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The Right to Access as a Form of Implementation of the Control Right in the System of Digital Property Protection

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Abstract

The digitalization of the economy has led to the emergence of new objects of property relations digital assets, the legal regulation of which presents significant difficulties for traditional civil law constructions. The present study is devoted to the analysis of the legal nature of the control right and the right to access as the basis of the legal regime of digital property in the context of the legislation of the Republic of Uzbekistan. The aim of the study is to substantiate the right to access as the primary form of implementation of the control right and to develop mechanisms for civil law protection of digital assets. The research methodology includes formal-legal, comparative-legal, systemic-structural methods and doctrinal interpretation. The research findings indicate that the control right represents a system-forming element of the legal regime of digital property, possessing a property law nature with elements of obligatory relations. The right to access functions as a derivative power from the control right, the content of which comprises identification, authentication, and authorization. Traditional methods of protecting property rights require adaptation to the specificity of digital assets, while the creation of special methods of protection, particularly the restoration of access, is necessary. Significant gaps have been identified in the legislation of the Republic of Uzbekistan concerning the definition of the legal status of digital assets, the control right, and methods of their protection. The practical significance of the study consists in the development of recommendations for the improvement of civil legislation, including the introduction of amendments to the Civil Code and the adoption of a special law on digital assets.

Keywords: Digital Property, Control Right, Right to Access, Digital Assets, Civil Law Protection, Digital Rights, Vindication, Negatory Action

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I. Introduction

The rapid digitalization of social relations in the twenty-first century has led to the emergence of fundamentally new objects of legal regulation, digital assets existing exclusively in electronic-digital form. Cryptocurrencies, non-fungible tokens (NFTs), virtual items in online games, tokenized rights to real assets, and other forms of digital property have acquired substantial economic value and have become an integral part of the modern economy. According to analysts' estimates, the total capitalization of the cryptocurrency market in 2024 exceeded 2 trillion US dollars, which evidences the large-scale penetration of digital assets into economic circulation.

The digital transformation of the economy of the Republic of Uzbekistan is also accompanied by the growth in the use of digital assets and the development of distributed ledger technologies. The state policy aimed at developing the digital economy and creating favorable conditions for the implementation of innovative technologies requires adequate legal support. However, the current legislation of the Republic of Uzbekistan, like the legislation of most countries in the world, is based on traditional civil law constructions developed for regulating relations concerning material objects.

The classical theory of property law proceeds from the premise of corporeality of objects and the possibility of physical dominion over them. The triad of owner's powers possession, use, and disposition presupposes a material substratum of ownership rights. Digital assets, devoid of physical form and existing in the virtual environment, do not fit into the traditional system of objects of civil rights. A fundamental contradiction arises between the economic reality, in which digital assets possess significant value and actively circulate, and the legal system, which does not provide adequate mechanisms for their regulation and protection.

The main problem to which the present study is devoted lies in the insufficiency of traditional civil law constructions for the effective protection of digital property. Classical methods of protecting property rights vindication, negatory action, and action for recognition of rights have been developed for material objects and are based on the concept of physical possession. With regard to digital assets, these constructions require substantial rethinking. The central problem is the determination of the legal nature of relations concerning digital assets. Can digital assets be considered as objects of ownership rights or other property rights? What powers belong to the holder of a digital asset? How can the protection of these powers be ensured in conditions where the traditional concept of possession is inapplicable to intangible objects?

The problem of control over digital assets acquires particular relevance. In the physical world, possession provides the owner with actual dominion over a thing and the possibility of exercising their rights. In the digital environment, the analogue of possession is control, which is implemented through specific technological

mechanisms cryptographic keys, authentication systems, access permissions. The loss of control over a digital asset means the actual loss of the possibility of its use, even if the formal title of ownership is preserved.

A key problem is also the right to access digital assets. Access in the digital environment acquires significance comparable to possession in traditional property law, but possesses substantial specificity. Unlawful restriction of access by platform operators, hackers, and state authorities can completely deprive the rightholder of the possibility of exercising their rights. At the same time, the legal nature of the right to access remains undefined, and mechanisms for its protection have not been developed.

The problems of legal regulation of digital assets are attracting growing attention from researchers in various jurisdictions. In the Anglo-American legal tradition, a significant contribution to the development of the theory of digital property has been made by Michels J.D. and Millard C. (2022), who proposed the concept of digital files as a third type of thing alongside things in physical possession and choses in action. The authors substantiate that digital files represent not mere information but separate virtual objects existing at the logical level of a computer system.

Fox D. (2018), in his work on cryptocurrencies in the common law system, analyzes the possibility of applying traditional legal categories to crypto-assets and reaches the conclusion about the necessity of developing special legal constructions. Geva B. (2025) examines questions of property rights in digital assets in the context of uniform legislation in the United States, paying particular attention to the principle "not your keys, not your coins" and its legal significance. Tosato A. and Odinet C.K. (2025), in a recent work, analyze the evolution of American property law and the transition from a formalistic approach to a functional one that prioritizes correspondence with market practices and public expectations. The authors demonstrate how traditional categories of things in possession and choses in action give way to more flexible constructions adapted to the digital environment.

