

Concept and Distinctive Features of the "Smart Contract" Technology

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Abstract: The article puts forward and provides confirmation of the following hypothesis that use of "Smart Contracts" in the management of procurement activities will increase its efficiency. To confirm the hypothesis put forward, the article considers the Blockchain technology, which is inextricably linked with the "Smart Contract"; the legal essence of the "Smart Contract" through the elements of economic analysis is investigated; the problems of asymmetry of information, opportunism of participants, distribution of risk and many other prerequisites for the behavior of participants in the procurement process are investigated. A "Smart Contract" is one of the most optimal mechanisms for the evolution of contract law, especially for a state (municipal) contract.

1 INTRODUCTION


Currently, more and more areas of procurement are affected by the informatization process. Namely, it affects more strongly its central institution – the state (municipal) contract. More and more discussions are being built on improving the order and form of concluding government contracts and translating them into "digital" form.


Use of "Smart Contracts" is one of the procurement management tools. The specific implementation of this tool will determine how effective the procurement system will be, how high the costs of using the "Smart Contract" technology will be, and how it will affect the behavior of the procurement process participants. One of the first subjects of the Russian Federation, which took a serious step in this direction, was the Moscow Region. Through use of the regional procurement system, the Moscow Region Government introduced the "Smart Contract" (SC) technology of the Contract Execution Portal (CEP) of the Unified Automated Procurement Management System (UAPMS).


The wording "Smart Contract" of SEP of the UAPMS is fundamental, since within the framework of this study, the SC CEP will be compared with the "Smart Contract" technology, which is more widely known in the field of jurisprudence as part of the Blockchain system. The study of the similarities and differences of two technologies of the same name will be one of the main tasks of this article.

Another important remark on use of the wording of the SC CEP UAPMS is the fact of the inextricable connection between the regional information system of the Moscow Region and its subsystem aimed at implementing the execution of contracts through electronic document management. This relationship is as clear as the connection between the "Smart Contract" technology and the Blockchain system. That is why the paper will also highlight and analyze the features of the regional information system as a whole.

The influence of the technology of the SC CEP of the UAPMS on behavior of procurement participants from the point of view of general economic theory and management theory. Within the study the authors

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of this article did not meet of the problems of information asymmetry, opportunism of participants, risk distribution and many other prerequisites for the behavior of participants in the procurement process, which, in our opinion, is not only relevant, but also necessary from the point of view of assessing the effectiveness of the tool as such, but not its consideration in isolation from practical applicability.

The first block of tasks is to determine the economic prerequisites within which the interaction of procurement participants takes place; a study of the distinctive features of a state (municipal) contract from a civil contract, as a model on which the SC CEP is based; study of the distinctive features of the SC CEP from the "Smart Contract" technology of the Blockchain system. The second block of tasks is to study the peculiarities of informatization of the procurement system of the Moscow Region and determine the advantages and vulnerabilities of the SC CEP technology, as well as the subsequent development of offers for the regulatory and technological improvement of the SC CEP technology and the CEP of the UAPMS system, as indissoluble tools for managing the procurement process. Naturally, we will not be able to consider all the blocks of tasks in the article, but we will try to pay special attention to all the blocks.

The relevance of this topic is due to the lack of doctrinal research on the SC CEP technology as a mechanism for procurement system of the Moscow Region and, moreover, as a new instrument of contract law in general.

The subject is the normatively established and technologically implemented implementation of the "Smart Contract" of CEP of the UAPMS, as well as the dynamics and discipline of relations between the procurement process participants in comparison before and after the introduction of the SC CEP tool.

2 METHODS

The theoretical basis of the study is scientific research of leading domestic authors in the field of research of state and municipal contracts from the point of view of civil and competition law, such as O.A. Belyaeva, E.A. Tsaturyan. To assess the impact of new technological tools on the behavior of market participants from the point of view of economic analysis of law, the papers of M.I. Odintsova were used. As part of the technological assessment of the "Smart Contract" tool, the papers of A.I. Savelyev were used.

The methodological basis of the study is general scientific and specific scientific methods of cognition. The paper was carried out using the methods of systems analysis and comparative analytical methods.

