

# Digitalization and Legal Regulation of Public and Private Transactions in the Digital Environment: Concepts and Development Prospects

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## Summary

Economic relations, which are increasingly modernized, confirm the fact that IT technologies penetrate all spheres of human life. Private and public transactions are no exception. Today, in Ukraine, as in different other countries, there are a number of problematic issues regarding digitization and legal regulation of public and private transactions in the digital environment. Therefore, taking into account the dynamics of development, the rapidity of changes manifested both in practice and in the legislative dimension, the complexity of legal regulation of public and private transactions, and the specifics of transactions on the Internet, there is a need to analyze in detail the features of the digital environment and digitization and the legal regulation of public and private transactions, as well as development prospects in such an environment. The purpose of the work is to analyze the features of digitization and legal regulation of public and private transactions in the digital environment, as well as the prospects for such development. The method of analysis and synthesis, the method of theoretical generalization, and systematization serve as the methodological foundation of this study. As a result of the conducted research, the features of digitization and legal regulation of public and private transactions in the digital environment and the prospects for the development of such regulation were analyzed. In particular, it was noted that today there are problems with the legal regulation of the digital economy. At the same time, the legal regimes of various state systems of the world testify to the need to create a proper system for protecting the rights of subjects on the Internet and to create tools aimed at protecting both state interests and economic subjects.

## Keywords:

*Digitization, digital economy, innovation, digital environment, development of information society, public transactions, private transactions.*

## 1. Introduction

The development of information technologies creates new opportunities for the digitization of all spheres of social life. At the same time, it creates new challenges for the legal regulation of the digital environment and the actions that take place in it. Moreover, it is worth noting that any commercial or public activity involves the payments of goods, works, and services, that in the conditions of the digital economy are carried out using electronic transactions. The peculiarity of the electronic form of such a service is its provision via the Internet in online mode, using a communication environment and, accordingly, the

possibility of simultaneously ensuring the information interaction of the service provider with a large number of clients, ensuring the availability of information regardless of the client's location and time of day, the globality and personalization of services, opportunities for prompt decision-making in the process of interaction between the system and users.

So, transactions (both public and private) at this stage have gained considerable popularity and need proper regulation. And despite the advantages regarding the speed of providing services and their mobility, this form of payment is not devoid of risks due to the misuse of information and communication technologies, which harm both private interests and public interests. Electronic transactions are largely universal. This leads to the widespread use of transactions in the digital environment. However, the problems of providing an electronic version of financial services, in addition to the traditional problems of this area, include both those related to the use of information and communication technologies and the legislative regulation of this area. Unfortunately, the legislator's efforts to improve the legal regulation of the financial sphere are not always successful, which is due to the composition of such relations and the number of legislative acts regulating them (each of the specified types of relations is regulated by special laws and by-laws adopted in accordance with them), and the dynamism of these relations and, accordingly, the emergence of new resources, new types of services, business entities that can serve/use such/new resources and/or provide new types of electronic services. At the same time, the uncertainty of the legal regime of transactions causes significant risks for the participants of the relationship. Of course, the importance of digitization of transactions in society in view of its advantages was confirmed by the situation with the coronavirus pandemic and the quarantine introduced in connection with this, since most of the real actions could be replaced by virtual ones - online. At the same time, the need to determine the legal regime of electronic resources in the digital environment is growing; the legal position of self-regulatory organizations in digitalized areas of the economy; the need to protect the rights of e-consumers.

It can be argued that the concept of digital transformation is aimed at transforming the mechanism of

economic regulation (including calculations and transactions) with the aim of spreading the use of digital technologies in the sphere of socio-economic development of society.

Therefore, taking into account the above, the determination of the features of digitization and legal regulation of public and private transactions in the digital environment during the digital transformation of all spheres of public life; the determination of the main principles and directions of implementation of the digital transformation of the digital environment and the study of foreign experience in this context on the basis of the main trends, ideas, principles, mechanisms, and models of the digital transformation of national economies and world trends becomes relevant.