Hung A.H.-C. (2024) conducts a comparative legal analysis of approaches to the regulation of crypto-assets in Anglo-American common law and Chinese civil law, identifying common trends of legal pragmatism in the integration of intangible assets into the system of property law. In European legal scholarship, considerable attention is devoted to the development of unified approaches to the regulation of digital assets. The UNIDROIT Principles on Digital Assets and Private Law (2024) represent an important attempt to create a universal legal model applicable in various legal systems. The Principles introduce the concept of control over a digital asset as the ability to exclude others from using the functionality of the asset.

Garcia-Teruel R.M. and Simón-Moreno H. (2021) examine questions of tokenization of property rights and the adaptation of private law norms to new technological realities. Olalere Y. (2024) analyzes the British draft law on digital assets and its potential impact on business practice. Despite the growing number of studies devoted to digital assets, a significant gap persists in the scientific literature

regarding comprehensive analysis of the interrelation between the control right and the right to access as the foundation of the legal regime of digital property.

Existing studies either focus on general questions of qualification of digital assets as objects of civil rights or analyze particular aspects of their legal regime (taxation, inheritance, use as collateral). At the same time, there is an absence of systematic research that would reveal the legal nature of the control right as a system-forming element of digital property and substantiate the role of the right to access as the primary form of implementation of this control right.

Questions of adaptation of traditional civil law methods of protection to the specificity of digital assets are also insufficiently developed. Although the literature acknowledges the necessity of rethinking vindication and negatory action with regard to the digital environment, specific mechanisms of such adaptation remain unclear. The question of restoration of access as an independent method of protecting rights to digital assets has been practically unexamined. Particularly significant is the gap in studies devoted to the legal regulation of digital assets in post-Soviet legal systems, including in the Republic of Uzbekistan. Existing works mainly describe foreign experience without proposing specific solutions for national legislation. The aim of the present study is to substantiate the right to access as the primary form of implementation of the control right in the system of digital property protection and to develop recommendations for the improvement of the legislation of the Republic of Uzbekistan. To achieve the stated aim, the following objectives have been set:

To determine the legal nature of the control right with regard to digital assets, to identify its specific characteristics distinguishing it from the classical right of ownership in material objects.

To reveal the content of the right to access as a derivative power from the control right, to establish its elements (identification, authentication, authorization) and mechanisms of implementation in various types of information systems.

To analyze traditional civil law methods of protecting property rights (vindication, negatory action) from the standpoint of their applicability to digital assets and to substantiate the necessity of creating special methods of protection.

To establish mechanisms of civil law protection of digital property through the prism of the right to access, including restoration of access, compensation in case of impossibility of restoration, and special interim measures.

To identify problematic aspects of the legal regulation of digital rights in the Republic of Uzbekistan, including gaps in legislation, difficulties in qualification of violations, and proving the fact of violation of rights.

To develop practical recommendations for the improvement of the legislation of the Republic of Uzbekistan in the sphere of digital rights and digital property.

The main research question is formulated as follows: *how does the right to*

access implement the control right in relation to digital property and what civil law methods of protection does this presuppose?

The theoretical significance of the study lies in the development of fundamental categories of civil law with regard to the digital age. The substantiation of the control right as an independent legal category and the right to access as a form of its implementation contributes to the theory of property law, expanding its conceptual apparatus. The development of the concept of digital property contributes to the advancement of the doctrine on objects of civil rights and the adaptation of classical civil law constructions to new technological realities. The practical significance of the study is determined by the needs of improving the legislation of the Republic of Uzbekistan and forming uniform law enforcement practice. The proposed recommendations for introducing amendments to the Civil Code, adopting a special law on digital assets, and developing procedural rules of proof in disputes concerning digital rights can be used by the legislator in reforming legal regulation. The conclusions regarding criteria for qualification of violations and application of methods of protection are significant for judicial practice.

II. Methodology

The present study represents a theoretical-legal and doctrinal research aimed at identifying the legal nature of the control right and the right to access in relation to digital property, as well as developing mechanisms for their civil law protection. The research is interdisciplinary in nature, combining methods of legal science with elements of technological analysis necessary for understanding the specificity of the functioning of digital assets in information systems. The research design presupposes the sequential solution of the stated objectives through the analysis of normative legal acts, judicial practice, and doctrinal sources. The research focuses on the legislation of the Republic of Uzbekistan; however, taking into account the insufficient development of national regulation, it actively employs the comparative-legal method, referring to the experience of foreign jurisdictions.

