

LEGAL AWARENESS IN A DIGITAL SOCIETY

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Our perception of reality depends on multiple factors, including the language of communication and the culture adopted by civil society. With the development of digital technologies, the methods for transferring information, traditions and cultural code between participants in public relations have undergone drastic changes. The emergence of the “digital layer” between the human consciousness and the outside world has resulted in a shift in our perception of the world since we now view it through the prism of the digital space. The use of artificial intelligence and global cloud data in the daily life of society requires special consideration. Our interaction with cyberphysical systems has dramatically affected our perception of immediate reality. The synthesis of human cognition and artificial intelligence is leading to an amalgamation of material and cyberphysical spaces, as a result of which objects of the digital world acquire material value, whereas material objects (works of art, music, books, etc.) get transformed into a digital code. This article examines societal trends in the development of digital technologies at the fourth stage of the industrial revolution (Industry 4.0). Here, we review the possible interpretations of the concept of “digital relations” and characterize the participants in such relations. Furthermore, we analyze the factors affecting the legal awareness of an individual and identify the essential characteristics of cognition in a digital society. We also consider the challenges currently facing the State and evaluate the prospects for the development and regulation of digital relations.

Keywords: legal awareness; digital society; digital technology; digital relations; digital language; information; digital code; artificial intelligence.



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Introduction

The first mentions of digital technology in philosophical thought appear in the early 20th century. Konstantin Tsiolkovsky alleged the existence of beings on other planets more advanced than humans. In his opinion, man would soon become a more “evolved being.”¹ Having emerged amidst the scientific and technological revolution, Tsiolkovsky’s prophetic views expressed in his theory of cosmonautics unraveled the profound issue of the future perception of the world. As it happens, first came the theory, and only later was it translated into reality.

The philosophical view of civil society has not undergone much change over the past millennia and has preserved its essence from ancient Greece to the present day.² Civil society is a community of people connected by social and legal ties. More precisely, civil society can be defined as

a set of public organizations and associations of citizens whose relations with the State are based on the principles of protecting the rights and interests of individual members of society in the political, economic, and spiritual spheres.³

In recent years, the use of the terms “digital society” and “information society” has become widespread in domestic doctrine. Notably, these two categories can be either equated or distinguished depending on the context.

The term “information society” was the first to enter colloquial use: it emerged in the United States in the mid-20th century – in the era of the active development of cybernetics, information technology, and telecommunications.⁴

¹ Циолковский К.Э. Монизм Вселенной / Циолковский К.Э. Грезы о Земле и небе [Konstantin E. Tsiolkovsky, *The Monism of the Universe* in Konstantin E. Tsiolkovsky, *Dreams of Earth and Sky*] (St. Petersburg: Khudozhestvennaia literatura, 1995).

² Бельчич Д.Ю. Концепт «гражданское общество» в Западной философской мысли: от Платона до Г.В.Ф. Гегеля // Социум и власть. 2011. № 1(29). С. 107–111 [Dmitry Yu. Belchich, *The Concept of “Civil Society” in Western Philosophical Thought: From Plato to G.W.F. Hegel*, 1(29) *Society and Governance* 107 (2011)].

³ Райзберг Б.А., Лозовский Л.Ш., Стародубцева Е.Б. Современный экономический словарь [Boris A. Rayzberg et al., *Modern Economic Dictionary*] (6th ed., Moscow: Infra-M, 2011).

⁴ Herbert S. Dordick & Georgette Wang, *The Information Society: A Retrospective View* (Newbury Park: SAGE, 1993); Laszlo Z. Karvalics, *Information Society – What Is It Exactly? (The Meaning, History and Conceptual Framework of an Expression)* (2007) (Jan. 29, 2020), available at https://www.researchgate.net/publication/237332035_Information_Society_-_what_is_it_exactly_The_meaning_history_and_conceptual_framework_of_an_expression; Fritz Machlup, *The Production and Distribution of Knowledge in the United States* (Princeton, N.J.: Princeton University Press, 1962).



In Russia, the category “information society” has received legal consolidation. An *information society* is defined as a society in which information and the scope of its application and accessibility drastically affect the economic and sociocultural living conditions of individuals (Decree of the President of the Russian Federation of 9 May 2017 No. 203 “On the Strategy for the Development of the Information Society in the Russian Federation for 2017–2030”). It is presumed that the nationwide availability of information resources to all segments of the population is being secured by the State.

At the beginning of the twenty-first century, Russia – along with other modern nations – entered the era of digital technologies and outstanding scientific discoveries. Such conditions gave impetus to the transformation of public relations. At the state level, the country’s leadership has adopted the concepts of “digital economy,” “e-government,” “e-justice,” and the “Internet of Things,” among others⁵. However, Russian legislation has not yet consolidated the concept of a “digital society.”

The transition to a digital society has a lot of detractors, who view it as the end of society’s “freedom” from the digital component. For example, according to Valeriy Filimonov, the digital society represents a global project aiming to build a new slave society, which would be governed through the use of information and communication technologies with the aid of microelectronics and local and global computer networks engaged in collecting, processing, generating and distributing information through global telecommunication networks. A digital society, in essence, is a networked information society.⁶

Olga Maximova further contributed to the discussion by announcing the birth of a new “digital generation,” whose representatives are umbilically linked to the internet and other telecommunication technologies.⁷

We concur with the reserved, yet prescient, comment of Dzhangir Kerimov regarding the limited prospects for the application of digital technologies in our daily lives, as well as his skepticism concerning the use of artificial intelligence as an alternative to natural intelligence. Kerimov notes that cybernetic methods and

⁵ See постановления Правительства Российской Федерации от 2 марта 2019 г. № 234 «О системе управления реализацией национальной программы «Цифровая экономика Российской Федерации», от 27 декабря 2012 г. № 1406 «О федеральной целевой программе «Развитие судебной системы России на 2013–2020 годы» и т.д. // СПС «КонсультантПлюс» [Decrees of the Government of the Russian Federation No. 234 of 2 March 2019. On the System of Managing the Implementation of the National “Digital Economy of the Russian Federation” Program; No. 1406 of 27 December 2012. On the Dedicated Federal Program for “The Development of the Court System in Russia in 2013–2020,” etc., SPS “ConsultantPlus”].

