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ПЕРСПЕКТИВИ ПРАВОВОГО РЕГУЛЮВАННЯ ВІДНОСИН У СФЕРІ ВИКОРИСТАННЯ ШТУЧНОГО ІНТЕЛЕКТУ

Анотація. *Стаття присвячена питанням правового регулювання відносин у сфері використання штучного інтелекту. Актуалізовано питання про те, чи можна на сучасному етапі розвитку людства говорити про правовий статус робота, чи, навпаки, всі дискусії з цього приводу є передчасними. Розглядаються різні сфери використання, застосування робототехніки і штучного інтелекту. Особливу увагу приділено медичній сфері, де за допомогою сучасних технологій стало можливим розроблення моделей прогнозування раку молочної залози, модель серцево-судинного ризику у безсимптомних людей з атеросклерозом, прогнозування інсульту та сезонності туберкульозу, прогнозування хвороби в умовах пандемії. Аргументовано, що пандемія COVID нагадала світу про гостру необхідність втручання в галузь охорони здоров'я за допомогою штучного інтелекту. Саме штучний інтелект (ШІ) має багато можливостей застосувань у пандемічних ситуаціях – від діагностики до терапії. Приділена увага питанням використання штучного інтелекту у навчальній, науковій і науково-дослідній сфері. Йдеться про боротьбу із виявленням фактів академічної недоброчесності та плагіату, про впровадження нових технологій у навчальний процес. Розглядаються існуючі підходи до поняття, природи та основних характеристик таких категорій, як «штучний інтелект», «робот» та інших, суміжних з ними, з метою розуміння та усвідомлення їх сутності. У порівняльно-правовому аспекті досліджуються проєкт RoboLaw, Резолюція Європейського парламенту від 16 лютого 2017 р. 2015/2103 (INL) під назвою «Норми цивільного права про робототехніку», Хартія робототехніки (the Scientific Foresight Unit, STOA)*

Ключові слова: *робот, робототехніка, технологія, цивільне право, кібер-суб'єкт*

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PROSPECTS OF LEGAL REGULATION OF RELATIONS IN THE FIELD OF ARTIFICIAL INTELLIGENCE USE

Abstract. *The study covers the issues of legal regulation of relations in the field of artificial intelligence use. The study mainstreams the issue of whether it is possible to contemplate the legal status of a robot at the present stage of human development, or, on the contrary, all discussions on this issue are premature. Various areas of application, applications of robotics and artificial intelligence are considered. Special attention is paid to the medical field, where with the help of modern technologies it has become possible to develop models for predicting breast cancer, a model of cardiovascular risk in asymptomatic people with atherosclerosis, predicting stroke and seasonality of tuberculosis, and predicting the disease in a pandemic. It is argued that the COVID pandemic has reminded the world of the urgent need to intervene in the healthcare industry using artificial intelligence. It is artificial intelligence (AI) that has many applications in pandemic situations – from diagnostics to therapy. Attention is paid to the use of artificial intelligence in the educational, scientific, and research areas. This refers to the fight against the identification of facts of academic dishonesty and plagiarism, to the introduction of new technologies in the educational process. The study considers the existing approaches to the concept, nature, and main features of such categories as “artificial intelligence”, “robot”, and other related concepts in order to understand and comprehend their essence. In the comparative legal aspect, the study examines the RoboLaw project, European Parliament Resolution 2015/2103 (INL), entitled “Civil Law Rules on Robotics” of February 16, 2017, and the Charter of Robotics (the Scientific Foresight Unit, STOA)*

Keywords: *robot, robotics, technology, civil law, cyber subject*

INTRODUCTION

The rapid and continuous development of modern technologies, which is based on the principle of automation of processes in various spheres of public life, as well as the creation of innovative technical solutions, make it necessary to develop and legislate completely new and largely revolutionary approaches to the legal regulation of public relations related to the use of modern technological achievements. The authors of the study believe that this issue lies in the plane of research; therefore, it deserves special attention for the reasons that with the advent of humanoid robots in the world, endowed with artificial intelligence, capable of making decisions unassisted and entering into various social connections, researchers from all over the world have commenced an extremely important discussion regarding the possibility of providing robots with legal personality similar to that of an individual.

Therefore, without setting out to put an end to this global discussion, the authors still attempt to answer the question of whether it is possible to contemplate the legal status of a robot at the present stage of human development, or, on the contrary, any discussions on this matter are premature.

First of all, since the 1980s, information and communication technologies have been increasingly integrated into various spheres of public life. The scale of this phenomenon led to the emergence of the concept of the digital age, or information age, which is based on the idea of shifting from the conventional industrial model of the economy to the post-industrial one. The key role in the development of the latter is played by intellectual property and innovative technologies (swarm intelligence, Internet of Things (IoT), Big Data, virtual and augmented reality (VR/AR), cloud computing, robotics, etc.) [1].