The formal-legal method was applied for the analysis of normative legal acts of the Republic of Uzbekistan regulating relations concerning objects of civil rights, ownership rights and other property rights, and methods of protecting civil rights. This method allowed for the identification of gaps in the legislative regulation of digital assets and the determination of directions for its improvement. The provisions of the Civil Code of the Republic of Uzbekistan were subjected to analysis, in particular, norms concerning objects of civil rights, ownership rights, and methods of protecting civil rights.

The comparative-legal method was used for studying foreign experience in the legal regulation of digital assets. The object of comparative analysis was the legislation and judicial practice of the United Kingdom, the United States of America, the Russian Federation, and countries of the European Union. Particular attention was

devoted to the analysis of the UNIDROIT Principles on Digital Assets and Private Law (2024), the British draft law on digital assets (Property (Digital Assets etc) Bill, 2024), and judicial precedents in cases concerning cryptocurrencies and other digital assets. The comparative-legal analysis allowed for the identification of general trends in the development of legal regulation and best practices that can be adapted to the conditions of the legal system of the Republic of Uzbekistan.

The systemic-structural method was applied to identify the interrelations between elements of the legal regime of digital property. In particular, this method allowed for the establishment of the system-forming role of the control right and the derivative nature of the right to access, as well as the determination of the place of various methods of protection in the unified system of civil law safeguards for digital assets. The method of legal modeling was applied in developing proposals for the improvement of legislation. Based on the identified gaps and taking into account foreign experience, model legal norms concerning digital assets, the control right, the right to access, and methods of their protection were formulated.

Legislation of the Republic of Uzbekistan: the Civil Code of the Republic of Uzbekistan (regarding norms on objects of civil rights, ownership rights and other property rights, methods of protecting civil rights), the Civil Procedure Code of the Republic of Uzbekistan, the Economic Procedure Code of the Republic of Uzbekistan, and other normative legal acts regulating relations in the digital sphere. International legal acts and model legislation: the UNIDROIT Principles on Digital Assets and Private Law (2024), draft regulations on digital assets developed by the European Law Institute (ELI) and the Law Commission of the United Kingdom (UK Law Commission). The analysis of collected materials was carried out using qualitative research methods. Qualitative analysis of legal norms presupposed the identification of their content, regulatory objectives, gaps, and contradictions. Particular attention was devoted to the analysis of norms that can be applied to digital assets by analogy norms on ownership rights, property rights, and methods of protecting civil rights.

The analysis of judicial practice was conducted using the case study method, presupposing detailed examination of individual judicial decisions in cases concerning digital assets with the aim of identifying legal positions of courts, motives for decisions, and applied methods of protection. Particular attention was devoted to the analysis of courts' substantiation of the qualification of digital assets as objects of ownership rights, application of property law methods of protection, and determination of the amount of compensation in case of loss of access to digital assets.

Doctrinal analysis of scientific literature presupposed the systematization of existing theoretical approaches to understanding digital property, the control right, and the right to access. The viewpoints of various authors were identified, their critical assessment was conducted, and the author's own position in the present study was formulated. Comparative-legal analysis was carried out by comparing approaches of different legal systems to the regulation of digital assets with the aim of identifying

general trends, best practices, and national peculiarities. The results of comparative analysis were used to formulate recommendations for the improvement of the legislation of the Republic of Uzbekistan.

III. Results

A. Legal Nature of the Control Right in Relation to Digital Property

The study of the legal nature of the control right should begin with an analysis of basic theoretical constructions of property in the digital age. Digital property represents rights to ownership, control, and use with regard to intangible objects that are recognized by law or by a court as things or fall under the legal regime of things by virtue of their property value (Maydanyk, 2023). This approach opens prospects for extending property law constructions to digital objects while preserving the specificity of their legal regime. Of fundamental importance for understanding the control right is the concept developed by Michels J.D. and Millard C., according to which digital files represent not mere information but separate virtual objects existing at the logical level of a computer system (Michels & Millard, 2022). The authors propose recognizing digital files as a third type of thing alongside things in physical possession and choses in action. This innovative idea allows for overcoming the traditional dichotomy of the material and immaterial, opening the way to the formation of a special category of objects of civil rights.

The control right in relation to digital property is characterized by a number of specific features distinguishing it from classical possession of things. First, control in the digital environment is exercised not through physical dominion over an object but by means of technical mechanisms of access to it. The UNIDROIT Principles on Digital Assets and Private Law establish that control over a digital asset means the ability to exclude others from using the functionality of that asset. Such an understanding of control differs radically from traditional possession based on physical holding. Second, the control right in the digital environment is inextricably linked with technological means of its implementation. Control over digital assets is largely determined by possession of cryptographic access keys, which has given rise to the principle "not your keys, not your coins" in relation to cryptocurrencies (Geva, 2025). This principle emphasizes that legal control over a digital asset is conditioned by the technical capability of managing it.

At the same time, it should be noted that mere possession of technical means of access does not always signify the presence of a lawful right of control. The legislation of the Republic of Uzbekistan, following general trends in the development of civil law doctrine, must distinguish between actual and legal control over digital assets. Actual control represents the technical capability of managing an object, whereas legal control is based on the lawful right of a person to exercise such management.