⁶ Филимонов В. Цифровое общество и конец истории // Русская народная линия. 31 января 2018 г. [Valery Filimonov, *Digital Society and the End of History*, Russian National Line, 31 January 2018] (Jan. 29, 2020), available at http://ruskline.ru/analitika/2018/02/01/cifrovoe_obwestvo_i_konec_istorii.

⁷ Максимова О.А. «Цифровое» поколение: стиль жизни и конструирование идентичности в виртуальном пространстве // Вестник Челябинского государственного университета. 2013. № 22(313). С. 6-10 [Olga A. Maximova, *The “Digital” Generation: Lifestyle and Constructing Identity in Virtual Space*, 22(313) Bulletin of the Chelyabinsk State University 6 (2013)].



computer tools were originally devised to perform auxiliary, applied and preparatory functions in order to save people's time. For example, cybernetics can ensure the formalization of laws. In the last few decades, Russia has been actively implementing methods and algorithms for mathematical formalization of regulatory documents by representing these documents in the form of a set of logical formulas.⁸ However, cybernetics will not be able to take over the function of lawmaking. Artificial intelligence cannot be endowed with "creativity and inspiration, rich social experience and wisdom, insight and intuition,"⁹ which are necessary to perform this function.

Yuval Noah Harari, in his writings on the "history of tomorrow" demonstrates that, on the contrary, in the future artificial intelligence will be able to act in ways similar to humans. For example, it will be able to determine one's emotional state based on biometric data.¹⁰ Harari is concerned about the threats that artificial intelligence and biotechnology may pose to humanity if global cooperation on this issue is not ensured.

The structure of societies on Earth is changing as a result of the technological revolution, as will be illustrated with more examples below. Igor Ponkin has expressed the reasonable concern that

artificial intelligence has already brought about a plethora of new significant challenges (which will continue to grow in number with the development and implementation of these technologies) associated with polyvarieties and risks that are extremely difficult to calculate, which creates an unprecedentedly large number of uncertainties. Legal regulation in this area is not just unable to keep pace – it already lags hopelessly behind technological advancements.¹¹

1. The Concept of a Digital Society

A *digital society* is a society in which digital relations are established. Several definitions of digital relations have been proposed, as their content is subject to change with each subsequent stage of industrialization.

⁸ Понкин И.В., Редькина А.И. Цифровая формализация права // International Journal of Open Information Technologies. 2019. Вып. 7. № 1. С. 41 [Igor V. Ponkin & Alena I. Redkina, *Digital Formalization of Law*, 7(1) International Journal of Open Information Technologies 38, 41 (2019)].

⁹ Керимов Д.А. Избранные произведения: в 3 т. Т. 2 [Dzhangir A. Kerimov, *Selected Works. In 3 vols. Vol. 2*] 107–115 (Moscow: Akademiia, 2007).

¹⁰ Tim Adams, Yuval Noah Harari: "We Are Quickly Acquiring Powers That Were Always Thought to Be Divine," *The Guardian*, 27 August 2016 (Jan. 29, 2020), available at <https://www.theguardian.com/lifeandstyle/2016/aug/27/yuval-noah-harari-we-are-quickly-acquiring-powers-that-were-always-thought-to-be-divine>.

¹¹ Понкин И.В., Редькина А.И. Искусственный интеллект с точки зрения права // Вестник Российского университета дружбы народов. Серия: Юридические науки. 2018. № 1. С. 91–109 [Igor V. Ponkin & Alena I. Redkina, *Artificial Intelligence from the Legal Standpoint*, 1 Bulletin of the Peoples' Friendship University of Russia. Series: Legal Sciences 91 (2018)].



1.1. According to the first approach, *digital relations* are defined as public relations encumbered by the “digital component.” This interpretation emerged at the dawn of electronic computing.

A digital component is inherent in almost all relationships in modern society. By 2010, most countries had implemented electronic systems for the provision of state and municipal services to citizens and businesses. For example, the UK has introduced a single portal for state data (<https://data.gov.uk/>).¹² The interaction of citizens and public authorities in Russia proceeds by means of electronic submission of documents through the State Services portal (<https://www.gosuslugi.ru/>). Digital documentation of ownership (property) rights to real estate in the Federal Service for State Registration, Cadaster and Cartography (<https://rosreestr.ru/>) and of the transfer of such rights as a result of transactions in the Unified State Register of Real Estate has eliminated the need to issue old-fashioned paper certificates of registration of ownership rights. Another example of universal digitalization is the introduction of electronic plane and train tickets, which have substituted paper tickets in their ability to confirm passengers’ rights to receive transportation and baggage carriage services. Wire transfers allow one to make remote payments from anywhere in the world, while electronic payment systems enable transactions between commercial parties via the internet.¹³

In jurisprudence, this approach allows *digital law* to be identified as a “mega-branch” of the Russian legal system, which brings together the rules of law that regulate all relations that are, in one way or another, associated with the use of digital technology. However, such an assumption is not entirely free from criticism.

As rightly noted by Vladimir Laptev, rather than branches of law being separated from each other by a blank wall, they are actually closely interconnected.¹⁴ Nevertheless, several independent branches of law can be singled out within the legal system, each of which has its own set of methodological approaches, court practices and administrative bodies. The legal system exists objectively, and the key branches of law represent its components.¹⁵

Branches of law can be divided into system-forming, or primary (including constitutional, administrative, civil, business and criminal law), and derivative, sometimes referred to as secondary (e.g., insurance, investment and banking law).

¹² Васин С.Г. Искусственный интеллект в управлении государством // Управление. 2017. № 3(17). С. 7 [Sergey G. Vasin, *Artificial Intelligence in State Governance*, 3(17) Governance 5, 7 (2017)].

¹³ Гюнтер И.Н., Дахова З.И., Шеховцов В.В. Современные электронные платежные системы в коммерческих банках: монография [Irina N. Gunter et al., *Modern Electronic Payment Systems in Commercial Banks: Monograph*] (Belgorod: Epitsentr, 2018).

¹⁴ Лаптев В.В. Предмет и система хозяйственного права [Vladimir V. Laptev, *The Subject Matter and System of Economic Law*] 147 (Moscow: Iuridicheskaya literatura, 1969).

¹⁵ Толстой Ю.К. О теоретических основах кодификации гражданского законодательства // Правоведение. 1957. № 1. С. 42-55 [Yuri K. Tolstoy, *On the Theoretical Bases of the Codification of Civil Law*, 1 Legal Science 42 (1957)].