## 2. Methodology

To study digitization and legal regulation of public and private transactions in the digital environment and the prospects for its development, the method of analysis was used. This method, by its specificity, involves determining the nature and type of relationships between each element of the studied system, which ensures the complexity of the research and the cause-and-effect relationship between them. So, in particular, digital transactions were considered as a single system, and the prospects for the development of such transactions in the digital environment became clear. In addition, the analysis method helped develop recommendations for improving the digital economy transformation model and legal regulation of public and private transactions, because the content of this method is that it is aimed at identifying internal trends and development opportunities of the object.

The use of the synthesis method made it possible to connect the necessary components for the successful regulation of public and private transactions and to see the picture as a whole. The knowledge provided by the synthesis method made it possible to expand the previous experience and form a qualitatively new vision and proposals for the regulation of digitization in the sphere of settlements. The synthesis, using the existing basis, made it possible to understand what further steps need to be taken to transform the settlement system and bring it into line with the legislation.

The method of theoretical generalization made it possible to determine the theoretical foundations and trends of the content and components of the concept of "digital economy", "digital environment", "state transactions", "private transactions", "digitization" for the generalization of the main methodological approaches regarding models of transformation of calculations and society. The indicated method made it possible to make the transition from the singular to the general and not just to visually distinguish and synthesize similar features, but to penetrate into the

essence of a thing: the view of the single in the multifaceted, the general in the singular, the regular in the random, as well as the association of objects by similar properties or connections into homogeneous groups, classes. At the same time, in this study, the generalization is made from individual data on state and private transactions in the digital environment to the general state of legal regulation of digitization in Ukraine and foreign countries. In addition, attention was paid to the general principles of regulation of public and private transactions and the main ones were highlighted.

The method of systematization was utilized to bring together disparate knowledge about the subject of research into a single system and establish their unity. Systematization is a reflection of the unity of general principles and essential principles about the object of research. It is based on the classification, analysis, and synthesis of the essential properties of the digital environment system and is carried out in the form of appropriate logical systems (hypotheses). The fundamental idea that made it possible to unite the guiding principles of the digitization of public and private transactions around the research topic is the legal regulation of the digitization of settlements. As practice shows, the phenomena of digital reality are infinitely diverse, their systematization becomes possible thanks to the fact that thinking singles out one feature and abstracts from others. Abstract knowledge obtained in this way becomes an empirical concept. Therefore, general knowledge about the legal regulation of public and private transactions became possible with the help of the method of systematization.

## 3. Literature Review

Digitization and legal regulation of public and private transactions in the digital environment are considered by various scientists.

In Vinnyk's work (2021) [2], problematic formations of the law of the digital economy, which are connected with the digitization of the economic sphere, are considered. Thus, the author analyzed the state of digitization of relations in the sphere of business and its regulatory and legal support in this sphere. Attention is also paid to the advantages and risks of digitization and the related problems of legal regulation, as well as directions for improving the legal support of the digital economy.

Legal regulation of artificial intelligence in the era of the digital economy was considered by Yefremova (2020) [3]. The digital economy of Ukraine, namely the problems and development prospects, was considered by Zhekalo (2019) [4]. The author's article examines the peculiarities of the development of the digital economy in Ukraine and characterizes the indicators of the digitization of the economy in accordance with the tool for evaluating the

development of the digital economy and society in the EU and highlights the main problems and obstacles that limit the development of the "digital economy" and it is clarified that the development digital economy can become an important mechanism of transformation and departure from the old pro-Soviet system of management and relationship building, increasing competitiveness and economic development of the state.

Kalina (2018) considered the determinant-theoretical principles of the formation and development of the concept of "digital economy" in the information and communication environment [5].

Features of the use of the digital platform as a tool of the digital economy were considered by Kokhan (2021) [6]. The author concluded that social relations that arise in connection with the development of the digital economy have a complex nature and have significant specifics regarding their object and subject, subject composition, and conditions of emergence, change, and termination, which necessitates their complex regulation. The complex nature of relations that arise within the functioning of digital platforms creates the complexity of legal regulation of this object since the activities of digital platforms affect subjects of both public (financial, tax) and private law (civil, economic, labor). This means that the development of the digital economy requires fundamental changes in general approaches to the legal regulation of a new type of economic relations. For example, in the opinion of the author, existing approaches to the legal regulation of relations in the field of personal data processing should be reviewed, taking into account the collection and processing of information using big data technologies.

