Institutional environment for the development of digital economy and blockchain technologies in the Russian Federation

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Abstract. The digital economy, along with new opportunities, presents new challenges. Along with distributed registry technology called blockchain, the economy includes cryptocurrencies. A whole area of cryptoeconomics is emerging, and its development brings new opportunities to reduce the cost of market transactions. At the same time, the spontaneous development of cryptoeconomics has negative effects. Regulation of cryptoeconomics meets the problems of understanding the essence and role of cryptocurrency in the economy. The article deals with the directions of regulation and contradictions arising in the regulation of cryptoeconomics. The interrelation of blockchain and cryptocurrencies is considered. The ways of regulating cryptoeconomics in different countries are shown. Unresolved issues and challenges in the development of blockchain technologies and cryptoeconomics are outlined.

Relevance, source overview

The institutional environment in modern Russia continues to evolve, and government support for technologies that provide incentives for economic development remains extremely important. The President and the Government of the Russian Federation have issued a number of strategically important documents aimed at creating an information society and
developing information technologies [1]. Among the latter, the distributed registry technology, blockchain, in which the recording of transactions is accompanied by the emission of cryptocurrency, is of particular interest.

Blockchain can be any chain of transactions fixed in some register. But a breakthrough innovative technology in blockchain is the discovery of the possibility to form and transfer cryptocurrencies - virtual machine money - through computer devices and the Internet. Transmitting not only information, but also values, K. Sinner called ValueWeb a valuable Internet [2].

Cryptocurrency also appears in other digital technology - the Internet of Things, where there is no blockchain, but there is also a cryptocurrency - IOTA. Thus, together with digital technologies, cryptocurrencies are in circulation.

Cryptocurrency, the decentralized digital currency, is a new phenomenon in the digital economy. The first cryptocurrency-bitcoin was first released in 2009. The attractions of the new financial instrument are the lack of a single issuer and payment intermediaries, 24-hour operation, splitting of bitcoin and the ability to make payments, including micro-payments, to anywhere in the world where there is an internet connection; low transaction costs have made it a popular means of payment. With the development of cryptocurrencies, the field of cryptoeconomics appears.

Cryptoeconomics is a part of the economy that is based on the use of cryptocurrencies and derivatives. This includes ICO, tokens, mining, manufacturing of mining equipment, cryptocommunities, i.e. technological and social processes related to the development of the cryptocurrency market. The volumes and growth rates of cryptoeconomics are shown in Table 1.

**Table 1. Capitalization of the crypto-asset market, 2016-2019.**

| Indicators                                               | 2016 | 2017 | 2017/2016 | 2019 | 2019/2016 |
|----------------------------------------------------------|------|------|-----------|------|-----------|
| Total capitalization of the crypto assets market, bln USD | 13,8 | 565,1| +4094     | 249,7| 1809      |
| Trading volume 24 hours, bln USD                        | 0,08 | 37,0 | +4625     | 77,6 | 6208      |
| BTC share in total crypto capitalization, %             | 85   | 53   | -27,6     | 56,6 | +3,6      |
| BTC course, USD                                         | 736  | 17362| +2396     | 7933 | +7197     |
| Number of                                               | 551  | 617  | 2194      |      |           |
cryptocurrencies  
*Source:[2]. **As of 22.05.2019

Capitalization of the cryptocurrency market grew 41-fold in one 2017, and 18-fold in 2.5 years. The paradox of the lower capitalization growth in two years is connected with the fact that the market volume of cryptocurrency is accounted for at the current rate, which in 2019 is 2.2 times lower than in 2017. However, the cryptocurrency is growing faster than any other fast-growing market.

The spontaneous development of the cryptographic economy has negative effects, including the possibility of laundering illicit proceeds, uncontrolled movement of funds from the state, the possibility of fraud in the transfer of cryptocurrency, associated with the technical features of the transfer confirmation. Therefore, there is a requirement to prohibit cryptocurrency [4]. Accordingly, other experts call for a slowdown in this issue, justifying the prospects for the development of the cryptocurrency and cryptoeconomics [5,11].

The novelty of this phenomenon - cryptocurrency - determines the whole range of practices of its institutional regulation - from complete prohibition to the absence of any regulation. Lack of regulation allows the cryptographic industry to develop. This is a good aspect of the problem, which allows this innovation to spread quickly and show its various positive and negative effects. On the other hand, it causes the lack of protection of cryptoeconomics participants from unfair actions of cryptoeconomics participants themselves and law enforcement agencies. In this respect, institutions are not by chance called by John Commons, the founder of institutionalism, a collective action to control, liberate and expand individual action [6], their task is to determine what is illegal from the point of view of society.