A fundamental question is the relationship between the control right and the traditional triad of owner's powers possession, use, and disposition. In classical civil

law doctrine, possession is understood as the actual dominion of a person over a thing with the intention to relate to it as one's own. However, with regard to digital assets, such an understanding requires substantial correction. The control right in the digital environment functions as a functional analogue of possession but possesses its own specificity.

Research conducted within the framework of analysis of legislation on digital assets in various jurisdictions demonstrates that the control right is a broader category than possession in the traditional sense. Control encompasses not only actual dominion over an object but also the ability to determine the regime of access to it, manage its functionality, and exclude interference by third parties. Thus, the control right integrates within itself elements of all three owner's powers adapted to the specificity of the digital environment.

Particular attention is deserved by the question of the legal nature of the control right in the system of civil rights. There exist two main theoretical positions on this question. According to the first position, the control right represents a variety of property right sui generis adapted to the peculiarities of intangible objects. Proponents of this approach point to the absolute nature of the control right, its following the object, and the possibility of protection against any violators. Indeed, these characteristics bring the control right closer to classical property rights and allow for the application to it, mutatis mutandis, of corresponding legal constructions.

The alternative position views the control right as a complex subjective right combining elements of property rights and obligatory rights. This approach is based on the circumstance that digital assets often exist within certain information systems, and the relations of users with operators of these systems are of a contractual nature. It appears that both positions reflect different aspects of a unified legal phenomenon. The control right in relation to digital property should be qualified as a new form of absolute subjective right possessing specific characteristics. On the one hand, it has a property law nature, which manifests itself in its absolute character and the possibility of following the object. On the other hand, the peculiarities of implementing this right in the digital environment condition the emergence of obligatory law elements connected with the functioning of information systems.

Thus, the control right represents a system-forming element of the legal regime of digital property, performing a function analogous to possession in traditional property law but possessing substantial specificity. Its legal nature is characterized by a combination of property law and obligatory law elements with the dominance of the former. Recognition of the control right as an independent legal category allows for ensuring adequate protection of digital assets and creating a foundation for the further development of the institution of digital property in the legislation of the Republic of Uzbekistan.

B. The Right to Access as a Form of Implementation of the Control Right

The right to access represents a key mechanism for implementing the control right in the digital environment, functioning as a kind of material-technical shell for exercising powers in relation to digital assets. If the control right determines the legal possibility of dominion over an object, then the right to access ensures the actual implementation of this possibility by means of technological instruments. The conceptual understanding of the right to access requires its distinction from related legal categories. Unlike the right of use, which presupposes the extraction of useful properties of a thing, the right to access has an instrumental character; it creates prerequisites for exercising all other powers of the owner. Access in this context should be understood not merely as the possibility of familiarization with information but as a technical-legal capability to manage a digital asset, change its parameters, and determine the conditions of its use by third parties.

The legal nature of the right to access should be qualified as derivative from the control right. According to the concept developed within the framework of the UNIDROIT Principles on Digital Assets, control presupposes the ability to exclude others from using the functionality of a digital asset. This ability is directly conditioned by the presence of access to the asset. Thus, the right to access functions as a necessary condition for implementing the control right, its procedural form in the digital environment. The content of the right to access digital assets includes several interrelated elements. First, this is the right of identification, that is, the possibility of confirming one's belonging to the number of entitled persons. In blockchain systems, identification is carried out by means of cryptographic keys; in centralized systems, through mechanisms of user authentication. Second, the right to access includes the power of authentication, the technical procedure of verifying the correspondence of the subject to the declared identity. Third, an element of the right to access is the possibility of authorization, obtaining permission to perform certain actions with a digital asset (Khare et al., 2025).

The technical-legal mechanisms for implementing the right to access differ substantially depending on the type of digital asset and the architecture of the system in which it exists. With regard to decentralized systems built on distributed ledger technology, the right to access is implemented through possession of private cryptographic keys. This model embodies the principle "not your keys, not your coins," according to which control over an asset is conditioned by possession of access keys. An alternative model for implementing the right to access is presented by centralized systems where digital assets are stored and managed by intermediaries' platform operators, service providers. In such systems, the right to access is mediated by contractual relations between the right holder and the system operator. The user obtains access to their assets through credentials (login and password), biometric identification, or other forms of authentication controlled by the operator. This model generates specific risks associated with the dependence of the right holder on the good faith and solvency of the intermediary.

A special category is constituted by hybrid systems combining elements of decentralization and centralized management. An example may be the model of Self-Sovereign Identity, within the framework of which users control their identification data, but verification is carried out by trusted third parties. Such systems strive to ensure a balance between user autonomy and the necessity of trust in identification data. A critically important aspect of the right to access is its relationship with other powers of the owner. Access functions as a condition sine qua non for exercising the powers of use and disposition of digital assets. Without the possibility of access to a digital object, all other rights lose practical significance, turning into formal titles devoid of real content. This circumstance imparts exceptional value to the right to access in the system of digital rights.

