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The Trust and the Digitalization of Society

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***Abstract*-The article analyzes the process of transformation of trust while digitalization. Interaction of people in the Internet became a reason of formation of a new digital environment of trust. A special role in this process is devoted to the technologies of distributed registers. The most famous of them is the blockchain technology. Blockchain provides technical opportunities for trust relations between unfamiliar remote partners, which are based on the transparency of transactions and the technical inability of changing them. The introduction of new digital technologies in all spheres of public life requires re-approaching of trust as multidisciplinary category. The authors conclude that such types of trust as interpersonal, generalized and institutional will remain in the digital society, but their forms of expression will change significantly, as they will be closely linked with the Internet.**

Keywords-digital society, interpersonal trust, generalized trust, institutional trust, blockchain

I. INTRODUCTION

The digitalization of all spheres of modern society, especially the economy, has reached such a level, when there are qualitative changes in the key categories that form the basis of the society. Trust as a multidisciplinary category is studied by various scientific disciplines, primarily sociology and psychology. Recently, however, the problem of trust has become the subject of detailed study of scientists, economists and lawyers.

Crisis of trust in economic relations, aggravated after the global economic crisis of 2008, caused the necessity to analyze the good faith of economic entities. Good faith is defined in Russian law as the behavior expected from any participant of civil relationships considering rights and legitimate interests of the other party, contributing to it, including while obtaining the necessary information. This understanding of good faith corresponds with the definition of trust, made by F. Fukuyama: "trust is a characteristic of expectations of society members that other members will behave more or less predictably, honestly and with attention to the needs of others, in accordance with some general rules" [1]. While considering the definition of trust through the category of expectation, there is a question, what these expectations are based on and how they are formed.

II. THE MAIN TYPES OF TRUST AND THEIR FORMATION MODELS

There are three main models of trust formation in literature: "the first is based on direct personal experience; the second on similar social characteristics; the third on external sources (institutions) that can guarantee that the expectations of the trusting party will be justified" [2].

It seems that in cases where trust is based on personal experience, it is interpersonal trust. Interpersonal trust is formed at the microlevel in the process of interaction of an individual with other people. As for economic relations, interpersonal trust is formed between the parties during their economic activity. The formation of interpersonal trust requires direct interaction between the parties. However, in the context of economy globalization, such interaction is rather an exception, so the generalized trust but not interpersonal is at the first place.

Many researchers do not speak about generalized trust in relation to business and mention only interpersonal and institutional trust. It is hard to agree with this, because for making business it is necessary to expand contacts, which requires interaction with market participants. It seems that entering into such relations, the individual pays attention to such social characteristics of the business entity as brand, business reputation, goodwill, i.e. in this case, trust is formed by the second model.

But institutional trust is essential for economic development. As pointed out by the researchers, "in institutional theory, trust is regarded as a certain level of expectations of good behavior, in accordance with appropriate regulations, rules and restrictions, controlled by formal and informal institutions" [3]. In sociology, along with the five main big institutions (family and marriage; political institutions; economic institutions, education institution; religion institution), there are also more private institutions.

Economic institutions are of primary importance for the formation of institutional trust in business. However, their functioning is closely connected to law, which is a private political institution. Institutional trust arises when the law regulations adequately reflect the needs of market participants, when fair trial and protection from illegal actions for them is guaranteed. Consequently, changes in economic and legal institutions also lead to changes in the model of institutional trust formation.

III. RELATION BETWEEN TRUST AND GOOD FAITH

In Russian civil law, trust is reflected in two concepts fiduciary and good faith. At the same time, only certain civil obligations (assignment, trust management, etc.) are fiduciary while good faith is presumed for all participants of civil relationships. The good faith principle is formulated in paragraph 3 of clause 1 of the Civil code of the Russian Federation as a requirement for participants in civil relations to act with a good faith. At the same time, the scope of this principle is formulated very broadly and covers all actions of participants of civil relations while obtainment, implementation and protection of civil rights, as well as while performance of civil duties. In this regard, it is the interpretation of good faith that determines the behavior of the relations participants and the level of trust between them in modern conditions.

Under the law, such an expectation of honest behavior of the counterparty becomes actual. As for the law, good faith, as a condition of trust of the parties of the civil relationships is considered as a moral concept in relation to the relation between morality and law.

In the science of civil law, the concept of good faith is traditionally considered in objective and subjective senses. "Good faith" in objective sense, according to I. B. Novitsky, is "a known external standard, which is taken into account by the law, the court applying the law, and which is recommended to members of civil society in their mutual relations" [4]. The concept of good faith in objective sense has not been legislated, as it is evaluative, which makes it difficult to determine precise criteria for good conduct in the law. Such criteria are developed by judicial practice filling this concept with concrete content. In the subjective sense, "good faith" means a person's unawareness of the circumstances preventing him from receiving a right, and is provided in civil law by the following wording, that the person "knew or should have known".

