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Digitization of Social Activity of an Individual in Terms of Criminal Law

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ABSTRACT

The article focuses on the main trends in the rapid development of digitization from ordinary consciousness of the society to the digital world, penetration of digitization elements in our everyday life. The author identifies main directions of the current development of digitization and society with the aim to secure its better regulation by criminal law. There have been four main trends distinguished: the identity trend; decentralized cooperation; data-based new economy, and physical-digital convergence. The research of the issue in question has identified a subjective build-up of digitization models that proves that the humankind on the whole and an individual, in particular, is responsible for actions undertaken by a robotic machine and an automated program. However, when building a horizontal model of control, an individual can withdraw from the process of making decisions but retain the right to receive benefits from such interaction. At the same time if such activity is based on the digital economy, there are some risks related to crime, including the ones related to the use of artificial intelligence by criminal groups.

Keywords: *crime, criminal law, digitization, artificial intelligence, cybertechnologies, cybercrime, robots,*

criminal groups, financial transactions, digital economy

1. INTRODUCTION

The concept of everyday consciousness is based on a non-trivial perception of an individual as a certain social subsystem characterized by such qualities as integrity, self-sufficiency and the ability to self-development, provided an individual possesses all the qualities of a social subject. In this case, ordinary consciousness serves as a special sphere of spiritual maturity of an individual, functionally directed to the individual himself. Such consciousness is seen as a type of social consciousness that employs socio-cultural mechanisms. In fact, ordinary consciousness is a level or layer of consciousness focused on the reproduction of a phenomenal side of existence (a sphere of a phenomenon), which in principle is subject-centered. A cognitive element of ordinary consciousness is expressed by ordinary knowledge, while its value component is represented by common sense.

The phenomenon of ordinary consciousness as an external manifestation has always been seen as a fundamental ground reflecting true reality or content: the economic "basis" in Marxism-Leninism, the fundamental structures in functionalism, the unconscious in Freudianism, etc., in connection with which it was recommended to check whether the reality is true.

From the viewpoint of epistemology, ordinary consciousness is a rational activity of learning. Its structure includes levels of thinking, where their existence in everyday consciousness is not psychologically, but culturally determined: implicit levels are the result of taboo of actions and thoughts. Thus, psychologists claim that the success of ordinary consciousness depends not on certain qualities and abilities of a person but on the desire to combine opposite traits in their own individual system, to integrate various forms of representation, to combine, for example, the objective and subjective perceptions of the situation. In psychologists' view, theoretical thinking is an integral component of ordinary consciousness and is considered by them as the correlation of a part (theoretical consciousness) and the whole (ordinary consciousness). The complexity of motivation at the level of ordinary consciousness stems not only from specific spiritual values of a person, but it is found in the social structure of society, reflected in the form of material and non-material production historically predetermined and objectively formed.

The modern society is developing in the direction of providing maximum autonomy to an individual. At the same time, the process of developing autonomy is based on actions that are selfish in content and emphasize greater value of an individual in relation to the society. Ordinary consciousness, being basic, does not just study social reality, but is shaping it, adding it certain connotations and making subjectively significant conclusions. Being formed by sociality, ordinary consciousness cannot be divorced from it and at the same time it forms this sociality itself.

Overwhelming majority of researchers has referred to ordinary consciousness as practical, based on life experience, opposite to theoretical consciousness. This is largely dependent on the fact that the main value of theoretical consciousness is knowledge. At the level of

ordinary consciousness, the values of theoretical consciousness do not have absolute significance and a rigid status.

2. MATERIALS AND METHODS

Theoretical consciousness has a specific value orientation with a fairly strict systematized structure and a possibility to see the content from the ways of making different kinds of judgments and rules of making conclusions based on the existing set of categories that are linked by clear logical relationships, methodology, and so on. Therefore, theoretical consciousness currently serves as the foundation of the so-called digital consciousness, which can be reflected in any computer program.

The functioning of a computer program, its interaction with information flows is completely different from the mental activity of a person. It operates with symbols and their combinations absolutely excluding any understanding of their meaning. Therefore, any computer, even the most powerful one, thanks to the program installed perceives only the syntactical side of the character and symbol information. Only the human mind can comprehend and interpret such information. Perceiving such sign information, a person decodes it and makes a decision to act accordingly in response to certain signals.

