Culture, Art, Intellectual Property: Benefits of Smart Contracts and Blockchain

Larisa V. Sannikova[1,*], Yuliya S. Kharitonova[2]

[1]*The Institute of State and Law of the Russian Academy of Sciences, Moscow, Russia*
[2]*Lomonosov Moscow State University, Moscow, Russia*
*Corresponding Author

Abstract: The article deals with the problem of using blockchain in the field of intellectual property. The project of creating blockchain platforms is aimed at restoring the status quo in the sale and distribution of intellectual property in digital form. These are decentralized platforms on the blockchain for selling copyright with fair conditions, attractive incentive mechanism, low commission and full control of content, price and type of license for authors. On blockchain platforms for buyers and sellers, each uploaded object (text, photo, slide, etc.) is linked to the author via a transaction through the blockchain. This relationship cannot be deleted or changed in any way. A clear advantage for all users of copyright is the use of smart contracts, self-executing contracts. The analysis of cases of blockchain technology application has shown that a smart contract should be considered as a legal fact (a complex legal structure including a number of transactions) that generates legal consequences. The use of smart contracts will ensure the formation of a fair market and will benefit the cultural industry as a whole, as the opportunity to increase income will be an incentive for authors to work more and better. The article describes the principal arguments about intellectual property rights as mechanisms for promoting the public interest, as opposed to particular private interests. Public interest arguments typically feature in balancing accounts of intellectual property rights that evince concern for the distribution of benefits as well as for the production of new works or inventions. Both public and private interests in the field of intellectual property can be realized by using smart contracts.

1. Introduction

Intellectual property law is a key variable that helps drive the so-called "new economy". Without the legal and economic protection that intellectual property law provides, companies would not have had the confidence to adopt a new business model in which intangible, easily reproducible goods and services have become among the most important things that are sold [1]. Strong intellectual property protection is extremely important for companies operating within this new economic landscape, and they do not take kindly to others who - without authorization - use companies' trademarked, copyrighted and patented goods (in the case of celebrities, their images are protected by right of publicity law).

What, if anything, distinguishes the public interest from private interests, or from a purely utilitarian calculus in which the policy that maximizes overall utility is the best one? We might say that the public

interest is the aggregated interest of the people who might be affected by some private action, as opposed to the concentrated interest of that private actor, said by Rebecca Tushnet [2].

Following the researcher we have tried in this chapter to explore the ways that intellectual property (IP) regimes, both in their coverage and in their limits, have been conceptualized as having promotion of the public interest as their primary goal, rather than benefiting private actors or balancing private interests against the public interest. And here the problem of copyright comes to the fore. Unlike patent or trademark rights, copyright arises from the moment an idea is expressed externally.

Copyright protection is a bit different from industrial property. First of all, because you can claim copyright ownership and gain copyright protection even without registration, the system is more flexible than the patent system, for example. Blockchain provides a great system for recording rights that are created in "original works of authorship", which can be anything from a photograph to a book, to a website, to a doctoral thesis. It is very conceivable that an updated blockchain-secured distributed ledger could supplant the copyright system presently in use. But for now, documenting your creation and first publication on blockchain will be more like improving your evidence, rather than securing any legal rights. To actually sue in court based upon copyright, you need to get a copyright registration (which you can do after the fact). In our opinion, modern society, in particular rights holders are sorely in need of an updated platform which would make it easy for the public to see exactly what is being protected by copyright law. Currently, you can find owner names, registration dates and titles in the existing online registries of organizations established by the authors and other right-holders for the management of their rights on a collective basis (collective management organizations - CMOs) or state registrars, which are not mandatory. But samples of what is actually registered are not generally available without going to the Register of works of rightholders. So, as with all legal documents, proof of your underlying facts and claims can be critical. Using blockchain to document everything related to your copyrighted property may strongly improve your position, and make it easier to prove the rights which you own.

While there are technologies out there that have already begun to address managing IP rights, when it comes to blockchain technology, there is still plenty of room for exploration.

2. Blockchain on Copyright Guard

Whether you're an author, artist, musician, actor/actress, or inventor, this technology is here to stay and it's infiltrating every industry, making what we call "Industry 4.0", a more sophisticated and advanced era than we thought possible.