The degree of reliability and validity of the scientific provisions, conclusions and recommendations contained in the paper is confirmed by the study and analysis of scientific publications on the study topic, use of modern scientific research methodology, use of a significant amount of evidence (expert opinions and use of interdisciplinary methods for assessing legal instruments).

Describing the concept and distinctive features of the "Smart Contract" technology within the framework of the article presents a certain difficulty due to a number of reasons that need to be identified.

First of all, this is a terminological reason. The "Smart Contract" as a concept, before it was used in the framework of state and municipal purchases of the Moscow Region, was quite widespread and even established itself as a separate technical and legal concept, not identical to the concept of "Smart Contract" within the procurement system of a separate constituent entity of the Russian Federation.

Secondly, one of the possible conclusions will be that these two "Smart Contracts" are tools that are not so far from each other. Even more than that, we declare that it is the features and specifics of the state contract, which we described above, that is the distinguishing feature that brings two different instruments with the same names closer together.

3 RESULTS

The concept of "Smart Contract" is primarily used in jurisprudence to denote a contract technology that has never been used before in history. It is generally accepted that the concept of "Smart Contract" was first formulated by Nick Szabo, who described the "transactional computerized protocol that enforces the terms of the contract". In modern doctrine, there are a large number of definitions of a smart contract. However, they all boil down to the fact that a "Smart Contract" is a fragment of a computer program (its code), which is implemented on a specific information platform Blockchain and is a mechanism for the automatic execution of code conditions, with the corresponding entry of information about transactions in the public register. To understand the essence of the "Smart Contract" technology, in our opinion, one shall pay attention to its key features.

First of all, it shall be said that a "Smart Contract" can exist only in electronic form and cannot exist

without use of an electronic signature, which is based on asymmetric encryption technology. Wherein, it does not exclude the hypothetical existence of an additional classical "paper" agreement, where the parties agree on the terms of the "Smart Contract".

Secondly, the "Smart Contract" provides for a specific form of the language for presentation of its conditions, namely, the programming language. In this sense, the "Smart Contract" is purely a computer program in the sense of Art. 1261 of the Civil Code of the Russian Federation and a database in the sense of paragraph 2 of Art. 1260 of the Civil Code of the Russian Federation. As noted by A.I. Saveliev, in this consideration, each "Smart Contract", in essence, is subject to protection as a result of intellectual activity

This circumstance predetermines two other features of the "Smart Contract". The first is that a "Smart Contract" is a clear sequence of actions and cannot contain ambiguous interpretations or interpretations. If a certain action occurs, it will always be followed by a consequence. In this regard, reflections on the topic of the second rights of the parties to the contract are excluded. As a result, the second feature will be the importance of the coincidence of the initial will of the parties to state something in the contract and its execution in the program code, which may entail certain practical difficulties.

Thirdly, the feature of the "Smart Contract" is the way it is concluded according to the model of a connection agreement. The "Smart Contract" is drawn up by one party, the one that makes up the program code. As noted by A.I. Saveliev, it is a situation when other participants join the terms of the agreement "as is", that is, conclusion of the agreement is carried out according to the model of accession. Wherein, the terms of such an agreement are available in advance to all potential participants, since they are included in the publicly available Blockchain. It is easy to remember that, in this respect, the model for concluding such an agreement is extremely similar to the form for concluding state (municipal) contracts.

Fourthly, a separate and key feature of the "Smart Contract" is its self-fulfillment, in other words, technical irreversibility and obligation. In order for a certain action to be performed, the "Smart Contract" does not require the intervention of the third party: the digital tool independently verifies the fact of occurrence of certain events and enters them into its databases. Technically, this can be represented as follows, let us suppose that the institution has entered into a contract through a "Smart Contract" for the purchase of real estate (for example, it can be a

contract for purchase of an apartment for orphans by the municipality). For the system, the fulfillment of the supplier's obligation will be an entry on the official website of the real estate register, after which the computer will automatically make payment according to the specified details of the supplier without any additional need for additional activation by the parties to the contract.

