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Digital Objects: The Legal Peculiarities, the Role and Prospects of Use

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Abstract

Digital assets are increasingly used in civil invoicing, which requires the development and unification of legal standards in the field of the creation and use of digital assets. The main objective of this study is to define digital assets as a legal category and precisely characteristics for the digital objects of other civil objects according to identifications. Methods of analysis of legal standards, collection and study of individual facts, statistical methods, scientific abstraction methods and methods of representation of the archives were used. The study that digital objects are an independent legal category, which is an intangible digital asset that can only be created with the help of modern technologies, my that ownership of digital objects arises from the moment of verification with a verification with a code and the realization of a digital input. in a special transaction log. For the right of inheritance of digital objects, it is necessary to implement a verification of holder verification and identification of digital objects during their creation and disposal.

Keywords: digital objects; smart contract; blockchain technology; digital resources; Digital.

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Objetos digitales: peculiaridades legales y las perspectivas de uso

Resumen

Los activos digitales se utilizan cada vez más en la facturación civil, lo que requiere el desarrollo y unificación de normas legales en el campo de la creación y uso de activos digitales. El objetivo principal de este estudio es definir los activos digitales como una categoría legal y también precisar sus características para distinguir los objetos digitales de otros objetos civiles según las características identificadas. Se utilizaron los métodos de análisis de las normas legales, recopilación y estudio de hechos individuales, métodos de estadística, métodos de abstracción científica y métodos predictivos. El estudio concluyó que los objetos digitales son una categoría legal independiente, que es un activo digital intangible que solo se puede crear con la ayuda de tecnologías modernas, mientras que la propiedad de los objetos digitales surge desde el momento de la verificación con un código y la realización de una entrada digital. en un registro especial de transacciones. Para ejercer el derecho de herencia de los objetos digitales, es necesario poner en práctica un procedimiento obligatorio de verificación del titular e identificación de los objetos digitales durante su creación y enajenación.

Palabras clave: digital objects; smart contract; blockchain technology; digital resources; digital environment.

Introduction

The development of modern telecommunication systems entailed the creation of qualitatively new objects of civil and commercial turnover, which are digital objects, the existence of which became possible in the cyber-physical space thanks to the Internet (Clinton *et al.,* 2010). The main feature that distinguishes digital objects from civil law objects is their intangible form, while they exist in the digital environment, and there is no need to materialize them. It is more customary to use in civil circulation property objects, such as movable and immovable things, while some questions from experts were raised by the introduction of objects into the legal field, the materialization of which is conditional, for example, electricity or gas. The introduction of telecommunication technologies made it possible to digitize familiar material objects, such as works of science and art or money and securities; the legislative regulation of these objects was carried out by analogy with the material objects of civil law (Mckinnon, 2011). Legal regulation of digital objects is undergoing a stage of formation; at this stage

the creation of legislative norms and rules that can regulate the circulation of fundamentally new objects of law becomes relevant.

It is advisable to single out digital assets in a separate independent category, since this will allow participants in civil legal relations to dispose of digital assets: to acquire and alienate, as well as inherit them. It should be borne in mind that the turnover of digital objects occurs without the participation of intermediaries in the person of banks and other legal entities.

The legal regulation of the circulation of digital objects has many shortcomings, since the rapid development of telecommunication systems constantly contributes to the creation of new digital objects, which include not only cryptocurrency, tokens, smart contracts, but also the creation of artificial intelligence.

One of the important problems that need to be addressed is the identification of the main features of digital objects, which will allow them to be differentiated from other objects of civil circulation. It is relevant to develop a classification of digital objects, to determine their role and significance, to highlight the legal features of digital objects, since those legislative norms that regulate the sphere of material objects since the times of the Roman Empire have not been applicable to the sphere of regulation of digital assets.

The main purpose of this study is to define digital assets as a legal category and differentiate digital objects from other civilian objects according to the identified features.