We consider it reasonable to divide the branches of law according to their subject matter and the nature of public relations regulated by them. On the other hand, in our opinion, the method for regulating public relations does not constitute a determining factor.

Putting the entire array of legal norms together into a single branch, such as digital law, would disrupt the entire Russian legal system. No merits of digital technologies could remedy this problem, even considering the fact that advancements have relieved the computational and analytical load placed on the human brain and liberated people from processing massive amounts of information by delegating the tasks typically performed by the brain to artificial intelligence.

1.2. The second approach posits that *digital relations* are relations that are established exclusively in the cyberphysical world and, therefore, apply only to objects in the digital space. The emergence and maintenance of these relations is ensured by means of the internet and the electricity that powers computers.

The physical world is contrasted with the digital world. Each of these worlds exists in its own reality. Importantly, all aspects of the digital world, including artificial intelligence, can be comprehended by the human brain. In contrast, artificial intelligence is not capable of conceiving the laws and regularities of the material world in their entire complexity. Evidently, this asymmetry is due to the fact that digital algorithms are formulated by people, and, therefore, their functioning is mathematically predictable.

The dependence of the digital space on the availability of electricity and the internet casts doubt on the objective existence of digital relations, since the existence of the digital space is inconceivable in isolation from the said phenomena of the material world. If we assume that public relations constitute objective reality and develop organically, then digital relations represent a product of scientific and technical creativity of people that reflects the current needs of the society and that directly depends on social relations.

The emergence of new objects of law entails the establishment of digital relations. Among such novel legal objects are cryptocurrencies (Bitcoin, Ethereum, Litecoin, Bitcoin Cash, etc.) and tokens (digital virtual securities that certify the rights of their owners to digital assets and that are issued exclusively in the digital world). The creation of these legal objects is ensured by blockchain technology (i.e., chains of consecutive transaction blocks)¹⁶. The recently introduced Article 141.1 of the Civil Code of the Russian Federation defines digital rights as contractual and other rights specified as such in the law, the scope and conditions for the exercise of which are determined in accordance with the rules of the information system that meets the

¹⁶ Лантев В.А. Цифровые активы как объекты гражданских прав // Юридическая наука и практика: Вестник Нижегородской академии МВД России. 2018. № 2(42). С. 199–204 [Vasiliy A. Laptev, *Digital Assets as Objects of Civil Rights*, 2(42) Legal Science and Practice: The Bulletin of the Nizhny Novgorod Academy of the Ministry of Internal Affairs of Russia 199 (2018)].



criteria established by law. The exercise, disposal (including transfer, pledge and other means of encumbrance) and restriction of the disposal of digital rights without referring to a third party are only possible using such information system.¹⁷

Federal Law of 2 August 2019 No. 259-FZ “On Attracting Investments Using Investment Platforms and Amending Certain Legislative Acts of the Russian Federation” regulates the operation of investment platforms (web-based information systems). This law uses the term “utilitarian digital rights,” which include the right to demand the transfer of an object (objects), the right to demand the transfer of exclusive rights to the results of intellectual activity and/or the rights to use the results of intellectual activity, and the right to demand the performance of work and/or the provision of services. A utilitarian digital right is defined as a right that was established as a digital right acquired on the basis of an agreement concluded using an investment platform, in accordance with the rules set out by Article 13 of Federal Law of 2 August 2019 No. 259-FZ.

Works of art, music and cinema are produced in digital format. Objects of the digital world may act as objects of real civil transactions (e.g., participants in online video games can buy and sell virtual objects, such as weapons and characters).

Even those objects of the digital space which exist exclusively in electronic format are partially related to the material world. For example, all information about digital objects is stored on hard drives and is retrieved with the help of computer processors. The “cloud systems” of administration of digital information are stored on physical media (whose exact location is disclosed neither to the copyright holders nor to third parties). From this we can conclude that the thesis stating that the digital and material worlds exist in isolation from each other is, to an extent, *a fiction*. In fact, the material world can exist in isolation from the cyberphysical one but not vice versa.

With the arrival of the “Internet of Things,” physical world objects can now interact with each other via the internet (for example, household appliances can autonomously update their operating systems or order supplies and consumables; and smartphones can report on product purchases). The development of the Internet of Things can be divided into four stages: Stage 1 – smart objects (phones, watches); Stage 2 – smart home (automated control of household appliances) and smart industry (automated operation of manufacturing machinery); Stage 3 – smart city (integrated infrastructure); and Stage 4 – sensory planet (control and management of any events, including earthquakes, floods and other natural phenomena). It is evident that in the future the amount of information transmitted via the Internet of Things will by far exceed the amount of information communicated by humans.

Within the framework of digital relations, transactions are executed by means of smart contracts, i.e., computer protocols that enable the automatic conclusion

¹⁷ This article was introduced by Federal Law of 18 March 2019 No. 34-FZ (Собрание законодательства РФ. 2019. № 12. Ст. 1224 [Legislation Bulletin of the Russian Federation, 2019, No. 12, Art. 1224]).



of transactions using blockchain technology. The interest of legal scholars in this form of legal relations focuses on the process of contract conclusion. Traditionally, a contract is considered concluded when its parties have reached an agreement on all the essential terms and have documented it in the appropriate form (Article 423 of the Civil Code of the Russian Federation). The smart contract technology¹⁸ allows one to program (i.e., determine using an algorithm) the will of the party to a contract so that the transaction is completed automatically without the physical participation of a person acting as a party to the transaction or representing an organization that acts as a party to the transaction.

The above-described approach to understanding digital relations as relations in the cyberphysical space will prevail for a long time since, in the 21st century, the said relations have become commonplace thanks to the wide dissemination of digital technologies and the high speed of digital transactions (for example, instant purchase of cryptocurrency using the Apple Pay and Google Pay smartphone applications).

1.3. The third approach defines *digital relations* as relations involving both traditional participants in civil transactions and cyberphysical systems (intelligent machines and robots), including interactions between objects of the material world and cyberphysical space.

A distinctive feature of this approach is the recognition of the cognitive system of artificial intelligence (AI) on a par with the human one, from which it follows that an AI-robot is a fully-fledged participant in public relations. This is the approach of the future, although, of course, it has many controversial aspects, including the argument that artificial intelligence and intelligent robots were created by humans to serve humanity (as postulated by Isaac Asimov's three laws of robotics¹⁹) and the argument that the cognitive system of an AI robot is designed by man, and, thus, the behavior of the robot is predetermined by the algorithms programmed into it, suggesting that it lacks free will and legal personality.