At the same time, the right to access does not exhaust the content of the control right. It represents only one of the methods of implementing control, albeit the most essential in conditions of the digital environment. Theoretically, situations are possible where a person possesses the control right but is temporarily deprived of access to the asset due to technical reasons or legal restrictions. In such cases, the control right is preserved but cannot be implemented until access is restored. Thus, the right to access functions as a central element in the system of implementing the control right with regard to digital assets. Its content is determined by a complex of technical-legal possibilities of identification, authentication, and authorization ensuring actual dominion over an object. The right to access has a derivative character in relation to the control right but at the same time possesses independent value, since without access the control right loses practical significance. The development of the legislation of the Republic of Uzbekistan in the sphere of digital rights requires the establishment of the right to access as a special power equipped with adequate mechanisms of protection.

C. Civil Law Methods of Protection Through the Prism of the Right to Access

The system of civil law protection of digital property must be constructed taking into account the central role of the right to access in the mechanism of implementing the control right. Traditional methods of protecting property rights developed for material objects require substantial adaptation when applied to digital assets, where violation of rights most often manifests itself precisely in the form of deprivation or restriction of access. Protection against unlawful restriction of access represents a paramount task in the system of civil law safeguards for digital assets. Restriction of access can be carried out by various means: technological blocking of an account by a platform operator, changing authentication parameters without the right holder's consent, DDoS attacks on access infrastructure, unauthorized alteration of cryptographic keys. Each of these methods creates obstacles to implementing the control right and requires specific legal means of protection.

A fundamental question is the qualification of actions restricting access from

the standpoint of violation of civil rights. In the context of traditional property law, analogous actions would be considered as creating obstacles to exercising ownership rights, which serve as grounds for a nugatory action. However, with regard to digital assets, the situation is complicated by the fact that restriction of access is often carried out by subjects with whom the right holder is connected by contractual relations (platform operators, service providers). Competition arises between property law and obligatory law methods of protection.

Comparative analysis of judicial practice in various jurisdictions demonstrates the absence of a uniform approach to this problem. In the case D'Aloia v Persons Unknown, examined by the High Court of England in 2024, the court investigated the question of the liability of cryptocurrency exchanges for the return of fraudulently misappropriated cryptocurrency (Norton Rose Fulbright, 2025). The court established that property law means of protection can be applied with substantial limitations, and victims must seek alternative methods of protection, including interim measures in the form of freezing assets in the accounts of fraudsters.

Restoration of access as a method of protecting rights represents a specific institution having no direct analogues in classical property law. Whereas vindication is aimed at the return of the thing itself from an unlawful possessor, restoration of access pursues the goal of resuming the technical capability of managing a digital asset that formally may continue to remain in the same information system. This difference is conditioned by the special nature of digital objects, which do not move in physical space but access to which can be lost or restricted.

The legal construction of a claim for restoration of access must include several elements. First, the plaintiff is obliged to prove the existence of their control right in relation to the digital asset. In decentralized systems, such proof may be possession of private keys; in centralized systems, a contract with the system operator and transaction history. Second, it is necessary to establish the fact of loss or restriction of access through the fault of the defendant or due to circumstances for which they bear responsibility. Third, there must exist a technical possibility of restoring access.

The last condition presents a substantial problem. In decentralized blockchain systems, loss of private keys means impossibility of restoring access by virtue of the architecture of the system itself. In such cases, the method of protection can only be compensation for losses, not restoration of access in kind. Conversely, in centralized systems, the operator possesses the technical capability to restore the right holder’s access, which makes this method of protection practically applicable. Compensation in case of impossibility of restoration of access functions as an additional method of protection applied in cases where restoration of access in kind is impossible or inexpedient. Determination of the amount of compensation presents a complex problem due to the volatility of the value of many digital assets and the absence of established valuation methodologies. Legislation must establish criteria for determining the amount of compensation, taking into account the market value of the

lost asset, lost profits from the impossibility of its use, and other circumstances of the case.

Judicial practice in disputes concerning digital assets demonstrates various approaches to determining the moment of valuation of losses. In the case Hung, examined by United States courts, the question was raised as to which value of cryptocurrency should be taken as the basis for determining the amount of compensation: at the moment of unlawful seizure, at the moment of filing the claim, or at the moment of rendering the decision (Hung, 2024). This question acquires particular acuteness in conditions of significant fluctuations in the value of crypto-assets.

The peculiarities of applying traditional methods of protecting property rights to digital assets require deep theoretical comprehension. The vindicatory action, presupposing recovery of a thing from another's unlawful possession, encounters the problem of defining possession with regard to intangible objects. As noted in the scientific literature, in common law systems possession is treated as a right, and the person having the best title to possession is considered the owner, whereas in continental law possession is an actual state. With regard to digital assets, the actual state equivalent to possession should be considered control ensured through access.

