

# SMART CONTRACT CONCEPT AND SIGNS: COMPARATIVE LEGAL ANALYSIS OF THE LEGISLATION IN RUSSIA, BELARUS, THE EU AND THE USA

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**ABSTRACT:** The authors examined the concept and signs of a smart contract through a comparative legal analysis of the legislation of Russia, Belarus, the EU and the USA. The key characteristics of a smart contract as a contract, its types, ways of development and improvement are highlighted and substantiated, the examples of smart contracts from the practice of these countries are given, problematic aspects of legal regulation in this sphere are identified.

**Keywords:** smart contract, "smart contract", self-executing contract, electronic contract, electronic transaction, blockchain, token.

## INTRODUCTION

With the development of information technology, society is gradually entering the era of transactions in electronic form, gradually replacing classic written agreements with

electronic ones. To accelerate the process of a complete transition to electronic transactions, some countries are still hindered not only by a weak technical and information base, but also by the lack of proper legislative regulation and law enforcement experience. The concept of “Smart contract” as a form of electronic contract is now mentioned more and more often by the media. This concept is used in the areas of business community, although the term does not exist in current Russian legislation. The definition of a smart contract was enshrined in the legislation of the Republic of Belarus, which adopted the Decree No. 8 “On the development of the digital economy” (December 21, 2017), thereby actually becoming the first country which legalized smart contracts throughout the state. At the end of 2019, the Russian Federation did not have specialized legislative regulation in the field of smart contracts, being guided by certain provisions on transactions reflected in the RF Civil Code and in other federal laws (Kor et al., 2019; Bayat, et al, 2014; Piteira, et al, 2018). In the countries of the European Union and the United States, smart contracts have been used for a relatively long time, but also do not have proper legislative regulation, however, unlike Russia, they adopted some specialized laws and other regulations. Currently, domestic legislators are preparing a series of bills and amendments to legalize the scope of “smart contract” activities in Russia (Bakhyt et al, 2018; Nuriyev et al, 2018).

To clarify the legal nature of a smart contract, let's turn to the decree N<sup>o</sup>. 8 “On the development of the digital economy” (December 21, 2017). The paragraph 5.3 of this document states the following: “... that persons are entitled to... make and (or) execute transactions through a smart contract. A person who has concluded a transaction using a smart contract is deemed to be appropriately aware of its conditions, including those expressed by the program code” (Decree No. 8 “On the Development of the Digital Economy”, 2017). In fact, the definition of a smart contract in paragraph 2.5 of the document is not fully given, in particular, it is indicated that the implementation of projects in the field of information-communication technologies, including the use of transaction block (block chain) technology, another distributed information system, can be implemented... ”. (Decree No. 8 “On the Development of the Digital Economy”, 2017). Also, the paragraph 2.1 of the Decree provided that legal entities have the right to own tokens and perform the following operations taking into account the features established by this Decree: create and place their own tokens in the Republic of Belarus and abroad through a resident of a high-tech park carrying out the corresponding type of activity; store tokens in virtual wallets, acquire, alienate tokens, make other transactions (operations) with them” (Decree No. 8 “On the Development of the Digital Economy”, 2017). Thus, the concept of a smart contract is inextricably linked with such terms as “token”, “blockchain”, and “cryptocurrency”. A glossary of technical terms treats a token as a physical device containing information about its holder (end user) or author (user) (<http://www.hardvision.ru>). Besides, this term also refers to the financial market, where it is a unit of account that is not a cryptocurrency as such and is intended to represent a specific digital balance in a certain asset, i.e. acting as a “substitute for securities” in the digital world” (<https://ru.wikipedia.org>). Thus, we can conclude that a smart contract is a contract written by a programming language in the form of executable code, which is stored on a platform formed on the basis of “blockchain” technology. If a smart contract is actually a code program, then the platform is the basis on which this program operates and is controlled. For example, in the mentioned Decree No. 8 “On the development of the digital economy”, the clause 2.3 of the document, which mentions “cryptographic platform

operators” that are entitled to “open accounts with banks, non-bank financial institutions in the Republic of Belarus and abroad for the settlement of tenders and operations carried out by him; receive remuneration for the services provided, including tokens; to establish its amount and the procedure for charging bidders (customers); make (organize) transactions with the residents and non-residents of the Republic of Belarus aimed at placing tokens, including abroad, purchasing and (or) alienating tokens for Belarusian rubles, foreign currency, electronic money, exchanging tokens for other tokens in the interests of customers or own interests” (Decree No. 8 “On the Development of the Digital Economy”, 2017). Thus, we can conclude that a proper technical functioning of a smart contract needs a platform, and also an operator who must control the process and create conditions for the proper execution of a smart contract. Besides, a smart contract can be made on the basis of tokens, and payments can be performed in cryptocurrency, but it is also possible to commit in official electronic currency, to make (organize) other transactions (operations) with tokens, except for the operations exchanging tokens for civil right objects other than Belorussian rubles, foreign currency, electronic money, and tokens (Decree No. 8 “On the Development of the Digital Economy”, 2017).