Human cognition involves both conscious and unconscious processes, which result in one drawing specific conclusions and taking certain decisions. Artificial intelligence, on the other hand, is a product of "algorithmic cognition," which relies on preprogrammed computational operations performed on the data stored in the memory of an AI machine.

The ethical question is: should the development of artificial intelligence be strictly constrained by humans, or can (and should) it evolve spontaneously, similarly to the evolution of the human mind? The answer to this question is not straightforward. It is possible that future AI decision-making models will be different from those we

¹⁸ See more on smart contracts in: Ефимова Л.Г., Сиземова О.Б. Правовая природа смарт-контракта // Банковское право. 2019. № 1. С. 23–30 [Lyudmila G. Efimova & Olga B. Sizemova, *The Legal Nature of a Smart Contract*, 1 Banking Law 23 (2019)].

¹⁹ Isaac Asimov, *Runaround in I, Robot* 40 (New York: Doubleday, 1950).



can conceive today. The participation of philosophers in the scientific debates on this issue highlights its interdisciplinary nature.²⁰

A prime example of a self-learning intelligent machine is IBM's Watson – an artificial intelligence system aiming to optimize company manufacturing processes. Void of emotion and not susceptible to fatigue, IBM Watson is capable of working 24/7 and of performing traditionally human tasks. As IBM Watson continues to take in and process new information, its cognitive skills keep improving. Importantly, AI is capable of not only short-term but also long-term decision-making and forecasting. Yet, despite IBM Watson's impressive performance, we still have not reached the stage when the mind of an AI machine could be treated on an equal footing with the human mind (and consciousness).²¹

A mixture of the material world and cyberphysical space is inevitable in view of the fourth – and the approaching fifth – stage of the industrial revolution. However, it will take us a lot of time to fully comprehend the qualitatively new characteristics of the objects and subjects of newly emerging digital relations.

2. Human Substrate and Participants in Digital Relations

The importance of the human substrate in the development of civilization cannot be overstated, given that the human intellect is responsible for the existence of society, language and culture. Despite the presence of elements of intellectual thinking in certain species of animals (such as crows, elephants, orangutans, dolphins and chimpanzees), the human cognitive apparatus is unmatched in its ability to make sense of the surrounding world.

The provisions of the Constitution of the Russian Federation are in line with the thesis on the special role attributed to mankind. Specifically, the bearer of sovereignty²² in the Russian Federation shall be people, the supreme direct expression of the power of the people shall be referenda and free elections (Art. 3), and land and

²⁰ Никитина Е.А. Искусственный интеллект: философия, методология, инновации // Философские проблемы информационных технологий и киберпространства. 2014. № 2(8). С. 108–122 [Elena A. Nikitina, *Artificial Intelligence: Philosophy, Methodology and Innovations*, 2(8) Philosophical Problems of Information Technologies and Cyberspace 108 (2014)].

²¹ Левкович-Маслюк Л. Естественный путь к искусственному интеллекту // Компьютерра. 2002. № 41(466). С. 24 [Leonid Levkovich-Maslyuk, *The Natural Path to Artificial Intelligence*, 41(466) Computerra 24 (2002)].

²² Sovereignty – by virtue of Articles 3, 4, 5, 67 and 79 of the Constitution of the Russian Federation, which establish the supremacy, independence and autonomy of state authority, the completeness of the legislative, executive and judicial power of the state on its territory, and the independence in international communication – is a necessary qualitative attribute of the Russian Federation as a state, determining its constitutional and legal status. Постановление Конституционного Суда Российской Федерации от 7 июня 2000 № 10-П // Вестник Конституционного Суда РФ. 2000. № 5 [Decree of the Constitutional Court of the Russian Federation No. 10-P of 7 June 2000, Bulletin of the Constitutional Court of the Russian Federation, 2000, No. 5].



other natural resources shall be utilized and protected in the Russian Federation as the basis of life and activity of the people living in the relevant territories (Art. 9).

Consciousness allows humans to draw both subjective and objective conclusions about phenomena. Consciousness is impossible in isolation from the human brain and the human cognitive system.

The global cognitive system of humanity and the cognitive systems of large social groups have been under active scientific scrutiny in recent years. When multiple individuals that interact with each other converge in their thinking, they develop a common view on a given issue, which can be called *collective consciousness*. Given the unique set of spiritual and cultural values inherent in each individual, collective consciousness can be viewed as a compromise of worldviews. An example of such a collective compromise would be the adoption of a unified approach to the interpretation of digital society and the goals of promoting digital technologies.

The anthropocentric thesis may be revised in the light of the following circumstances.

Firstly, total digitalization makes one rethink their understanding of human life and death. The dates of birth or death of a person do not coincide in physical and digital realities. Whereas one's biological birth date is determined by the moment of their physical birth, their digital life begins from the moment they perform their first action in digital space (e.g., when registering on a social network or creating an email account).²³ After the biological death of a person, their digital (after)life goes on. Technologies allow one to create a chat bot (virtual interlocutor) using self-learning AI. Therefore, a digital footprint left by a person on the internet allows a digital copy of that person to exist and operate in the cyberphysical space, regardless of whether they are alive in the real world. Notably, the concept of 'digital death' has recently been introduced. The French government, for example, has already consolidated an individual's right to digital death by adopting the Digital Republic Law of 7 October 2016.²⁴ The law states that internet service providers and legal representatives of a deceased individual shall comply with such individual's will regarding the fate of their personal information published online. This law allows an individual to decide whether to continue their virtual existence on the internet after their physical death.²⁵

It appears plausible that in the foreseeable future digital technologies will allow us to create clones of any beings from the animal kingdom, including humans, and

²³ Красильникова Ю. Цифровая жизнь после смерти пока технически невозможна // Хайтек. 10 января 2018 г. [Yulia Krasilnikova, *Digital Afterlife is Still Technically Impossible*, Hightech, 10 January 2018] (Jan. 29, 2020), available at https://hightech.fm/2018/01/10/digital_afterlife.

²⁴ Loi n° 2016-1321 du 7 octobre 2016 pour une République numérique (Jan. 29, 2020), available at <https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000033202746&fastPos=1&fastReqId=335405161&%20categorieLien=cid&oldAction=rechTexte>.