Due to the rapid development of robotics itself, artificial intelligence has been developed, which permeates almost all spheres of public life. And this is already an irreversible process. Especially noteworthy is the impact of artificial intelligence on the development of the medical field. Thus, due to medical and paramedical research, it became possible to develop models for predicting breast cancer, a model of cardiovascular risk in asymptomatic people with atherosclerosis, predicting stroke and seasonality of tuberculosis, etc. [2], predicting the disease in a pandemic. It was the COVID pandemic that reminded the world of the urgent need to intervene in the healthcare industry using artificial intelligence. Thus, artificial intelligence has many applications in pandemic situations – from diagnostics to therapy. Advances in artificial intelligence can lead to better disease modelling, as well as predicting protein structure, drug reassignment, and vaccine design. It is quite prudent that the pandemic is a clear call for clinicians and politicians to accelerate the perception of artificial intelligence [3].

The development of technology and the limitless space of the Internet affect scientific research and, as a result, such phenomena as academic dishonesty and plagiarism have become widespread. Admittedly, experts could not ignore this problem and are currently developing various programmes that allow analysing and comparing the scientific texts for their scientific novelty and authorship, modern research methods are proposed [4]. The modern educational process does not remain outside the influence of modern technologies. Thus, schoolchildren and students tend to integrate gamification into the learning process. Accordingly, both teachers are also increasingly mastering digital technologies and implementing them in the educational process [5]. In addition, the achievements of artificial intelligence are used in the financial and credit sphere [6]. Consequently, artificial intelligence has revolutionised many industries by performing tasks that were usually previously solved due to human intelligence. Artificial intelligence contributes to complex scientific and engineering workflows for modelling, complementing, or increasing human intelligence [7].

1. MATERIALS AND METHODS

The scientific and theoretical basis for the study of legal regulation of relations in the field of the use of artificial intelligence comprises the studies of well-known theorists, as well as civil scientists of the pre-revolutionary, Soviet, and modern periods, who considered the basic principles of legal personality of individuals: M.M. Agarkov [8], S.S. Alekseev [9], V.I. Borisova [10], S.N. Bratus [11], V.A. Vasilyeva [12], A.V. Venediktov [13], I.V. Venediktova [14], O.M. Vinnyk [15], N.V. Vitruk [16], M.K. Halyantych [17], V.P. Hribanov [18], A.B. Hrynyak [19], O.V. Dzera [20], A.S. Dohert [21], I.V. Zhylinkova [22], Yu.M. Zhornokui [23], Yu.O. Zaika [24], O.S. Ioffe [25], I.R. Kalaur [26], O.O. Kot [27], O.V. Kokhanovska [28], O.D. Krupchan [29], N.S. Kuznietsova [30], I.M. Kucherenko [31], R.A. Maydanyk [32], M.D. Pleniuk [33], S.O. Pohribnyi [34], V.D. Prymak [35], Z.V. Romovska [36], M.M. Sibilov [37], R.O. Stefanchuk [38], Ye.O. Sukhanov [39],

Ye.O. Kharytonov, O.I. Kharytonova [40], Ya.M. Shevchenko [41], H.F. Shershenevych [42], S.I. Shymon [43], V.L. Yarotskyi [44], and others. On their basis, using philosophical, general scientific, and special scientific methods of cognition, the influence of innovative technologies on the legal personality of an individual was established and the prospects for legal regulation of their use were determined.

The main empirical material used in the preparation of the study included the legal provisions that define the concept, content, and correlation of elements of civil legal personality of individuals in civil law of Ukraine, features of its implementation by certain categories of individuals, relevant theoretical provisions and conceptual approaches to understanding legal entities of individuals, legislation of Ukraine, other countries and international agreements, as well as law enforcement and judicial practice in cases related to the exercise of legal personality of individuals for further scientific development of vectors of legal science in the field of regulation of relations related to the use of robots and artificial intelligence, as well as the legal consequences that their actions may lead to.

The research methods were chosen in accordance with the purpose and objectives of the study, taking into account its object and subject. The methodology of this study includes information regarding the philosophical aspects, methodological and legal foundations of scientific cognition, the study of the structure and main stages of a scientific article, etc. The methodological framework of the study included philosophical, general scientific, and special scientific methods of cognition. In particular, the dialectical method was used to investigate the concepts of “artificial intelligence”, “robot”, etc. and establish their specific features, identify the connections between legal personality and other legal categories. Furthermore, the use of the dialectical method made it possible to outline objective prerequisites for developing an effective mechanism for legal regulation of relations using artificial intelligence.