Setting the problem

The purpose of the article is to determine the state of institutional environment for the regulation of cryptocurrency in Russia, to identify trends in this area, to determine the problematic moments in the institutionalization of cryptoeconomics.

Institutionalization is the process of formation and consolidation of elements of the institution [7], which regulates certain relations.

In Russia, the issue and circulation of cryptocurrencies is not yet regulated by law. The indirect regulator is the Law on the Central Bank of
the Russian Federation, Article 27 [8], which states that the only means of settlement and turnover is the rouble, which in turn means that the circulation of other means of turnover, settlement and payments is not allowed.

At the same time, since there is no legislative definition of the cryptocurrency and exchange transactions are not prohibited, there is actually an exchange of cryptocurrency for cash or other tangible assets, which is, in fact, a converted form of settlement in the cryptocurrency.

Although cryptocurrencies are associated with blockchain, there is a perception that blockchain is good and cryptocurrency is bad, and it would be good to develop blockchain without cryptocurrencies.

Since the nature and meaning of the cryptocurrency is not defined, the problem is to determine whether cryptoeconomics need to be regulated now, what the purpose of cryptocurrency regulation is, and what is needed to achieve it. It is necessary to find out the trends in the regulation of cryptoeconomics in Russia and in the world. The approach to regulation is based on determining whether cryptoeconomics are needed at all in order to preserve and develop them.

From the institutional regulation point of view, it is necessary to understand what an institution is, what the institutional environment is and what the effectiveness of an institution depends on, and how the institutions of the digital age differ from those of the pre-digital era.

Thus, the range of problems of institutionalization of cryptocurrency exchange includes issues:

1) What is the nature of the cryptocurrency and do the cryptocurrencies have an economic potential for their own development that can be used? Or is it just the inevitable "evil" of blockchain to put up with and limit?

2) Should the notions of cryptoeconomics be defined by law?

3) How to regulate the cryptocurrency - by restricting the circulation of cryptocurrency, restricting mining, introducing taxation or other instruments?

4) What is the experience of other countries in regulating cryptocurrencies and how can it be used?

This set of questions forms the research agenda for the institutionalization of cryptoeconomics, some of which will be considered.

Theoretical part
Let's start with the definition of the concept and elements of the institutional environment. Economic development of society is inextricably linked to institutions. The main features of institutions, common for all approaches to its definition: rules, norms, customs, compulsion to observe them, habits, roles and statuses [7]. According to E.V. Balatsky [9], the structure of the institution can be represented by three elements: goals, technologies and resources.

Any institution has goals for which it is, in fact, created. The formation of an institution occurs consciously - in the form of laws or norms of behavior, or spontaneously in the process of evolution, entrenched in habits, values, norms of behavior. By definition, there are no aimless institutions. The goals of institutions are always formulated by society or public groups. The goals of formal institutions, enshrined in a legal and regulatory manner, are formulated by the state and local authorities. A typical example of institutional goals is a federal law, the mandatory element of which is a preliminary section, which specifies the goals of the law. The goals of informal institutions are usually formulated by stakeholders and may be spelled out in codes of conduct, or may be implied and exist only in an unwritten form in the form of behavioral stereotypes and public opinion assessments.

Furthermore, each institution includes a set of rules and procedures by which its objectives are achieved. As a rule, each institute's goal implies its own technology to achieve it. Quite often institutional technologies are used as a synonym for the institutions themselves, but, strictly speaking, this is wrong. Institutional technologies are the rules and algorithms that support norms. The technologies of formal institutions are usually established by the relevant official authorities; the technologies of informal institutions are established by the relevant public groups.

The third attribute of the institute is the resources through which institutional technologies are implemented. The price of institutional technologies is equivalent to the concept of resources. The costs of resources aimed at maintaining institutional technologies are borne by all economic entities interested in maintaining the relevant institutions and ready to function within the framework of these institutions.

Institutional environment - a set of fundamental social, political, legal and economic rules defining the framework of human behavior [7].

Why do we need a "framework of behavior" of a seemingly purely technical nature, as a cryptocurrency?

The fact is that the cryptocurrency starts to play the role of money - and this is already an institutional aspect, since the use of money is always determined by institutions. Since today all money is fiduciary, i.e. based on
trust [10], the question arises whether such a position fits the Bitcoin and cryptocurrencies.

In order for cryptocurrencies to become money, it is necessary not only to have a legislative “resolution”, but also to have some value and trust in them by the participants of the economy.

There’s a difference of opinion about value. V. Katasonov believes that the cryptocurrency does not contain any value, according to Marxist theory of value [4]. However, the value may be due to the functions that cryptocurrencies can perform and perform more efficiently than other instruments. In other words its value could be determined by the utility of cryptocurrency, according to the theory of marginal utility.