²⁵ Талапина Э.В. Право и цифровизация: новые вызовы и перспективы // Журнал российского права. 2018. № 2. С. 8 [Elvira V. Talapina, *Law and Digitalization: New Challenges and Perspectives*, 2 Journal of Russian Law 5, 8 (2018)].



recreate the unique neural networks of their brains meaning that a digital clone could continue to live the digital life of a person after such person's biological death.

Secondly, the cyberphysical systems involved in public relations (today – as people's assistants and mediators, and in the near future – as independent participants) are replacing human cognition with algorithmic artificial cognitive systems. The recent examples of areas affected by such replacement include transportation (the nuTonomy unmanned taxi in Singapore, Yandex.Taxi in Russia), healthcare (Google's DeepMind Health, which automatically provides a treatment plan based on the diagnosis), and education (Jill Watson, an AI robot designed on the basis of IBM's Watson).

Currently, Russia is implementing the Avtonet system – an intellectual logistics platform, network and infrastructure for passenger and cargo transportation – as part of the Action Plan (“Road Map”) for the Development of the Avtonet National Technological Initiative, approved by the Presidium of the Presidential Council for Economic Modernization and Innovative Development of Russia of 24 April 2018 No. 1.²⁶ According to the Action Plan, the key market segments in the nearest future will include navigation information and transport monitoring systems, as well as unmanned taxis and autonomous vehicles. In order to ensure the successful development of unmanned transport technologies both in Russia and in other countries, it is necessary to resolve issues related to the admission of vehicles with an autopilot function to public roads, as well as to determine the responsibility for possible accidents involving them. Since Russian legislation is currently not prepared to tackle this issue, Russian companies have to test their unmanned vehicles in other countries where it is allowed.²⁷ Nevertheless, it is planned that more than 20 thousand fully automated vehicles will be operational by 2025. The first application for testing a driverless car on public roads in Moscow and Tatarstan has already been received. Although such test only represents an experiment aimed at evaluating the possibility of using automated vehicles on Russian roads, which may or may not be a success, it will lay the foundations for designing an accurate and competent technical task that will aid further development of driverless cars.²⁸

In his Address to the Federal Assembly on 20 February 2019, the President of the Russian Federation drew attention to the need to support “bold initiatives” in areas requiring the processing of Big Data and the application of artificial intelligence, the Internet of Things, and robotics.

²⁶ <http://nti.one>

²⁷ Азанов И. Искусственный интеллект в законе // Стандарт. 2018. № 3(182). С. 13 [Igor Agapov, *Artificial Intelligence in Law*, 3(182) Standard 10, 13 (2018)].

²⁸ Дайджест робоправа. Март 2019. Вып. 13. С. 33 [13 Robopravo Digest 33 (March 2019)] (Jan. 29, 2020), available at http://robopravo.ru/matierialy_dlja_skachivaniia#ul-id-2-3.



Some governments have officially recognized AI robots as members of civil society. For example, Saudi Arabia has granted citizenship to Sophia, a humanoid robot that was designed in China.²⁹

The future of the collective consciousness in a society where artificial intelligence makes its contribution is a controversial topic. If we manage to digitize the cognitive system of a person, i.e., create a complete model of the neural networks of their brain, and connect it to the internet then, ultimately the individual cognitive system of the resulting AI will be merged with global information, thereby forming a global cognitive system. That would make an individual cognitive system lose its essence, i.e., the individuality inherent in a human organism, which follows a unique path of development from birth.

Thirdly, with the development of information technologies, mankind has been deliberately removing human substrate from certain areas of social life where human labor had traditionally been involved. For example, the cooperative movement was based on the unification of labor.³⁰ Human labor was a determining factor in the economic system of any country. People had the ability to join trade unions³¹ to protect their interests (Art. 30 of the Constitution of the Russian Federation). By virtue of the Declaration Concerning the Aims and Purposes of the International Labour Organization (Philadelphia, 1944),³² a specialized agency responsible for the affairs of workers was established on the basis of the United Nations.

The development of robotics and engineering is driving the automation of production, which results in a growing number of human workers being replaced by computer programs and robots, which, in turn, leads to the gradual extinction of some professions and contributes to precarization and rapid growth of the precariat as a social class due to the fact that a large number of workers lose their stable working conditions and are forced to frequently change jobs.³³

²⁹ Саудовская Аравия первой в мире предоставила гражданство роботу // Коммерсант. 26 октября 2017 г. [*Saudi Arabia Is the First Country to Grant Citizenship to a Robot*, Kommersant, 26 October 2017] (Jan. 29, 2020), available at <https://www.kommersant.ru/doc/3450054>.

³⁰ *Лантев В.А.* Корпоративная на смену кооперативной организации предпринимательства в России // Актуальные проблемы российского права, 2013. № 2. С. 182–187 [Vasiliy A. Laptev, *Corporate – as a Substitute for Cooperative – Organization of Entrepreneurship in Russia*, 2 Topical Issues of Russian legislation 182 (2013)].

³¹ A voluntary public association of individuals connected by common industrial and professional interests and by the nature of their activity, created to represent and protect their social and labor rights and interests. Федеральный закон от 12 января 1996 г. № 10-ФЗ «О профессиональных союзах, их правах и гарантиях деятельности» // Собрание законодательства РФ. 1996. № 3. Ст. 148 [Federal Law No. 10-FZ of 12 January 1996. On Professional Unions and Their Rights, and Guarantees of Their Activity, Legislation Bulletin of the Russian Federation, 1996, No. 3, Art. 148], Art. 2.

³² Сборник действующих договоров, соглашений и конвенций, заключенных СССР с иностранными государствами. Вып. XVI [A Collection of Existing Treaties, Agreements and Conventions Concluded by the USSR with Foreign States. Issue XVI] 351–372 (Moscow: Gospolitizdat, 1957).

³³ *Филипова И.А.* Трансформация правового регулирования труда в цифровом обществе. Искусственный интеллект и трудовое право [Irina A. Filipova, *Transformation of the Legal Regulation of Labor*



The State and society are ceasing to consist solely of the human substrate and are being filled with digital content.

