

Corporate Distributed Registers Based On Blockchain Technology

Vasily A. Laptev

Kutafin Moscow State Law University (MSAL)

The Institute of State and Law of the Russian Academy of Sciences

laptev.va@gmail.com

123995, Russia, Moscow, Sadovaya-Kudrinskaya str., bld. 9

Abstract

Corporate practice indicates the necessity of development of the institute of recording corporate rights. The establishment of effective mechanisms to protect the rights of members of corporations has become a priority for the country's leadership in order to ensure a favorable investment climate and to improve Russia's positions in the Doing Business Report of the World Bank. One of the instruments that ensures legal security and transparency of transactions with shares of economic entities can be a system of distributed register based on blockchain technology. Its advantages and drawbacks became the subject of this research.

The author provides a legal assessment of the legal consequences of executing stock transactions when maintaining the distributed register with the use of blockchain technology. The study reveals the problems of anonymity of the distributed register and personification of individuals in making transactions over the Internet. The advantages and drawbacks of distributed registers in recording the corporate rights and managing the register of owners of securities are also considered. The author suggests possible ways of improving corporate legislation and legal approaches to implementing the distributed register based on blockchain technology.

Throughout the work, the emphasis falls on the synergy of law, economics and modern digital technology. The work examines the real prospects for the use of corporate distributed registers based on a balance between the interests of the state, civil society and business community.

Keywords: *corporations, joint stock company, digital economy, digital rights, corporate rights register, register of shareholders, record of corporate rights, distributed data register, blockchain.*

Introduction

The development of digital technologies has transformed many of the traditional ideas of order and ways of doing business. The state program "Digital economy of the Russian Federation"¹ justifies the facts. Establishment of a system of legal regulation of economic relations with digital technologies has become a priority for Russia's leadership (the Decree of the President of the Russian Federation from May 7, 2018 No. 204 "On the national goals and strategic objectives of the development of the Russian Federation for the period up to 2024"²). In order to achieve these goals, the Government of the Russian Federation specially established the autonomous nonprofit organization "Digital economy" (decree of the RF Government of March 14, 2018 No. 421-r³).

The interest of Russian legal scholars to the problems of digital technologies in economic relations has recently increased. The greatest interest raised such issues as legal nature of e-documents and e-commerce (N.I. Solovyanenko)⁴, e-payment systems (O.A. Tarasenko, E.G. Khomenko)⁵, possible ways of development of legal regulation of public relations with the use of artificial intelligence

¹ The RF Government Resolution of July 28, 2017 No. 1632-r (2017). Corpus of Legislation of the RF, 32, art. 5138.

² URL: <http://www.pravo.gov.ru>.

³ Corpus of Legislation of the RF, 12, art. 1736 (2018).

⁴ Solovyanenko, N.I. (2017). Legislation on electronic documents as a factor of the actualization of the legal space for the innovative (digital) economy [Zakonodatel'stvo ob elektronnom dokumente kak faktor aktualizatsii pravovogo prostranstva dlya innovatsionnoy (tsifrovoy) ekonomiki]. Trudy Instituta gosudarstva i prava RAN, vSolovyanenko, N.I. (2003). Legal regulation of e-commerce and electronic signature: International experience and Russian practices [Pravovoe regulirovanie elektronnoy torgovli i elektronnoy podpisi: Mezhdunarodnyy opyt i rossiyskaya praktika]. Khozyaystvo i pravo, 1, 27–37.

⁵ Tarasenko, O.A. & Khomenko, E.G. (2016). National payment system of the Russian Federation and its elements [Natsional'naya platezhnaya sistema Rossiyskoy Federatsii i ee elementy]. Moscow: Prospekt, 176.

(V.A. Laptev)⁶, application of distributed registers as a method of recording intellectual property rights (Yu.P. Kharitonova)⁷, issues of liability and protection of the rights of market participants (V.A. Laptev, N.I. Solovyanenko)⁸, etc.