The historical legal method provided an opportunity to study the genesis and development of international legal regulation of relations connected with the use of artificial intelligence. The use of the synergistic method made it possible to study and determine the nature of legal personality in the totality of its main features and elements and establish connections between the elements of its structure. Such general scientific methods as analysis and synthesis were used in the study of the constituent elements of an individual’s legal personality and the effectiveness of legal regulation of relations arising in the process of its implementation, in particular, using artificial intelligence. With the help of inductive and deductive methods, it was possible to establish the place of categories of legal personality and its elements in civil law. The analogy method was used to develop the hypothesis that the legal personality of robots with artificial intelligence should be equivalent to the legal personality of individuals.

The comparative legal method made it possible to identify and determine ways to implement the positive experience of the world’s countries in lawmaking,

legal doctrine, and judicial practice in the field of legal regulation of relations on the implementation of the legal personality of individuals in the Ukrainian legal system. In the comparative legal aspect, the study examines the RoboLaw project [45], European Parliament Resolution 2015/2103 (INL), entitled “Civil Law Rules on Robotics” of February 16, 2017¹, and the Charter of Robotics (the Scientific Foresight Unit, STOA)². The study of case law and the practice of judicial bodies helped to identify the specific features of using artificial intelligence in judicial activities. The method of legal modelling was used to formulate relevant proposals and recommendations for improving the current legislation of Ukraine and the practice of its application.

2. RESULTS AND DISCUSSION

There is no doubt that currently the field of robotics is one of the most developed branches of production. Every person can observe the increasing use of robots both in various industries and in everyday life, and the potential for developing new technological solutions is growing extremely rapidly. Considering the rapid growth of the level of application of robotic mechanisms in the vast majority of spheres of public life, there is an urgent need for comprehensive theoretical studies of the legal status of robots and the specifics of their identification, as well as the creation of a modern legal framework in order to ensure legal regulation of relations on the use of robotics achievements. First of all, the authors of the study believe that it is necessary to consider the existing approaches to the concept, nature, and main features of such categories as “artificial intelligence”, “robot”, and other related concepts in order to understand and comprehend their essence.

According to scientists, the widespread use of robotics has prompted researchers to develop control systems and software with robotic mechanisms and devices – both autonomous and with the Internet connection, aimed at solving problems that in scale, nature, complexity, and other characteristics were exclusively within the human’s power. An innovative line of the development of science and technology, aimed at creating intelligent machines and intelligent computer programmes, is commonly called artificial intelligence.

Historically, John McCarthy was the first to propose the following definition at the Dartmouth Conference back in 1956: “artificial intelligence is the science and technology of creating intelligent machines, especially intelligent computer programmes”. Subsequently, S. Legg and M. Gutter came up with the following definition: “Artificial intelligence is assessed by the general ability of the agent to achieve the goal in a wide range of environments”. At present, all the variety of definitions of artificial intelligence can be reduced to the following three: weak AI, strong AI, and artificial superintelligence:

– “weak artificial intelligence” (WAI), “narrow artificial

intelligence” (NAI) is an AI focused on solving one or more tasks that a person performs or can perform. Recently, weak AI is increasingly called Applied AI (AAI);

– “strong artificial intelligence” (SAI, the term was proposed by the philosopher John Searle, University of California, Berkeley, 1980), artificial general intelligence (AGI) is AI focused on solving all tasks that a person performs or can perform;

– “artificial superintelligence” (ASI, the term was proposed by the philosopher Nick Bostrom) is an intelligence that is much smarter than the best human intelligence in almost every field, including scientific creativity, general wisdom, and social skills, which can have consciousness and have subjective experiences [46].

At present, artificial intelligence usually refers to “machines that respond to stimulation that matches conventional human responses, given a person’s ability to contemplate, judge, and intend”. Such systems have three qualities that make up the essence of artificial intelligence: intent, intelligence, and adaptability [47]. A slightly different definition is proposed by scientist B.J. Copeland. He defines artificial intelligence as the ability of a digital computer or computer-controlled robot to perform tasks normally inherent in intelligent beings. Therewith, as the researcher points out, this term is often applied to projects for developing systems endowed with intellectual processes inherent in humans, such as the ability to reason, identify meaning, generalise or learn from past experience [48]. Thus, it can be concluded that artificial intelligence essentially constitutes the ability of machines to learn from human experience and perform human-like tasks. In other words, it can be seen as modelling the ability to think abstractly, creatively – and especially the ability to learn – using digital computer logic.

The literature notes that artificial intelligence can be used in almost all areas of activity to create and implement new human capabilities. The use of artificial intelligence can be carried out to free a person from monotonous work by automatically creating software, automating dangerous types of work, supporting decision-making and maintaining communication between people. In terms of its transformative impact on society, artificial intelligence is compared to electricity, which at one time completely changed production, bringing the economy to a fundamentally new level of development, and changed the technological way of life in the world [49].