Many scholars have researched the topic of digital assets. Claire Sullivan (2018) analysed digital identity changing from an emerging legal concept to a new reality; Corbet *et al* (2019) dedicated their work to the study of cryptocurrency as a financial asset; Agustí Cerrillo-i-Martínez (2018) examined the features of digital asset inheritance; Thomas Neubig and Sacha Wunsch-Vincent (2018) investigated the cross-border tax regime for digital assets; Tobias Blanke (2014) wrote about digital assets and their legal status; Laura McKinnon (2011) dedicated her work to the planning of the digital asset succession. Many other experts were engaged in the development of this topic, but these studies did not offer definitions of a "digital object" and did not provide signs by which it would be possible to distinguish digital objects from material objects and from digitalized objects. Classifications of digital objects were not presented; also there have not been offered methods of recovering a "technically lost" digital asset. The researchers also did not define the basic rules, thanks to which it is possible to guarantee the rights of heirs to digital objects in the absence of wills.

1. Methods

The object of the research is the legal status of digital assets. The research used the following methods: collection and study of singularities; analysis of legal norms; methods of statistics and scientific abstraction; methods of recognising lawful relations.

System analysis made it possible to truly reflect the legal characteristics and capabilities of digital assets as a legal category in civil law. Using a comparative analysis, the following types of digital assets have been identified: cryptocurrencies, shares, bonds, shares in the authorized capital of corporations; tokens; objects of intellectual property, photos, smart contracts, personal data, and bonus points.

The method of concreteness made it possible to take into account all the conditions for the use of digital assets in civil relations.

Deduction and induction made it possible to consider the object of research from various angles and to reveal the various properties of digital assets and their use in modern realities.

Thanks to the pluralistic approach to the knowledge of the legal status of digital asset, the most optimal system of knowledge was created, which reflects objective data about the importance and possibility of using «digital asset» as evidence in court.

At the stage of collection and study of individual facts, methods of interpretation of law were used, with the help of which the legal nature and main characteristics of digital asset were clarified.

The prognostic method made it possible to make scientifically based forecasts on the application of certain requirements to digital asset and to develop recommendations for law enforcement practice. We also used logical-semantic analysis in conjunction with the above methods, which allowed us to consider in detail the features of digital asset.

2. Results and Discussion

The definition of “digital object” is controversial among experts (Ruan, 2019); the formation of this definition is based on the selection of the main features of these objects, which should include the following:

- Binary form of existence.
- Potential cost.

The turnover of digital objects has many advantages over transactions with material objects (Blanke, 2014). Let us highlight the main features of the use of modern technologies, with the help of which the circulation of digital objects became possible: 1) when using the Internet network, agreements are concluded via e-mail and are certified by digital signatures, which significantly reduces the time for concluding a transaction; 2) online transactions are often anonymous; this fact can cause problems in practice when identifying the parties to the agreement; 3) there is no state control over the disposal of digital objects; intermediaries do not participate in online transactions using digital objects.

The main technology that allows us to realize all the benefits of digital assets was developed in 2008 and is called a distributed ledger or blockchain (Khanboubi *et al.,* 2019). The essence of the distributed ledger technology is to create a chain of transaction blocks that have a certain sequence and are bonded to each other; the emergence and use of this technology has led to the emergence of a completely new category of civil law, i.e. digital objects. In a distributed ledger, blocks of transactions are sequentially bonded, which excludes hacker attacks, in addition, all transactions must be confirmed by each participant (Van Dijck, 2019).

A distributed ledger of digital transactions or blockchain technology is a unified system of conducted transactions, which are created and constantly updated within specified algorithms. Updates are displayed at all parties to transactions; they are identical and have a high degree of protection against any external influences.

Distributed ledger technologies have provided ample opportunities for use in various fields. Due to the high degree of protection, they are used in the creation of any registers and electronic databases; this concerns the registration of real estate, patenting of intellectual property; information is also increasingly stored using blockchain technology in the registration of acts of civil status. This is not a complete list of distributed ledger technologies; this technology is at the testing stage in many areas.

Highlighting the characteristic features of the distributed ledger technology, it should be noted that all the details of conducted and ongoing transactions are displayed for each participant; therefore each created block is repeatedly duplicated, which significantly increases the reliability of transactions. These operations can be compared with an electronic document flow, in which all documentation is signed with an enhanced qualified digital signature that cannot be forged (De Pamphilis, 2019).