Levytska (2019) reviewed the current trends in the development of regulatory and legal regulation of the digital economy. The author's article examines some issues and features of the development of Ukrainian law in the conditions of the formation of a digital economy. The author proposes new approaches to the legal definition of models of legislative regulation of the digital economy in foreign countries and states that in the countries of the world at the current stage of socio-economic transformation of society, the environment imposes its features on the institutional structure of society, on the models of legislative regulation of the digital economy and causes the need for the formation fundamentally new concepts and approaches. Also, the considered foreign experience of legal regulation in the field of digital legal relations will be useful for application in national regulatory and legal regulation in the digital field [7].

The use of digital currency in Ukraine, namely the digital hryvnia, was considered by Nikolayevsky (2021). The author assures that the introduction of e-hryvnia at the state level will mean the possibility of implementing automatic taxation systems for the first time in the world. Also, with the help of the national digital currency, it is

possible to implement projects of the so-called "transactional taxation", in which taxes are paid automatically when the taxpayer makes a transaction and without any additional participation on his part. The option to pay administrative payments, fines, and taxes using e-hryvnias may be convenient for users. In addition, the launch of the e-hryvnia will contribute to the formation of the image of a modern high-tech state for Ukraine by creating one of the first precedents in the world for the implementation of this new tool for regulating money circulation at the state level.

Economic security in the conditions of digitization was considered by Parshina and Parshin, and Savchenko (2019). Thus, the work considers the main types of information communication technologies and tools used in modern technologies of digitization of the economy, analyzes the state of digitization of the leading economies of the world, their rating, as well as investment in advanced technologies [9].

The legal regulation of digital assets in the latest legislation of the world was considered by Nagnybida and Ishchuk (2021). The concept of digital assets was analyzed and it was established that nowadays digital assets are also associated with certain electronic applications that exist purely in digital form, but have their own value [10].

Separate issues of digitization of relations regarding the protection of the rights and legitimate interests of consumers of non-banking financial services were considered by Patsuriya (2020). In particular, the author draws attention to the fact that the European experience proves that the legal regimes of various state systems of the world, in order to protect the rights of consumers, lay the concept of protecting the rights of the weaker party as the basis of consumer legislation. The main idea of this concept is to recognize the consumer as the most unprotected (economically and informationally) party in contractual legal relations with entities that produce goods, perform works, and provide services. Modern Ukrainian legislation on the protection of consumer rights at the highest level actually supports such a concept, its norms regulate that a natural person-consumer in relations with business entities is a weak side and, accordingly, establishes a certain toolkit aimed at his (person) protection. Taking into account the dynamics of development, the rapidity of changes (both actual and legislative), the complexity and differentiation of the market of non-banking financial services, and the multiplicity and specificity of the subjects of their provision, objective reality require proper treatment of the central figure of such relations - the consumer, primarily in the field of proper and comprehensive protection of their rights and legitimate interests [11].

The general principles of financial law in the conditions of digital transformation were outlined in the monograph by Latkovska (2021) [12]. Shapovalov (2018)

considered the issue of regulation of the digital platform of electronic administration of value-added tax [13].

Qin, Zhou, Afonin, Lazzaretti, and Gervais (2021) took a closer look at decentralized finance, debuting as an ecosystem offering transparency and control, partly due to the integrity-protected underlying blockchain, as well as the current higher returns on financial assets. Dabrowski M. and Janikowski L. (2018) analyzed the features of virtual currency. Virtual currencies are a modern form of private money, thanks to their technological properties, their global transaction networks are relatively safe, transparent, and fast. This gives them good prospects for further development. However, they are unlikely to challenge the dominance of sovereign currencies and central banks, especially in major currency areas. Like other innovations, virtual currencies are a challenge for financial regulators, particularly because of their anonymity and cross-border nature [15]. Also, the Japanese experience of regulating virtual transactions was analyzed by Kawai, Takeshi Nagase, and Huan Lee Tan Anderson Mōri & Tomotsune (2021) [19]. Nanry J., Narayanan S., and Rassej, L. (2015) analyzed the Chinese experience of digitization. Also, innovations in the banking sector in the USA were analyzed by Groenfeldt (2017) [20].