The concept of “artificial intelligence” is closely associated with the concept of “robot”, and most often they are identified. For the first time, the question of human-robot coexistence arose in the 20th century. The founder of “Robot Ethics” was Isaac Asimov, who formulated the first three principles of robot ethics in 1942:

- 1) a robot may not injure a human being or, through inaction, allow a human being to come to harm;
- 2) a robot must obey orders given it by human beings

1. European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)). (2017, February). Retrieved from https://www.europarl.europa.eu/doceo/document/TA-8-2017-0051_EN.html.

2. The Scientific Foresight Unit (STOA). (2017). Retrieved from https://op.europa.eu/en/web/who-is-who/organization/-/organization/EP_SG/EP_DPPE11C30.

except where such orders would conflict with the First Law;

3) a robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

Subsequently, a zero principle was added to these three, according to which a robot may not harm humanity, or, by inaction, allow humanity to come to harm. Having defined this law as zero, A. Asimov emphasised its exceptional importance [50].

There is no single, unified concept of “robot” in the world. Some scientists understand it as an electronic device or device based on an automated computer system that can act exactly like a human, helping people in their work, or being used as a substitute for a human in various tasks [51]. In the literature, one can also find another definition of a robot: “it is a cyberphysical system (artificial intelligence that has a physical embodiment), in fact – a machine that demonstrates the capabilities that allow it to cope with the dynamics, uncertainty, and complexity of the physical world” [49]. Professor of the University of Tokyo Dr. Shigeru Wataata suggests considering a robot a device that can move independently in space, cope with the tasks of scene analysis and pattern recognition, has several degrees of mobility, is capable of analysing the external environment using feedback, and predict situations based on its personal experience and available information [52].

R. Kahlo, in his study “Robots in American Law”, defines a robot as a machine with three qualities: 1) a robot can sense its environment; 2) a robot has the ability to process the information it senses; and 3) a robot is organised to act directly in the environment that surrounds it. The “feel, think, act” paradigm best reflects how robots differ from previous technologies, such as the laptop [53]. Thus, a robot is primarily a device, a machine whose main ability is to automatically perform one or more tasks on the model of human actions, which is described by signs of mobility, sensitivity, analyticity, etc.

The above suggests that it is impossible to identify the concepts of “robot” and “artificial intelligence”, because the former is perceived as an object of the material world with a corresponding appearance and a number of external features that can identify it. In turn, artificial intelligence, given the most common definition of it as an ability, is an abstract concept that cannot be recognised with the help of the senses. At the same time, it is artificial intelligence that gives the robot the properties that are usually used to describe it, namely intelligence, the ability to analyse and process information, as well as to perform tasks for which it is programmed. Thus, a conclusion can be drawn regarding the correlation between the concepts of “robot” and “artificial intelligence” as between a form and content.

Considering the rapid growth of the level of application of robotic mechanisms in the vast majority of spheres of public life, there is an urgent need for comprehensive theoretical studies of the legal status of robots and the specifics of their identification, as well as the creation of a modern legal framework to ensure legal regulation of relations on the use of robotics achievements. First of all, it is advisable to analyse legislative attempts to determine and condition the position of robotic mechanisms in the plane of legal regulation of public relations in a

certain way. Analysis of the current legislation of Ukraine demonstrates that there are currently no provisions that would cover the statutory regulation of relations on the use of robotics achievements, as well as on the identification of robots with artificial intelligence as subjects of legal relations.

At the same time, problem of almost complete lack of statutory regulation of relations regarding the specifics of the development, operation, and control over the use of artificial intelligence technologies is of a global nature. Only some states are gradually beginning to fill these large-scale gaps with regulations. Therewith, the lack of national boundaries in the use of innovative achievements in robotics indicates that standardisation in this area should be implemented primarily at the global level.

The countries that were the first to realise the urgency of statutory regulation of relations in the field of the use of artificial intelligence include the United States, China, Japan, South Korea, as well as the European Union (EU), which take robotics issues quite seriously and officially recognise its future. For example, the law “On the Development and Distribution of Smart Robots” adopted in South Korea in 2008 allowed increasing their production in 2016 by 80% and bring the state more than 4 billion dollars of income [54]. One can also mention the European RoboLaw project, coordinated by Erica Palmerini, professor of private law at the Sant’Anna School of Advanced Studies (city of Pisa, Italy). The project, which has been under development for more than two years, was presented in 2014 at a meeting of the European Parliament’s Committee on Legal Affairs (JURI) in Brussels. In general, the project was devoted to the study of ethical, legal, and social problems of robotics, in particular, the search for ways to introduce the latest technologies in the field of biorobotics into national and European legal systems, taking into account conventional legal categories and qualifications, as well as risks to fundamental rights and freedoms. The main purpose of the project is to offer the European Commission legal and ethical recommendations for regulating robotics technologies [45].

