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Legal regulation of decentralized information platforms: problems and the suggested private-law approach to their solution in Ukraine

***Abstract.** The paper is devoted to critical understanding of the main existing approaches to legal regulation of digital platforms and digital solutions based on blockchain technology. The aim of this paper is to substantiate the modern scientific and applied approach to regulation of decentralized information platforms in Ukraine, which is based on private law. This approach is the basis of the innovative Draft Law of Ukraine No. 4328, which offers both regulation of the unregulated area of virtual assets and a method of increasing the use of decentralized platforms, through which such regulation can be carried out taking into account the interests of the state. The paper contains an analysis of legal issues in private and public law. Amendments to Ukrainian legislation have been suggested in the paper. It has been concluded that blockchain-based decentralized information platforms open an unexpected opportunity to change the model of the state in terms of fund flows into public budget. This is due to a significant risk reduction when concluding and executing contracts in the public sector. Furthermore, the author concludes that the subjects of platform interaction can create rules of mutual interaction, determine the procedure for resolving disputes and adjudicate relevant disputes without resorting to existing national, international and supranational instruments of regulation and coercion. Therefore, when participants of the information platform are forced to interact with legal entities of public law (state and municipal institutions, budget funds, etc.), which set strict requirements for compliance with certain rules as conditions of access to their services (public, information, banking, etc.), then participants of the platform are forced to follow the established rules. As a result, the establishment of clear and simple procedures and rules of conduct when receiving services through digital platforms is a trigger for governments to encourage investments in the development of digital business.*

***Keywords:** decentralized information platform, blockchain, private-law approach, tokenized assets, digital assets, public sector.*

Problem statement. Traditionally being a closed institution, the authorities face the problem of disclosing their data. They still have a strong desire to control the process of data disclosure and its use to a significant or full extent that is currently less and less possible. The information platforms are the solution to this problem. They are

currently the main and most technologically promising method to meet the expectations of both the government and citizens on these issues. Today, information (or digital) platforms are considered a kind of “coordination centers” and the latest technological infrastructure of the market used by various participants for easy service delivery and the formation of virtual communities [8, P. 233].

Despite the existence of different types of information (or digital) platforms and the fact that legal relations of various types are formed during their daily use, the interaction within the information platform causes typical legal problems and covers several key areas of legal regulation: 1) laws on data and consumer rights protection; 2) antimonopoly regulation; 3) intellectual property law; 4) issues of legal jurisdiction; 5) investment issues and business conditions in the digital environment; 6) state protectionism of platform participants as residents of the national market, etc.

At the same time, legal regulation cannot be efficient if it is aimed exclusively at relations within information (digital) platforms, which are already objectively complex even according to the plan of their creators. Therefore, we can highlight the need for systemic changes in the approach to legal regulation, and the need for further appropriate selective changes in national legislation among the urgent requirements of our time. The supranational and transnational nature of the relations formed within digital platforms raises an additional and still unresolved issue: how should traditional state tools of regulation be applied? Thus, laws passed under one jurisdiction can be inapplicable to activities and relations between participants from several jurisdictions (that often happens with digital platforms), which have been easily combined within a digital platform. Thus, civil-law (or contractual) tools come to the fore, which are independently developed and offered by the platform operators and supranational conglomerates and which, in fact, form platform operators or platforms themselves.

Analysis of recent research and publications. In the late 2010s, the rapid development of the blockchain technology created a new trend — the development of decentralized information platforms based on this technology. Despite the attention to

political and technological [32; 35; 30; 37] sides of this phenomenon, the world scientific literature lacks research on the prospects of using digital assets [39] and decentralized information platforms as very promising tools of public governance, from a practical perspective, with predictable and controlled influence for the common good, rather than for the good of private platform owners which is common for centralized platforms.

It is clear, that it is important for a country's society to be mature enough for social and technological changes, so that citizens, businesses and government, at least at the central level, are ready for these changes, i.e. that the focus of legal development is not on legislation, legal studies and a court judgment, but on society itself [40]. This means that the legislation cannot be drastically adjusted in accordance with technological innovations. Even in the field of private law, the blockchain technology is tested in the mode of "regulatory sandbox" before its introduction, and the issue of its legal regulation for the public sector is still unresolved, even in countries [34; 33; 31] where future is clearly connected to the blockchain and large-scale digital solutions based on it. For example, back in 2019 in Switzerland, the launch of blockchain startups was prepared in the so-called "sandbox", which is a state experiment at the level of a separate Canton of Zug. It was decided to test technology in one canton due to significant risks to the government.

These days the main question for lawyers is as follows: is it possible to regulate the use of digital technologies within the framework of traditional law, or the law will displace program code? For example, the Court of Justice of the European Union held in 2015 that Bitcoin transactions are not subject to VAT, as Bitcoin is not a commodity but a virtual currency [38]. Lawyers consider this fact as a proof of extension of the traditional law to Bitcoin without taking into account legal "features" of the program code [36, P. 104].