As noted earlier, the creation of blockchain technology has contributed to the creation of a new legal category: digital objects and digital assets.

The distributed ledger technology contains data on the creation and movement of information; by the example of creating a cryptocurrency,

one can observe the movement of created bitcoins, litcoins or any other digital currency. When conducting transactions using distributed ledger technologies, the participation of any intermediaries is excluded; this fact is important, since it was of decisive importance when circulating cryptocurrency. A high degree of technological protection of transactions in the chain of operations carried out attracts potential participants; it serves as an iron-clad guarantee of the protection of transactions and the legal regulation of these transactions is minimal. It can be noted that it is of a technical and not civil nature.

Characterizing the essence of blockchain technology as an object of civil rights, it is possible to determine the mechanism for securing rights to digital assets:

1) A transaction is a digital encoding that contains information about the created digital object.

2) The digital coding characterizing the created digital object exists only on technical media and it cannot exist outside of them.

3) The coding of transactions is formed automatically without the participation of intermediaries according to a predetermined mathematical algorithm; any created digital object cannot exist outside of technology and this fact confirms the high degree of protection of transactions and the impossibility of falsifying them.

Assets are usually understood as the totality of property and monetary means belonging to individuals and legal entities (an enterprise, a firm, a company); they should include real estate in the form of buildings, structures, land plots, as well as stocks, bonds, shares, shares in funds, any valuable papers and all intellectual rights to the trade name, mark, and other signs (Neubig and Wunsch-Vincent, 2018). Digital assets in the broadest sense are information with value expressed in digital format, which can be alienated and valued in monetary terms.

The main characteristic feature of digital assets is the possibility of their existence exclusively in digital form; these objects do not need to materialize; they exist in the form of a digital code that contains all information about the created digital object, which from the moment of its creation is an independent object of law, has a value, and participates in civil circulation. Experts emphasize that digital objects, which are encoded information, have not been sufficiently researched for civil law; in practice, questions may arise about the rights of creators of digital assets and the protection of these rights by legislators (Corbet et al., 2019).

For several years, the created digital objects were considered as a digital algorithm, as encrypted information, and only very recently they began to refer to transactions in the distributed ledger as newly created objects of

law. The position of experts has changed due to the fact that newly created digital assets are increasingly becoming independent objects of agreements and transactions. They are alienable; they can be sold, donated, inherited. So, a cryptocurrency, which is a virtual currency, can become a means of calculation, become part of an inheritance, be invested in stocks, bonds, futures; digital works can be profitable for owners and inherited by potential heirs; digital objects are any electronic registries that also create certain rights and obligations for their owners.

Therefore, it is justified to talk about the emergence in the civil circulation of a new object of law, i.e. a digital object, which needs a comprehensive study in order to create a categorical apparatus and develop a mechanism for legal regulation of legal relations in the field of circulation of digital objects.

Researchers drew attention to this problem and, in particular, they proposed definitions of digital financial assets, by which it is proposed to understand digital property created using cryptography. However, it should be noted that this definition applies only to financial assets expressed in digital format, and the definition of digital objects needs further legal detail (Vijayakumar, 2020).