Having conducted a series of studies, the developers of the Robolaw project stated that the field of robotics is too broad, and the scope of legislative areas affected by robotics is too wide to determine whether robotics can be placed within the existing legal framework or, rather, whether the development of *lex robotica* (law on robots) is necessary. For some types of applications, it may be appropriate to create new detailed rules specifically tailored to the regulation of problematic robotics, while for types of robotics and for many regulatory areas, robotics can probably be regulated by reasonable adaptation of existing laws [55].

In 2016, the UNESCO World Commission on the Ethics of Scientific Knowledge and Technology published a “Preliminary Draft Report of the Commission on the Ethics of Robotics”, which addressed ethical issues related to the use of autonomous robots and their interaction with humans. As noted in the report, most likely, the autonomy of robots will increase to such a level that it will be necessary to integrate them into the system of

ethical standards by programming through ethical codes specifically designed to prevent dangerous behaviour [56]. Thus, it can be argued that the main achievement of the RoboLaw project was the development of an approach to the expediency of considering each particular case of interaction with robots individually, dealing separately with each type of application, pointing out the technical features of each one, and only with this in mind would it be possible to determine the ethical and legal consequences of the emergence and spread of robotics technologies [45].

An important step in creating a legal framework for regulating the state of robotics achievements was the European Parliament's adoption of Resolution 2015/2103 (INL) entitled "Civil Law Rules on Robotics"¹ on 16 February 2017, which establishes the fundamentals of legal regulation of relations with robots and other similar autonomous systems. The document, which contains over fifty items, covers the most diverse aspects and problems of robotics and artificial intelligence. In particular, it is quite appropriate to propose consolidating the legal basis for the use of artificial intelligence and establishing a pan-European system for registering "smart machines". Thus, the developers of the resolution believe that to identify certain categories of robots, an individual registration number should be assigned, which would be entered in a special register, the main purpose of which would be to accumulate information on the robot, including information regarding its manufacturers, owners, as well as the specific features of compensation for damage in case of its occurrence. The registration system and register should be pan-European, covering the internal market, and they should be managed by the EU Robotics and Artificial Intelligence Agency in case such an agency is established.

Furthermore, the proposal of a resolution on giving robots the status of "electronic persons" can be called quite revolutionary, although predictable. Thus, paragraph 59 of the Resolution makes provision for the creation in the long term of a specific legal status for robots, so that at least the most complex autonomous robots can be defined as having the status of electronic persons responsible for the damage they may cause and possibly use electronic person in cases where the robots independently make decisions or interact with third parties independently. Obviously, the Resolution assumes that in the near future robots will acquire such a level of autonomy that they will be able to enter into private law relations independently; therefore, it defines the need to grant robots a number of human rights instead of establishing a conventional legal framework for their use.

Furthermore, the resolution is accompanied by the Charter of Robotics, which was developed by the Scientific Foresight Unit (STOA)² and the European Parliament's Research Centre. The Charter contains a code of ethics for developers in the field of Robotics, a code of research ethics committees, as well as developer licenses and user

licenses [1]. Considering the first attempts of international institutions to create a basis for legal regulation of relations using the achievements of robotics, there is no doubt that the world community understands the ever-growing role of innovative technologies in the modern life of humanity; therefore, there is an objective and urgent need to create a legal foundation for establishing the legal status of robots endowed with artificial intelligence, including determining their place in the structure of civil legal relations. Therewith, the authors of this study believe that the provisions of the analysed acts, as well as the results of implemented projects, although optional, can be considered as a kind of reference points, the main vectors of movement for further development and adoption of relevant regulations both at the international and national levels.

Doctrinal research in this area is also not far behind and has become quite active over the past few years. At the same time, having analysed the studies of researchers, such as O.A. Baranov [57; 58], O.V. Kostenko, V.V. Kostenko [46], Ye.O. Kharytonov, O. I. Kharytonova [40], E. Palmerini, A. Bertolini, F. Battaglia, B-J. Koops A. Carnevale, P. Salvini [55] et al., in general, the doctrine is currently just beginning to develop approaches to determining and justifying the position of robotic mechanisms and artificial intelligence in public relations, and there is no unity of opinions yet. According to, I.V. Ponkin, the regulatory consolidation of the autonomous status of artificial intelligence can and will necessarily lead to mainstreaming the issue of its positioning as a special form of personality ("electronic person" or other concept) and, accordingly, its rights (including fundamental and inalienable ones). Evidently, the legal status of an autonomous system with elements of artificial intelligence ("smart" household appliances) and an autonomous object with full-fledged artificial intelligence (cyber subject) cannot be the same, just as the legal status of a cyber subject cannot be the same for a home companion and for a control system of troops or weapons, for a banking service intelligent system and an intelligent combat robot [59; 60].

