

## DIGITALIZATION OF LAW AND FORMATION OF DIGITAL LAW

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### **Ennan R.E. Digitalization of Law and formation of Digital Law.**

Digital law is a new form of implementation of legal relations in the field of cyber regulation in various areas: digital rights in digital circulation, cyber security, protection of personal data, regulation of cross-border digital transactions, implementation of social rights based on technological platforms, formation of electronic government, electronic state. Currently, the process of digitalization of law is taking place, that is, the use of new digital technologies to optimize legal relations, as well as procedures for creating a new digital reality, which also requires legal regulation. Digital reality shapes human behavior, norms of social relations, creates digital law and digital legal awareness. In the conditions of the digital economy and virtual space, the need for a new look at legal institutions in the era of information society and digital technologies, consistent adaptation of traditional legal mechanisms to new realities is obvious. Further development of legal regulation of digital rights and digital civil turnover is possible according to the conceptual model of "digitalization" of traditional law. The new paradigm of the development of law consists in the "digitalization" of law, that is, the use of digital technologies to optimize legal regulation, as well as the formation of civil digital turnover. Therefore, digital law is a system of legal norms regarding the use of digital technologies, which regulates legal relations that arise in connection with the use of digital data and the use of digital technologies. Digital law is a complex interdisciplinary institution of law that unites legal norms that regulate legal relations arising in connection with the acquisition, exercise, alienation and protection of digital rights, as well as with the use of digital technologies by subjects of digital law. The mechanism of legal regulation of relations in the digital environment is based on the fact that they have an informational nature, since they arise in connection with the implementation of certain actions with information in digital form (digital data).

**Key words:** digital law, digitalization, cyberspace, Internet, digital rights.

### **Еннан Р.Є. Цифровізація права та формування цифрового права.**

Цифрове право – це нова форма реалізації правовідносин у сфері кібер-регулювання у різних сферах: цифрові права у цифровому обороті, кібербезпека, захист персональних даних, регулювання транскордонних цифрових транзакцій, реалізація соціальних прав на основі технологічних платформ, формування електронного уряду, електронної держави. Нині відбувається процес цифровізації права, тобто використання нових цифрових технологій для оптимізації правовідносин, а також процедур створення нової цифрової реальності, яка також потребує правового регулювання. Цифрова реальність формує поведінку людини, норми соціальних відносин, створює цифрове право та цифрову правосвідомість. В умовах цифрової економіки та віртуального простору очевидно є необхідність нового погляду на правові інститути в епоху інформаційного суспільства та цифрових технологій, послідовної адаптації традиційних правових механізмів до нових реалій. Подальший розвиток правового регулювання цифрових прав та цифрового цивільного обороту є можливим відповідно до концептуальної моделі «цифровізації» традиційного права. Нова парадигма розвитку права полягає у «цифровізації» права, тобто використання цифрових технологій для оптимізації правового регулювання, а також формування цивільного цифрового обороту. Отже, цифрове право – це система норм права щодо застосування цифрових технологій,

що регулює правовідносини, які виникають у зв'язку з використанням цифрових даних та застосуванням цифрових технологій. Цифрове право – це комплексний міжгалузевий інститут права, що об'єднує норми права, які регулюють правовідносини, що виникають у зв'язку з набуттям, здійсненням, відчуженням та захистом цифрових прав, а також із застосуванням цифрових технологій суб'єктами цифрового права. Механізм правового регулювання відносин в цифровому середовищі ґрунтується на тому, що вони мають інформаційну природу, оскільки виникають щодо здійснення певних дій з інформацією в цифровому виді (цифровими даними).