An ecosystem that provides a channel and avenue for original, unlicensed content to be uploaded, and in turn, royalties to be properly allocated and distributed, can only benefit the industry and all of its participants as a whole. All of which can be done through an algorithm executed on the blockchain– without the involvement of any record label or management company. For example, ConsenSys AG's Ujo Music Project ("Ujo") provides a portal for decentralized music distribution through our website located at: https://ujomusic.com/ (the "Site") which includes text, images, audio, code and other materials or third party information, including smart contracts (https://www.ujomusic.com/terms-of-service). In addition to storing all copyright data on the blockchain, the service provides an opportunity to choose the type of license during the purchase (from private listening to commercial use) and automatically distributes income between all parties in accordance with copyright agreements.

Blockchain is a distributed database of records of all transactions between computers that are participating in the system or a chain of related computers. It provides a more secure and transparent way of processing all kinds of data, and therefore the various applications and applications of this technology are endless. Many applications are based on the storage of identification information about goods, services, people, etc. Thus, the blockchain is a unique tool for distinguishing real products from counterfeits, for voting procedures, for accounting and controlling financial flows, and this is just the tip of the iceberg.

Blockchain is attractive to many different industries because of its potential uses. Different types of data can be added to a blockchain, from crypto-currency, transaction and contractual information to data files, photos, videos and design documents. And the technology is continuing to develop with new types of distributed ledgers such as hashgraph software, which seeks to address issues of scalability.

The ability to track the entire life cycle of a right would have many benefits, including smoother IP right audits. It could also simplify the due diligence exercises that are necessary for IP transactions, for example in mergers and acquisitions. Confidentiality concerns on the side of the IP owners could be addressed by an opt-in scheme.

3. Developing "Smarter" IP Rights

Often cited in the context of blockchain is the concept of "smart contracts". As some blockchain solutions can hold, execute and monitor contractual codes, such as "smart contract performance", they could be of interest for digital rights management and other IP transactions.

Smart contracts could be used to establish and enforce IP agreements such as licenses and allow the transmission of payments in real time to IP owners; "smart information" about IP rights in protected content, a song or an image, for example, could be encoded in digital form (in a music or an image file). Kodak recently launched a blockchain-based image copyright management platform and its own encryption currency, proving that these ideas are rapidly becoming more mainstream.

Nowadays smart contracts' technologies are only started to be implemented into the activities of business community, but there is no doubt in the perspectives of their application. Smart contracts can be in demand in the fields where automatic collection and processing of actual data being acquired by the blockchain network from outside are acceptable and technologically possible. For example, the R3 consortium, which includes 45 large financial institutions, is developing the field of blockchain application in the financial industry (prototypes of smart contracts for factoring operations, allowing banks involved to consider data on transactions in real time). Barclays Bank applies smart contracts to automate payment and change of ownership rights during the transaction, Hongkong and Shanghai Banking Corporation and Bank of America have replaced letters of credit with smart contracts (Real cases: how business uses smart contracts. https://medium.com/vision-dti/smart-cont-f64a791b8f3f). Similar projects on different stages also exist in Russia. Technically, smart contracts are the dominants of the blockchain and a powerful tool suitable for business processes, not only for crypto-currencies.

The popularity of the term "smart contract" is associated with the hype of lawmaking in the field of digitalization of social relations in the Russian Federation. Smart contracts are attractive because therein it is possible to define and determine the unchanged terms of the transaction for participants who do not trust each other. In this regard, the definition of a smart contract as an algorithm requires a legal assessment. The ongoing discussions about the nature of the smart contract are largely presented by several views. According to some researchers, the term is used to define legal contracts (or their elements) concluded in electronic form, and the performance of obligations is automated and provided by a computer program. The view was also expressed that smart contracts are either a way of securing obligations or a way of performing obligations.

However, in our opinion, the application of this algorithm means that before conducting a legal analysis of the legal features of a smart contract, it is necessary to specify that although this term is widespread in the business world, it should not be taken by lawyers as an analogue of a contract or a contract in the traditional form. We believe that the smart contract as a computer program, also designated by programmers as an information system, can be used for various purposes: for the transfer of digital assets in the process of their business turnover, for voting (at the general meeting of corporation participants, during the meeting of the board of directors, and even during referendums), as well as during the so-called initial offering of tokens (while creating tokens as digital assets and introducing them into circulation through attracting investments).

A simple example is that when some content over the internet, such as an article or a tutorial video, can be accessed only after a certain payment that whole mechanism can be shifted over to blockchain to authorize the payment, thus making the whole process much faster, and also leaving behind a trail. Smart contract allows you to get a reward for a license, control the use of copyright, including the terms and territory of usage. While thrown around frequently, smart contracts are often confused with legal contracts.