To adequately respond to the impact of a particular social environment, a person must know the language of culture which the society speaks to them, or they must know the codes of culture or possess samples of sign apperception, i.e. the perception of signs based on previously learned ways of deciphering information signals and responding to them. We should, however, immediately underline that such characteristics - as a search for regularities, correct logic, a desire to seek substantiation - have no direct relation to the process of reflection and are equally inherent to both ordinary and scientific thinking.

3. RESULTS AND DISCUSSION

Today, new cybertechnologies are creating a special information environment, which, in turn, affects the psyche and activities of people, forming communicative social practices of both positive and negative content. We can distinguish two channels of such impact: on the one hand, it is the impact of information technologies on the psyche of people (for example, on cognitive processes, the whole process of thinking, the emotional sphere, etc.); on the other hand, it is the formation of a special ontology generated by information technologies, or what is called virtual reality, or augmented (mixed) reality: "We cannot deny that engagement of a person in virtual reality directly affects his personality: it has a significant impact on the behavior of individuals, on their world outlook, on the speed of operational reactions, on specific interactions between individuals, on their lifestyle in general" .

The analytical thinking inherent to a person, which implies understanding and comprehension of meanings, is currently being replaced by "digital" thinking, which is capable of processing large amounts of information, literally not understanding it. With such "digital" thinking, a person becomes like a computer that must process large flows of information without going deep into its essence.

This kind of "digital" thinking is based on an image that influences the personality of an individual with sound and visual effects instead of a graphic text. In addition, there is a dynamic shift of attention that does not imply focusing on a particular text for a long time, thus creating an absolutely disjointed and chaotic picture of the world. In this regard, it can be pointed out that the carrier of digital thinking is characterized by a high degree of adaptability to the digital age of the society development instead of deeply understanding events and the world on the whole.

Modern reality is distinguished by a rather active implementation and development of automation and robotics not only in the industrial production but also in daily human activity. Despite all the positive factors of these processes, they also entail a number of negative factors. Taking into account that nowadays developed countries have a sufficiently developed system of crucial infrastructure, which includes not only state administration bodies and military command facilities, but also life support, water supply, power supply and communications systems, there is no doubt that cyberthreats against these facilities are increasing. This becomes especially urgent in the light of different hacker attacks aimed at automated power supply management systems, automated control systems and databases, hydraulic structures, and nuclear power facilities in the territories of various countries.

Digital thinking has become commonplace, an integral part of everyday life. Many things that we would consider science fiction just a few decades ago are taken for granted, such as modern smartphones, global information networks, or virtual reality. At the same time, our society is becoming increasingly dependent on digital technologies and infrastructures. Banking services, power grid management, medical records, and other personal information are increasingly relying on digital networks and databases. The trend is to use digital technologies even more amply, with a lot of concerns about artificial intelligence but with a promise of an endlessly growing and efficient digital economy. In this regard, we can say that digital thinking, artificial intelligence, and robotic activity are the three main sources of changes in digitization.

If to speak about the design of a robotic system (RTS), its functioning is based on four functional components that are fully interactive, namely: electronics, instructions, energy component and runtime mechanisms. As noted by a number of researchers, "The main problems of interaction of such heterogeneous elements are associated with the creation of the required algorithms and software for the robot control system" . Thus, addressing the issue of reliability of a robotic system functioning, especially its control system, we should not forget about a set of additional software and algorithms, which are to diagnose

the state of the entire system, securing possible responses in case of equipment failures or unauthorized operational changes in the external environment in the operation of a robot.

The term "digital" comes from the Latin word digitalis and refers to numbers. Digital reality is something discrete as opposed to continuous. In the sphere of information technologies, the term "digital" refers to the binary number system that was adopted in the mid-XX century as the basic logic for digital computers. The binary system and the logical structure built on top of it also implied a possibility to reprogram and update a machine without physically changing it, which can be considered as one of the most significant breakthroughs and specifications of digital machines. Digitization should be treated as a set of actions to transform a variety of prior physical or analogue actions into digital data systems. Success in digitization has led to extensive and various speculations about the future of our society and culture. Digitization, which often has a rather vague definition, is usually called one of the megatrends shaping the future. At the same time, digitization has actually transformed cybertechnologies into a fully digital dimension, giving them absolutely new content.