From the above analysis of the literature, it can be concluded that digitization arouses the interest of scientists. However, the issue of digitization and legal regulation of public and private transactions in the digital environment has not been sufficiently investigated.

#### 4. Main Results

Before analyzing the features of digitization and legal regulation of public and private transactions in the digital environment, let's take a closer look at key concepts from this topic.

A transaction is any event resulting in a change in the organization's financial position during its normal work [12].

Digitization is the process of converting the information field from analog to a digital format for easier further use on modern electronic devices (Parshina, Parshin, Savchenko, 2019) [9].

For the field of transactions, the advantage of digitization of public and private transactions is convenience (reports and services are easily accessible, and receipts and reports are stored on a digital platform), speed (no need to interact with a cashier and physically be in a banking institution or body), accessibility (from any part of the world) (Nagnibida, Ishchuk, 2021) [10].

PayPal payment and new online banking and transaction capabilities including tokenization and blockchain technology. Tokenization is a technology that makes it possible to secure electronic payments using a data

encryption system (all information about the identity card (number, CVV code) is replaced by unique digital indicators-tokens). The advantage of tokens is that they look like random sequences of numbers and letters and are not valuable to attackers by themselves. Therefore, tokenization made it possible to bring the security of payments and financial transactions to a new level and facilitated contactless payment methods (Google Pay and Apple Pay).

At the same time, in their research, the World Bank staff came to the conclusion that countries that seek to obtain the maximum return from transformations in the field of digitization should pay maximum attention to the issues of improving the business climate, investing funds in education and health care, and also promote the restructuring of the management system. The World Bank considers the positive consequences of the development of the digital economy to be: an increase in labor productivity; increasing the competitiveness of companies; a reduction of production costs; the creation of new jobs; overcoming poverty and social inequality. On the other hand, the negative aspects of digitization are: the risk of cyber threats related to the problem of personal data protection; managing the behavior of millions of people; increasing unemployment in the labor market, and the risk of the disappearance of some professions and even individual sectors of the economy will increase; "digital divide" between the level and conditions of access to the digital environment in one country or in different countries (Kalina, 2018) [5].

But despite the existing threats, it should be noted that digitization dynamically covers the sphere of services, the financial sector, and management, which brings positive results of these processes for both businesses and the state. The dynamism, the reduction of the cost of payments, the opening of new sources of income, the opportunity for enterprises to enter the global market, and the increase of the level of accessibility to goods and services in any country of the world are significant advantages of digitization of operations.

Regarding the concept of a digital asset and private and public transactions in the digital environment, their legal definition is in the formative stage. Among them, questions arise when carrying out operations using digital currency in private and public transactions.

In this context, it is worth considering foreign regulatory experience (Table 1).

Table 1: Foreign regulatory experience

| Country        | Key provisions  |
|----------------|---|
| China          | In 2019, at least eight secure asset-backed transactions using blockchain were concluded (7 transactions were conducted in the private sector and one by a state financial institution – The Bank of Communications) [16]   |
| Thailand       | The Royal Decree on Businesses in Digital Assets establishes that the Securities and Exchange Commission of Thailand will be the main regulator for the offering of digital tokens and the conduct of business in digital assets, authorized to issue relevant rules, and conditions and implement relevant procedures. According to the Royal Decree, a cryptocurrency is defined as an electronic block of data built on an electronic system or network that is designed to be a medium of exchange for the purchase of goods, services, or other rights, including exchanges between digital assets [14].   |
| United Kingdom | The government has confirmed its intention to legislate certain stablecoins (a type of asset used as a means of payment) into the regulatory perimeter. [18]  |
| Canada         | Canadian law treats cryptocurrency as a commodity. In particular, any income from transactions involving cryptocurrency is generally treated as business income or capital gains. When cryptocurrency is used to pay for goods or services, the CRA treats this as a barter transaction for income tax purposes [17].   |
| Ukraine        | The main law regulating digital transformation is the Law of Ukraine "On Virtual Assets". This Law forms the legal field for work on the market of virtual assets; defines legal status, classification, property rights, and other key legal definitions; adapts recommendations on financial monitoring of the virtual assets market; determines the list of professional service providers of virtual assets and their registration; determines the market regulator. According to this law, a virtual asset is recognized as an intangible good that is an object of civil circulation, has a value expressed by a set of data in electronic form, and exists in the system of circulation of virtual assets. A virtual asset can testify to property or non-property rights, in particular, rights of claim to other objects of civil rights. Virtual assets are not a means of payment on the territory of Ukraine [1]. |