The range of useful use of cryptocurrencies is wide, it generally coincides with the directions of blockchain use, because blockchain does not work without its cryptocurrency, as unequivocally stated by K. Skinner [2]. In addition, blockchain bitcoin, and thus Bitcoin itself, is already fully supported by promising projects in the real sector of the economy, which have received funding and are at the stages of development and implementation. There are many examples of digital projects using blockchain and cryptocurrency: private blockchain for tracking and optimizing freight, a project to convert the real estate registry to blockchain, medical records, and workbooks on blockchain. These are not bubbles, but projects that are in demand by creative entrepreneurs and initiative residents of different countries. On the basis of blockchain, which uses cryptocurrencies, new mechanisms of public coordination are being formed, such as a common platform for voting “Active Citizen” in Moscow, etc.

Among other things, cryptocurrencies represent a new experience of digital creation. The development of the digital economy requires active creative individuals and innovative communities that develop and use new digital economy technologies. One of the most active types of communities is cryptographic communities, where new useful projects are born. For example, one of the projects of the crypto-community participants - HelthCoin - is aimed at encouraging people to engage in physical activity: running, swimming, walking in exchange for project tokens. Thus, cryptocurrencies have their own significance and potential for economic development.

Analysis of institutional regulation
Institutional regulation of cryptocurrencies differs from country to country: cryptocurrencies are regarded as a means of payment, a specific commodity, a digital asset, etc. There are three main strategies for regulating the cryptocurrency [11, 12]:

**Permissive.** Focuses on the most restrained regulation of the new financial instrument. In countries with this strategy, cryptocurrencies and transactions with them are officially permitted, and incentive regulation is in place. This: Germany-bitcoin is considered as "private money"; Switzerland, Japan, Sweden, Estonia, Australia consider cryptocurrencies as a means of payment; Singapore, Finland as a financial asset

**Forbidden.** Considers high criminogenic risks of turnover of cryptocurrency and considers its turnover as a violation of the rules of money emission. This: Bangladesh, Kyrgyzstan; China prohibits ICO and cryptcourt exchanges, but is a monopoly producer and owner of mining equipment.

**Neutral.** Characteristic of most countries. Cryptocurrencies and operations with them are not prohibited, but there is no regulation. In Canada, the purchase of goods for cryptocurrencies is equal to barter transactions, in the U.S. - different regulation by state, some ICOs are equal to IPO, there is no special regulation in Brazil, South Africa.

In Russia, the attitude towards the cryptocurrency has passed through the stages of complete denial, informal prohibition, armed neutrality, and finally, recognition of the need for legislative regulation. Let us consider these stages in more detail:

**Denial. Until 2012.**
There is almost no information about cryptocurrencies in the press, professional literature and regulatory documents.

**Assessment of the cryptocurrency as a crime and its informal ban. (2012-2016)**
Since 2012, negative attitude to the cryptocurrency has prevailed in Russia. The absence of a single issuer, its transnational nature and anonymity made it possible to consider it as a means of committing crimes and a direct threat to the financial stability of the country.

27 January 2014 The Bank of Russia has published a letter warning citizens and legal entities against the use of "virtual currencies" for their exchange for goods (works, services) or money in rubles and foreign currency. The letter contained a warning that the provision of services for the exchange of "virtual currencies" for rubles, foreign currency, goods and services will be considered as a potential involvement in the implementation of dubious transactions, which will be prosecuted under the laws on combating money laundering and financing of terrorism.
Under the influence of the general trend of negative perception of the cryptocurrency, the Ministry of Finance of the Russian Federation has prepared a draft law on criminal liability for the circulation of money surrogates. It was proposed to introduce into the Criminal Code of the Russian Federation article 187.1 "Turnover of money surrogates" and to establish liability in the form of a fine of up to 500 thousand rubles or imprisonment for up to four years for the manufacture, acquisition for the purpose of sale, as well as the sale of money surrogates. The managers were supposed to be imprisoned for up to seven years or fined up to two and a half million rubles for using cryptocurrency.

Meanwhile, already at this time, international experts began to recognize the need and inevitability of blockchain and cryptocurrency development. Thus, institutional inertia seriously hindered the development of blockchain digital technology in Russia.

**Armed neutrality. Turning to state regulation (2016-2019)**

A change in the vector of virtual currency valuation was observed in 2016 after a number of conferences held at reputable expert venues. The need to prepare draft laws that would define the essence and certain scope of its application in the legal field was recognized. At the same time, the Central Bank repeatedly declares its negative attitude to the cryptocurrency.