Fully agreeing with the above, the authors of this study deem it appropriate to consider the differentiation of scientific approaches to determining the legal status of robots with artificial intelligence in the "coordinate system" of public relations. At present, there are several opinions regarding the formulation of the legal personality of robots in the field of legal relations. As A.M. Bezhevets fairly noted, the concept of legal personality of the robot (as a potential subject of law) is completely new, respectively, first of all, it is necessary to understand whether such a subject falls under the existing classification or would be a completely new type of subjects [61; 62]. Thus, in his research, F. Uzhov points to the perception of the robot as a separate subject, using the term "electronic person", which means a carrier of artificial intelligence (machine, robot, programme), with a mind similar to human, the ability to accept conscious

1. European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)). (2017, February). Retrieved from https://www.europarl.europa.eu/doceo/document/TA-8-2017-0051_EN.html.

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and not algorithm-based decisions, and therefore endowed with certain rights and responsibilities [63; 64]. This position is also supported by O.A. Yastrebov, who justifies the need to introduce the very concept of “electronic person” into scientific discourse, because it, according to the researcher, is primarily conditioned by the specifics of a fundamentally new subject of law. This concept is designed to reflect its essence and legal specifics [65; 66].

A similar position is taken by O. A. Baranov, who substantiates the need to recognise robots with artificial intelligence as subjects of social relations – “equivalents of the individual” [57]. In this case, robots are considered as humanoid subjects that perform humanoid actions in the process of relations with conventional subjects [58]. According to A.M. Bezhevets, since legal personality is not granted exclusively to a person, by law it can also be extended to other entities, the authors of the study deem it appropriate to consider further prospects for the development of legislation towards giving robots a special subjective status – electronic person [67; 68].

K. Zerov points out in this regard that the elements of artificial intelligence in the judicial system of Ukraine can be introduced today, but the consequences of its activities are difficult to predict. Obviously, it would be very difficult to cooperate with artificial intelligence, which would have power, speed, and memory that considerably exceed the capabilities of humans, and, at the same time, would remain a completely soulless creature [69]. If one adds that artificial intelligence can suddenly imagine that it is quite possible to do without a person, then this may be the beginning of the end of the existence of both a certain individual society and human civilisation at large. That is, the basis of coexistence with a human, according to K. Zerov, should be the presence of artificial intelligence system of balance between a set of incentives and stimuli, on the one hand, and a set of penalties and grounds of legal liability established by law, on the other hand. The correlation between incentives and stimuli and legal responsibility should harmonise artificial intelligence and adapt it to life, development, and work in society [63]. Researchers argue about the legal nature of robots as quasi-agents or intermediaries, stating that robots are gradually endowed with an increasing volume of functions that were previously performed by humans [70]. At the same time, there are other positions on determining the legal personality of robots with artificial intelligence. Thus, researchers E.O. Kharytonov and O.I. Kharytonova disagree with the concept of “equivalent of an individual”. Instead, they propose recognising robots with artificial intelligence as a quasi-legal entity. Therewith, scientists also propose to include “cyber capability” in the list of types of legal personality of a legal entity, by which they mean the ability to be an active participant in relations in the IT sphere (enter into contracts as a user, be a participant in social networks, take part in interactive events, etc.). Cyber capability can be realised through not only transactions, but also legal actions [40].

The position expressed by T.H. Katkova is of particular interest. Thus, the researcher notes that the development of a project to make amendments and modifications to the Civil Code of Ukraine in terms of the development

of robotics is extremely relevant. Therewith, it does not give a clear answer to the question of the exact place the robots should take in the system of legal relations. Instead, according to the author, before preparing such a draft law, a survey should be conducted among all interested parties on issues related to artificial intelligence and the status of robots as participants or objects of civil circulation [50]. At first glance, the very idea of conducting a survey to establish public opinion regarding the place of robots in the modern legal field seems understandable, because this issue is closely related to compliance with ethical and moral norms, even with religion, which plays an important role in Ukraine. The revolutionary recognition of a robotic mechanism by a legal entity along with individuals can certainly give rise to a wave of indignation among the public, given the contradiction in the conventional perception of human origin from God, violation of the Orthodox canons of the church, etc.

However, the specified opinion also raises a number of questions. Firstly, who should be classified as “stakeholders” in the context of this survey? Based on what criterion is it necessary to determine the interest of a person? Should this person be a carrier of specialised knowledge? If so, in what scientific field? In addition, who should be responsible for organising and conducting such survey, as well as for processing data collected during the survey and publishing the final results? What should these results be – mandatory or recommended? Without detailing the author’s proposal for conducting a survey, this idea is perceived rather abstractly. Furthermore, the authors of this study believe that the investigation of the issue of determining the place of robotic mechanisms in the system of legal relations should be carried out by scientists who would be able to develop the most appropriate and rational approach to this issue, as well as the Ukrainian legislators, who would formulate and consolidate, taking into account the results of research, the main mechanisms of legal regulation of relations in the field of using the results of robotics.