3. New Values and the Transformation of Legal Awareness in a Digital Society

In Russia, the development of the legal awareness doctrine was extensively investigated in the works of Leon Petrażycki, which focus on the examination of the State and law through the prism of the theory of morality. According to Petrażycki, legal awareness (as a set of views, knowledge and ideas characterizing one's psychological, moral and emotional attitude to legal phenomena and the law in general) is grounded in the imperative-attributive nature of one's awareness of one's legal duty to adhere to a certain standard of behavior with a certain motivational force.³⁴ According to Dzhangir Kerimov, legal awareness is closely related to legal culture and there is no distinctive boundary between the two concepts. Legal culture includes legal knowledge, recognition of the authority of the law and the need to respect it, as well as a critical assessment of the existing legal regime and order in society.³⁵

The system of legal views, theories and ideas forms an individual, collective, mass and public legal awareness, as well as a basic, professional and academic legal awareness. Importantly, the said types of legal awareness are grounded in one's subjective views on legal rules and standards of proper conduct.

The rules of law, i.e., the rules of conduct imposed on participants in public relations by lawmakers, depend on the value system adopted in a given society. The internal and external goals of the government and the perspective taken by public authorities also influence the overall state of legal awareness and legal consciousness. Among the other factors significantly affecting legal awareness in a society are religious, ethical, cultural and historical factors that form the standards of proper conduct.

The system of values existing in a given community, expressed, for example, as corporate ethics, also depends on the upbringing and culture of the society, in isolation from which the system ceases to be universal. On the other hand, it should be taken into account that members of a society may have their own unique values, since each person, throughout their development and education, shapes their own identity and finds their individual place in a given community (group of individuals) and in society in general.

in the Digital Society. Artificial Intelligence and Labor Law] 16 (Nizhny Novgorod: The Lobachevsky State University of Nizhny Novgorod, 2019).

³⁴ *Петражицкий Л.И. Теория права и государства в связи с теорией нравственности: в 2 ч. Ч. 1 [Lev I. Petrazhitzky, The Theory of Law and State in Connection with the Theory of Morality. In two parts. Part 1] 135–142 (Moscow: Iurait, 2016).*

³⁵ Kerimov 2007, at 230.



An illustrative example of formal consolidation of corporate ethics existing in the business community is the Corporate Governance Code, approved by Letter of the Bank of Russia of 10 April 2014 No. 06-52/2463, which represents a set of written legal customs adopted in the corporate practice of joint-stock companies. The Code advises companies to disclose information about their corporate procedures on their websites. The Constitutional Court of the Russian Federation indicated in its Decree of 15 March 2005 No. 3-P that collective entrepreneurship and participation in private equity funds secure the exercise of the constitutional right to the freely choose one's economic activities. However, the Court made a reservation that the exercise of this right is restricted so as not to violate fair competition (para. 3 of the Decree). Fair competition includes, *inter alia*, the use of digital technology that does not undermine the competitive environment in the market.

In modern society, the value system encompasses objects of both the material and non-material world. Objects of the non-material world include not only spiritual values, business reputation, etc., but also electronic objects (objects represented in the form of digital code) that do not have a physical embodiment.

Human consciousness is accustomed to associating all societal phenomena with the material world. Yet, as suggested by recent trends, objects of the digital space can have economic value. For example, cryptocurrency and tokens, which represent digital code (digital representation of information) created using mathematical algorithms and an encryption system, have become an integral part of the market.³⁶ It appears that these digital assets have gained material value due to their uniqueness. To be more precise, digital values emerge due to the unique properties digital assets have, which allow them to be singled out from the myriad of objects of the material and non-material (digital) world.

The essential tool enabling communication between people, as well as between people and cyberphysical systems, is language that allows one to transfer information, convey one's feelings, communicate one's will, express one's desires, etc. With the development of civilization and the transformation of social consciousness, the language of communication has been undergoing changes. Digital technologies enrich the means of language expression, to some degree replacing the language people are accustomed to. Digital technologies also provide aid by means of predicting human behavior. For example, when one types a message on WhatsApp, artificial intelligence helps them to complete the phrase on-the-fly using information from previously sent text messages. Although such text suggestion may not fully coincide with the intended message, a person may opt to send a message composed by AI in order to save their time. In the same way as we entrust AI built into messengers and email clients with the composition of our messages, we entrust car navigation systems, such as those offered by Yandex or Google, with setting the trajectory of our journey.

³⁶ See, e.g., <https://www.rbc.ru/crypto/> or <https://ru.tradingview.com/markets/cryptocurrencies/>.



Digital relations are relations that emerge in a digital society. *Digital legal relations*, in turn, are defined as relations regulated by digital law, sometimes also referred to as cyberphysical law. For the above-stated reasons, we suggest using the term “digital law” as a conventional legal category that encompasses a set of legal norms regulating any relations (including business, administrative and civil relations) containing a digital component but that does not form an independent branch of law in the Russian legal system. Elements of digital law are, to a degree, present in every branch of Russian law (electronic commerce in business law, electronic justice in arbitration procedural law, digital interdepartmental cooperation in administrative law, etc.).

An important aspect of legal consciousness in a digital society is the identification of its subjects and the authentication of their will as a product of their mental activity. If we assume that machine logic can be reduced to the mathematical algorithms programmed into it, then we must conclude that the will of artificial intelligence represents a fiction since, in reality, the will embodied in AI reflects the will of its developer. However, such an approach would impose unreasonable restrictions on the future development of the autonomy of artificial intelligence and its legal personality.

The advanced cognitive abilities of modern artificial intelligence allow it to perform creative tasks. For example, one of the recent issues of *Esquire Singapore* magazine was co-authored by a bot developed by the artificial intelligence consulting company QLX.³⁷

The collective thinking of a civil society determines the possible paths for the development of legislation, including with regard to issues such as the legal personality of AI robots and the legal responsibility for their work. The domestic legal doctrine offers several approaches to the posed problem. A common one boils down to the use of artificial intelligence exclusively as a human assistant.³⁸

An AI robot is incapable of suffering adverse consequences for its illegal actions, such as feelings of guilt, shame, embarrassment, pity, etc. Legal and technological interventions aiming to “punish” a delinquent AI robot may be instructive for other intelligent machines but it is unlikely that they could be programmed to fear the application of such interventions.

Serious examination of artificial intelligence and scientific modeling of its cognitive processes only began in the mid-twentieth century. Whereas industrial robots provided the basis for the third stage of the industrial revolution (Industry 3.0), artificial intelligence and cyberphysical systems only arrived at the fourth stage (Industry 4.0), which is why it is too early to speak of any well-developed theoretical models in this field.