4. Why Smart Contract Is a Reliable Way to Manage Intellectual Property?

The smart contract is a small program inside a block in the blockchain. The first blockchain which was Bitcoin blockchain allowed only one short-term transaction record to be included in the block. Some years ago new blockchains, that contained programs which could define not only transactions but also terms for their performance, appeared. "To execute such a command in case of such terms" is a smart contract. Since a smart contract is a program without any restrictions on the data and conditions entered into it, there are a lot of variations of how to fulfill it. For example, a smart contract can be drafted that will set a rule, that one user transfers money (crypto-currency) to another only after a certain period of time. Another example is the use of open source data to describe the terms of a transaction. Then, for example, GPS data can provide information about the location of the transaction's object and allow or prohibit any actions with it. Thus, the smart contract is a program that verifies whether all the terms are met, and only after that the transaction is confirmed and the assets are exchanged.

A smart contract as a computer program is transmitted in the form of a program code and stored in the blockchain on all computers of the blockchain network at once. As an element of the blockchain, a smart contract guarantees transparency (all parties to the contract can see the details of operations), irreversibility (program actions cannot be canceled, unless otherwise laid down in the code) and traceability of transactions. The smart contract is encrypted and stored distributed, which guarantees protection against loss or unauthorized modification.

The smart contract of the first type, selected by us for legal analysis, describing the transfer of digital assets in circulation, is closest to the form of a civil contract. According to Article 420 of the Civil Code of Russia, the agreement between two or more persons on establishment, amendment or termination of civil rights and duties refers to a contract. In this sense, the definition of the contract in the Anglo-Saxon system of law as "a set of promises approved at the 'meeting of minds' which is a traditional way of formalizing the relationship" (Elements of a Contract. http://jec.unm.edu/education/online-training/contract-law-tutorial/contract-fundamentals-part-2) was taken as a reference point for the creation of smart contracts by N. Sabo [3]. According to the programmer, a smart contract can be defined as a set of promises specified in digital form, including protocols under which the parties fulfill these promises. In his research work, N. Sabo defined that a smart contract was a new way of formalizing relationships.

In this sense, a smart contract can be considered as a way to fulfill an obligation, as a transaction, as well as a form of transaction. With a smart contract, parties can exchange various digital assets. As it is properly noted in literature, the smart contract is a digital equivalent of an agreement that allows tracking all the phases of its functioning (from the moment of making to the moment of full execution). Application of the algorithm allows nullifying the influence of the subject on the execution of the made agreement. However, in reality, the automation of contract execution (the simplest smart contract provides for the transfer of a token in exchange for a crypto-currency) is not the only feature of a smart contract. At the same time, it is necessary to have a digital asset as a special subject of the contract. It is impossible to perform a smart contract without crypto-currency and tokens. It exists and is performed in the virtual world.

As a form of deal a smart contract tends to be in writing. A remarkable feature of electronic form of the contract is that it is made with the use of electronic means of communication with the participation of information intermediaries (service providers) through the exchange of electronic information excluding a direct interaction between the parties. The element of a smart contract as a software code is an electronic

signature, which confirms the will of the parties to the transaction, starts the smart contract algorithms while making the contract.

Entering an electronic signature while making a smart contract generates a number of transactions, which, like the obligations in the traditional contract, constitute the legal relationship of the participants of the turnover in respect to the execution of the smart contract. As we consider, in this case transactions conducted within the algorithm can be qualified as transactions which are independent legally significant actions. These are willful acts of information transfer aimed at achieving legal consequences (disposal of token, crypto-currency, etc.)

The self-fulfillment of the smart contract is associated with the possibility of pre-algorithmization of the decision on the performance of obligations under the contract upon the certain conditions, for example, automatically transferring of funds from the counterparty's account or termination of the lease agreement in case of late lease payment.

Thus, the smart contract as the algorithm is in some cases suitable for application in contractual relations between the parties.

At the same time, smart contracts are also used to make decisions during the meetings. Thus, L. Sannikova [4] substantiated the rationality of using private (or permitted) blockchain in order to improve corporate control and audit. Based on practice, the author explains how to vote using blockchain platform: tokens are issued according to the number of shares in the corporation before the voting and distributed among shareholders according to the number of shares owned by them by transferring tokens to the shareholder's e-wallet. While voting, shareholders by making transactions transfer their tokens to e-wallets, indicating respectively "for", "against" or "abstained". All transactions are kept in the blockchain, and they are transparent, which means that shareholders can be sure that their votes were taken into account correctly.