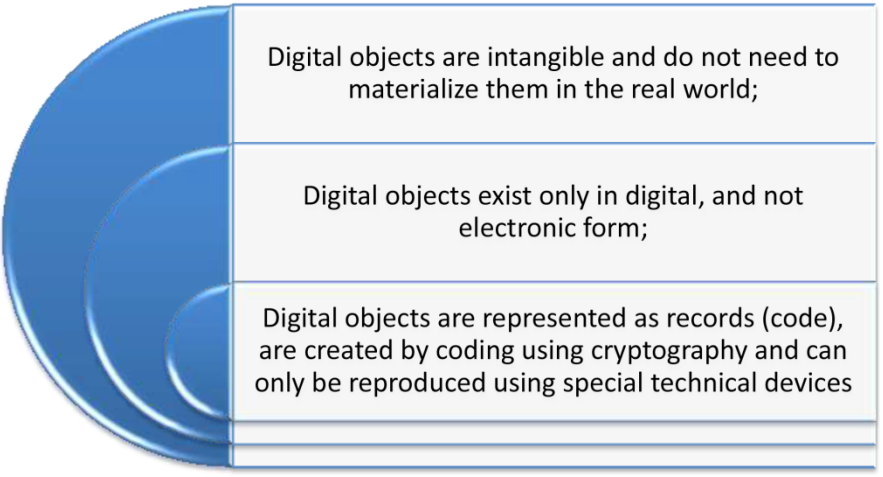
3. Summary

In order to determine the legal status of digital objects, it is necessary to highlight their main characteristic features:

1. Creation, ownership and alienation of digital assets are possible only in the digital environment, which is provided by the Internet. Copies of conducted transactions are duplicated for each participant in the transaction, which ensures high protection of the transactions (Kutay, 2014).

The table below presents the peculiarities and characteristic features of digital objects (Table 1. Characteristic features of digital objects):

Table 1. Characteristic features of digital objects



Own elaboration based on the nature of the subject.

Transactions with digital objects are possible in any country, state, city, and region; transactions can be carried out regardless of the specific place of residence of the counterparty making the transaction and therefore all transactions with digital objects are based on the principles of extraterritoriality. However, each specific state has its own legal regime that regulates the civil circulation of digital objects; therefore, the norms of civil law in this area need unification and the development of an extraterritorial legal mechanism for interaction between participants in transactions if the counterparties are located in different countries, or on different continents (Hallahan, 2004). The regulatory function of conducting transactions with digital objects is technological in nature and is least subject to legal regulation.

2. Transactions in the blockchain system are carried out without the participation of intermediaries and third parties, therefore only the person making the transaction can determine the legal fate of digital assets: only its will is required for this. Some experts note that it is possible to speak of providers as a third party to transactions in a distributed ledger (Sullivan, 2018). It is difficult to agree with this position, since the persons confirming the validity of completed transactions, or validators, work only with financial assets in the stock markets, and digital objects are represented by a wider range of products. Nevertheless, the functions of validators should be entrusted to government bodies, which should develop fiscal rules in this area in order to obtain taxes and establish control over this type of activity (Corbet *et al.,* 2020).

Decentralized management of transactions using distributed ledger technologies, on the contrary, is out of the control of the state and banks. For example, the Ethereum project was created, which is a completely decentralized platform that operates on the basis of an algorithm, is controlled by type of smart contracts and allows automatic transactions for any possible operations (Cerrillo-I-Martínez, 2018).

3. Transactions with digital objects are confidential, only the transaction participant can disclose information about the details and conditions of the transaction to third parties. New transactions are reflected on all computers of the participants in the legal relationship; in cases where new counterparties perform transactions, they receive information in the form of digital prints about all completed transactions. It is impossible to identify the participants who made transactions in the distributed ledger (Poletykin and Promyslov, 2013).

It should be noted that the parties involved in the transaction receive information about the digital asset, that is, the object of the transaction, but not about the participants who made the transactions; the owners of the assets remain anonymous.

Compliance with the confidentiality of transactions is ensured by opening a special account in which the owner's digital assets are displayed; account data are also called digital wallets. Accounts and wallets are tied to specific IP addresses of certain computers (Jerome Orji, 2019), but IP addresses can be used by several persons and therefore they are not can serve as identifiers. In order to ensure continuity and guarantee the rights of heirs, any digital object must be identified and its owner must be determined, if necessary. Therefore, in practice, the owner must undergo mandatory identification procedures upon the formation or alienation of a digital object, a mandatory verification and identification procedure should be provided, for example, in order to open a personal digital account or wallet, which will receive digital assets.

Owners of digital assets should be aware that if they lose passwords and logins to a digital account or wallet, they lose their digital funds. In such cases, government agencies cannot control digital assets; we can say that they drop out of civil circulation. It is not possible to recover lost passwords: this task is unsolvable even from a technical point of view.