³⁷ Попова Н. Сингапурский *Esquire* выпустил первый в истории написанный ботом журнал // FashionUnited. 14 мая 2019 г. [Natalia Popova, *Esquire Singapore has Issued the First Magazine in History Written by a Bot*, FashionUnited, 14 May 2019] (Jan. 29, 2020), available at <https://fashionunited.ru/novostee/moda/singapurskij-esquire-vypustil-pervyj-v-istorii-napisannyj-botom-zhurnal/2019051425706>.

³⁸ Морхат П.Н. Правосубъектность юнитов искусственного интеллекта: гражданско-правовое исследование [Petr N. Morkhat, *The Legal Personality of Artificial Intelligence Units: A Civil-Law Study*] (Moscow: Unity Dana, 2018).



Countless academic discussions have not yet led to a unified approach to the concept of development of robotics that could be applied at the state level in Russia. One noteworthy development is the draft Model Convention on Robotics and Artificial Intelligence,³⁹ developed by the Research Center for the Regulation of Robotics and Artificial Intelligence. This concept should also address the issue of potential participants in relations in the field of robotics. Given the prospects of recognizing intelligent cyberphysical systems on an equal footing with humans, we need to rethink the traditional definition of *society* as a set (community) of people who form social bonds with each other. However, despite the introduction of new participants into social relations, the objects of such relations should remain the same and include only those goods that have material, cultural and spiritual value for people.

The anthology of digital thought currently lacks a system. A common approach to the concept of a digital society – that would apply to all schools of thought, regardless of the geographical and national affiliations of their representatives – must be developed. Such an approach should consider the social consequences of the global implementation of digital technologies.

The inevitable expansion of digital technologies, and the subsequent concerns about their unknown and unpredictable consequences, suggest that a method of predicting the possible consequences of the fourth and later stages of the industrial revolution needs to be developed before the new technologies are introduced into all spheres of society.

Legal awareness in a digital society is shaped by people's view of the digital space and their use of digital technologies. The existing system of sources of law, including laws and by-laws, must regulate public relations, taking into account the interests of all participants. Law-making – like any other creative process of the human mind – should be guided by people's needs.

4. Digital Technologies and Society

A civil society's trust in digital technologies represents a compromise between the human desire to dominate the evolutionary chain of intelligent beings and sparing the resources of the human brain by delegating its tasks to a digital algorithm (computer program) or artificial intelligence, such as a cyberphysical system. Below we introduce the classification of the areas of societal life and economic activities according to whether the application of digital technologies in a given area:

- 1) is inevitable,
- 2) is optional,
- 3) is unacceptable.

³⁹ Незнамов А., Наумов В. Модельная конвенция о робототехнике и искусственном интеллекте: Правила создания и использования роботов и искусственного интеллекта // Робоправо. 2017 [Andrey Neznamov & Viktor Naumov, *Model Convention on Robotics and Artificial Intelligence: Rules of Development and Use of Robots and Artificial Intelligence*, Robopravo (2017)] (Jan. 29, 2020), available at http://robopravo.ru/modielnaia_konvientsia.



The proposed classification of digital technologies provides a basis for the distinction between various social strata and groups of people whose perception of objective reality is refracted through the digital prism, which, in turn, inevitably affects their legal awareness. By introducing machine intelligence into their main economic activities and daily routines, people are willfully giving up their functional sovereignty.

4.1. Currently, the defense of the country and the security of civil society constitute the key functions of the State. The relevant provisions of Articles 55, 71 and 114 of the Constitution of the Russian Federation are detailed in separate regulatory acts.⁴⁰ The use of digital technologies is indispensable for protection of the interests of individuals, businesses and the State. Of crucial importance are the safety of the unified telecommunication network of the Russian Federation, the continued accessibility of the internet, the stability of the communication networks used by state authorities, maintenance of relevant hardware, etc.

Urban life in the capital, other federal cities and company towns relies heavily on the Smart City⁴¹ and the Internet of Things technologies, which ensure the autonomous operation of technologically sophisticated engineering equipment that regulates water supply, sanitation, electricity and traffic. Digital technologies help minimize the risks of equipment malfunctions and prevent technological accidents and disasters.

The development of environment-related digital technologies is another priority area, as the need to be able to model natural phenomena and predict natural disasters is getting increasingly more urgent.⁴² An objective evaluation of the "human footprint" and its potential effects on nature (assessing the levels of environmental pollution and waste management) is a challenging task that cannot be accomplished without artificial intelligence.

To sum up, the application of digital technologies is necessary (and inevitable) in the areas where the tasks at hand cannot be solved by relying on human cognition, emotion and intuition alone.

⁴⁰ See, e.g., Паспорт федерального проекта «Информационная безопасность», утвержденного президиумом Правительственной комиссии по цифровому развитию, использованию информационных технологий для улучшения качества жизни и условий ведения предпринимательской деятельности (протокол от 28 мая 2019 г. № 9) [Passport of the Federal Information Security Project, approved by the Presidium of the Government Commission on Digital Development and the Use of Information Technology for Improving Quality of Life and the Conditions for Entrepreneurial Activities, protocol of 28 May 2019 No. 9] (Jan. 29, 2020), available at <https://digital.gov.ru/uploaded/files/pasport-federalnogo-proekta-informatsionnaya-bezopasnost.pdf>.

⁴¹ See Базовые и дополнительные требования к умным городам (стандарт «Умный город»), утвержденные Минстроем России 4 марта 2019 г. [Basic and Additional Requirements for Smart Cities (Smart City Standard), approved by the Ministry of Construction of Russia on 4 March 2019] (Jan. 29, 2020), available at <http://www.minstroyrf.ru/docs/18039/>.

⁴² Брюханов А.Ю., Судаченко В.Н., Эрк А.Ф. Цифровые технологии обеспечения экологической безопасности сельскохозяйственного производства // Технологии и технические средства механизированного производства продукции растениеводства и животноводства. 2019. № 1(98). С. 257–268 [Alexander Yu. Bryukhanov et al., *Digital Technologies of Ensuring Environmental Compatibility of Agricultural Production*, 1(98) Technologies and Technical Means of Mechanized Production of Crop and Livestock Products 257 (2019)].