The real environment in which robots will function is characterized by a high level of dynamic uncertainty. First, this can be caused by specific features of the environment itself, which can be interpreted as external disturbances (wind, waves, undercurrents, terrain irregularities, etc.). On the other hand, uncertainty can be associated with active objects that represent goals for the robot or, conversely, moving obstacles. Special emphasis in this context should be put to such applications where the robot acts as an assistant for a person when moving, assembling or processing, or making other operations.

Cybertechnologies are known to be incorporated into the structure of society in many different, complex, and even contradictory ways. The information society can even be seen as a society that depends on computing information, emphasizing the role of digital technologies in the society. Besides, D. Berry notes that the transition to a computing information society can be seen as a transition from the previous digital era to a new post-digital world, "in which the digital has become fully integrated in our everyday life and created the so-called digital economy" . Consequently, if a person wants to be a fully-pledged member of the digital society, they must first understand what digitization means – it is a general term for the trend and consequences of the increasing use of digital technologies - and, secondly, present alternatives to the current narrative. However, the extent of digitization and its consequences are difficult to understand, because most people do not have or ignore first-hand experience of what digitization actually implies.

Digitization is abstract and difficult to understand, therefore many people feel detached from the digital environment. But since digitization is not going anywhere, knowing how to handle it and act in the digital world, as well as how to perceive it, becomes a necessary social skill. The need to be able to understand and act in an increasingly digital world, or in D. Berry's concept of a post-digital world , where digital reality is intricately intertwined with physical reality, is particularly important in the society today. In addition, the perception of the digital world (for example, as a set parameter against something that is produced and therefore can be formed) determines what kinds of future are considered possible.

Paying more attention to models of existence and ways of acting in the digital world, it is possible to create a stronger ethical and legal link between cybertechnologies and the society. Such a link is necessary to build a positive picture of the world and set aside its negative elements, where cybercrime is given priority to. A digital world outlook can enable people to understand and challenge different choices and motivations behind current digital structures and create new structures. For this reason, it can be argued that digitization is an important approach to expanding the future of the digital society as a whole, but only in certain legal frameworks that do not allow the use of digitization as a negative factor in the development of the society and people.

Today, the decision to start using technological force must be made sometimes by a person and as a result, they have to subjectivize (or take responsibility for) certain losses. This is true for both any armed conflict and any production process. Delegating this process to machines further dehumanizes the production process and eliminates the moment of deliberation in cases where it may be practically possible. Machines do not possess morality and mortality and as a result should not have power over people when dealing with issues of life and death .

Another problem is a possibility to use a robotic machine in accordance with humanitarian law, but it is the behavior of people making decisions that serves as a measure, which does not always meet the highest standards . Some experts point out that in some respects robots can be made to comply with the requirements of humanitarian law even better than humans . For example, the roboticist R. Arkin has proposed ways to equip military robots with an "ethical regulator" so that they could meet such requirements .

Digitization is a key motivation for the concept of digitization. Negroponte states, "the transition from atoms to bits is irreversible and unstoppable" , arguing that everything that can be digitized will be digitized. Negroponte defines digitization as a concept related to life in a digital and digitized culture. Thus, digitization refers not only to a mathematical philosophical system or to fundamental technological aspects based on the binary system, but also to the impact of digital technologies on the modern society.

These problems are often intertwined with technological inventions, but not always are directly caused by them. For example, the rapid development of the Internet has made many theorists declare that the Internet will democratize the modern society in unexpected ways. Another related example is how digital technologies have made it possible to collect and re-code various signals into a single universal digital signal, which is now widely referred to as data. A single digital system can be used to represent

images, sounds, movements, texts, and so on, and it is all just data. In addition, thanks to the Internet, you can freely distribute and copy data without loss of quality and (almost) without any costs. Thus, digitization can be seen as a more cultural and social way of looking at digitization-related phenomena.