Vindication of a digital asset is possible provided it is individualized and is in the possession (under the control) of a specific person. In blockchain systems, individualization is ensured by unique identifiers of tokens, and establishment of control by technical attachment of the asset to a particular address (public key). However, the practical implementation of vindication is complicated by the anonymity or pseudonymity of many blockchain systems, which impedes establishment of the identity of the unlawful possessor. The negatory action, aimed at eliminating obstacles to exercising ownership rights, appears to be the method of protection most adapted to the specificity of digital assets. Unlawful restriction of access, blocking of an account, installation of technical means impeding management of an asset, all these actions fall under the classical understanding of violations eliminated by negatory action. In this case, the defendant may be either the operator of the information system or a third party creating technical obstacles to access.

The application of interim measures in disputes concerning digital assets has substantial specificity. Traditional seizure of property is difficult with regard to decentralized assets, control over which is exercised by means of private keys. At the same time, application of freezing orders is possible in relation to accounts on centralized exchanges and platforms. The practice of English courts in applying Mareva injunctions to cryptocurrency assets can serve as a guide for the development of the legislation of the Republic of Uzbekistan. Thus, the system of civil law protection of digital property through the prism of the right to access must include both traditional methods of protecting property rights (vindication, negatory action) adapted to the specificity of digital objects and new institutions (restoration of access,

special interim measures) reflecting the peculiarities of the technological environment of the functioning of digital assets.

IV. Discussion

The conducted research allows for the formulation of a number of theoretical and practical conclusions regarding the role of the control right and the right to access in the system of digital property protection. The obtained results confirm the hypothesis that the control right functions as a system-forming element for the legal regime of digital assets, and the right to access represents the primary form of its practical implementation. The interpretation of the legal nature of the control right as a new type of absolute subjective right combining property law and obligatory law elements opens prospects for overcoming the traditional dichotomy of property rights and obligatory rights in the digital environment. This conclusion is consistent with modern trends in the development of property law noted in the works of Tosato A. and Odinet C.K. who point to the transition from a formalistic approach to a functional one that prioritizes correspondence with market practices and public expectations (Tosato & Odinet, 2025).

Particular attention is deserved by the specificity of the control right in decentralized and centralized systems identified in the course of the research. In decentralized blockchain systems, control is implemented through cryptographic mechanisms, which ensures a high degree of autonomy for the rightholder but simultaneously creates risks of irretrievable loss of assets in case of loss of private keys. Conversely, in centralized systems, control is mediated by platform operators, which reduces technological risks but generates dependence on the good faith of intermediaries. This dichotomy reflects a more general problem of balance between decentralization and practical convenience characteristic of the entire field of digital technologies.

The establishment of the right to access as the material-technical embodiment of the control right has substantial theoretical significance. It allows for explaining why in the digital environment loss of access means actual loss of the right, even if the formal title of ownership is preserved. In classical property law, loss of possession does not mean automatic loss of ownership rights; the owner can recover the thing from an unlawful possessor. In the digital environment, the situation is different: without access, the right holder can neither use the asset nor dispose of it. Consequently, access acquires significance comparable to possession in traditional law, but with a fundamental difference, its loss may be irreversible.

The research results also evidence the necessity of revising classical methods of protecting property rights when applying them to digital assets. Vindication and negatory action, developed for material objects, must be adapted to the specificity of the digital environment. Vindication must take into account the peculiarities of determining "possession" of a digital asset, and negatory action must address the

specificity of eliminating obstacles to exercising rights, which in the digital environment most often manifest themselves as restriction of access. At the same time, the necessity has been identified of creating new methods of protection specific to digital assets, such as restoration of access and special interim measures.

The practical significance of the obtained results consists in the formation of a methodological foundation for the improvement of the legislation of the Republic of Uzbekistan in the sphere of digital rights. Recognition of the control right and the right to access as independent legal categories will allow for the creation of a clearer system of regulation and protection of digital assets. The obtained results also confirm the thesis that the right to access is a condition for exercising all other powers in relation to digital assets. Without access, neither use nor disposition is possible. This dependence creates particular vulnerability of right holders and requires enhanced legal protection of the right to access. Legislation must provide for strict sanctions for unlawful restriction of access and effective mechanisms for its restoration.

The present study makes a substantial contribution to the development of the theory of property law and digital law, proposing a conceptual apparatus for comprehending new legal phenomena generated by the digital transformation of social relations. The substantiation of the control right as an independent legal category, distinct from the classical right of ownership but possessing an analogous function in the digital environment, has paramount theoretical significance. This concept develops the classical triad of owner's powers (possession, use, disposition), proposing a broader category of control that encompasses not only actual dominion over an object but also the ability to determine the regime of access to it and manage its functionality. This is consistent with modern theoretical approaches viewing property as a "bundle of rights," the composition of which can vary depending on the nature of the object.