The analysis of a smart contract concept enshrined in Decree No. 8 “On the Development of the Digital Economy” allows us to conclude that this definition is at the junction of both legal and technical sciences. If we turn to a smart contract in terms of technical terminology, then its first mention refers to 1996. An American cryptographer Nick Szabo was one of the first who used the term “smart contract” in his article published in the Western journal “Extropy”, the title of which can be translated as follows: “Smart Contracts: Building Blocks for Free Digital Markets”. The mentioned article mentions the definition of a smart contract - “The fundamental principle underlying smart contracts is that various types of contractual obligations (for example, lien, formalization of liability, clarification of property rights, etc.) can be reflected in digital form so that their non-compliance will cost the violator too much” (<https://www.govinfo.gov>). The studied definition has not yet been entered into the technical dictionaries of the Russian language, therefore we will turn to electronic dictionaries of foreign words, for example, to the electronic dictionary “IHODL”, which indicates that a smart contract is a set of certain rules entered into the blockchain using a programming language. Its execution is guaranteed by network participants (<https://ru.ihodl.com>).

Thus, a smart contract is a special computer algorithm and, at the same time, a system for monitoring, generating and providing information about transactions. Currently, the United States has no specialized law that would determine the legal regulation of smart contracts throughout the country. At the same time, contract law in the United States varies (sometimes significantly) depending on the legislation of a particular state, and there are four universal principles that apply if the parties to smart contracts adhere to them: proposal, acceptance, intention and consideration. From the point of view of Russian law, these principles represent the stages of an agreement and/or transaction conclusion in accordance with the Article 423 of the RF Civil Code. A proposal is defined as a statement that a person is going to do (or is not going to do), while acceptance is a direct agreement with the things that have been proposed. Changes in the terms of an offer will generally be considered as a counter offer, which must subsequently be accepted to reach the main agreement. However, before an agreement can become a contract, two other requirements must be fulfilled: intention and consideration. Intention simply means that there must be objective evidence that the parties had an “intention to

create legal relations,” and consideration means that the parties must exchange something valuable among themselves (the promise of a gift is not considered as a binding contract).

Since, in aggregate, the US common law system allows transactions to be concluded completely orally, and restrictions regarding the form of transactions are considered as an exception, and not as a rule, insofar as the electronic nature (form) of smart contracts is not a legal obstacle to application in US law. For example, email agreements or click-through agreements can result in a legally binding contract, and the US courts are now “open to the possibility of a valid automatic contract under the corresponding circumstances” (<https://webcache.googleusercontent.com>). The United States Electronic Signatures in Global and National Commerce Act and the Uniform Electronic Transactions Act stipulate that if the law requires a signature, an electronic signature is sufficient. If the law requires that the record must be in writing, an electronic record is sufficient” (<http://www.fon.hum.uva.nl>). These definitions include cryptographic signatures and mean that the use of an electronic record during contract conclusion cannot be considered unenforceable just because it is in electronic form.

At the same time, since 2017, several states of the United States (Arizona, Delaware, Nevada, Tennessee and Wyoming) passed the laws related to the blockchain procedure. As of July 2019, only Wyoming has passed 13 laws allowing the use of blockchains. This legislation allows smart contracts to gain control over digital assets. At the same time, tokens are excluded from the laws on US government securities (Securities Act, 1933) (The Securities Act of 1933 or The 'Truth in Securities' law) (<https://webcache.googleusercontent.com>). The state of Arizona has legally defined a smart contract as “an event-driven program with a condition that runs on a distributed, decentralized, shared, and replicated Platform Register, which can take responsibility and authorize the transfer of assets across that register (<https://www.azleg.gov>).

Currently, the countries of the European Union are convinced that blockchain technology can play a key role in a single digital market creation in Europe, and therefore stimulate important market innovations. In Europe, the issues of smart contracts are resolved within the framework of electronic identification, authentication and regulation of trust services by the law “On electronic identification and trust services for electronic transactions in the domestic market” (eIDAS) (<https://eur-lex.europa.eu>). eIDAS intersects with blockchain in different contexts. For example, according to eIDAS, electronic documents cannot be invalidated simply because they are in electronic form, as well as in the laws of the United States and Russia. This form of the contract supports the development vector of the legal basis for the data contained in the register on the basis of blockchain or contracts. eIDAS also recognizes three different levels of electronic signatures: simple, advanced and qualified. It would seem that a blockchain needs to meet the technical criteria for the first two types of signatures, but in order to be legally binding, it must meet the highest standards of qualified signatures. Blockchain requires both the ability to use the services of a qualified trustworthy service provider (TSP) and the ability to go through a labor-intensive process by the supplier on his own (<https://eur-lex.europa.eu>). For this reason, based on Eidas standards, such transactions often do not have legal authority.