The aim of this paper is to suggest and substantiate the modern scientific and applied approach to the regulation of decentralized information platforms in Ukraine, which is based on private law.

Statement of basic materials. Before proceeding to the main provisions, we should define the key and special terms:

- *information (digital) platforms* can be viewed as a kind of regulating environment, and as an anonymous governance subject based on program code. It allows private developers, users, and other people to interact, exchange data, services, and applications, while governments that have implemented providing certain administrative services through information platforms, may monitor processes more easily, and facilitate the development of simple and innovative solutions and services;
- *the idea* of an information platform is to create a society and then support it using digital services, while having getting profit from reduced transaction costs through partially eliminated intermediaries as a managerial consequence [5, P. 278], as well as increasing coverage, and ensuring adequate peer supervision by users and owners of such a platform;
- *decentralized information platform (DIP)* means “a type of digital data accounting system based on a distributed ledger technology, which consists of a service infrastructure and a community of independent users having equal rights or pre-identified rights granted according to the levels of decentralized governance model to make such a system stable” [8].

To this date, three models of interstate information platforms regulation (centralized, decentralized and hybrid) have been introduced into public governance, there is another one, namely the model of commercial platforms regulation (hereinafter — commercial model). There are a hundred times more commercial platforms than information once, and DIPs belong to the former.

1. *A centralized model* is applied if the information platform is created under an international agreement, in particular under an international agreement on the

establishment of an international or supranational organization. All key issues of operation of such a platform (for example, functions, governance procedure, status of various entities, etc.) are resolved at the level of an international agreement. The platform is controlled by a structural unit of an international founding organization or by a supranational unit of an integration association. Data exchange is regulated at the level of international agreements of the member states, including general ones. Some issues related to the processing of confidential information are regulated at the level of the platform operator's act, for example through a privacy policy or its analogues.

2. *A decentralized model* is applied if the information platform is created by an act of an international organization that addresses all key issues of operation of such a platform (its functions, governance procedure, status of various entities, etc.). An operator created by such an international organization solely for the purposes of platform management (bureau, agency) controls the platform. Data exchange is regulated at the level of the platform operator's act taking into account the provisions of general acts on data exchange (international agreements, acts of an international organization).

3. *A hybrid model* is applied as a hybrid under the principle of "centralized regulation, but decentralized implementation". In this case, an international agreement creates a single (neutral) legal environment within which certain public and private providers deliver services to their users. The main issues of the single (neutral) legal environment (its functions, governance procedure, rights and responsibilities of various entities) are resolved exclusively at the level of an international agreement. Along with national supervisors, a mutually agreed (parity) central regulatory body provides this single legal environment. Data exchange is regulated both at the level of international agreements and indirectly through the regulation of individual features of services provided. The privacy policy and other similar documents of service providers and operators regulating data processing should meet the minimum requirements that exist in this single neutral legal environment.

4. *A commercial model* is the most common in the world and is applied to the vast majority (at least 99%) of known information platforms. Such a platform is formed on the basis of an act of a private company, which is the initiator and developer of the platform. All the main issues of the platform (its functions, governance procedure, rights and responsibilities of various entities) are resolved at the level of public documents of the company (for example, “Public Contract”, “Terms of Use and Legal Information”, “Privacy Policy”, “Service Agreement”, etc.), which can be willingly accepted by any eligible entities for the conscious use of the platform as intended. During development of these documents, first of all, the national legislation regarding the private company, the initiator and developer of the platform, and, if necessary international agreements involving the state where the developer is registered are taken into account. The developer manages both centralized and decentralized private information platforms. Data exchange is regulated at the level of a public “privacy policy”, which clearly defines the requirements for working with data and requirements for operation of information platforms (for example, on issues such as data collection, use of personal data, disclosure of personal data, personal data rights, cookies, crypto-security, procedures for clarifying the privacy policy, the procedure for using by politically significant persons and foreign users, especially by US citizens) (Fig. 1).

A. Key features of an information platform				
1) ability to form new markets	2) creation of “network effects”	3) dependence on information technologies	4) concentration of business processes based on digital value	5) control over the direct interaction of groups of its users

B. Initial conditions for state and supranational regulation of information platforms				
A platform should have one control center, which can have minimal responsibility, perform a small number of tasks, but still provide overall project management	Clear division of responsibilities of subjects involved in the activities of information platforms (by types of data processed, by functions, etc.)	Clear division of data flows (national and supranational segments)	The main task of the regulator is to establish basic principles and requirements, compliance with which is implemented through self-regulation documents adopted within the information platform (on data, on access rights, on non-discrimination (equal conditions for equal goods, works and services))	The main conditions for the creation and growth of digital ecosystems are a set of technical solutions, favorable investment legislation, stable demand and business expansion