Therefore, the originally created program independently undertakes all actions for execution of the contract. In other words, they happen automatically. In such a situation, sudden circumstances cannot affect the contract itself, which reduces the influence of the human factor, namely, the factor of trust or distrust, which significantly reduces the transaction costs of searching for information about the counterparty. In a situation where there is no need for additional verification of the counterparty, there is no need to provide additional guarantees – security of any kind. In this respect, it is curious that introduction of one instrument makes a number of others unnecessary or seriously transforms them. The procedure for conducting claims work and collecting a forfeit is also changing so dramatically, since these parameters are also hypothetically the initial conditions of the algorithm. The issues about whether to collect penalties or fines, to what extent and whether to collect them at all disappear. All these questions will already be laid down in the structure of the algorithm (conditions) of the Smart Contract and will be executed without the participation of the additional will of the customer.

As it became clear, the peculiarities of the state (municipal) contract make it a very special, rigid legal structure, which is subject to a number of strict rules. Moreover, when formulating the terms of the contract, the customer, in a certain sense, follows the algorithm for drawing up a draft contract for a specific purchase. Depending on what is the subject of the procurement, what restrictions and preferences are established (for example, for purchases among small businesses, there are rules on a reduced payment period), and etc. Continuing this thought, we can say that the customer forms a contract project like a constructor, using suitable parts. It is not surprising that the term "contract designer" is used by the ConsultantPlus legal reference system.

Why is it important for us to focus on just such a property of the state contract, how to form it through certain blocks? First of all, this is due to the reduction in transaction costs of the parties to the relationship for the need to familiarize themselves with the terms of the agreement. Secondly, it significantly speeds up

the procurement process. Thirdly, it minimizes the possibility of participants contesting the provisions of the contract that is part of the documentation, since it is assumed that the formulation of the standard terms of the contract, which will be constructed from predetermined standard blocks, will undergo legal examination before becoming part of the corresponding designer.

These blocks are the basis for further transition to electronic algorithms of the "Electronic Contract" programs. This approach will significantly simplify and accelerate the transition from one design method to another, more perfect one. In this sense, A.I. Savelyev, referring to the paper of Henry Maine in the book *Ancient Law* gives the following gradation of the development of society, depending on the development of contract law:

1) the period of domination of individually agreed (individualized contracts), characteristic of traditional, agrarian societies and the initial stages of the industrial revolution;

2) the period of dominance of standardized contracts, characteristic of the era of mass industrial production and the initial stages of the information society;

3) the period of automated contracts, which is currently emerging and will be characteristic of the developed information society during the period of widespread dissemination of the "Internet of things" and artificial intelligence .

Using this approach to assessing the development of contract law in Russia, we can say that the state (municipal) contract is a more developed tool for formalizing contractual relations, since the degree of its standardization is significantly higher than the usual civil law contract. In this case, the next step, starting from the above steps, will be the use of a digital form of the contract.

Therefore, summing up the interim results of the study, we can say the following.

First of all, future conclusions and reflections of this study will be based on the fact that procurement participants are economic (rational) subjects acting in circumstances of information asymmetry, which subsequently leads to opportunism of participants in legal relations.

"Smart Contract" technology will be viewed as a mechanism that shall reduce the costs of participants in relations, including those for information retrieval, and lead to greater transparency and reduce incentives for opportunistic behavior of participants in the procurement system.

The state (municipal) contract has a number of characteristic features that distinguish it from the

usual civil law contract. First of all, there are strict legislative restrictions on the form and procedure for its conclusion. Secondly, there are significant restrictions on the freedom to formulate the terms of the contract, as well as direct instructions to use the approved standard forms and wording. Thirdly, the possibility of making changes to an already concluded contract is in the nature of exceptions to the general prohibition.

The peculiarities of the "Smart Contract" technology are, first of all, in its special language – the programming language and the nature of the computer program following the initially specified algorithm, which together gives a complex set of initially specified conditions, which subsequently form an automatically executing mechanism. The rigid structure of the contract, the impossibility of making changes to it, as well as the strict algorithm of actions for its execution are characteristics that represent the "Smart Contract" as one of the most optimal mechanisms for the evolution of contract law, especially for a state (municipal) contract.

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