**Ключові слова:** цифрове право, цифровізація, кіберпростір, Інтернет, цифрові права.

**Introduction.** Digital technologies create a new reality: digital economy, digital cyberspace. Digital technologies are shaping a new environment in which the law must operate. Digital technologies put forth their own conditions to which legal institutions must adapt. The formation of a fundamentally new environment, taking into account modern digital technologies, significantly affects the economy, law and social processes, the structure and content of social relations. New blockchain technological platforms, the Internet of Things, artificial intelligence, cloud services, “smart” complexes and devices (smart), analytical databases, virtual reality, cyber security, social networks and platforms, electronic services used in various fields of activity – created new conditions, new technological foundations for changing traditional legal institutions and their adaptation to new technological realities – the digital system. New tools of a social nature are being formed: artificial intelligence, robots, computer cloud services, various “smart” devices, a new environment of virtual communication is being formed in the form of social networks and technological platforms.

Digitization of legal relations is the use of modern digital technologies in the most diverse spheres of activity. Digitization has led to the creation and development of a digital economy, the formation of institutions of digital law, a new configuration of social relations based on the use of social networks and the Internet [1]. Digitization of various spheres of activity is not only modern forms and methods of collecting, storing, processing and transmitting information in digital format, but also technologies of digital regulation of life cycle processes in the economy, law, and commercial relations.

**Setting objectives of the study.** Today, in connection with the dynamic development of legal relations with the use of digital technologies, digital law is being formed as a form of expression of legal regulation with the use of digital technologies in digital cyberspace. When forming digital law as a new, relevant, independent direction of legal regulation, an approach is used from the position of a digital system – a type of information system. Digital law is digital interaction between subjects of virtual digital space – cyberspace. Digital rights are digital rights to objects of digital circulation that have economic value and are based on the principles of creation and operation of technological platforms and digital technologies.

**Research results.** Traditional conservative legal doctrines, based on the principles of the existence of the physical world, do not take into account the modern specifics of digital interaction in the virtual space: problems of legal regulation of relations on the Internet, user interaction in the digital space of new technologies, the emergence of artificial intelligence and neural computer networks, methods implementation and protection of subjective rights in virtual space. The development of digital law is related to the possibility of identification and authentication of participants in digital circulation not only on the basis of the use of an electronic digital signature, but also in the future – work with artificial intelligence in the event that it is recognized as a digital person in accordance with the law [2]. As an independent institution, the so-called “virtual double” of a natural person is formed, the authentication of which in the digital virtual circulation is carried out on the basis of the corresponding digital identification by means of fixation and further use in the digital circulation of the corresponding individual code.

Augmented reality technologies are used to bridge the gap between the real and digital world and to realize human potential. The new digital reality is the application of the Internet of Things, artificial intelligence, the application of automatic identification services, the collection and processing of global databases (Big Data), cloud services, intelligent robotics complexes (smart), in the development of social networks, IT platforms and services in the digital environment. Modern technologies are a set of technical solutions, which includes the results of intellectual activity, a set of technical and permitting documentation (production and quality certificates), production secrets (know-how), technological experience in the practical application of technology, personnel qualifications [3]. Together, all these elements ensure the

production of products in a certain way or the provision of services with given qualitative and quantitative characteristics to obtain a new, improved technological product that allows you to successfully compete on the market. Robotic devices with artificial intelligence to participate in the digital circulation must have rights and obligations, recognition of them as a digital person, i.e. the subject of digital legal relations. The legal capacity and legal capacity of such a digital person has a limited nature and is determined depending on the complex of functions and the list of actions that have legal significance, which are assigned to this person by virtue of the law. The problems of the legal regime of intellectual property objects created by artificial intelligence, the protection of rights to such objects, the patentability of technologies created on the basis of artificial intelligence, the protection of the rights of investors during the creation of such technologies are subject to resolution in the form of the application of the legal construction of artificial intelligence on the basis of the construction of a legal persons [4].

