

Nikita Silchenko
Student,
Taras Shevchenko National University of Kyiv,
Kyiv, Ukraine
mukuta063@gmail.com

TECHNOLOGIES FOR SECURING INTELLECTUAL PROPERTY THROUGH THE USE OF SMART-CONTRACTS

Abstract

The work is devoted to the coverage and evaluation of smart contract technology as one of the current ways to ensure the implementation and protection of copyright. Every day terabytes of content are created around the world. Protecting your rights is not easy without proof. Creators risk stealing or using their works without their consent. Most people who create unique content face copyright infringement in one way or another. All previously existing methods have shown their ineffectiveness, especially with regard to objects of modern copyright and related rights, expressed in digital form. The possibilities of using smart contracts are almost limitless, as they allow you to safely process any information, information resources that require identification to a particular entity and which can not be changed or deleted without the consent of their owner.

Keywords: smart contract, blockchain, hash, intellectual property, register, block, copyright.

Introduction

Nowadays, an alternative version of copyright confirmation - the preservation of works in a public decentralized register - blockchain - has become widely known. In short, first of all, the blockchain is effective as a fact of confirmation of the creation and download of a work, official document, audio or video. In addition, this technology provides cryptographic confidentiality of data by analogy with the protection of banking transactions on the Internet or the protection of text messages in messengers such as WhatsApp or Telegram by creating a special "hash" and creating a set called "block". The convenience of the blockchain is that it is allowed for everyone involved in the exchange of anything with its help, to know about the transactions of other participants,

as well as the opportunity to coordinate their activities without wasting time and money, such as the registration in official government systems [1].

However, even with the existence of such technology, the understanding of what a blockchain is has not yet been clearly formed in Ukraine. Meanwhile, the active use of the blockchain in various fields makes it necessary to determine it, including the need from a legal standpoint. This is especially true due to the fact that all references to digital circulation in the law, in the speeches of high-ranking officials and in the information space of the Internet, one way or another, are related to the world of intangible assets and their tokenization using blockchain.

Literature review

There are several approaches to denoting the legal nature of the blockchain. Yes, many simply point to it as a technology on the basis of which many cryptocurrencies appear; technology of a single space in which there is no intermediary. According to AI Saveliev, it is a technology that is a decentralized register of data on transactions, which is based on cryptographic algorithms that protect it from fraud [2].

Purpose

The purpose of this work is to highlight and evaluate the technology of smart contracts as one of the most important ways to ensure the implementation and protection of copyright and related rights, expressed in digital form, and the state of its legal regulation at the present stage of development, because the emergence of digital circulation and blockchain transactions activities leads to the need to collect and analyze information about the nature of changes in the rights and responsibilities of the parties, because such actions increase the value of production of intellectual products and stimulate the formation of a system of values on the Internet.

Presenting main material

The possibilities of using blockchain are constantly evolving. According to AI Saveliev, one of the promising areas of application of Blockchain technology is the possibility of its application to create fully automated, programmed contracts, ie such agreements that can be concluded and executed without human intervention. Such contracts are generally referred to in the foreign literature as "smart contracts". This technology is also used in the formation of distributed registers of rights to certain assets. In this

case, each participant in the electronic interaction will have access to the full transaction history for such an asset and a copy of such a register, which will be completely identical for each participant and will be synchronized on a blockchain protocol without the central depository of the register [2].

In the field of copyright, the use of the blockchain is updated by the non-registration procedure for the emergence of copyright in most countries - parties to the Berne Convention. Existing platforms based on blockchain, such as Proof of Existence, Keybase, Storj, Blockchain Apparatus, Binded, Monegraph, Verisart already provide users with the opportunity to work confidentially with documents, they can be divided according to the nature of services provided to the rights holders. A number of platforms such as "Proof of Existence" (founder Manuel Araoz, Argentina) allow creators of copyrighted works, computer programs and other objects that are transformed into digital form, easily prove the authorship and date of compilation of documents. The cryptographic operation of creating a hash is performed on the client side, which falls into the transaction, and the transaction - in the block [3].

The use of blockchain platforms gives rights holders the ability to control the circulation of intellectual property on the Internet and enter into contracts with third parties. After registration, the author of the copyright work is issued a digital certificate of authenticity, which allows third parties to identify the author of the object or other copyright owner. For the purpose of ensuring the safety of works, for example, programs such as Binded, Monegraph, Verisart can be used, which allow users to permanently record digital content (data), such as photos and text, as well as browsing history, changes and other actions. Edits of actions, protected from editing, can serve as the evidence, the authenticity of which cannot be challenged. In addition, it is possible to track the actions of users of the platform.