4.2. The areas of optional “digitalization” include: (1) areas where the tasks at hand can be accomplished with or without the help of digital technologies and (2) areas where human input is indispensable.

Firstly, the use of digital technologies is not always economically or logistically feasible. For example, digital technologies must be dispensed with in hard-to-reach areas (mountains and gorges, on or in bodies of water, and in space), due to the absence of a stable internet connection or energy supply. Although increasing the reach of technologies to these areas would undoubtedly benefit society, their high cost prevents their global dissemination.

One example of optional technologies in corporate relations is blockchain. Specifically, proposals have been made to introduce a distributed corporate ledger system into corporate practice called *e-reestr*, which would be administered by artificial intelligence⁴³ and system participants (for shares and ownership interests in the authorized capital), i.e., members of corporations. *E-reestr* could operate autonomously under the control of artificial intelligence. However, the digital divide in Russia will hamper this innovation for years to come.

Secondly, the development of digital technologies is constrained by the fact that perceptual sensations, such as taste, hearing, smell, touch and vision, and idiosyncratic emotions associated with them cannot be fully comprehended by a machine. Although a robot can be equipped with certain elements of sensory perception, such perception is fundamentally different from the human perception, as digital algorithms do not carry the emotions, feelings and experiences unique to humans. This limits the application of technology in areas such as cookery, perfumery, music and the visual arts. Although a robot can technically be entrusted to create a perfume, it would not be able to truly appreciate its fragrance and, thus, predict how it would be perceived by an individual. Similarly, robots in ‘digital restaurants’ that prepare food according to preprogrammed recipes, cannot experience the taste of products and spices themselves and, thus, cannot compete with human chefs in their ability to find the perfect balance of tastes when mixing different ingredients.

We would also like to cite the National Technological Initiative, which was initially introduced in the Address of the President of the Russian Federation to the Federal Assembly on 4 December 2014.⁴⁴ According to the Address, the aim of this Initiative is to provide a basis for the development and potential future introduction of digital technologies into the life of Russian society. Decree of the Government of the Russian Federation of 18 April 2016 No. 317 “On the Implementation of the National

⁴³ Лаптев В.А. Перспективы применения технологии блокчейн в сфере корпоративных реестров для бизнеса в России // Предпринимательское право. 2019. № 3. С. 23–28 [Vasily A. Laptev, *Prospects for the Use of Blockchain Technology in Corporate Ledgers by Russian Businesses*, 3 *Entrepreneurial Law* 23 (2019)].

⁴⁴ Presidential Address to the Federal Assembly (Jan. 29, 2020), available at <http://en.kremlin.ru/events/president/news/47173>.



Technological Initiative”⁴⁵ approved the standards for the development of “road maps,” monitoring of projects and their financing from the state budget. In order to promote the Initiative, the Ministry of Digital Development, Communications and Mass Media of Russia has adopted a number of “road maps” for the development of “cross-cutting” digital technologies,⁴⁶ including “Quantum Technology,” “Wireless Technology,” “Distributed Ledger Systems,” “Novel Production Technologies,” “Components of Robotics and Sensorics,” “Neurotechnologies and Artificial Intelligence” and “Virtual and Augmented Reality.”

Since these digital technologies are still in their infancy and we cannot predict the long-term consequences of their use, the utility of their global dissemination can be called into question but they clearly have the potential to become indispensable for society in the future.

4.3. The scientific inquiry into human nature has provided an insight into man’s unique needs. In the opinion of the scientist Nikolai Amosov,⁴⁷ religion and faith in God reflect the innate human need to obey a higher authority.

The culture established in civil society prohibits the use of digital technologies in religious practices, e.g., during a confession between a priest and a penitent. It is human nature to believe in the first principle (divine principle). Only clergymen are recognized as guides to the creator. Thus, a connection between an individual and religion (and God) may not be established with the help of “digital intermediaries.” If society had deemed it possible to put manmade technologies (mathematical algorithms) between man and God, religion as a belief in the divine principle would lose its true meaning.

Another example is jurisprudence, where artificial intelligence can be used to assist a human judge but will never be able to completely replace man. Artificial intelligence, at least in its present form, cannot be taught the substance of moral categories, such as “justice,” “good faith” or “abuse of rights.” Of course, the analytical and computational aspects of the activity of a human judge can be unhesitatingly delegated to artificial intelligence. However, fully entrusting artificial intelligence with administering justice appears unjustified because we would have to recognize the supremacy of digital algorithms over human cognition. Moreover, legal proceedings traditionally represent a certain ceremonial competition between the parties in court

⁴⁵ Постановление Правительства Российской Федерации от 18 апреля 2016 г. № 317 «О реализации Национальной технологической инициативы» // Собрание законодательства РФ. 2016. № 17. Ст. 2413 [Decree of the Government of the Russian Federation No. 317 of 18 April 2016. On the Implementation of the National Technological Initiative, Legislation Bulletin of the Russian Federation, 2016, No. 17, Art. 2413].

⁴⁶ “Cross-cutting” digital technologies are the key scientific and technical advancements that produce the greatest impact on the development of markets (Big Data, neurotechnologies, quantum technologies, industrial internet, artificial intelligence, robotics, etc.).

⁴⁷ See, e.g., Амосов Н.М. Энциклопедия Амосова. Алгоритм здоровья [Nikolay M. Amosov, *Amosov's Encyclopedia. The Health Algorithm*] (Moscow; Donetsk: AST; Stalker, 2002).



under the supervision of a human judge, which artificial intelligence is not able to reproduce. Therefore, completely doing away with the human substrate (and the “humanness” of social relations in this area) is unacceptable.

We believe that in due course – with the development of digital technologies and the advent of Industrial Revolution 5.0 – only the first and the third of the above-described types of area will remain, i.e., those in which the use of digital technologies will be either inevitable or unacceptable.

Conclusion

In conclusion, we would like to list the key theses concerning the issue of legal awareness in a digital society at the present stage.

1. The legal awareness of society in the context of the development of digital technologies has transformed the idea of participants in public relations and has formed the premise for recognizing AI robots (cyberphysical systems) as subjects of such relations.

2. A digital code created by means of cryptography and containing unique digital designations and characteristics has become an object of public relations with an inherent material value.

3. The category of “public relations” has lost its essential attribute, namely, the human substrate. Now that humans can enter into relations with AI, these relations may concern both material and non-material assets, including objects of the digital world.

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