The digital turnover of digital rights or digital assets is similar in its legal mechanism to the turnover of exclusive intellectual property rights. An example of the modern trend of giving the nature of goods to intangible goods is the declaration of personal image (right to image), which provides for the assessment of a person's personality, his image, formed by combining external data of a person and personal characteristics of a well-known personality, which are for advertising and other commercial purposes , for example, using the image of famous actors, athletes, public figures in advertising. Technology transfer is one of the fastest growing sectors of the intellectual property market. The development of franchising, cross-border license agreements by multinational corporations, combined with the high mobility of financial and intellectual capital, the development of IT technologies and the Internet have created a new technological and commercial environment, including and for the wide use of intellectual property in commercial relations. Successful creation, dissemination and effective application of modern technologies is impossible without the use of legal models of transfer (transfer) and dissemination of new results of intellectual activity [5]. In the innovation process, the mechanism that stimulates the creation and transfer of new technologies is a key development factor in the period of the modern technological revolution. Digital space is defined by new challenges of the intellectual property institute. The new reality of cyberspace and cyberservices emphasize the security of intellectual property use for rights holders. The creation of complex objects built on the principle of complex technologies (artificial intelligence, analytical structures, self-governing systems, etc.) contributes to expanding the list of intellectual property objects, changing the methods of legal protection in the digital space, creating a segment of digital services as a type of intellectual property objects, formation of rights to virtual objects of digital space. Technology is an integrated object that combines rights to the results of intellectual activity (inventions, computer programs, databases, know-how, trademarks, etc.), as well as technical knowledge, skills, abilities and other resulting competitive advantages from ownership of technology (goodwill). It is considered possible to apply the European *sui generis* doctrine to regulate new digital objects and their civil circulation.

Digital rights are a type of property rights. They can participate in civil legal relations as objects of civil turnover. A variety of digital property rights arise during the use of digital technologies and the creation of new digital objects. Digital rights belong to the category of subjective civil rights and can be qualified depending on the legal nature of digital objects and the nature of property relations arising in the process of using digital technologies [6]. That is, we are talking about the civil law model of regulation of digital technologies and legally recognized property digital rights as a special institution of civil law, the subject of which is regulation of property relations related to the emergence (recognition), transfers, other disposal of digital property civil rights to digital objects objects created as a result of the use of digital technologies and expressed in digital form using electronic technical means. Digital rights have economic value, which allows them to be characterized as property rights. The disposal of digital rights is carried out through contracts between subjects (right holders) according to rules that can be established, including by a third party (site owner, operator, provider). Objects of digital rights are intangible objects created as a result of the use of digital technologies (in particular, computer programs) in the form of digital codes and records, protectable objects, recognized by law as such, or those resulting from agreements of subjects of digital rights Objects of digital rights include: cryptocurrencies, "digital doubles", technological online platforms, cloud computing (services), digital repositories of cryptocurrencies (electronic wallets), digital exchanges, etc [7].

Digital objects do not directly participate in civil circulation, and negotiable are digital rights to such objects, which are recognized and certified in digital registers with the help of digital records

of computer codes. Subjects of digital rights can be natural or legal entities with the help of digital identifiers of the subject, including computer codes, IP addresses, personal identifier, conditional designations (nick-name), as well as in the form of artificial intelligence in various forms. Subjects of digital rights participate in civil legal relations in the form of digital identifiers regarding the disposal of digital rights recognized by the right holders. Special subjects of digital rights can be an Internet service operator, an information intermediary, a hosting provider, the owner (operator) of an online platform for providing information about goods and services. The use of high-tech products stimulates the involvement of property rights in complex objects and technologies, which also include the results of intellectual activity, in the civil turnover. In this context, a new digital civil turnover is being formed, which is a set of legal relations generated by legally significant actions of civil turnover subjects (right holders) regarding the certification of digital objects, the disposal of digital rights in the form of the application of digital technologies and consists of a sequence of digital records, a digital computer code [8]. The content of digital civil turnover is formed by a set of digital agreements (transactions) or other legally significant actions, performed, in particular, in the form of smart contracts. As a result of agreements or other legally significant actions with digital objects, digital rights arise, the content and conditions of exercise of which are determined by the rules of the information system that meets the requirements established by law and functions with the use of digital technologies.