Foreign countries use the blockchain technology in test mode in the land rights registration (e.g., Sweden⁹ and Ukraine¹⁰). The technology is also applicable to the identification (Brazil), the identification of refugees (Finland), or the identification of electronic residence (Estonia). A distributed registry would be implemented in large corporations when carrying out the financial services, air transportation, international cargo transportation, retail, etc.¹¹

In Russian corporate relations, the blockchain technology was considered in the context of the shareholders voting procedure (L.A. Novoselova)¹². This paper considers the corporate rights in a distributed register and possible legal regulation on the example of the register of owners of securities (shares) in joint-stock companies.

Methodological framework

The author used both theoretical and empirical methods of scientific cognition. The paper provides an analysis of the prospects for the implementation of a distributed register in corporations, as well as its positive and negative aspects. Fragmentary works of Russian legal scholars on the subject formed the empirical basis. The paper used methods of analysis, synthesis, induction, and deduction.

The background for the development of corporate distributed registers

To some extent, the existing possibility of the turnover of securities certifying the participation of an individual in the authorized capital of the joint stock company in writing lost its relevance¹³. Currently, the authorized capital of the modern joint-stock companies consist of the registered non-documentary stock, the issuance, circulation and the account of which takes place in electronic form only (article 25 of the Federal Law dated 26 December 1995 No. 208-FZ "On joint stock companies"¹⁴, hereinafter – the Company Law).

⁶ Laptev, V.A. (2017). Responsibility of the "future": the legal entity and the issue of assessing evidence [Otvetstvennost' «budushchego»: pravovoe sushchestvo i vopros otsenki dokazatel'stv]. *Grazhdanskoye pravo*, 3, 32-35.

⁷ Kharitonova, Yu.S. (2018). The legal significance of recording intellectual right using the technology of distributed registers [Pravovoe znachenie fiksatsii intellektual'nogo prava s pomoshch'yu tekhnologii raspredelennykh reestrov]. *Pravo i ekonomika*, 1.

⁸ Laptev, V.A. & Solovyanenko, N.I. (2017). Electronic justice and electronic document management as a condition for the modernization of the regulatory environment for business [Elektronnoe pravosudie i elektronnyy dokumentooborot kak uslovie modernizatsii regul'yatornoy sredy dlya biznesa]. *Rossiyskiy sud'ya*, 2, 16-21.

⁹ Chavez-Dreyfuss, G. (n.d.). Sweden tests blockchain technology for land registry. URL: <https://www.reuters.com/article/us-sweden-blockchain/sweden-tests-blockchain-technology-for-land-registry-idUSKCN0Z22KV>.

¹⁰ Karpus', V. (n.d.). State land cadaster of Ukraine switches to blockchain [Gosudarstvennyy zemel'nyy kadastr Ukrainy pereshel na tekhnologiyu Blockchain]. URL: <https://itc.ua/news/gosudarstvennyiy-zemelnyiy-kadastr-ukrainyi-pereshel-na-tehnologiyu-blockchain/>.

¹¹ Lannquist, A. (n.d.). Blockchain in Enterprise: How Companies are Using Blockchain Today. URL: <https://blockchainatberkeley.blog/a-snapshot-of-blockchain-in-enterprise-d140a511e5fd>. Large Corporations Are Embracing Blockchain (n.d.). URL: <https://seekingalpha.com/article/4147300-large-corporations-embracing-blockchain>. Krauth, O. (n.d.). 5 companies using blockchain to drive their supply chain. URL: <https://www.techrepublic.com/article/5-companies-using-blockchain-to-drive-their-supply-chain/>.

¹² Novoselova, L. & Medvedeva, T. (2017). Blockchain for the voting of shareholders [Blokcheyn dlya golosovaniya aktsionerov]. *Khozyaystvo i pravo*, 10, 10-21.