C. Models of regulation of information platforms			
C.1. For interstate information platforms			C.2. For corporate information platforms
Centralized model	Decentralized model	Hybrid model	Commercial model
Examples: The UN’s WIPO Match global platform, European Online Dispute Resolution Platform, etc.	Examples: European Cluster Collaboration Platform (ECCP), ASEAN Single Window (ASW), The Online S3 Platform (the European Union)	Examples: EU Regulation No 910/2014 (eIDAS)	Examples: 1) centralized platforms: Facebook, Amazon, Apple, Netflix, Google, Diia, etc.; 2) decentralized platforms: Steemit, Bitcoin, Ethereum, Bitbon System , etc.

Fig. 1. Conditions for the formation of models of regulation of information platforms based on their key features

*Source: compiled by the author on the basis of [28, P. 34–39; 8].

State regulation of the blockchain technology and decentralized information platforms will be more complete if it is carried out both at the national and international levels. International intergovernmental organizations (FATF, OECD, IMF, UNCTAD, etc.) are step by step developing deeper approaches to coordinating the efforts of banks and governments with relevant recommendations and standards, but due to the complexity of subjects of regulation (all types of digital platforms, virtual assets [9], new opportunities of IT technologies) such international standards should be flexible to ensure the ability to respond to any ways of the development of such technologies [29, P. 30]. This will require constant analytical work at the international level, as well as monitoring and evaluation of technological changes in the market [3], and political and legal changes in leading countries. Therefore, national law will definitely continue to be “internationalized”, which will bring it closer to the general system of international law.

Under such institutional and legal conditions, one cannot ignore the foresight [41] that the blockchain technology will lead to a supranational economy where the idea of the currently known “legal person” will become increasingly inefficient and will be under pressure from decentralized autonomous organizations (commonly known as DAOs), which will continue to spread around the world. From the standpoint of national legislation, it is very difficult to implement legal rules that must be followed in a system that is not within its sphere of influence and effect. A decentralized autonomous organization or system supported and independently managed by the users themselves, over which no state institution has decisive influence or control, can really become one of the centers of the supranational economy. In that case, not only the traditional concept of “legal entity” will fail [3], but even “extraterritorial” legal status may not be entirely acceptable. This currently creates a new significant legal uncertainty.

What is the difference between regulation by law and regulation by program code?

Firstly, it lies in the mechanism of action: the law is “external”, i.e. if the rule is violated, then compliance with the norms follows from the consequences of this violation. Instead, the program code is “internal”, i.e. in case of an error the process will algorithmically return to the previous successful stage (or fulfilled condition), no new actions will take place, and compliance is provided by the code itself.

Secondly, the software requires the information system to always follow a certain rule, even if it leads to unexpected or undesirable results. Experience shows that the blockchain technology can be regulated both by law and program code, and both have a share of public and private regulation. In general, the blockchain technology intensifies competition and even the private-and-private conflict, even though this conflict has always existed, but previously there were few relevant solutions. These days, under the new technological conditions, contemporaries will have to deal with this issue, and in this sense, the system of common law is better prepared for change. For example, the US case law system allows acting efficiently in the face of any new phenomenon, including through the flexible adaptation of existing legal norms and creation of a new source of law in the form of a new legal precedent. Modern legal literature states that systems of Ukrainian [11; 4] and Russian law [7], in particular criminal law, do not have such flexibility of statutory interpretation, and hence the relevant law-enforcement experience. This is another argument in favor of stepwise changes in legislation implemented in test mode. The author believes that civil law, which currently focuses on agreements, provides the least “painful” way for implementing this approach.

The blockchain technology and digital solutions based on it (for example, DIPs) do not just create convenience, they can change public relations in the field of public governance as well. The advantage of the blockchain technology is that it allows for a more efficient (cheaper and fuller) performance of public functions by means of private business and involved citizens. For example, back in 2016 in the Netherlands, a consortium of local companies that included Prescrypt, SNS Bank NV and Deloitte

developed a blockchain program to facilitate access of chronically ill patients to health services of state and municipal institutions. This was possible using iDIN, the online blockchain-based identification service provided by banks. The service provides the same security and convenience as regular online banking. This is a bright example of the division of responsibilities during the provision of certain public services, which the state was previously responsible for. In fact, traditional state control in the healthcare sector and responsibility of combating violations have largely shifted to the private sphere and are easily provided technologically. The society should be ready for such innovations, especially in Ukraine, where control functions and administration of guarantees are traditionally associated only with the state.