Digitization can be seen as a broader context for a code, and thus it can benefit from the same analysis. For example, digitization is often seen as a functional concept: a positive key to the future growth. However, digitization is also associated with complex issues of equality, power, politics, culture, etc. Thus, the definitions of digital technologies and digitization are often ambiguous and rather vague. And this is on the level of doctrine. The level of normative regulation in this case is practically not involved to clarify and explain the situation with digitization of the society and activities of a particular person.

Though it can be useful to make a rational and explicit analysis of the concepts of a digit and digitization, it is not possible in everyday life. Understanding digital technologies by means of metaphors can be time-consuming and burdensome, or at least impractical in situations when we make digital payments at the checkout or curse the slow Internet at the supermarket. In particular, criminal law should elaborate a better, more understandable, but at the same time, a broader notion of understanding the digital reality. Thus, an internalized, embodied notion of understanding the digital reality is necessary to look through everyday digital structures in which people live and within which they act, at least, at the level of "legal-illegal".

Considering cybercrime in the context of digitization, we should emphasize that digital technologies take a rather complex and ambiguous position in our everyday life. Reality makes it more obvious how, in relation to people, digital reality can be understood through existence and action in the interface between the digital and the physical. In other words, it reflects a complex relationship between the human consciousness, behavior, and digital reality. As mentioned before, digitization is ubiquitous, and it permeates many (if not all) layers of existence in modern societies. At the same time, the digital world is invisible: people are often unaware of the systems themselves, their characteristics, their purpose, their prerequisites, or how these systems shape their behavior (often under their direct impact – gambling, social networks, photo and video platforms, etc.).

Growing digitization of the world is leading to the fact that digital technologies and digital concepts deeply penetrate in our daily lives. The need for a formalized understanding is important for expanding opportunities not only for active participation in the life of society and formation of the future, but also for combating the criminal manifestation of the digitalization of consciousness. The embodied understanding refers not only to the theoretical knowledge of digital technologies, but also to treating digitization as a criminal law phenomenon.

Due to the rapid growth of digitization, cybertechnologies have been placed into the center of modern society

governance, from work to banking and even healthcare. The digital age not only creates new trends in technologies, but also affects the society setting priorities of a criminal law nature. At the same time, for this purpose, it is necessary to determine main trends supported by the current development of digitization and society.

3.1. Trend no. 1: Identity Power

It is generally believed that the more technologies advance, the less important humans are. Some even predict that humans will be replaced by robots in most aspects of our life. Undoubtedly, robots are in some respects more accurate and faster than humans to assess the situation, in other respects their capabilities are more restricted due to their limited ability to interpret the context and perform calculations based on a system of values, and therefore people will be at the forefront of digitization of the society. The employment of robots will be possible, but again it is the behavior of people making decisions that serves as a measure, which does not always meet the highest standards .

However, in the nearest future companies will rely on people to succeed, either to work with them or buy their products and services. In the digital age, the role of individuals is becoming more important than ever. Social media enable companies to cover a much wider range of potential customers, which also increases competition. Companies must understand what consumers want and so consumers would be aware of their identity.

3.2. Trend no. 2: Decentralized Cooperation

The traditional vertical hierarchy is likely to become a thing of the past. The networked world provides a higher level of automation and replaces traditional models for many tasks, such as manufacturing, purchasing, and transportation. Basically, nowadays more devices can be connected to the Internet thanks to what is known as the "Internet of things". It creates a network where everyone can interact being in the network. An example of this is a smart home that works on its own, includes lighting, locks, appliances, and even power consumption. Along with the Internet of things, blockchain plays an important role in decentralized cooperation. A striking example of this is cryptocurrency. Not so long ago, almost all payments were made in cash or by check. Currently, a huge number of purchases are made online, some of them without official forms of currency such as bitcoin. Blockchain technology allows making payments and refunds without any interaction with third parties.

3.3. Trend no. 3: New economy based on data

Next in the list of trends based on the digitization of the society is the role of data in the modern economy.