To analyze the development of domestic legislation in the field of “smart contracts”, first of all, we should mention Federal Law No. 34-FL “On introduction of Part Three of the RF Civil Code to Parts One, Two, and the Article 1124” (March 18, 2019),

which introduced a new article 141.1 to RF CC, containing the general concept of digital rights as binding and other rights, the contents and conditions of which are determined in accordance with the rules of the information system (Federal law No. 34-FL on 03/18/2019). At its core, digital law is a token. Transactions with digital rights are possible only in the information system and according to the rules of this system. The legislator's reference to the regulation of transactions with information rights by the rules of the corresponding information system, on the one hand, corresponds to the world practice of cryptocurrency circulation, but it must be remembered that special requirements will be imposed on the information systems in Russia. The changes in the RF Civil Code also affected the institution of "self-executing" contracts, while the legislator fixes smart contracts not as independent transactions, but as their conditions. According to paragraph 2, Art. 309 of the RF Civil Code, the terms of the transaction may provide for the fulfillment of obligations by its parties arising from it upon the occurrence of certain circumstances without the additional expressions of will expressed by the parties aimed at fulfilling the obligation by applying information technologies determined by the terms of the transaction.

Also, the draft Federal Law N 419059-7 "On Digital Financial Assets" is being developed in Russia. However, this project is under active discussion and has not yet received clear legal regulation (The Draft of the Federal Law No. 419059-7 "On Digital Financial Assets"). Regarding the practice of a smart contract application, it can be noted that in August 2018 Alfa-Bank, together with the carrier company S7 Airlines, entered into a smart contract with the operator of the fuel and oil market "Gazpromneft-Aero". The contract included information on the cost and quantity of fuel for the airline aircraft. After the aircraft commander requested the operator the exact amount of fuel needed to complete the flight, an online application for reservation of the corresponding amount was sent to Alfa Bank. Instant confirmation from the bank started the start of refueling. At the end of the refueling, funds are debited, and the responsible departments of the parties received information about closing the transaction with all documents. The smart contract was programmed on the Hyperledger blockchain platform (<http://www.fon.hum.uva.nl>). Also on December 9, 2019, a major operator "Intercontinental Exchange" (futures) announced the first block deal with Bakkt monthly bitcoin options at ICE Futures U.S. in the USA (<https://forklog.com>).

Implementation of numerous smart contracts into practice allows us to distinguish the following types of them. Depending on the actually possible scope of their application, the following smart contracts can be distinguished: The contracts aimed at carrying out operations with securities, assets, including tokens, cryptocurrency (bitcoin); The contracts participating in the support of direct trading operations on the exchange; Applied in lending, bank obligations; Social services, polls, automatic statistics; Delivery of goods, storage; Rent / hire; Sale of non-food goods (for example, selling a car online).

## CONCLUSIONS

Thus, based on the foregoing, the following features of a smart contract as a contract can be distinguished: Freedom to conclude a contract - each party is free to conclude a smart contract; The creation of a legal fact. The conclusion of a smart contract forms a new legal relationship; Regulation of relations between the parties to the contract. A smart contract can be drawn up in such a way that the parties to the contract may not

actually participate in the implementation of the contract, trusting the smart contract program to execute the contract automatically. The existence of essential conditions for a contract conclusion. Under certain conditions, a smart contract can adjust automatically to those conditions that it considers itself essential for a contract conclusion.

Based on the foregoing, a smart contract is an electronic form of a written transaction in its most general form provided by the Article 160 of the RF Civil Code. In fact, a smart contract is more a modification of the transaction written form, i.e. its kind and method. This type of transaction has both advantages and disadvantages. The advantages include automatic execution, openness of the transaction to its participants, suppression of the impact on the transaction of unscrupulous participants or third parties, the option of making certain transactions anonymously. The main advantage of smart contract use in the objective future will be the development of a new type of legal activity - "digital jurisprudence" - the emergence of lawyers who know not only the laws, but also the principles of electronic transaction technical execution in the field of digital technologies.

However, despite all the pros, there are also disadvantages, namely: smart contracts are software algorithms developed by humans, and this in turn can lead to errors and malfunctions. The presence of such a circumstance will also raise the liability issue concerning the person whose fault caused such an error that in fact led to the non-fulfillment of the contract by one of the parties. There is the lack of specifics for smart contract issue resolution, the abundance of IT-terminology difficult for a layman. A smart contract drawing up will also entail additional financial costs, since the development of a program code, or its purchase and involvement of experts will allow only large subjects of law (legal entities) to use this form of contract actively. Also, the disadvantages of smart contracts are indicated by an insufficient base of judicial practice in case of a dispute. If there is a huge body of laws in the Russian Federation regulating certain legal relations in the field of contract conclusion, most likely, the practice of smart contract application will also be reflected on paper, which will call into question the very need to use an electronic contract form. The legislation of the countries that are still introducing the practice of smart contracts, including Russia, does not have a clear legal definition of this kind of agreement, which can confuse the legal regulation of similar relations. Also, the disadvantages include the presence of transactions that already have "automation in execution", for example, a letter of credit in accordance with the Art. 867 of the RF Civil Code. Therefore, the legal regulation of smart contracts is a promising trend in the development of legislation not only in the Russian Federation, but also in other developed and developing countries. The main criterion for the possibility of smart contract use in the world will be the availability of a developed system for the interaction of digital information technologies and law.

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