¹³ According to clauses 54 to 57 of the Regulations on joint-stock companies, approved by the Council of Ministers of the RSFSR of 25 December 1990 No. 601 (Collected decrees of RSFSR, 1991, No. 6. Article 92, repealed) the shareholder got a share certificate representing the securities confirming the ownership of shares. The transfer of this certificate in the prescribed manner meant the transaction and transfer of ownership of shares.

¹⁴ Corpus of Legislation of the RF, 1, art. 1 (1996).

In terms of digital technologies, the share is a digital code (reference) in the electronic register of shareholders. In 2014, only the registrar – a professional participant of the stock market¹⁵ – can be charged with the maintenance of this register.

In corporate practice, particularly in the field of non-public corporations, the conflict situations are not rare. Among other reasons, the conflicts occur when the parties of the share purchase agreement evade the fulfillment of obligations on transfer of the shares sold (for example, by signing the order of transfer to the registrar), or do not make a statutory mandatory offer for share purchase, etc. These circumstances inevitably lead to corporate disputes resolved in the arbitration court in the order stated by the Chapter 28.1 of the Arbitration Procedure Code of the Russian Federation.

It seems that many conflicts in civil share turnover may be prevented by the introduction of appropriate digital Internet-based technologies. The author suggests introducing a distributed register system based on blockchain¹⁶ technology in the corporate practice of joint stock companies as an efficient mechanism of protecting corporate rights from potential violations.

It is known that a system of a distributed register includes: 1) blockchain technology - a chain of transaction blocks; 2) a database of the asset owners; 3) the distributed ledger technology. It should be noted that Russian legislators reasonably use the term "distributed register" since the blockchain is just a part of the distributed register. It is namely the technology for creating a chain of sequential blocks (cryptographic structuring of blocks), that are embedded in the integrated distributed data register.

The development of blockchain technology suggests creating the new generation of web space. Thus, following the common "web of information", appeared the "web of things" (including cryptocurrencies, tokens, music and other digital objects) and smart contracts. It seems that a further stage of development of telecommunication space would be the Internet artificial intelligence, autonomous and operating according to specified algorithms free from the direct operational control of a human.

The author believes the concept of "distributed registry of digital transactions" proposed in Draft bill No. 419059-7 "On digital financial assets" is well-reasoned. This ¹⁷concept is viewed as a consistent digital transaction database that is generated at a given time and stored, created and updated simultaneously at all carriers of all parties of the register according to certain algorithms that ensure the database identity at all users of the register. The Draft bill No. 424632-7 "On making amendments to parts 1, 2 and 4 of the Civil Code of the RF"¹⁸, which introduces the categories of "digital rights" (the rights to objects of civil rights, certified by the electronic set of data - the digital code or reference) and "digital money" (the set of electronic data - digital code or reference used by the users of the system to make payments) is under timely discussion.

Assessment of the consequences of implementing the distributed registers in corporations

The authors attempts to assess the technological and legal aspects of a possible implementation of a blockchain technology in conducting the corporate register of shareholders of the issuer. It seems that the studied technology may be used to record the transactions with bond certificates, shares in the authorized capital, promissory notes, and other financial assets.

1. Making and settlement of the transaction. The transfer of non-documented shares in electronic form (hereinafter – assets) using the Internet and blockchain technology eliminates intermediaries between the buyer and the seller. Here the author mentions both legal intermediaries (persons acting in the interests of the parties of the contract, including stock market participants), and "technological intermediaries", including software products.

The advantage of a distributed register is the transfer the shares directly to the buyer, and their record in electronic form only. Therefore, the transaction would be made in a lump sum, as well as its settlement - the transfer of corporate rights to purchaser, including participation and control) with respect to the issuer (JSC). In other words, it will be the transfer of shares to the account of the purchaser

¹⁵ See: Federal Law of July 2, 2013 No. 142-FZ (2013). Corpus of Legislation of the RF, 27, Art. 3434.