In April 2016, on the basis of the State Duma of the Russian Federation, an interdepartmental working group was established to assess the risks of turnover of cryptocurrency, which announced the development of a comprehensive law on the regulation of "virtual currency". The purpose of the draft law was to prevent Russia from falling out of the general trend of financial technology development and capital outflow.

On March 26, 2018, the State Duma introduced a draft law proposing the introduction of cryptocurrencies into the legal framework in Russia within the framework of the Civil Code. The draft law introduces the concept of digital law and the concept of digital money.

Digital money is defined as a set of electronic data that does not certify the right to any object of civil rights, which is created in a blockchain system and used as a means of payment.

Digital law is used for tokens, which are defined as a type of digital financial asset that is issued by a legal entity or individual entrepreneur (issuer) for the purpose of raising finance and is recorded in the register of digital records and represents a certificate of title to an object or project.

The legal status of mining is directly related to the cryptocurrency. The draft law defines mining as an entrepreneurial activity aimed at the creation of a cryptocurrency and/or validation for the purpose of obtaining remuneration in the form of a cryptocurrency. Such a definition seems to be
erroneous, since business activities are related to profit making and not to any technical activities toward to create a product.

Now the concept of digital law is fixed by the Federal Law of 18.03.2019 № 34-FZ [13]. The law is already in force, but the regulatory legal acts under it will be created after the adoption of two other laws that are currently being finalized: the Draft Law on Digital Financial Assets and the Draft Law on Crowdfunding [14].

For further development of the issue, it is necessary to determine the difference between "cryptocurrency", "digital money" and "electronic money". A.Yu. Gribov gives substantial explanations on this issue. [15]: Despite the uniformity of the form, there are different ways of money management by clients in banks... There is no "electronic money" - there is an electronic way of access to deposit money; there is no "card money" - there is a way of access to accounts with the help of plastic cards. Thus deposit money is a form of fiat money, i.e. money used by banks, legal entities and individuals in non-cash payments.

The emergence of deposit money is centralized and has nothing to do with cryptocurrencies.

Cryptocurrencies are decentralised virtual money (more correctly, digital money), which is organic in nature and a cryptographic way of ensuring security, ensuring the maintenance of a distributed transaction register - blockchain. They begin to play the role of money in a number of payment transactions, but are not currently recognized as money.

It should be noted that legal recognition does not always coincide with the economic essence of the phenomenon [16]. For example, during the Great Patriotic War, food stamps actually played the role of money, while fiat money ceased to play its role due to the decline in their purchasing power almost to zero.

However, cryptocurrencies are not currently money, not only in terms of their legal status, but also in terms of the real situation in the economy. To substantiate this, let us turn to informal institutions that show the attitude of society towards cryptocurrencies. According to a survey conducted by the All-Russian Center for Public Opinion Research (VTsIOM) in April 2019 [17], more than half of Russians (56%) say they know about Bitcoins, but in detail - only 9%, 18% have heard only the term itself. The level of awareness among representatives of the youngest age groups (67% among 18-24-year-olds), people with higher education (71%), residents of Moscow and St. Petersburg (75%), men (66%), and active Internet users (69%) is significantly higher.

At the same time, the actual knowledge about this cryptocurrency is rather weak. Thus, among those who know or have heard of Bitcoins, 37%
are sure that they can be purchased by anyone who wants to buy them, and 12%, for example, believe that they are prohibited in Russia. The degree of protection of Bitcoins, as compared to ordinary money, is estimated ambiguously: 28% believe that it is harder to steal digital currency, 29% - easier.

In general, we can say that Bitcoins have not yet gained popularity among our fellow citizens: two-thirds of Russians who have heard of them (65%) consider investing in Bitcoins as an unprofitable investment, only 2% have bought Bitcoins.

Comparing the results of surveys conducted on 28-29 December 2017 [18] and 4 April 2019. 17 it can be noted that the level of awareness of Russians about the cryptocurrency (and Bitcoin in particular) has not changed much, and doubts about the prospects of investing in the cryptocurrency have strengthened.

Thus, the cryptocurrencies, neither on the part of formal institutionalization, nor on the part of informal institutions, have not yet gained public trust. At the same time, a significant part of society is involved in cryptocurrency projects, mining, and ICO.

If the state authorities take the path of banning cryptocurrencies in Russia, the risks of further development of the national economy will increase [14]. As a result, innovative digital technologies will be introduced not in Russia, but abroad, and the benefits will be gained there, not in Russia. Thus, it is necessary to speak about regulation, but not about prohibition of cryptocurrencies.

The need for legal regulation is becoming more acute due to the fact that cryptocurrencies are becoming more and more part of the economic turnover of the countries and are beginning to compete with the official monetary unit. But regulation must be as careful as possible so as not to destroy the digital economy's potential for development.

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