4. It is necessary to single out smart contracts, which are performed using distributed ledger technologies, in a separate category of digital objects of law. Smart contracts allow us to control the execution of all the terms of concluded contracts, for example, a residential lease agreement: if it is concluded under a smart contract, it can only be executed if the transaction is paid on time; the tenant will receive the keys from premises as soon as digital funds are transferred to the lessor's account (Kirillova *et al.,* 2019).

In this case, an analogy can be drawn with the acquisition of a debtor's enterprise, or a property complex intended for entrepreneurial activity (in fact, the debtor's business), including all related obligations.

5. Digital assets are a separate legal category and differ from uncertified securities, which can be presented in electronic form. In civil law, uncertified securities and non-cash funds are recognized as things.

6. The development of technologies has made it possible to introduce a completely new category into civilian circulation, namely, digital objects that exist in cyber-physical space, while they can be used by interested parties, as well as ordinary material objects or intellectual property objects. Today, digital assets are used by people to invest, and smart contracts are used to control the execution of agreements. Thus, digital objects are firmly embedded in our daily life and dictate the rules by which it is possible to own, use and alienate them.

7. The problematic issue of the digital object circulation is the guarantee of the legal rights of the participants in transactions, since the regulatory function of the authorities in these legal relations plays a conditional role. All the efforts of experts and legislators at this stage of the development of digital legal relations are aimed at the possibility of identifying participants in transactions, which will allow the use of fiscal policy and control the terms of execution of transactions (Banta, 2017).

The use of distributed ledger technologies, which contributed to the creation of digital objects, and also involvement of those technologies in civil circulation require a reassessment of the triad consisting of ownership, use and disposal rights, which applies to material objects of law and intellectual property. For example, when selling a real estate object using blockchain technology, a structure can be created in which ownership of real estate will be transferred to another owner who will pay for the purchase with digital assets, but the status of the new owner will not be displayed in the state register of real estate.

The issue of password recovery from digital wallets and electronic digital accounts in case of their loss by owners requires a solution. If we assume that passwords can be deposited with third parties, then the entire blockchain technology becomes vulnerable, and risks of misappropriation of digital assets may arise (Brainard, 2018). At the legislative level, it is possible to propose the regulation of the password recovery procedure by analogy with the recovery of rights for lost securities using a call-out procedure, but for this it is necessary to duplicate all passwords, archive and store them on servers, which also creates the risk of fraudulent activities in order to acquire confidential information.

Conclusions

Digital objects are an independent legal category, which is an intangible digital asset that can be created only with the help of modern technologies, while the ownership of digital objects arises from the moment of verification with a code and making a digital entry in a special register of transactions. To exercise the right of inheritance of digital objects, it is necessary to introduce into practice a mandatory procedure for verifying the owner and identifying digital objects during their creation and alienation.

The study highlights the main features of digital objects:

1. Transactions with digital assets are only possible using telecommunication technologies.
2. Transactions in the distributed ledger are carried out without third parties and any intermediaries.
3. The transaction with digital assets is confidential.
4. There are no legal guarantees in terms of continuity, inheritance of digital objects, due to the lack of identification of the owner.

A digital object is an information resource in the sense that digital value information has such basic properties of an information resource as:

a) Information is structured according to certain parameters and categories;

b) Information is recorded on a digital carrier;

c) Information can be stored, transmitted, exchanged, and used.

In order to regulate the civil turnover of digital objects, it is advisable to introduce the category of digital objects into the legal field, which will allow to develop a legal mechanism for making transactions with new categories of objects that can be alienated, that is, donated, inherited, sold; any transactions can be made with digital objects and therefore, the development of fiscal mechanisms for regulating legal relations in the sphere of digital assets turnover seems to be the most urgent. States need to develop principles for taxing digital assets, non-discriminatory access to them, and principles for international trade in digital assets.

Further research on the topic should consider the possibility of using digital assets in contract law, the status of digital assets as absolute evidence in court, as well as the legislative regulation of the legal status of digital assets at the international level.

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