¹⁶ Learn more about the technology: Nakamoto, S. (n.d.). Bitcoin: A Peer-to-Peer Electronic Cash System. URL: <https://bitcoin.org/bitcoin.pdf>.

¹⁷ URL: <http://sozd.parlament.gov.ru/bill/419059-7>.

¹⁸ URL: <http://sozd.parlament.gov.ru/bill/424632-7>.

(clause 1 and 2 of article 149.2 of the Civil Code of the RF). A similar approach is applied to the procedure for establishing the distributed register of charge over shares or other encumbrances (clause 3 of article 149.2 of the Civil Code of the RF, article 51.6 of the Federal Law dated 22 April 1996 No. 39-FZ "On the securities market"¹⁹).

However, the issue of the digital gap and access to the system of distributed register of persons who do not have the technical access to telecommunications resources (e.g., people in remote regions of Russia, poor families, and others who do not have means of modern telecommunications) remains discussed. It is known that making transactions (deals) in a distributed register is only possible with the access to the Internet and required software.

Taking into account the position of the Constitutional Court about the fact that participation in commercial corporations is a kind of economic activities (decree of the Constitutional Court of the Russian Federation from March 15, 2005 № 3-P²⁰), at first glance, it seems that stock market participants should be provided with necessary telecommunications. However, in some cases, the digital gap would inevitably occur, for example, in case of inheritance shares or the division of property and apportionment of the marital share. The technological barriers in the share purchase (or their crediting to the owner's account) are impermissible.

It is necessary to legislatively establish an obligator to manage a distributed register by using the blockchain technology (even on a fee basis). That is, there is the unavoidable intermediary – "the administrator of the corporate register"²¹ (third party, no party of the transaction). It would partly spoil the uniqueness of the blockchain as "the intermediary-free technology", but this intermediary is reasonably required.

Such administrator may be a registrar that actually serves as a "forced" user of distributed electronic register of shareholders for making transaction technically in the register.

One should distinguish the administrator of the corporate register and the "miners" - people creating (producing) the blocks to ensure the functioning of the distributed register. In the case of corporate distributed registers, the shareholders may fulfill the miner's functions.

The legal assessment of the future of smart contracts raises much interest in researchers. These contracts may be considered as:

- 1) a type of civil law or business contract;
- 2) a technology to build a computer algorithm for the exchange of digital assets, that is, an automated fulfillment of an obligation (see Draft bill No. 424632-7).

In the field of corporate relations, smart contracts can efficiently work in executing voluntary and mandatory offers to redeem shares (see Ch. XI.1 of the Company Act, the information letter of the Bank of Russia, Information Letter of the Bank of Russia of August 4, 2017 No. IN-015-28/42 "On the recognition of the total market value of the securities recommended for the purpose of applying certain provisions of Chapter XI.1 of the Federal Law of 26 December 1995 No. 208-FZ "On joint-stock companies"²², and the one dated 20 September 2016 No. IN-015-52/67 "On some questions of the securities purchase for the person who sent the voluntary (obligatory) offer to purchase securities"²³).

2. Anonymity. The popularity of distributed registers based on the blockchain technology initially came from the privacy of the owner of the electronic wallet (account) that records the assets concerned. Establishment of the first cryptocurrency, Bitcoin, brought many funds, including illegal and semi-legal, to the crypto-market. The anonymity of the crypto-currency transactions made digital market, attractive since the registration of the wallet owner was carried out by installing the special software on the user's PC and assigning a digital code to the applicant. Personal data of the applicant, his tax reference number, insurance number of the individual ledger account, and other identification data are not verified.

¹⁹ Corpus of Legislation of the RF, 17, art. 1918 (1996).

²⁰ Vestnik Konstitutsionnogo Suda RF (2005), 3.

²¹ The concept of "the administrator of the corporate register" is proposed by the author as the possible reference to people who are able to make entries in the corporate register, including the transaction information, but who are not parties of the transaction.