In general the procedure described is applicable to all cases of decision-making using the blockchain for the implementation of the so-called smart contracts for the social sphere (Central Bank of Russia. Analytical Review on "Smart Contracts". Moscow, October 2018. https://www.cbr.ru/content/document/file/47862/smartkontrakt_ 18-10.pdf).

The voting is an expression of each individual's will, according to his legal aim, while the decision is considered as accepted if it is voted for by the majority, i.e. the majority of individuals involved in the decision accepted expressed their will in support to it. So some authors [5] offer to consider voting as a kind of active action. The creation of common will at the meeting is only one way of forming the will and volition. Within the blockchain network, the decision making means the transfer of voting tokens by the majority in support of one or another option of the question put to the voting. Electronic form of absentee voting should also be mentioned herein in respect to the form of expression of the will as in the case of contracts, as well as the legal consequences entailed by an appropriate decision should be pointed out. As the third variety of smart contracts application ICO (Initial Coin Offering) and the sale of tokens can be noted. In this case, a mixed version is talked about: a smart contract is used both as a basis for the implementation of the token and for making a decision, but also a smart contract performs the function of creating a token as a digital object.

L. Novoselova [6] pointed out that while considering a smart contract as a contract, in order to turn transactions into a smart contract, in some cases it was necessary that the asset which was the subject of the contract was tied to a virtual item operated by a computer program since its main characteristic was focus on disposal of concrete digital asset. We propose to change the view and consider the smart contract as an operation during which a token is created and its consistent implementation from the sale to the execution of the action contained in it (meeting the needs of the purchaser in the form of obtaining the rights of claims to the issuer of the ICO) occurs.

Substitution of real confidential data by certain values – tokens, as some researchers believe, based

on Wikipedia does not always occur during tokenization. For example, the Swiss Financial Market Supervisory Authority (Eidgenössische Finanzmarktaufsicht, hereinafter referred to as FINMA//FINMA, Guidelines for Enquiries Regarding the Regulatory Framework for Initial Coin Offerings (ICOs), published 16 February 2018) identified three categories of tokens. The first category is payment tokens (crypto-currency that does not grant the right of claim to the issuer). The second category is utility tokens (give access to the use of digital goods or services provided by the blockchain infrastructure. The third category is investment tokens (can provide the right to claim against the issuer, the corporate right to participate or participation in the future profits of the company). At the same time, FINMA believed that the classification of tokens to one category did not exclude the possibility of their classification to another category (hybrid tokens). In all these cases, the basis of tokenization is not confidential information but often on the contrary open information about the person issuing and selling tokens.

5. Conclusion

The use of distributed registry technology and smart contracts in the long term can change the well-established concepts of contractual rights and copyright, as it will allow to limit the possibility of unfair behavior, to automate civil commerce, to "weaken" the role of intermediaries in the conclusion of contracts on the transfer of copyright and related rights to third parties and the performance of obligations (lawyers, banks, etc.), as well as the role of courts in the protection of violated rights and interests, as the number of disputes related to non-performance of obligations will be close to the minimum.

Some groups of smart contracts can have common features due to the technological features of the blockchain. In all cases, the creation, change and termination of legal relations is associated with the creation, execution and termination of the algorithm, while the disclosure or translation of the code are not supposed, because it will provide no use for the purposes of interpretation of the legal relationship conditions. Actions that entail legal consequences for the participants of the material turnover can be implemented only with the use of transactions in digital form. And the will of each participant of the blockchain network will be formed on the basis of the introduction of an electronic signature, and implemented during transactions.

In our opinion, a smart contract in all these cases should be considered as a legal fact (a complex legal structure, including a number of transactions), entailing legal consequences. All the outlined types of smart contracts are united by common features contained in the algorithm used by the blockchain network: 1) a mean of ensuring the confidence of counterparties while verification of anonymous participants in the turnover [7]; 2) automatic performance of obligations, decision-making, expression of the will of participants in the legal relationship; 3) the basis for the tokenization of turnover objects and votes as values.

It therefore appears to be only a question of time before the law addresses the potential hurdles in the large-scale legal application of the technology – such as questions of governing laws and jurisdictions, enforceability of smart rights, data security and privacy concerns, reliable rules and definitions for smart contracts – and it permeates IP law and practice.

Given that smart contracts are competent to deal with standardized terms and conditions, they and the blockchain mechanism have the potential to become the ideal tools to handle processes like granting of licenses or authorization of access or any such agreement with relatively set terms.

Acknowledgment

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