These definitions are generally correlated with the understanding of trust as expected behavior, as well as with those approaches, which define trust as a general attitude or expectation from the people around, social systems, social order, determining the development of social communications, through which social systems form. And since trust is based on interconnected communication processes, good faith in the legal sense must also be present in such relations, which cause private legal consequences.

As a rule, our expectations are based on the information about the person whom we enter into legal relations with. This is the information which forms the business reputation of the person and the data that can be obtained from the counterparty which performs its obligations faithfully through disclosure of confidential information (paragraph 3 of clause 307 of the Civil Code). What is more the Supreme Court of the Russian Federation interprets the principle of good faith in civil relations through obtaining of information: "considering the actions of the parties as unfair, should be based on the behavior expected from any participant of the civil relations , taking into account the rights and legitimate interests of the other party, contributing to the first party also in obtaining of the necessary information" (paragraph 1 of the Resolution of the Plenum of the Supreme Court from June 23, 2015 No 25 "On the application of some provisions of section 1 of part 1 of the Civil Code of the Russian Federation by the courts").

In the context of digitalization of public life, information is becoming more open and accessible, but this does not eliminate the problem of lack of trust in society. Even the authorities choose as one of development's directions to create an environment of trust, which means to provide technical, organizational and legal protection of the interests of citizens, business and state interests. However, trust in modern conditions is associated with information created and distributed on the basis of open transactions and technical impossibility of changing the information. The reliability of information is based on it being public, but not confidential. Therefore, if at the end of the twentieth century it was relevant to develop various legal regimes of confidential information (trade secrets, official secrets, etc.), nowadays the legal basis of publicity of information is formed which arises from the use of new technologies.

IV. TECHNOLOGICAL APPROACHES TO THE PROBLEM OF TRUST

The modern period of development of society is characterized by rapid digitalization. The introduction of new digital technologies in all spheres of public life causes a change in traditional social institutions. In this regard, the technological view of the problem of trust becomes particularly relevant.

The business literature underlines that "trust to a network of computers that execute mathematical calculations instead of the 'known, trusted' side that could be seen is a new mental paradigm that we are not used to. In the end, we will accept the fact that the trust is now in the network and this is a new form of trust" [5].

IT-specialists consider the category of trust from the point of view of information security, so we are talking about forming of trust not to the subject, but to the information system. At the same time, they believe that the features of trust, such as confidentiality, confidence, reliability, expectation, certainty, etc., which are contained in the socio-humanitarian sciences, can be applied not only to the individual, but also to human-machine systems. Based on this, they formulate the criterion of achieving trust in the form of "three trusts", it means three key traits of the process of user interaction with the information system that requires protection: automated workplaces of the process participants, including the system and access to it; the way of information transfer between the interaction participants; procedures of confirming the authenticity of the interaction participants [6].

It is this approach that the state is talking about, highlighting as one of the main directions of the state policy of the Russian Federation related to the creating conditions for reducing the risk of using information and communication technologies for hostile actions and acts of aggression aimed at discrediting sovereignty, violating the territorial integrity of States and making a threat to international peace, security and strategic stability, participation in the development at the bilateral and multilateral levels of confidence-forming measures against threats of the use of information and communication technologies for hostile actions and acts of aggression.

D. A. Gubanov, who studies the problem of trust in online systems, has a broader understanding of trust. It distinguishes several types of trust:

- provision trust means the trust of a trusting party in the provision of quality services by a service or resource provider;

- delegation trust means the trust to the agent (representative) acting and making decisions on behalf of the trusting party. It is a special case of provision trust;

- access trust means the trust of a trusting party (provider) to agents who are given access to resources. It is used in authentication systems;

- contextual trust means the extent of participant's belief in the necessary systems and institutional mechanisms supporting transactions and ensure network security in case something goes wrong" [7].

Out of the types of trust he also determines methods of protection. In his opinion, to access trust the mechanisms of strict security are used: encryption of the communication channel, cryptographic authentication and authorization schemes, policies for giving access. And for the provision trust and the delegation trust light security mechanisms are used: trust and reputation systems. At the same time, it uses the category of trust as a synonym for the reputation that is formed in online systems on the basis of users opinions [7].

It seems that D. A. Gubanov, highlighting the types of trust, in fact, described different models of formation of different types of trust. Provision trust and delegation trust are presented by reputation, it means a generalized trust, which, as we see, is modified in the virtual space. The access trust and contextual trust relate to the category of institutional trust, because the introduction of technologies have considerably changed and replace the existing social institutions.

V. THE TRANSFORMATION OF TRUST IN CONTEXT OF DIGITALIZATION

The modern period of society development is characterized by rapid digitalization. The implementation of new digital technologies in all spheres of public life causes changes in traditional social institutions. In this regard, the technological view on the problem of trust becomes particularly relevant.