²² Vestnik Banka Rossii (2017), 69.

²³ Vestnik Banka Rossii (2016), 86.

One needs a detailed technological study of the registration and identification of legal subjects (legal person or legal entity) when maintaining a distributed register of securities owners and performing operations involving blockchain technology. Among other things, the Draft bill number 419059-7 "On digital financial assets" distinguishes a special entity, the "validator", as a person carrying out the validation (confirmation of validity) of digital records in the digital transactions register in accordance with the rules of maintaining this register (article 2 of the Draft bill). However, the blockchain technology initially does not involve a third party in the transaction, which is carried out only technologically via the Internet.

The resolution of this issue should consider a number of circumstances. Firstly, individual or legal persons, and sometimes public legal entities in cases prescribed by law (clause 5 of article 66 of the Civil Code of RF and clause 26 of the resolution of Plenum of the Supreme Court of the Russian Federation No. 6, and the Plenum of the Russian Federation No. 8 of 1 July, 1996 "On some issues of applying the Civil Code of the Russian Federation"²⁴). Therefore, the parties of transactions may only be individuals, the will of which is making and settlement of the transaction (clause 2 of article 1, clauses 2 and 3 of article 153, clause 2 and 3 of article 158 of the Civil Code of the RF). That is, considering transactions with shares, corporate rights are transferred from the right holder to the acquirer given the identification of a person and the possibility of establishing the will, and thus anonymity should be abolished.

Secondly, the information of the distributed register should clearly be known to the registrar and the issuer, who provide corporate procedures (holding general meetings of shareholders, paying dividends, the drawing up of the list of affiliated persons, making the mandatory public offer to purchase shares, etc.). For example, the article 51 of the Company Law prescribes to form a list of persons entitled to participate in the general meeting of shareholders before holding it²⁵. Therefore, when using a distributed register, it would be the only source of information about the distribution structure (volume) of the corporate rights of the holders and the issuer.

In this regard arises the question whether to consider the corporate blockchain-based distributed register of shareholders as a public register or as a register that has public reliability. The fact that the maintenance of the register would depend on blockchain technology, and the information in this registry would never be verified (e.g., by a third person - the registrar), raises some doubts. The author believes that legislative recognition of the person, whose competence would be the verification (occasional or permanent) of the authentication information in the register.

3. The object of corporate rights. If we take the distributed register reflecting the number of shares on the personal accounts of each owner as a starting point, therefore, this register would determine the volume of corporate rights. The register should have the property of public reliability, but only in case of its failure-free functioning without errors and external impacts. In fact, it should be attributed separately or irrespective of the legal justification for such recognition. The blockchain technology itself justifies the reliability of the distributed register operations data (transactions made compiled in information blocks).

The technological aspect of using a distributed register is under discussion now. It about losing access to the digital wallet (account) that contains securities and shares (for example, the loss of the password, the theft of a password by hackers, or software errors²⁶). Let us draw a parallel with electronic wallets of crypto-currency. When the owner loses his or her password, the assets of his account just fall out of the civil turnover (become "frozen for an indefinite period").

Currently, the registrars maintain the e-register of the issuer and electronic database (Chapter 4 of the Regulations on the requirements for implementing the activities on keeping the register of

²⁴ Byulleten' Verkhovnogo Suda RF (1996), 9. Byulleten' Verkhovnogo Suda RF (1997), 5.

²⁵ see also: Regulation on additional requirements to the order of preparing, convocation and holding of the General Meeting of Shareholders, Order of the Federal Financial Markets Service of Russia of February 2, 2012 No. 12-6/pz-n [Polozhenie o dopolnitel'nykh trebovaniyakh k poryadku podgotovki, sozyva i provedeniya obshchego sobraniya aktsionerov, utv. prikazom FSFR Rossii ot 2 fevralya 2012 g. № 12-6/pz-n] (2012). Byulleten' normativnykh aktov federal'nykh organov ispolnitel'noy vlasti, 35.