Based on the analysis of the legislation of the above countries, it can be concluded that the legislation of Ukraine on the regulation of virtual assets is progressive and serves as an indicator that Ukraine is confidently moving towards digitization.

Regarding the direct implementation of transactions in the digital environment, it is worth considering the policy of banks in this area.

Currently, banks are forced to integrate into a new digital ecosystem of interconnected digital services, which is based on orientation to the needs of the client (based on

the need of the consumer); mobility and speed orientation, and data orientation. In today's conditions, the banking industry is one of the illustrative examples of the rush to create digital products using the most modern methods.

The logic of open interfaces in terms of transactions is supported by the "Second Payment Directive", which legally obliges European Union banks to provide free APIs for third-party developers of consumer applications. On behalf of the client and without the need to conclude an agreement with the bank, the third party will be able to make payments and display information about transactions in its applications. This is another step towards open banking, which, on the one hand, causes reservations among many market participants, and on the other, appears to be a new, strategically important perspective (Application of FinCEN's Regulations to Certain Business Models Involving Convertible Virtual Currencies, 2019).

Therefore, it is the digital transformation of banks and consumer orientation that plays an important role in the reformation and digitization of this sector. In particular, the concepts of "Bank as a service" and "Bank as a platform" are popular today, which involve the implementation of transformational processes by traditional banks.

Approaches to the implementation of the system of development and implementation of digital services for carrying out transactions:

1. Creation of a proprietary development system. Introduction of digital services, as well as a company - a developer of digital services and implementation of independent development and promotion. Along with the obvious advantages of this approach, the disadvantages are that the developer (founder) of the proprietary system himself determines what the client wants and that despite significant investments in the development of specific products and services which may become obsolete even before the development is finished.

2. Building a digital industry ecosystem based on the consolidation of efforts. Brings together the efforts of the digital technology and application development community, industrial enterprises, and other stakeholders. (Patsuria, 2020)

Regarding the legal regulation of public and private transactions in the digital environment, it is worth noting the following. Public and private transactions in the digital environment must be safe for consumers (users), and therefore it is important that the regulatory legal acts of the bodies carrying out state regulation of banking/non-banking financial services markets contain details of such activities and mechanisms of adequate protection. Of course, such changes require efforts from both banks and the state. In addition, among the necessary changes is a new law on payment services, which would regulate all the details of working with electronic payments, money, and micropayments, virtual currency, which are necessary to push banking technologies forward.

## 5. Conclusions

The following conclusions were drawn during the study of digitization and legal regulation of public and private transactions:

1. Digitization of transactions in the digital environment and its legal regulation is based on orientation to consumer needs; mobility and speed orientations; data orientation.

2. The state and banks face many challenges regarding the digitization of private and public transactions and the need to integrate into a new, rapidly developing digital ecosystem. At the same time, the development of new technologies and potential changes in legislation create new opportunities for both users and national development.

3. In today's conditions, the economy of Ukraine and other foreign countries has both an applied and theoretical, as well as a legislative basis for strengthening its positions in the field of digitization. At the same time, the legal regulation of the activities of the digital environment should contain approaches to the subjects involved in the activities of such an environment, in particular, determine their types and responsibility for the functions performed (data collection and processing, ensuring the functioning of the digital system); the legal status of the digital environment for transactions as an object of legal regulation, must be established.

Regarding further scientific research, it is important to analyze in more detail the regulation of transactions made using virtual currency in the public sector in Ukraine and foreign countries.

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