Notwithstanding the financial sphere of circulation of numerous blockchain-based cryptocurrencies, which requires immediate and unambiguous legal assessment and significant government regulation and deterrence, there are some risks that the blockchain technology poses to the traditional “monopoly” of state control over economic regulation and which still need to be carefully assessed. This assessment will identify not only the risks but also the opportunities, in particular through the involvement of the resources of numerous private electronic registers that can complement public e-registers (under certain conditions). Of course, the state will always strive to monitor and control the processes related to security and taxes, but it is simply impossible to objectively and fully control the blockchain technology and digital solutions based on it. This means that, firstly, the state and providers of blockchain-based digital solutions should “make friends” with each other and complement each other and, secondly, the blockchain technology itself, in the technical sense of the word, is the boundaries of legal regulation [6].

In this regard, the main problems of public and private-law regulation that arise out of use of the blockchain technology and, accordingly, are contained in digital solutions based on it, the modern state should be ready for, should be identified and critically assessed below. Thus, the contemporary literature states that due to such

technological features of the blockchain as immutability, global distribution among nodes and free participation, public blockchains pose almost unsolvable issues to the today's legislator. First of all, the following legal issues concern:

- tax regime;
- money laundering and crime financing;
- distribution of illegal content;
- legal regulation of digital property rights;
- identification and protection of personal data. Thus, these days, the most

widespread examples of blockchain solutions (for example, cryptocurrencies) have clearly indicated the inability of traditional legal norms to efficiently regulate the circulation of such digital products. The problem of identification and protection of personal data is particularly difficult due to the anonymity and use of aliases in most (but not all) public blockchains. It is worth noting that so far, public blockchains, which are a basis for DIPs with the appropriate service infrastructure and digital data accounting system (for example, the Ukrainian **Bitbon** System) were and remain the few exceptions in the world;

- non-accidental “misprints”, i.e. intentional disclosure of inaccurate information without the possibility of invisible correction or deletion of the record.

Despite considerable efforts of governments and international organizations to develop and implement new public regulations or even to ban illegal transactions on such objects (as Russia tried to do in February, 2021 [10; 12]), technical solution to these problems is possible only in a private blockchain [29, P. 34]. Certain blockchains (private and, mostly, centralized) allow identifying a responsible party (which may take the form of a consortium) and monitoring over transactions. The same is true for the public blockchain.

Thus, “appeals” against basic and natural characteristics of the blockchain, which previously ensured and still ensuring its success among users around the world, may arise in case of application of technical solutions to existing legal restrictions. The

users want at least loyal state or private regulation or even to avoid it for transactions in a digital environment and for their anonymity.

In any case, legal regulation of the blockchain technology and digital, in particular platform, solutions based on it should have been on the agenda of the modern state long ago. This requires stepwise, but quite significant changes in legislation, and most importantly: firstly, at least a partial acknowledgement of the program code as a new source of law in case of appropriate application of relevant digital blockchain solutions; secondly, the state's acknowledgement of electronic private trusted registers. Thus, the implementation of blockchain solutions in general, and decentralized information platforms in particular into Ukrainian laws may require the following legislative changes:

- establishment of special industry-specific laws (at least one framework special law) on virtual assets including regulation of: a) the subject-object composition of the relations arising out of use of virtual assets (in particular, tokenized assets or cryptocurrencies); b) classification of virtual assets existing in the digital data accounting system based on the distributed ledger technology, description of the legal regulation of property for different types of virtual assets; c) determination of the service provider's activities; d) risk-oriented approach in the area of application of cryptocurrencies, as well as government assistance in this field, etc.;

- revision of civil and securities market laws (resolving the issue of the place of secured digital currency (for example, electronic hryvnia) in the system of objects of civil rights; establishing the responsibility of persons involved in the operation of distributed ledgers; optimization of voting procedure in legal entities; licensing the activities of professional participants in the virtual currency market; regulating the status of virtual currencies in investment activities);

- additions to tax laws (identification of taxpayers, calculation of taxes on operating activities, determination of tax base, provision of intermediary services in the

virtual currency market, taxation of miners' rewards, possibility of creating preferential zones and territories of advanced development to encourage blockchains);

- revision of currency regulation laws (efficient control over inflation; legal qualification of transactions related to the purchase or sale of cryptocurrencies using currency values or national currency; disclosure of information on sale and sale-purchase transactions with cryptocurrencies to currency control authorities and agents; regulation of the national payment system);

- revision of personal data laws, laws on consumer protection (protection and localization of personal data, determination of liability measures, exercise of the right to be forgotten taking into account the irreversibility of transactions in distributed ledgers);

- revision of laws on banks and banking activities (financial and prudential supervision; regulation of measures aimed at reducing systemic risk; regulation of the use of blockchain in settlements);

- additions to laws on combating money laundering (identification of users of distributed ledgers; optimization of financial supervision; development of preventive measures aimed at combating terrorist financing);

- revision of laws on telecommunications (concerning the first qualification of the status of miners and operators of distributed ledgers) [2].