However, the problem is to convert such data into a useful format. Real-time data and forecasting have already expanded capabilities for analytics and contributed to the creation of new business models. But this is only the beginning. People still have to realize the potential of data, and huge steps have already been made towards a data-based economy. The information collected also changes transport. Just a couple of decades ago, the idea of unmanned vehicles seemed unrealistic, now data makes it a reality.

The real-time analysis of location and traffic data has made it possible to see unmanned cars on the roads. In simple terms, data is the most important resource of our time and a catalyst for transformations of almost all aspects of the modern society. However, there are big concerns about such issues as privacy, security, and data ownership. Attacks on various parts of the information networks, from company-owned servers full of customers' personal information to domain name servers that are critically important for the proper functioning of the networks, reveal vulnerabilities and risks of the digital age. Companies employing digital networks and digital thinking destroy existing industries. Digital tools also open up new opportunities to organize criminal activities and thus challenge existing government structures responsible for decision-making.

3.4. Trend no. 4: Physical-digital convergence

The last but not the least trend is physical and digital convergence. This merging of digital and physical worlds is a vital step for digitization of the society, with co-existence with artificial intelligence (AI) as the key to making this step. There are many definitions of artificial intelligence that can currently be found in the literature. For example , "artificial intelligence is an activity aimed at making machines intelligent, and intelligence is the quality that allows a subject to function properly and prudently in their environment". Another key definition of this concept is the following : "AI is a field of computer sciences dedicated to solving cognitive problems usually associated with human intelligence, such as learning, problem solving, and pattern recognition". Or "AI is the theory and practice of developing computer systems that can perform tasks that usually require human intelligence, such as visual perception, speech recognition, decision-making, and translation from one language to another".

AI-based devices are already available in millions of homes around the world, including virtual assistants on smartphones and smart speaker interfaces. The quality of AI with time will only improve, which means that it will be possible to automate all purchase orders with a digital assistant in the future, thus simplifying many aspects of everyday life.

New artificial intelligence algorithms can study data traffic, access, and transmission, as well as detect "adjustments" or any irregularities in data patterns. If something unusual is detected, AI programs can go deeper into the data to determine if there is a breach in the security system. Another way in which AI is used to prevent cyberattacks is a technique called "supervised learning". By means of this method, the algorithm is provided with a number of inputs and outputs and over time "learns" to detect threats, making conclusions based on the data it sees or expects to see. For example, controlled learning can be used to detect complex malware that are often disguised as a harmless piece of code. Although they are not visible to the public, research and development of systems in areas such as document search, text classification, fraud detection, recommendation systems, personalized search, social network analysis, planning, diagnostics, and A/B testing have been major achievements that such companies as Google, Netflix, Facebook, and Amazon have taken advantage of.

As the society becomes more digital and enters a post-digital era where life is ultimately connected to the digital, a question arises: Who sets the direction for the society to develop? On the other hand, who is able to set such a direction at all? One of the prerequisites is the idea that digital technologies as abstract phenomena are difficult to understand. When this intangible nature of digitization is combined with the growing demand for productivity through innovative digital technologies, it becomes obvious that there is an imbalance of interests between the dominant players — mostly corporations — and the society as a whole. For example, many companies developing digital technologies are excessively optimistic about the progress of digital technologies. This belief in the natural progress of digital technologies to solve urgent issues very often ignores social, political, and cultural aspects and judgments concerning the future of digital technologies. In addition, increasing awareness of the digital reality can lead to more critical and balanced views over digital technologies, which can then create an environment in which it will be possible to challenge the dominant deterministic rhetoric of digital technologies.

Cybertechnology is not neutral, because it is an expression of human existence. They are anthropomorphic and reproduce human action, which is always values-based. The social world created by a person is a mirror of the virtual environment in which a person lives, and it is shaped by their activities. Thus, we can say that the Internet is a link between human existence and human activity. Health, emotions, and digital environments are just a few examples to refer to when speaking about life forms that are becoming digital and about the importance to discover and explore new forms of this process.

It can be accounted for by the fact that technology expresses how a person lives their daily existence and how they organize themselves in terms of both relationships to each other and the types of subjects that they see themselves. In this case, "digitization" means transforming analogue information in its digital form. The better computing capabilities the machine had, the higher speed and efficiency of digitization we could see. The Internet age has significantly contributed to this process.

