private keys is required, including ensuring the reliability of algorithms and protocols for creating, storing, distributing, revoking, or destroying keys.

Also, a difficult question arises of the volume, content and accuracy of the information that is made available to contractors. Ensuring compliance with data privacy regulations is necessary. Participants must agree on the level and extent of data provision. Distributed storage of information involves copies of the distributed registry on each node - a member of the network, and this can make it difficult to ensure the confidentiality of stored data and access control for different network participants.

There are no direct prohibitions on the use of technology of distributed ledgers in Russian legislation; general norms of the law apply to its use in the financial sector, including requirements for identifying customers, protecting personal data and confidential information, and ensuring consumer rights.

Attempts to unify the practice of regulating the blockchain are not possible, since in some countries technology is being stimulated, and in others, on the contrary, they are trying to eliminate it from their jurisdiction. This leads to the absence or limitation of commercial blockchain solutions, but one should not exaggerate the widespread use of blockchain technology.

According to the unanimous opinion of the specialists of the Blockchain Alliance [13], the bitcoin transaction is not anonymous, as is debatably reflected in many works and positions. Law enforcement agencies around the world are now striving to “monitor digital money.” Having a generally accessible, traceable, unchanging, limitless register of every bitcoin transaction ever conducted allows law enforcement agencies to track the flow of funds related to the purpose of an investigation anywhere in the world. These same tools allow cryptocurrency exchanges to better identify suspicious participants and transactions, in accordance with the requirements for combating money laundering.

As blockchain technology improves, it will be extremely difficult to use cryptocurrencies for criminal purposes. According to the experience of the Blockchain Alliance, mutual cooperation with industrial communities, unions, enterprises is necessary in terms of promoting lawmaking and joint development of rules to realize the full positive potential of blockchain technology. This is crucial for the growth of the economy and the industrial sector, harmonization of legislation in accordance with the objectives of innovative technological development [14, 15].

The development of new technological solutions actualizes the problem of intellectual property. When implementing the blockchain, it is also necessary to comply with antitrust laws and competition principles. The exchange of specific data on current and future prices and competitive activity, in contrast to aggregated past information (before using the blockchain), can lead to the improvement of antitrust laws.

The experience of the European Union in the field of regulation of operations using distributed registry technology is of methodological and practical interest. The European Securities Markets Authority (ESMA), which is the main regulator for all national securities commissions in Europe, issued a discussion paper in June 2016 entitled “Application of technology” a distributed registry for securities markets, which outlined the potential risks and benefits that DLT may have in securities markets, especially in terms of public policy.

The growing popularity of blockchain technology and the growing demand of European Union banks for digital money (in late 2019, more than 40 licensed German banks turned to the German Federal Financial Supervisory Authority Bafin with a request to allow Bitcoin transactions) contributed to the adoption of the fifth EU directive, according to which financial institutions have the right to carry out operations with digital coins subject to compliance with measures to combat money laundering and the financing of terrorism.

It is obvious that regulators will continue to closely monitor the development and use of distributed registry technology in the regulated field. Previously, they tried to get away from regulating technologies as such and paid more attention to their use and products that can be promoted or developed on a technology platform.

While the market keeps track of potential regulatory developments, good governance is a key to successfully implementing DLT to protect participants, investors, and stakeholders, while ensuring the system’s resilience to systemic risks, privacy issues, and cybersecurity threats. The direction of development of the normative approach is still not clear, but, in general, the industry must monitor applications to which the blockchain can be applied, avoid products and processes that are unlawful or lead to systemic risks. In contrast, tight regulation is expected to limit the future development of blockchain technology and the benefits it can provide.

Blockchain technology as such probably does not need a separate legal regulation, but a legal framework is needed for legal actions, including cryptocurrency transactions. In addition, an opinion is expressed on the appropriateness of standardizing the architecture and ontology of distributed registry technologies, its scope, fixing the requirements for software and hardware, software for distributed registry technologies, their security and confidentiality. Products created on blockchain technology are information systems, with the spread of the norms of Federal Law No. 149-ФЗ dated June 27, 2006 "On Information, Information Technologies and the Protection of Information".

There is no systematic judicial practice for registering blockchain registry entries. A record in the blockchain (transaction) is included in the block of the digital chain after the identification of the hash signature selected during the mining process. A transaction signed by a hash block from a legal position is an electronic document that may be written evidence for a court

3. CONCLUSION

Thus, it is necessary to comprehensively approach the introduction of blockchain technology everywhere to study its advantages, disadvantages and limitations. Of course, it forms the basis for cybersecurity, protecting user data, and is also aimed at streamlining processes through smart contracts.

At the same time, the creation of a domestic regulatory framework in the field of regulating the relations of subjects of Internet entrepreneurship, the issue and circulation of digital financial assets, is objectively necessary. Legalization will solve the problems of cryptocurrency market control. The development of distributed ledger technology in the financial instrument segment is rapid, which implies a corresponding synchronization of legal regulatory and technical and economic organizational aspects. Legislative regulation of blockchain technology as a repository of documents, a secure registry, maintaining registries, inventory and

exchange of digital assets will provide formal protection for the rights and interests of digital business.

In our opinion, the existence of a legislative framework for the functioning of the digital market, in particular, the cryptocurrency business, is fundamentally important for full-fledged market integration in the global economic space, as well as the formation of a framework for the uniformity of digital law at the level of different jurisdictions.

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