²⁶ The software "bug" here means the unexpected digital command to perform the given algorithm, and its unexpected result.

securities owners, approved By The Bank of Russia of 27 Dec 2016 No. 572-P²⁷). At the same time, the registrar performs a daily backup of accounts on electronic, optical or other storage devices, which is not affected by the failure of software and hardware instruments of processing and storing the accounts (clause 4.5 of the Regulations). Duplicating of the register with primary documents in hard copy (e.g., transfer orders, questionnaires of registered individuals, or the register of transactions on personal accounts that the issuer submits to the registrar) is also provided. In other words, the loss of the digital register of shareholders does not mean the complete loss of data, and the data recovery is possible.

After the introduction of a distributed blockchain-based register, the transactions are to be made by the owners of personal accounts by sending commands to a computer program on debiting the sender's account and crediting the beneficiary's account with the corresponding shares. Of course, these actions would not be done through the registration of documents in hard copy or with e-signature equivalent to the handwritten one (article 160 of the Civil Code of the RF and article 6 of the Federal Law of April 6, 2011 № 63-FZ "On electronic signature"). While being made, the transaction in a distributed register itself is signed with an e-signature (digital code), but technologically, it would represent the transfer of information on transferring the number of shares from seller's digital account and crediting them to the buyer's account. This data is sealed with a digital module that includes information about all previous transaction).

The loss of the password and/or technological access to digital wallet would make further operations with the specified shares impossible. On the one hand, other users of the distributed register would know the information on these shares and their current owner. On the other hand, the civil turnover (use) of these shares would be terminated (same as the crypto-currencies), because the transactions in a distributed register are signed with electronic signatures (cryptographic codes) referred to a certain e-wallet.

In this regard, the author suggests elaborating a procedure (the rules) of restoring rights for shares in the distributed register in case of the loss of access to the account. Certain parts of the procedure to declare lost documents void (restoring rights to lost securities), which is documented in Chapter 34 of the Civil Procedure Code of the RF²⁸, may serve as a basis for the elaboration.

4. Legal remedy of corporate rights. Blockchain technology is comprehensible in terms of programming and cryptography. Thus, the owner of e-wallet can only sell the amount of the asset or its part (shares) that has been previously credited to him, that is, the "input" of the wallet. The date of transaction is thereby taken into account. Accordingly, the formation of the transaction block, the technology of distributed register checks (verifies) the entire system for the remains of the "input" (assets) on all the personal wallets. The scope of verified accounts include the owners having no access to the account because of the lost password. It helps to eliminate the duplication and the civil turnover of the same block of shares in different entities.

The legal practice raises the question how to protect the rights of a person who lost the rights to shares or moreover, who transferred them to a third party (including bona fide holders) against the will of the rightful owner. According to the current court practice, documented in clause 7 of the Overview of dispute resolution for transactions with placement and circulation of shares²⁹, the requirement of the proprietor about the return of shares against bona fide purchaser is vindicatory and should be considered subject to the provisions of article 302 of the Civil Code of the RF. In addition, it will be necessary to prove that the shares were lost, stolen, or dropped out of their ownership some other way against their will.

²⁷ Vestnik Banka Rossii (2017), 25.

²⁸ See also: The Concept of a unified Civil Procedure Code of the Russian Federation, approved by the decision of the Committee on civil, criminal, arbitration and procedural legislation, State Duma of the Russian Federation from 8 December, 2014 № 124(1).

²⁹ Information letter of the Presidium of the Supreme Arbitration Court of the Russian Federation of 21 April, 1998, No. 33 [Informatsionnoe pis'mo Prezidiuma VAS RF ot 21 aprelya 1998 g. № 33] (1998). Vestnik VAS RF, 6.