It is worth noting that private law in post-Soviet countries is rapidly developing and adaptation of terms and concepts to new realities is no longer surprising: for example, in Russia these include the terms “digital rights” [13], “investment platform” [14], “digital platform” [16], “information system operator” [15], etc. It is worth noting that as of February 2021, the national legislation of Ukraine, Kazakhstan, and Moldova did not yet contained such terms or terms close to them or derivatives. However, current global law-making experience shows that the adopted national laws on digital activities only partially consider the same “digital rights” as fundamental human rights governed by public law. Accordingly, the difference between public and private regulation should

be taken into account in amendments to laws following the established possibility of using the blockchain technology in public governance, in particular, but not limited to:

1) The Law of Ukraine “On Consumer Protection” [23] concerning rights of citizens as consumers in case of participation in the distributed ledger technology (blockchain) of a private nature;

2) The Law of Ukraine “On Banks and Banking” [19] concerning status and responsibilities of banks in case of their participation in distributed ledgers (private and public); concerning the responsibility of banks for processing of personal data when entering information into the distributed ledger;

3) The Law of Ukraine “On Prevention and Counteraction to Legalization (Laundering) of Proceeds from Crime, Financing of Terrorism and Financing of Proliferation of Weapons of Mass Destruction” [22] concerning the possibility of technical identification of participants in the distributed ledger, possibly using existing electronic public private registers;

4) The Law of Ukraine “On Telecommunications” [25] concerning the first regulation of status of operators of distributed ledgers;

5) The Law of Ukraine “On Administrative Services” and a number of regulatory acts: in terms of numerous provisions on central executive bodies and administrative regulations, which are bylaws, etc.

Due to the advanced development and better adaptation of private law than public law, and due to the rapid development of digital technologies, there is currently a temptation of possible wide use of private law in updating social relations in the public sector, which in fact does not fully correspond to state and public governance that is known to be carried out in order to protect the broad public interest, not the narrow private one. As a result, general regulation of the blockchain technology (if adopted) will be insufficient for application to the field of public governance, given the specifics of public law entities (authorities, etc.), their responsibilities and functions. Indeed, if in the private field the responsibility for the use of personal data lies more with the

citizen, in the public field the responsibility lies with the authority, and this should mean administrative jurisdiction to resolve possible disputes. Accordingly, the public laws require amendments due to the application of DIPs, which may lead to large-scale changes due to the use of the blockchain technology, namely in a number of regulation acts:

1) Draft Law “On Public Electronic Registers” No. 2110 dated September 10, 2019 [26], submitted for the second reading in 2021 [18], in terms of taking into account private trusted electronic registers, based on the blockchain technology, as part of a unified institutional structure of functioning of public electronic registers of Ukraine, as well as, accordingly, clarification of the requirements for the creation, maintenance, interaction, administration, modernization, reorganization and liquidation of public and trusted private electronic registers;

2) The Law of Ukraine “On Amendments to Certain Legislative Acts of Ukraine Concerning Optimization of the Network and Functioning of Administrative Service Centers and Improvement of Access to Administrative Services Provided in Electronic Form” [20] in terms of the registry-based type of service provision, personal data protection;

3) regulations and administrative provisions of public authorities, which provide public services on regulation of permitting and supervisory activities;

4) amendments to the Civil Code of Ukraine concerning recognition of “smart contracts” as a new way of concluding an agreement and its automatic execution;

5) amendments to the Civil Code of Ukraine concerning recognition of the introduction of the term “digital rights” and their interpretation as a way of recording of property rights;

6) amendments to the Law of Ukraine “On Protection of Information in Information and Telecommunication Systems” [21];

7) amendments to the Law of Ukraine “On Public Procurement” [24] concerning the possibility of verifying the data and tender documentation of bidders using the data of trusted blockchain-based registers and some other laws;

8) introduction of the E-notary, including the blockchain technology, to the Concept of Notary Development starting from 2021.

Based on the above, we can offer one of the latest and easiest ways of implementation of some legal problems elimination and development of national legislation in the field of blockchain technology and DIPs, namely the author’s approach, which is laid down in Draft Framework Law “On Tokenized Assets and Cryptocurrencies” No. 4328 [27], which was registered in the Verkhovna Rada of Ukraine on November 5, 2020. The author of this paper has a direct impact on the development of this draft law as an expert [1] of the NGO “Research Center of Economic and Legal Solutions in the Area of Application of Distributed Ledger Technologies” at all stages starting from the idea of the law to its promotion in 2020–2021.