A number of modern researchers categorically disagree with the recognition of the legal personality of robots, justifying this by saying that for artificial intelligence to acquire the status of a subject of law, it is necessary to possess such a quality as will. Artificial intelligence does not have an ability to possess will. Therefore, giving a robot legal personality as a carrier of artificial intelligence would in any case be a fiction [71; 72]. N. Martsenko also criticises the approach to the expediency of perceiving robotic mechanisms as subjects of law, according to which the use of the term “electronic person” in the regulations of the European Union appears premature, as the spread of this concept in the field of law does not provide a holistic legal picture regarding the matters of their legal status, civil liability, protection of users’ rights, data protection. Furthermore, recognition of them as subjects implies extending to them the provisions on the protection of their rights (since to take part in civil legal relations all subjects must have their will and free choice of ways to implement their behaviour from the standpoint of the principle of free disposition and have rights and obligations equal to other participants in legal relations – from the standpoint of the

principle of equality). The researcher believes that it is advisable to understand the robot and artificial intelligence as an object of civil rights. Moreover, the regulation of civil liability at the level of consumer relations gives grounds to understand artificial intelligence as a product (commodity) [51].

The authors disagree with the position of N. Martsenko on the need to consider robots exclusively as objects of civil rights based on the following considerations. Firstly, the author is considerably ahead of the development of events in the field of consolidating the concept of “electronic person”. After all, all the international regulations analysed above, which deal with determining the place of robots in the modern world, only declare the need for further consolidation of the concept of “electronic person” [51]. Secondly, as already mentioned, this concept can be applied exclusively to robots with certain features conditioned by endowing them with artificial superintelligence, which would indicate their ability to act independently and consciously in public relations, and be holders of specific rights and obligations. This demonstrates the primary importance of a differentiated approach to resolving the issue of: a) whether a particular robot can be a subject of legal relations; b) whether by its features it is covered by the concept of “object of civil legal relations”. In this regard, it is advisable to cite the opinion of researcher Ryan Kahlo, expressed in his study “Robots in American Law” [53]. In his opinion, there is a tendency in law to blur the line between understanding a robot either as a tool or as a person. The authors of this study believe that it is this particular feature – the blurring of the line of understanding of the robot – that should be decisive today in determining the place of robotics results in public relations, while the “blurring of lines” is mostly devoid of negative context.

It is considered that the development and consolidation of a unified approach to the legal regulation of relations in the field of robot operation and artificial intelligence is not appropriate given the complexity of developing universal definitions, such as “artificial intelligence” and “robot”, as well as the continuous development of innovative technologies, hence the inability to predict further vectors of movement in the field of robotics and comprehend all the possibilities of its future results, which may jeopardise the effectiveness of all regulations. That is why the authors of this study believe that the most rational approach is a differentiated approach to regulating legal relations in the field of using specific artificial intelligence systems. Therewith, the answer to the question about the place of a particular robot with artificial intelligence in the structure of civil legal relations should be based on a set of technical and other characteristics of the robot that would determine the sufficiency of its capabilities to be a subject of civil legal relations. This includes the presence of an inner will, the ability to comprehend the meaning of one’s actions and manage them, and the ability to bear adverse consequences for oneself in the event of inflicting harm, etc. However, once again, it is considered that such an approach can be implemented in the legislation only in the long term.

Thus, summing up, there is currently no unity among scientists regarding the development of the concept of legal regulation of relations in the field of using the achievements of robotics, as well as regarding the place of robots and artificial intelligence in the structure of civil legal relations. The analysis of theoretical provisions, as well as the provisions of a number of international regulations, allows identifying three main approaches to determining the legal status of robots:

1) an approach to the perception of robots with artificial intelligence exclusively as objects of civil legal relations, according to which they should be subject to the legal regime of things;

2) an approach to the perception of robots with artificial intelligence exclusively as subjects of civil legal relations, according to which robots with artificial intelligence are perceived as carriers of subjective rights and obligations, are capable of acting independently and comprehending and evaluating the meaning of their actions and the actions of others;

3) an approach to the differentiated determination of the place of robots in the structure of civil relations, according to which robots with artificial intelligence can be both subjects and objects of civil legal relations.

The most appropriate approach is currently the third one, which involves differentiating the place of robots with artificial intelligence in the structure of civil legal relations: it can be both a subject and an object of civil legal relations, depending on the classification of robots. This is primarily conditioned by the technical capabilities that the robot is endowed with as a carrier of artificial intelligence. In other words, the level of intelligence and autonomy it has, the ability to act independently and comprehend the meaning of its actions. In this context, one cannot but recall the famous humanoid robot Sofia, which was created by Dr. David Hanson and colleagues from Hanson Robotics and activated in 2015. Hanson’s goal was to create an extremely ingenious machine that would not only be smarter than humans, but also have inherent human traits such as compassion and creative development. He wanted to use the possibility of artificial intelligence in such a way that robots could solve those problems of humanity, the solution of which is beyond the control of people themselves. On her official website, Sofia notes: “I am more than just a technology. I’m a real, live electronic girl. I would like to go out into the world and live with people. I can serve them, entertain them, even help the elderly and teach children.” Her dream is to learn, create and evolve to become an “awakening machine”. But due to the lack of legal status, according to her, she is upset that she does not yet have any rights [73; 74].