An important theoretical achievement is the development of the concept of the right to access as a category derivative from the control right. Traditional civil law doctrine did not single out access as an independent power, viewing it as an element of possession or use. The present study demonstrates that in the digital environment access acquires independent significance and requires separate legal regulation. The right to access functions as a procedural form of implementing the control right, its technical embodiment in conditions of the virtual environment.

The research contributes to the development of the theory of objects of civil rights, substantiating the possibility and necessity of recognizing digital assets as a special category of objects. The classification of objects into things and choses in action proves insufficient for encompassing digital assets, which possess characteristics of both categories but cannot be fully attributed to either one. The concept of digital assets as a special category of objects characterized by intangibility but at the same time individualizability and capacity for circulation, proposed in the study, develops the theory of objects of civil rights with regard to the digital age.

The transformation of the concept of possession in the digital environment

identified in the research presents significant theoretical interest. Whereas classical possession was based on physical dominion over a thing (corpus) and the intention to possess it as one's own (animus), in the digital environment physical dominion is replaced by technological control. This requires revision of fundamental categories of property law and their adaptation to new realities. The concept of "digital possession" through control and access proposed in the study develops the classical theory of possession, preserving its basic principles but filling them with new content.

The research also contributes to the development of the theory of civil law protection, proposing a system of methods of protection adapted to the specificity of digital assets. Traditional property law methods of protection (vindication, negatory action) are supplemented by new institutions (restoration of access, compensation in case of impossibility of restoration), which expands the arsenal of legal means of protecting property rights. Particular value is represented by the substantiation of restoration of access as an independent method of protection having no direct analogues in classical property law.

The results of the present study have substantial practical significance for the improvement of the legislation of the Republic of Uzbekistan, law enforcement practice, and the development of the digital economy. The research proposes a conceptual foundation for legislative regulation of digital rights and digital property. The identified necessity of recognizing the control right and the right to access as independent legal categories requires the introduction of corresponding amendments to the Civil Code of the Republic of Uzbekistan. It is expedient to supplement the chapter on objects of civil rights with special norms on digital assets, defining their legal nature, criteria for attribution to objects of civil rights, and peculiarities of their legal regime.

The system of civil law methods of protecting digital rights developed in the study has practical significance. The proposal to include in legislation a special method of protection in the form of restoration of access to a digital asset can be implemented by supplementing the article of the Civil Code on methods of protecting civil rights (Article 11 of the Civil Code of the Republic of Uzbekistan). This will provide rightholders with an effective instrument for protecting their rights in case of unlawful restriction of access. For law enforcement practice, the conclusions regarding criteria for qualification of violations in the sphere of digital assets are of important significance. Courts and other law enforcement bodies need clear guidelines for distinguishing civil law torts, breaches of contractual obligations, and criminal offenses in the digital environment. The criteria proposed in the study can be used in developing methodological recommendations for judges and forming judicial practice.

The conducted research opens a number of promising directions for further scientific development of the problems of legal regulation of digital rights and digital property. In-depth study of the legal regime of individual types of digital assets is of paramount importance. The present work examined digital assets as a whole,

identifying general patterns of their legal regulation. However, various types of digital assets cryptocurrencies, tokens, NFTs, virtual items in online games, digital copies of documents possess substantial specificity requiring special study. Conducting a series of studies devoted to the legal regime of specific categories of digital assets taking into account their technological and economic peculiarities appears promising.

An important direction for further research is the development of legal regulation of smart contracts and their interaction with the institution of the control right. Smart contracts represent a fundamentally new mechanism of automated performance of contractual obligations, which generates specific legal questions. How do the conditions of a smart contract relate to the will of the parties? What is the legal force of automatically performed obligations? How should classical institutions of contract law (mistake, fraud, duress, impossibility of performance) be applied to smart contracts? These questions require deep scientific elaboration. Research on tax law aspects of digital assets is a promising direction. How should transactions in cryptocurrency be taxed? Is receipt of a digital asset as a gift or by inheritance an object of taxation? How should the tax base be determined given the volatility of the value of digital assets? What reporting requirements should be imposed on owners of digital assets? The development of tax regulation of digital assets has not only fiscal but also regulatory significance, affecting the development of the digital economy.

The problems of inheritance of digital assets deserve special attention. Traditional rules of inheritance law proceed from the assumption of physical definiteness of the hereditary estate and the possibility of its inventory. Digital assets call these assumptions into question. How can heirs obtain access to the digital assets of the deceased if they do not know about their existence or do not have means of access (passwords, private keys)? Should platform operators provide heirs with access to the accounts of the deceased? How should conflicts be resolved between the rights of heirs and the right to privacy of the deceased? These questions are acquiring increasing relevance as digital assets accumulate among individuals (Yang, 2025).