The right to internet access. The other way around, it could also be argued that everyone should have a right to get online, i.e., a right to have internet access, which has been discussed extensively in literature. Sometimes products and services are only offered online or are (much) more expensive if purchased offline. In such cases, citizens who have no or limited internet access can be disadvantaged. Particularly for government services this can be problematic. For instance, if tax authorities only allow online tax return forms, citizens are essentially required to have internet access [9]. Also for private issues, such as applying for a job, internet access is more or less mandatory these days. For such reasons, the UN already in 2016 suggested in a resolution that there should be a fundamental right to internet access, although this resolution was non-binding and focused on condemning intentional disruption of internet access by governments, rather than guaranteeing internet access for everyone. A right to internet access can contribute to freedom of speech and to closing the digital divide, but at the same time it may be hard to qualify such access (as discussed below) and it may need to be balanced with other rights and competing interests such as privacy and intellectual property protection. In most developed countries, large percentages of the population have internet access, so this may not be a big issue. However, it may be an issue for different groups in society for different reasons. Furthermore, the discussion regarding net neutrality shows that some are in favor of a layered internet, on which users who pay more can have faster or higher quality connections. Net neutrality is the principle that internet providers treat all data packages on the internet the same, regardless of user, content or equipment. Many countries have codified this in their (telecommunications) legislation. As of 2015 this is harmonized via EU legislation. Each new generation of communication and network technology increases the amounts of data that can be transferred via the internet and the speed of these data transfers. Building on a right to internet access, as a right to digitization education is something to reflect on. Such a right, a further specification of a right to education, could address the digital divide and digital illiteracy [10].

The right not to know. Current legislation in the EU and its member states contains lots of disclosure provisions. For instance, Freedom of Information Acts contain obligations for government agencies to provide all kinds of government information to citizens upon request. The EU General Data Protection Regulation (GDPR) contains several data controller obligations regarding transparency, such as the obligation to inform data subjects (on their request) about which information about them is collected and processed, for which purposes and in which ways. In short, the right to information (a right to be informed, a right to know) can be clearly identified in many pieces of legislation, even though it usually has to be invoked actively by citizens and the scope and conditions may not always be clear. For instance, questions regarding inferred data, such as credit scores, life expectancies and health or other risks remain unanswered. For the opposite, a right not to know, nothing is codified in legislation [11]. Suppose a citizen does not want to know his or her individualized life expectancy, simply because he or she wants to live a life without an explicit 'due date'. In our society, such a person can nevertheless be confronted with such information, for instance, when applying for life insurance. Someone from a family with a hereditary disease can experience severe difficulties when applying for such a life insurance, as it may result in denying access to insurance or yield considerably higher premiums. In

many cases, someone applying for life insurance is obliged to notify a hereditary disease on the forms (and disadvantage himself or herself), whereas someone who does not know about this does not have to notify this (and therefore cannot notify this).

**The right to change your mind.** When people disclose their preferences via their online behavior, for instance, when searching for particular information, all kinds of algorithms will try to offer information, including products and services, personalized on the bases of these preferences. For instance, if someone appears to be interested (inferred from clicking on particular links online) in sports and the economy, he or she will be fed more information on these topics than on other topics, like politics or music. As a consequence, people may end up in filter bubbles, with one-sided information provision. A right to change your mind could perhaps be seen in the fundamental right to freedom of thought or the freedom of expression, but maybe the current technological developments required a renewed and strengthened right to change your mind. Literature on a right to change your mind is virtually absent, the only sources available in this area focus on contract law [12]. Particularly in contract law it is obvious that if people change their minds all the time this has significant legal complications. However, in a broader perspective, in the digital era, a new right to change your mind (if not too often) might put more weight on values like personal development, autonomy, informed consent and online freedoms. It may be invoked by people who end up in filter bubbles or are dealing with fake news and it may emphasize the role companies (particularly social media platforms and big tech companies) may have in taking responsibility in this.