In this regard, we should mention the content of electronic evidence subject to assessment by the court. In modern arbitration procedure, the court accepts "electronic evidence"³⁰. However, the evidence mentioned in article 75 of the Arbitration Procedure Court of the RF (i.e., documents received by fax, electronic or other communication, including via the "Internet" information and telecommunications network, as well as documents signed with an electronic signature in the order established by the legislation of the Russian Federation) are viewed as "written evidence", and are equal to them. This fact is comprehensively justified by the very title of article 75 of the Arbitration Procedure Code. In case of corporate distributed register, any written evidence is out of the question, since the distributed register is primarily electronic, and all transactions made digitally. Thus, the nature of the distributed register could not be equal to the one of the written register.

Here, the question is whether the legislative elaboration of the provisions of qualitatively and technologically new evidence (the study of which is currently at the initial stage) is reasonable.

The issue of appointment of judicial examination to establish the circumstances of the case and the expert, able of competent conduct of an objective judicial examination, is also significant. The procedure of the execution of the court order in case of recognized ownership of the lost shares is vague.

5. Data storage and maintaining the distributed register in corporations. Electronic registers (archives) have a number of typical disadvantages; the same cannot be said for the documents in hard copy. The vulnerability of electronic archives is perfectly described in the works of S.L. Kuznetsov. Among others, he highlights the following disadvantages of electronic archives: limited service life (write-once optical disk - not more than 25 years); depreciation of electronic document formats and the need for their occasional conversion; need of repeated confirmation of documents in electronic archives with an electronic signature when the document formats change with the account of GOST R 7.0.8-2013, etc.³¹

Distributed register in digital form has none of these drawbacks, as users themselves, including the individuals that form blocks of share transactions (like miners in crypto-currencies) via the Internet, provide its existence. Distributed registers are not stored in any particular place on hard drives, and its data are duplicated on all computers connected to the Internet and the software for the corresponding register. One can say that the formation of a distributed register is a kind of a data cloud in the Internet, which is maintained by the owners of personal accounts and other individuals, including administrators. In this regard, one should invent the regulation for the case when the JSC consists of a single person – the sole shareholder (the company of a single person). The regulation should include the information upon who and in what order is to manage the corporate distributed register.

Regarding the rate of making transactions, which is significantly lower than the same of Visa or MasterCard payment systems, the stock market is not much concerned about this issue, since the frequency of transactions, even in respect to well-known public corporations like Rosneft, Norilsk Nickel, Polyus, etc., would be provided by a distributed blockchain-based register with the set power (rate of blocks of transactions formation).

Results

This study allows identifying the approaches and ways of improving legislation in the sphere of regulating digital blockchain technologies when maintaining a distributed corporate register in Russia. The legal operation mode of the distributed register should provide transparency of transactions in shares of the issuer, as well as legal guarantees and protection of the rights of all participants of the transactions. At the same time, it was found that when building a technological model of the distributed register, it was necessary to provide public authorities with the opportunity to influence its work in order to carry out the regulation, serving the public interests.

³⁰ See: *Laptev, V.A. (2017). Electronic evidence in the arbitration procedure [Elektronnyye dokazatel'stva v arbitrazhnom protsesse]. Rossiyskaya yustitsiya, 2, 56-59.*

³¹ See more: *Kuznetsov, S.L. (2017). Electronic archives and electronic signature [Elektronnyye arkhivy i elektronnyaya podpis']. Deloproizvodstvo, 4, 29-34.*

Discussions

The digitalization of the economies in all countries is an inevitable process, starting with regional integration processes, e.g. in the framework of the Eurasian Economic Union³², and in the world.

Available legal literature in Russia on the subject is now at the initial stage of development of legal approaches to regulating corporate relations with the use of distributed registers. There are opinions about the qualification of records in the distributed register as electronic documents (for example, A.I. Savel'ev³³). However, the electronic document is generally considered as a document in electronic form, including those signed with an electronic signature – cryptographic key (Solovyanyenko³⁴). Thus, the transaction and its record in the distributed register represents a "digital blueprint" about the transaction.