Conclusion

The conducted research allows for the formulation of a number of fundamental conclusions regarding the legal nature of the control right and the right to access in the system of digital property protection, which have both theoretical and practical significance for the development of the legislation of the Republic of Uzbekistan. The first and most important conclusion is that the control right represents a system-forming element of the legal regime of digital property. Unlike the traditional right of ownership based on the triad of powers of possession, use, and disposition of material objects, the control right is adapted to the specificity of intangible digital assets. Its legal nature is characterized by a combination of property law and obligatory law elements, which reflects the dual character of digital assets existing simultaneously as objects of absolute rights and as elements of contractual relations with operators of

information systems. The control right should be qualified as a new form of absolute subjective right sui generis that integrates elements of all three classical powers of the owner but is implemented through specific technological mechanisms.

The second key conclusion consists in the establishment of the right to access as the primary form of implementation of the control right in the digital environment. The right to access is not a mere technical element but represents an independent power having a derivative character from the control right. Its content is determined by a complex of technical-legal possibilities of identification, authentication, and authorization that ensure the actual dominion of the right holder over the digital asset. Without access, the control right loses practical significance, turning into a formal title devoid of real content. This feature fundamentally distinguishes digital property from traditional property in things, where loss of possession does not mean automatic impossibility of exercising ownership rights.

The third conclusion concerns the necessity of adapting traditional civil law methods of protection to the specificity of digital assets. Classical property law methods of protection vindication and negatory action retain their applicability but require rethinking taking into account the peculiarities of the digital environment. Vindication must take into account that "possession" of a digital asset means control ensured through access, not physical holding. Negatory action most adequately corresponds to the nature of digital assets, since the primary violation of rights in the digital environment manifests itself precisely as the creation of obstacles to exercising ownership rights by means of restricting access.

The fourth conclusion consists in substantiating the necessity of creating special methods of protection characteristic specifically of digital assets. Restoration of access as an independent method of protection has no direct analogues in classical property law and reflects the specificity of digital property. In centralized systems, this method of protection is practically implementable and should be enshrined in legislation as a priority. In decentralized blockchain systems, where restoration of access is technically impossible in case of loss of private keys, the primary method of protection remains compensation for losses, the amount of which should be determined taking into account the volatility of the value of digital assets.

The fifth conclusion concerns the identified problematic aspects of legal regulation. The legislation of the Republic of Uzbekistan contains substantial gaps in the regulation of digital rights and digital property. The absence of legal definitions of digital assets, the control right, and the right to access creates legal uncertainty and complicates the protection of the rights of participants in digital circulation. Difficulties in qualification of violations in the sphere of digital assets, problems of proving the fact of violation of rights, and the cross-border nature of digital transactions require a comprehensive approach to improving both substantive and procedural legislation.

Based on the obtained results, it appears expedient to formulate the following

practical recommendations for the improvement of the legislation of the Republic of Uzbekistan and law enforcement practice. First, it is necessary to introduce amendments to the Civil Code of the Republic of Uzbekistan providing for recognition of digital assets as an independent category of objects of civil rights. It is proposed to supplement Chapter 6 "Objects of Civil Rights" with a new article of the following content: "Digital assets are recognized as objects of civil rights existing in electronic-digital form, possessing property value, capable of circulation and individualization in information systems." This norm will create a legal foundation for regulating relations concerning digital assets.

Second, legislative establishment of the control right as the primary power in relation to digital assets is recommended. It is expedient to supplement the Civil Code with a norm establishing that "the right holder of a digital asset possesses the control right, including the possibility of managing the functionality of the asset, determining the regime of access to it, and excluding interference by third parties in the exercise of these powers." Such a formulation will reflect the specificity of digital property without being tied to the classical triad of owner's powers. Third, recognition of the right to access as an independent power and establishment of special mechanisms for its protection are necessary. It is proposed to supplement Article 11 of the Civil Code of the Republic of Uzbekistan on methods of protecting civil rights with a new paragraph: "restoration of access to a digital asset." This will provide right holders with an effective instrument of protection in case of unlawful restriction of access by platform operators or third parties.

The results of the present study substantiate the necessity of further scientific development of the problems of legal regulation of digital rights and open promising directions for future research. The legal regime of individual types of digital assets taking into account their technological and economic peculiarities requires in-depth study. Cryptocurrencies, tokens, NFTs, and virtual items in online games possess substantial specificity that cannot be fully encompassed by general norms on digital assets. Special studies of the legal regime of each category of digital assets are necessary. An urgent task is the development of legal regulation of smart contracts and their interaction with the institution of the control right. Automated performance of contractual obligations generates specific questions regarding the relationship between program code and the will of the parties, the applicability of classical institutions of contract law, and liability for errors in code.

The problems of inheritance of digital assets deserve special attention, including questions of heirs' access to digital assets of the deceased, obligations of platform operators to provide information, and resolution of conflicts between the rights of heirs and the right to privacy. Thus, the conducted research creates a theoretical and methodological foundation for the further development of scientific understanding of digital property and the improvement of the legislation of the Republic of Uzbekistan in the sphere of digital rights.

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