From the standpoint of information law, the blockchain should be considered primarily as a kind of information technology, on the basis of which is the collection, processing, storage and transmission of information. For the most part, the blockchain can be considered both as an information system that makes up the register of information, and as information technology processing, including the formation, storage of accurate, specific data confirming the set of property and other rights and responsibilities of their owners, and as technology, which allows for electronic payments and other legally significant actions. The accuracy and specificity of such data is protected by

mathematical rules in such a way that due to the unique identifying symbols they are associated with their owner. Therefore, any user, including payment systems, can be sure that this data belongs to its owner. This system allows for maximum simplification of the interaction of the subjects of settlement relations. The protection of symbols is provided by a mathematically verified system of generating identifying symbols, which allows to protect the blockchain data as much as possible from illegal alteration, forgery or deletion.

The blockchain technology itself, in fact, is computer code that describes a computer program, the rules according to which it works. No computer code is protected from errors, vulnerabilities, called "bugs". For this reason, the contract included in the computer code to which the transactions are made, in the event of a computer error may not be executed improperly. The consequences of such errors, including disputes between persons whose interests are violated in this regard, should be regulated by law or other contractual terms that are already included in smart contracts, added to the codes of relevant programs. Experts emphasize that the blockchain itself will not be able to become a panacea for solving all problems, including the transition of works, say, in the public domain, therefore, not only the legal framework for the regulation of such technical systems is needed, but also the state mechanisms for their implementation. The legal force of blockchain is being recognized around the world: the California government has approved the legalization of blockchain and smart contracts [4]; Arizona recognized the legal force of the blockchain in the spring of 2017 [5]; The United Kingdom is conducting a project to explore the possibility of legalizing smart contracts using blockchain [6]; Russia has launched a "Single Depository of Intellectual Activity Results", where you can register copyrights for computer programs, works of literature, design sketches, music, photography and more through the blockchain.

Conclusions

Blockchain is a non-partisan digital book of economic transactions that can be programmed to record not only financial transactions but also virtually anything of value. To unleash the full potential of a new blockchain-based copyright management system, it must be used by a large number of copyright holders and cover a sufficient number of copyrighted works. As the number of users increases, the system will become even more valuable and will be able to attract a wider range of user audiences.

Blockchain technology allows you to minimize transaction costs, increase the level of commercialization and ensure reliable protection of intellectual property. The task of state legal regulation remains a clear legal regulation of digital circulation of intellectual property and ensuring a balance between the private interests of right holders, users and the public good in the form of free circulation of intellectual property of universal importance. Thus, the legislation must be adapted to new technologies, and given the inherent nature of cross-border blockchain technology, it is also necessary to harmonize legislation throughout the world community, in particular to establish applicable law. It is necessary to direct the activities of state and international bodies to regulate the protection of users of such technologies, including provisions on copyright and related rights to objects expressed in digital form, implementation of anti-money laundering, market manipulation, dissemination of information with limited access, etc.

References

1. Goldenfein J. Blockchains, Orphan Works, and the Public Domain: Internet resource "SSRN". URL: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3083153 (access date: 15.03.2020).
2. Savelyev A. Contract law 2.0. Smart contracts as the beginning of the end of classical contract law: Internet resource "Referad". URL: <http://referad.ru/10705/index.pdf> (access date: 14.03.2020)
3. The official website of Proof of Existence. URL: <https://docs.proofofexistence.com/#/?Id=what-is-proof-of-existence> (access date: 13.03.2020).
4. Morozov I. The California authorities have approved the legalization of blockchain and smart contracts: Internet resource "Bits.media". URL: <https://bits.media/vlasti-kalifornii-odobrili-legalizatsiyu-blokcheyna-i-smart-kontraktov/> (access date: 19.03.2020).
5. The Governor of Arizona signed the historic law on smart contracts and blockchain technology: Internet resource "Forklog". URL: <https://forklog.com/gubernator-arizony-podpisal-istoricheskij-zakon-o-smart-kontraktah-i-tehnologii-blokcheyn/> (access date: 19.03.2020).
6. Adem. The UK can legalize smart contracts on the blockchain: Internet resource "Bits.media". URL: <https://bits.media/velikobritaniya-mozhet-uzakonit-smart-kontrakty-na-blokcheyne/> (access date: 19.03.2020).