Moreover, the key feature of Draft Law No. 4328 concerning the subject of this research is that the draft law is actually for the first time in Ukraine and, perhaps, in the world, suggests to introduce blockchain-based digital solutions into the legislative field (as a law, not a bylaw), and immediately use this for tokenization of the Ukrainian economy, involving existing and future information platforms (for example, the Ukrainian **Bitbon** System). Without limiting other theoretically possible alternatives, such solutions, that are ready and have been operating for years, are decentralized information platforms as digital organizational and technological ways of practical implementation of digital data accounting system based on the distributed ledger technology (including blockchain) for purposes of virtual assets accounting. As envisioned, this will allow the state as well as local private and corporate users to benefit from such accounted and trusted circulation. It is also worth noting that, in contrast to a fairly common (e.g., in [28, P. 68–77]) interpretation of token as a

mandatory attribute of cryptocurrencies and their joint use, token is currently considered much broader than in the destructive link to cryptocurrencies as unbacked and speculative assets.

Fig. 2 shows logical connection between the creation of a new social value in the state and the tokenization of assets [9] using a decentralized information platform. This example of logical connection is one of the key examples, but not the main unit in the chain of formation of a more meaningful and comprehensive social value, which is considered by the author in other publications and in a broader context using blockchain-based decentralized platforms.

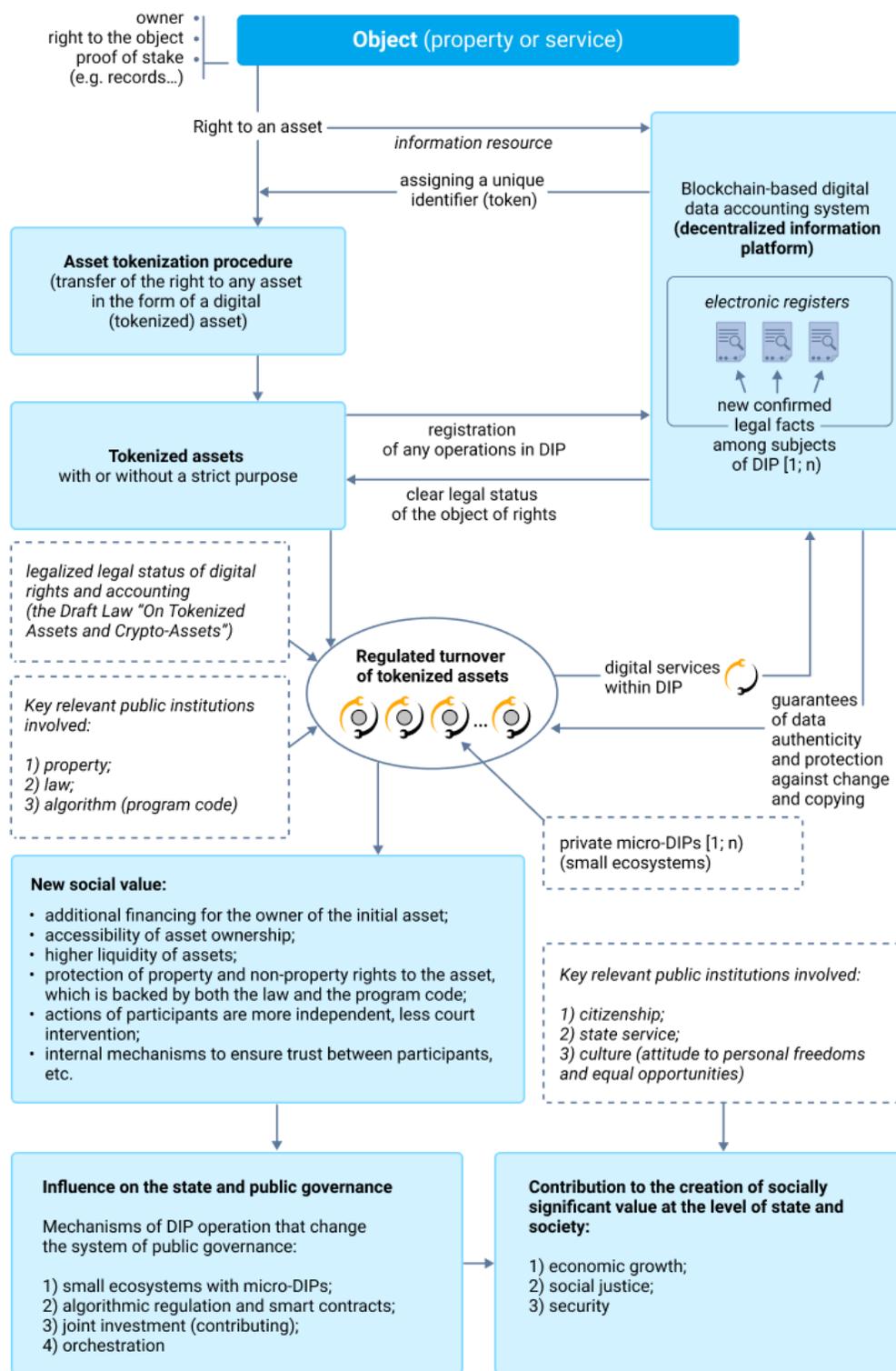


Fig. 2. Connection between the creation of a new social value in the economics and law and the tokenization of assets using a decentralized information platform

* Source: author's development.