**The right to start over with a clean (digital) slate.** The mechanisms of algorithms and risk profiling can be self-reinforcing processes. This may entail the risk that biases and inaccuracies can become further entrenched via positive feedback loops. Small deviations, such as incorrect or incomplete data, can then lead to larger perturbations and errors in conclusions that are drawn. Imagine that police surveillance is typically focused on specific neighborhoods that are known to be 'problematic'. As a consequence, police databases will become filled with data on citizens of these neighborhoods over time. When algorithms and risk profiling tools are then used to derive risk profiles from these police databases, the results may show that the police should focus surveillance on these problematic neighborhoods. Obviously, this is circular reasoning, in which it is overlooked that the input data already contained bias [13]. A right to start over with a clean (digital) slate may strongly resemble the 'right to be forgotten', codified as the right to erasure in Article 17 of the EU General Data Protection Regulation (GDPR), a right figuring prominently in literature. A right to be forgotten may be expected to entail much more than the right to have some data erased. A right to start over with a clean digital slate would be much more comprehensive and would have to allow people to start over with a completely new (digital) identity.

**The right to expiry dates for data.** The aspect of time is relevant when looking at changing interests and preferences, as discussed above, but also for the fact that data can become outdated over time. Addresses change when a person moves, names can change when people get married, and hobbies may change over the years. Just like milk, bread and other products, also data can expire. Therefore, it might be good to label data with expiry dates, just like any other consumable. Such expiry dates are obviously metadata and from a technological perspective they can easily be added to data. Or, at a minimum, the limited validity can be qualified. When doing this, it may also be considered adding confidence intervals to the data, indicating accuracy and reliability. These things could be covered by a right to expiry dates for data, something that is not discussed in current literature, despite the fact that accuracy and reliability are important topics in technological, ethical and legal literature [14].

**The right to know the value of your data.** Many online products and services, such as search engines and social media are for free. In essence this usually means that no subscription fee (i.e., a number of euros, dollar, or other currency) needs to be paid, but that a person 'pays with his or her data'. The companies offering the products and services are then allowed to collect and process these data and in some occasion can even trade, sell or lease the data. Although many people know that 'for free' is not really for free and that their data are being processed, it rarely is transparent which data are actually processed and how that is done. From a financial or economic perspective, it often is unclear what kind of transaction someone engages in [15].

**Summary.** Digital law is a new form of implementation of legal relations in the field of cyber regulation in various areas: digital rights in digital circulation, cyber security, protection of personal data, regulation of cross-border digital transactions, implementation of social rights based on technological platforms, formation of electronic government, electronic state. Currently, the process of digitalization

of law is taking place, that is, the use of new digital technologies to optimize legal relations, as well as procedures for creating a new digital reality, which also requires legal regulation. Digital reality shapes human behavior, norms of social relations, creates digital law and digital legal awareness. In the conditions of the digital economy and virtual space, the need for a new look at legal institutions in the era of information society and digital technologies, consistent adaptation of traditional legal mechanisms to new realities is obvious. Further development of legal regulation of digital rights and digital civil turnover is possible according to the conceptual model of “digitalization” of traditional law.

The new paradigm of the development of law consists in the “digitalization” of law, that is, the use of digital technologies to optimize legal regulation, as well as the formation of civil digital turnover. Therefore, digital law is a system of legal norms regarding the use of digital technologies, which regulates legal relations that arise in connection with the use of digital data and the use of digital technologies. Digital law is a complex interdisciplinary institution of law that unites legal norms that regulate legal relations arising in connection with the acquisition, exercise, alienation and protection of digital rights, as well as with the use of digital technologies by subjects of digital law. The mechanism of legal regulation of relations in the digital environment is based on the fact that they have an informational nature, since they arise in connection with the implementation of certain actions with information in digital form (digital data).

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