Nowadays distributed registry technologies are recognized as the most revolutionary, and the most famous of them is the blockchain technology. The blockchain is a decentralized database that is protected by cryptographic processing algorithms. This database is distributed among unlimitedly broad group of hosts which are computers that support its operation. To produce a transaction, it must be confirmed by the majority of blockchain participants, after which the network updates the database, automatically downloading the updated database to each computer of the network. A new transaction record is a block that is added to the chain of blocks after the transaction (hence is the name of the blockchain). It is almost impossible to make changes to this chain, since the blockchain technology is protected by cryptographic methods. Therefore, the blockchain is transparent and unchanging, which makes users to trust the data stored in the blockchain.

The capabilities of blockchain technology have been appreciated by both ordinary users and government agencies. In this respect, the blockchain technology has broad prospects for implementation in all spheres of public life and their radical change.

M. Svon divides the technological aspects of the blockchain revolution into three categories:

"Blockchain 1.0 is a currency. Cryptocurrencies are used in various applications related to money…;

Blockchain 2.0 is contracts. Many economic, market and financial applications, which are based on blockchain, operate with different types of financial instruments – with stocks, bonds, futures, mortgages, legal titles, smart assets and smart contracts.

Blockchain 3.0 is an application that goes beyond monetary settlements, finance and markets. They apply to the spheres of public administration, health, science, education, culture and art" [8].

As you can see, the implementation of blockchain technologies can lead to significant institutional changes: the replacement of fiat money with cryptocurrencies eliminates the monopoly of states on the issue of national currencies; the use of self-executing smart contracts by participants of civil relations instead of ordinary contracts excludes the possibility of non-performance by one of the parties; when replacing ordinary registers with decentralized ones, there is no need for a registry holder, etc.

It seems that the sense of institutional changes from the blockchain revolution is the consistent elimination of intermediaries in those areas where distributed register technologies are being introduced. At the same time, various economic and legal institutions act as intermediaries. In the end, blockchain enthusiasts predict the extinction of the state itself as a social institution.

Thus, the process of digitalization leads to the fact that society loses confidence in traditional social institutions as

they are replaced by new institutions, which are based on digital technologies.

VI. THE LAW AND THE DIGITAL TRUST

The trust to the new institutions is due to the fact that the possibility of human intervention is reduced. Blockchain technology provides transparency and unchanging of transactions, which from users' opinion makes it more attractive than traditional methods of facts recording. According to S. E. Gubanova, " trust transfers from the field of ethics to the field of economics and then to the field of cryptography, that is, mathematics. And mathematics by definition is reliable" [9].

This statement can only be partially agreed. This optimistic opinion is not shared by IT-specialists who are aware not only about the advantages but also about the disadvantages of new technologies. A lot of bitcoin holders could be convinced of this already on the example. The anonymity of bitcoin turned into pseudo-anonymity and the security services did not prevent from performing illegal transactions using bitcoin. Hacker attacks cause significant damage to the holders of the cryptocurrency not only by direct fraud but also by the rate slamp. As a result, the consumer who replaced an ordinary wallet with a crypto-wallet turned out to be less protected than before, only the nature of threats changed.

That is why there is a question of a new digital environment of trust. At the same time, the category of digital trust in Russian literature is not covered properly. "In the foreign literature it is considered that "digital trust requires three factors: security, identifiability and traceability" [10].

The creation of digital environment of trust in Russia is planned through the legislative base for its formation. V. A. Vaypan, describing the basis of legal regulation of the digital economy, explains: "The new regulatory environment is aimed at creating legal conditions for the formation of a single digital environment of trust, which allows to provide the participants of the digital economy with the means of trusted digital remote communications" [11]. Such means are identification and authentication of subjects of legal relations, as well as identification of objects of legal relations.

However, the problem of digital trust cannot be solved only through the determination of the subject. The determination of a subject by technical means is a solution to the problem of interpersonal trust in the digital space. We trust known subject therefore at remote interaction with it we demand confirmation of his personality by technical means. It should be noted that in the blockchain, trust is based not so much on identification but on the traceability of any transactions that in the blockchain are transparent and unchanging. It seems that the formation of a new digital environment of trust depends not so much on the formation of regulatory mechanisms, but on the realization of the potential contained in the implemented digital technologies.

VII. CONCLUSION

Thus, it can be concluded that in the digital society such types of trust as interpersonal, generalized and institutional will remain, but under the influence of new digital technologies the forms of their expression will significantly change. Interpersonal trust in the digital space will be based not merely on the personal experience of interaction with the subject, but on the information available about it on the Internet. In this case, an important role is given to the methods of identification and authentication of subjects. The formation process of generalized trust in the digital environment also has peculiarities. It is based on the responses in the internet, which form a reputation of the subject. Indeed, significant changes are coming in the area of institutional trust as a result of the replacement of traditional social institutions by new institutions based on digital technologies.

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