Let us consider five main characteristics of the approach suggested in Draft Law No. 4328 to the large-scale use of DIPs in Ukraine.

1. In case of adoption of this draft law, the law will regulate personal non-property and property relations between users of digital data accounting systems in the field of tokenized assets and cryptocurrencies, which arise, change and terminate in case of: 1) a transaction in the digital data accounting system where a tokenized asset is the object of the transaction, including while exchanging a tokenized asset for cash; 2) a transaction in the digital data accounting system where a crypto-asset is the object of the transaction, including while exchanging a crypto-asset for cash.

2. Draft Law No. 4328 is based on the approach according to which “a distributed ledger technology” is defined as a digital data accounting system, and “a distributed ledger token” is defined as a record in a digital data accounting system that is an information identifier, which may be, but not exclusively, derived from the initial asset, i.e. it is actually an inventory item of such a system. Such definitions allow using digital data accounting system based on the distributed register technology in any area of public life, in particular to improve civil relations. Meanwhile, the draft law established the legal framework of virtual assets of the distributed ledger and relations in the field of their application on the basis of the current legislation of Ukraine [17]. The draft law explains and substantiates the opinion that it should not be about new relations, but about existing ones, which are regulated by civil law. The blockchain technology can be used to improve such relations.

3. The subject of Draft Law No. 4328 is complex and covers various legal relations arising in the field of tokenized assets and cryptocurrencies. That is, Draft Law No. 4328 covers personal non-property and property relations that arise:

- in digital data accounting systems based on the distributed ledger technology, which is implemented, in particular using DIP;
- between users of digital data accounting systems based on the distributed ledger technology, i.e. practically between DIP users;

- in connection with the use of tokenized assets and/or cryptocurrencies, i.e. during transactions in a digital data accounting system (in particular DIP), where a tokenized asset or a crypto-asset is the object of the transaction, including while exchanging a tokenized asset or cryptocurrency for cash. Meanwhile, transactions with tokenized assets or cryptocurrencies in some cases (namely when crypto-assets are exchanged for cash) belong to different areas of regulation. In this regard, other legal acts may establish the specifics of the regulation of relations in the field of use of tokenized assets and/or cryptocurrencies.

4. It is suggested to recognize a “tokenized asset” as a property right, which in accordance with Article 190 of Civil Code of Ukraine No. 435-IV dated January 16, 2003 is an element of property. According to the Civil Code of Ukraine, property rights are non-use items and recognized as proprietary rights. Thus, a tokenized asset (i.e. property rights) is a special object of civil rights, which has the following five features: 1) a digital form; 2) it is a type of virtual asset; 3) it exists exclusively in the digital data accounting system based on the distributed ledger technology; 4) it is based on a distributed ledger token in the form of an identifier of certain information. Technically, a tokenized asset is a distributed ledger token; 5) the information is derived from the initial asset. The initial asset is used during the creation of a tokenized asset for further transactions with such a derivative asset using a digital data accounting system based on the distributed ledger technology (Fig. 3).