4. CONCLUSION

Digitization can be seen in all aspects of human activity. The final evolution of this exciting process is its culmination in the digitization of human lives. Technological advances take place, literally speaking, at the speed of thought. Computing power is growing exponentially, processing chips are getting smaller, and communication networks are breaking new speed and bandwidth barriers. Sensor technologies open new horizons. People put sensors in everything from clothing (to control the temperature regime) to sneakers (to assess the performance of an athlete) to home automation systems (to create a "smart" home). People create a more intelligent and better-connected society.

The phenomenal growth of social networks proves that people are committed to digital life. The fact that people enjoy demonstrating every little aspect of their lives on a digital platform is obvious to 2.5 billion social media users around the world. But although digitization of life experiences is very real and takes place all over the world, this process is not truly democratic. In fact, a person does not control their data. They must rely on a certain platform to create a digital identity. Nowadays it is possible to use digital technologies to solve a problem that seemed impossible just two decades ago. Cheap, universal Internet access enables a large number of people to participate in the steadily growing digital economy.

In this regard, it should be concluded that the technological progress in the world is developing extremely rapidly. Meanwhile, individuals, becoming a part of technologies and technological progress, find themselves in a unique cyberenvironment without borders. At the same time, at present, this cyberspace, which is much wider than the global Internet network, involves everyone without exception, including individuals, government institutions, states and other social communities, which clearly emphasizes the need to regulate relations between the subjects and objects of this unique space, including in the field of their security.

Thus, we should recognize that the development of a single digital infrastructure alone will not solve the problem of cybersecurity and, consequently, we must focus on the implementation of simultaneous development of information technologies and law, taking into account specific national culture of a state, but in strict accordance with international standards in the area of cybersecurity, given the cross-border nature of such crimes. While implementing these provisions, it is necessary to make the norms of criminal law consistent with actions that entail criminal acts, but with the use of cybertechnologies. It should not be detrimental to the infrastructure development, which is quite complex, but it is vital for the society.

REFERENCES

[1] M.M. Mednikova, S.A. Novikova, The Place of Virtual Reality in the Life of Young People Nowadays, Issues of Science and Education. 5 (6) (2017) p.140.

[2] V.A. Kartashev, Experience of creating algorithms and programs to control robots (the organization of their operation and ways of improving their reliability), Preprints of the Keldysh Institute of Applied Mathematics, No. 121(2016) p. 32. DOI:10.20948/prepr-2016-121

[3] R. Arkin, Governing Lethal Behaviour: Embedding Ethics in a Hybrid Deliberative/Reactive Robot Architecture, Technical Report GIT-GVU-07-11. URL: http://www.cc.gatech.edu/ai/robot-lab/online-publications/formalizationv35.pdf.

[4] R. Arkin, Governing Lethal Behaviour in Autonomous Robots, CRC Press (2009).

[5] P. Asaro, How Just Could a Robot War Be? Current Issues in Computing and Philosophy (2008).

[6] D.M. Berry, Critical Theory and the Digital, A&C Black, London (2014) p. 15.

[7] L. Patrick Introduction to Robot, Robot Ethics: The ethical and Social Implications of Robotics, MIT Press, (2012).

[8] P. Lin, Autonomous Military Robotics: Risk, Ethics, and Design, San Luis Obispo, California Polytechnic State University (2008). URL: http://ethics.calpoly.edu/ONR_report.pdf.

[9] G. Marchant International governance of autonomous military robots, Columbia Science and Technology Law Review, Volume XII (2011).

[10] N. Negroponte, Being Digital, Originally published in 1995, New York: Vintage (2015).

[11] P. Singer, Wired for War (Penguin Group (USA) Incorporated (2009).

[12] P. Singer, The Cyber Terror Bogeyman, Brookings. (2012). URL: https://www.brookings.edu/articles/the-cyber-terror-bogeyman/

[13] D. Wang, A problem solving oriented intelligent tutoring system to improve students' acquisition of basic computer skills, Comput. Educ. (2015).

[14] W. Ma, Intelligent Tutoring Systems and Learning Outcomes: A Meta-Analysis, J. Educ. Psychol (2014).