Amosova N. said about the banking system that the introduction and development of blockchain technology would ensure the competitiveness of national monetary institutions, as well as radically change the view of the financial world³⁵. It seems that this technology would inevitably raise the attractiveness of the Russian market of direct investments (stock market).

The complicated formation of the legal framework for digital technologies was emphasized by V.A. Vaypan and Bykov A.Yu.. The fact is that the development of legislation requires the profound understanding of the technological processes with "digital" elements³⁶. It seems that the digital gap in civil society is also a significant obstacle of the total distribution of digital technologies in corporate practice.

An important argument against the implementation of blockchain technology was the lack of control over a distributed register from public authorities, and the fact that the confidence of the parties of the transaction was based solely on technology without the possible impact of human factor³⁷. As it is emphasized by L.V. Sannikova and Yu.P. Kharitonova, the security of any digital rights and assets requires legislative regulation of the legal modes for digital assets to protect the rights of participants of civil turnover³⁸.

Conclusion

It should be noted that introducing distributed registers in corporate procedure would more than likely be inevitable against the background of the development of digital technologies. The solution to the studied problems is impossible without the participation of software engineers, because the digital technology and cryptography that forms blockchain is in their competence.

³² Digital agenda of the EAEU is to cover all spheres of the economy the Union participating countries [Tsifrovaya povestka EAES okhvatit vse sfery ekonomiki stran Soyuz]. URL: <http://www.eurasiancommission.org/ru/nae/news/Pages/26-06-2017-1.aspx>.

³³ Savel'ev, A.I. (2017). Some legal aspects of using smart contracts and blockchain technologies under Russian law [Nekotorye pravovye aspekty ispol'zovaniya smart-kontraktov i blokcheyn-tekhnologiy po rossiyskomu pravu]. *Zakon*, 5, 94-117.

³⁴ Solovyanyenko, N.I. (2002). The legal role of electronic signatures in e-commerce [Yuridicheskaya rol' elektronnoy podpisi v elektronnoy kommertsii]. In collected works: *Predprinimatel'skoye pravo v XXI veke*. Moscow: MZ-Press, 67-83.

³⁵ Amosova, N.A. (2016). Preventive measures, delict management and other ways to increase the competitiveness of Russian commercial banks [Preventsiya, delikt-menedzhment i drugiye napravleniya povysheniya konkurentosposobnosti rossiyskikh kommercheskikh bankov]. *Rossiya v XXI veke: global'nyye vyzovy i perspektivy razvitiya: proceedings of the Fifth International Forum*. Moscow, IPR RAN, 141.

³⁶ Vaypan, V.A. (2017). Fundamentals of legal regulation of the digital economy [Osnovy pravovogo regulirovaniya tsifrovoy ekonomiki]. *Pravo i ekonomika. Dokumenty. Kommentarii. Praktika*, 11, 5-18. Bykov, A.Yu. (2018). The right of the digital economy: national economic and political risks [Pravo tsifrovoy ekonomiki: nekotoryye narodno-khozyaystvennyye i politicheskiye riski]. Moscow: Prospekt, 24p.

³⁷ Nick Ayton. Ignoring Blockchain Is Corporate Suicide. URL: <https://channels.theinnovationenterprise.com/articles/ignoring-blockchain-is-corporate-suicide>.

³⁸ Sannikova, L.V. & Kharitonova, Yu.S. (2018). Protection of digital assets as property value [Zashchita tsifrovyykh aktivov kak imushchestvennoy tsennosti]. *Khozyaystvo i pravo*, 5, 26-35.

The common mechanisms of interaction between the market participants are replaced by digital technology, and the time of making a transaction reduces. Thus, the need for documentation of certain transactions and legally significant actions gradually disappears. Modern telecommunication technologies are replacing paper transactions in corporate practice. The proposed legal regulation of the work of the distributed corporate registers would raise interest to the Internet and other telecommunication of the participants of direct investments funds.

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