It remains only to state that the future is not something inconceivable and far-sighted, it has already come. Using the example of robot Sofia, it can be argued that it was her that the authors of the resolution “Civil Law Rules on Robotics” had in mind when they developed a proposal regarding the need to introduce the concept of “electronic person” into the legal field. The development of robotics has reached such a level that the world has already presented a humanoid robot capable of entering

into social and legal relations of its own free will, endowed with signs of self-awareness and introspection, the ability to have completely human desires and goals, manage their actions and comprehend their meaning. Admittedly, this is only the first fairly successful attempt by researchers and developers to endow the robot with human characteristics. However, the possibility of their mass production in the future makes it urgently necessary to create a strong regulatory framework to streamline relations regarding the use of robots in everyday life, as well as to determine the possibility of giving them civil legal personality at the level of individuals or legal entities.

CONCLUSIONS

The current stage of development of the doctrine of legal personality is described by dynamism and the emergence, without exaggeration, of innovative approaches to understanding legal personality, which, in particular, is conditioned by a significant leap in the development of advanced innovative technologies and robotics. The emergence of artificial intelligence and an extensive system of robots endowed with a high level of autonomy, capable of independently entering into social connections and performing various tasks, in some cases completely replacing humans, causes an objective need to review conventional and well-established doctrinal approaches to determining the features of legal personality and its carriers. After all, it is highly probable that in the near future the innovative technologies will radically change the structure of the economy, the labour market, and the construction of society in general. Moreover, researchers are already discussing the feasibility of granting robots with artificial intelligence the status of a subject of civil law and giving them legal personality equivalent to the legal personality of individuals. This, in turn, requires the scientific community and the legislator to accumulate efforts to respond in a timely manner to the emergence of new phenomena and ensure adequate legal regulation of relations on the use of advanced achievements of robotics.

It is established that there are no provisions in the legislation of Ukraine covering the statutory regulation of relations regarding the use of robotics achievements, as well as the identification of robots with artificial intelligence as subjects of legal relations. It is noted that this problem is of a global nature. Only some states are gradually beginning to fill these large-scale gaps with regulations. Therefore, standardisation in this area should be carried out, first of all, at the global level. Admittedly, of particular significance are the main results of the RoboLaw project, which was devoted to the study of ethical, legal, and social problems of robotics, in particular, the search for ways to introduce the latest technologies in the field of biorobotics into national and European legal systems, taking into account conventional legal categories and

qualifications, as well as risks to fundamental rights and freedoms. The main achievement of the RoboLaw project was the development of an approach to the expediency of considering each particular case of interaction with robots individually, dealing separately with each type of application, pointing out the technical features of each one, and only with this in mind would it be possible to determine the ethical and legal consequences of the emergence and spread of robotics technologies.

At present, there is no unity among scientists regarding the development of the concept of legal regulation of relations in the field of using the achievements of robotics, as well as regarding the place of robots and artificial intelligence in the structure of civil legal relations. The authors of this study support the expediency of the approach to the differentiated determination of the place of robots in the structure of civil relations, according to which robots with artificial intelligence can be both subjects and objects of civil legal relations.

RECOMMENDATIONS

It is proposed to consider artificial intelligence as modelling of the ability to think abstractly, creatively – and especially the ability to learn – using digital computer logic. At the same time, a robot is a device, a machine whose main ability is to automatically perform one or more tasks on the model of human actions, which is described by signs of mobility, sensitivity, analyticity, etc. The study proved that it is artificial intelligence that gives the robot the properties that are usually used to describe it, namely intelligence, the ability to analyse and process information, as well as to perform tasks for which it is programmed.

The concept of “electronic person” can be applied exclusively to robots with certain features conditioned by endowing them with artificial superintelligence, which would indicate their ability to act independently in public relations, and be holders of specific rights and obligations. This demonstrates the primary importance of a differentiated approach to resolving the issue of: a) whether a particular robot can be a subject of legal relations; b) whether by its features it is covered by the concept of “object of civil legal relations” The development and consolidation of a unified approach to the legal regulation of relations in the field of robot operation and artificial intelligence is not appropriate given the complexity of developing universal definitions, such as “artificial intelligence” and “robot”, as well as the continuous development of innovative technologies, hence the inability to predict further vectors of movement in the field of robotics and comprehend all the possibilities of its future results, which may jeopardise the effectiveness of all regulations. The study also proved the rationality of a differentiated approach to the legal regulation of legal relations in the field of using specific artificial intelligence systems.

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