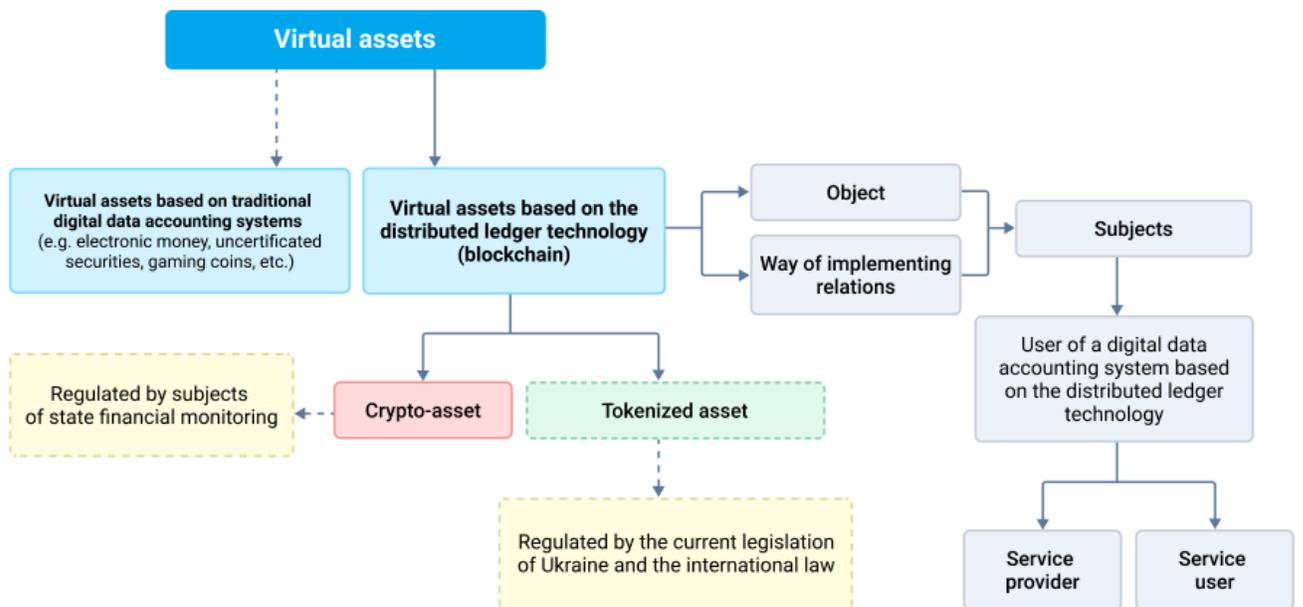


Fig. 3. The suggested method of private-law regulation of the circulation of virtual assets in Ukraine using decentralized information platforms based on the blockchain technology

* Source: author's development.

5. Expected effects of the draft law, important for the modernization of the public governance system:

a) in general, the proposed measures will allow directing a new wave of money to the economy, rather than to the informal sector;

b) the categorization of digital property is introduced, which includes tokenized assets and cryptocurrencies. There are many civil law rules for dealing with them, and rulings of the Supreme Court on allowance of non-prohibited agreements may exist as well. In fact, these new objects are created and used by members of information and telecommunication networks, especially by Ukrainian citizens and legal entities, but they, so far, are not recognized, for example, by Russian laws;

c) use of capabilities of the distributed ledger technology for the benefit of businesses, namely for property transactions that will be clear for accounting and tax accounting. In particular, examples of economic activities with tokenized assets are:

their use in transactions, provision of services in accordance with the scope of an entity activities, maintaining of an insurance cases system and making of insurance payments, accounting of property rights using tokenized assets, etc. While cryptocurrencies can be used by business entities for investment purposes, as a hedging tool, etc. [17];

d) support of the environment for self-regulation of participants in the field of application of virtual assets of the distributed ledger through simple and clear government tools (classification of virtual assets of the distributed ledger, strict integration with accepted accounting standards to classify virtual assets of the distributed ledger as current and non-current assets, use of current regulatory framework in banking, tax and fiscal spheres, in the sphere of securities circulation, etc.) [17].

However, the draft law does not describe conditions under which the circulation of virtual assets and other digital objects is possible (for example, requirements for entities creating such objects or organizing such circulation), as well as requirements for security of relevant asset circulation. In other words, the draft law includes only rules of civil law, i.e. of private law, and does not directly affect the relations governed by public law.

Conclusions. The above allows us to make the following general conclusions:

1) the main objective characteristics of any information platform, which are laid down from the moment of its creation, determine the models of state or public regulation of digital platforms. It is worth noting that these regulation models are not yet adapted solely for DIPs and are still general. Accordingly, the existing legal framework for regulating of platforms may, so far, significantly differ from country to country, but it is not about the regulatory approach;

2) the world practice of supranational and national regulation of information platforms poses a challenge to governments to adapt existing regulatory tools to new realities where relations between participants are increasingly transferred to private law regulation, which is characterized by civil agreements. In other words, the subjects of

platform interaction can create rules of mutual interaction, determine the procedure for resolving disputes and adjudicate relevant disputes without resorting to existing national, international and supranational instruments of regulation and coercion. Therefore, when participants of the information platform are forced to interact with legal entities of public law (state and municipal institutions, budget funds, etc.), which set strict requirements for compliance with certain rules as conditions of access to their services (public, information, banking, etc.), then participants of the platform are forced to follow the established rules. As a result, the establishment of clear and simple procedures and rules of conduct when receiving services through digital platforms is a trigger for governments to encourage investments in the development of digital business;

3) blockchain-based decentralized information platforms open an unexpected opportunity to change the model of the state in terms of fund flows into public budget. This is due to a significant risk reduction when concluding and executing contracts, for example, in the public sector, which are always taken into account by the parties to the contract and included in the final price. As risks decrease, the price of goods, works, and services will decrease as well, and as a result, they will be more affordable. This will lead to an increase in demand for them, greater capital turnover and business activity, which will lead to an increase in tax revenues to the budgets of all levels from direct taxes. This logic confirms new roles of the paternalistic state with many protected benefits: the expansion of the normative attitudes of society and the formation of a common interest outside market self-regulation. This is in line with the well-known model of the “playmaker state”, but with an emphasis on the significantly increasing quality of public services and greater service orientation of the state and at the same time without the fascination with market self-regulation.

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