Intellectual Property Rights on Objects Created by Artificial Intelligence

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Abstract

[Purpose] The article aims to comprehensively analyze intellectual property rights concerning objects created by artificial intelligence. In particular, to identify and explore theoretical and methodological approaches to the definition of artificial intelligence; to study the process of implementation of artificial intelligence systems in the creation of intellectual property; describe the legal status of artificial intelligence; explore the main approaches to determining the authorship of objects created by artificial intelligence or with its help; to analyze the possibility of protection of objects created by artificial intelligence or with its use.

[Methodology/Approach/Design] Several general and unique methods of scientific knowledge were used to achieve the goal and ensure the scientific objectivity and validity of its results. In particular, the work was based on the method of systems analysis (to develop a strategy for the study of legal regulation of the status of artificial intelligence); logical-semantic method (to determine the definitions in work); interpretation of legal norms (to clarify the content of relevant legal norms, as well as to establish the state of their practical application) and others.

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[Findings] The anthropological concept is the only possible concept that can protect the copyrights of persons involved in creating intellectual property rights and encourage them to develop further / use artificial intelligence. The author is recognized as an individual.

Keywords: Artificial Intelligence. Intellectual Property. Intellectual Property Law. Objects Created by Artificial Intelligence. Copyright.

INTRODUCTION

In the era of globalisation processes inherent in the development of the world economy, it is essential to determine the direction of economic progress of society (Reznik, O., Fomenko, A., Mykolenko, O., Denysenko, S., Kibets-Pashutina, D., 2021). The current Ukraine development period is characterised by significant economic, political, and social changes. Most of these changes are directly due to the rapid development of both technology and the processes of global informatisation and total computerisation, which, in turn, contribute to the transformation of all spheres of society. Over the last decade, the rapid development of human intelligence has contributed to the emergence of a wide variety of information technologies, the di functioning, and development due to artificial intelligence. However, taking into account modern advances in the development of humanity, an essential product of human intelligence is artificial intelligence. At this stage of development, artificial intelligence is perceived as a full-fledged, indispensable element in human life, particularly affecting the formation of the inner Because of this, determining the legal status of artificial intelligence and the possibility of endowing it with legal personality is of particular interest to legal scholars, who, with the help of classical legal approaches, try to justify and regulate certain aspects of the legal nature of artificial intelligence. However, the dynamic development of science and technology often leads to the solution of legal issues of development and use of artificial intelligence being temporally delayed.

Today, the rapid development of information technology has led to the active use of artificial intelligence and the creation of intellectual property rights, which leads to the settlement of the need and possibility of classifying such works as intellectual property with the further determination of authorship. Unfortunately, the current legislation of Ukraine does not provide an accurate answer to these questions. However, the legal settlement of the above provisions is significant. Because such legal gaps provoke situations where a considerable number of intellectual property objects fall out of the scope of intellectual property protection, it is evident that in the future, such passive behaviour of the legislator will be one of the main factors slowing down the development of

artificial intelligence because developers of artificial intelligence systems will simply not be interested in investing in such research projects because they will not be able to use get the appropriate benefit from them.

APPROACHES TO THE DEFINITION OF THE CONCEPT OF ARTIFICIAL INTELLIGENCE

If the Oxford Dictionary announced 2020 in Ukraine, it could easily be the 'digital transformation' concept. Despite our country's complex political and economic situation, provoked by the Russian armed aggression in Ukraine and the inevitable processes of economic decline in the COVID-19 pandemic, Ukraine continues to implement e-services of public services actively. Artificial intelligence as a tool of e-democracy is quite a conditioned phenomenon because this unique technology has every chance to 'replace' a person at the stage of implementation of specific processes of his life. Artificial intelligence performs some tasks and functions while forming an experience that will influence its decision-ng and the performance of appropriate actions in the future. The advantage of artificial intelligence over humans is objectively clear: the speed of information processing, the possible time of continuous activity, accuracy, efficiency, and the absence of the human factor – all this, of course, suggests the positive aspects of using artificial intelligence systems. However, today, the independent functioning of artificial intelligence without human control and intervention is impossible.

The rapid development of artificial intelligence and its involvement in the regulation of public relations has led to an active discussion by scientists of specific problems of such technologies in the legal field of Ukraine, and if scientists pay at least some attention to determining the legal status of artificial intelligence, e-democracy policy, the issues of objects created by artificial intelligence and the definition of their authorship, unfortunately, remain out of the attention of legal scholars, which in our opinion is unacceptable. This question is one of the central ones in this work. Still, before considering it, it is necessary to find out the essence of artificial intelligence and start with studying biting approaches to the definition of 'artificial intelligence'.

It is a well-known fact that intelligence is an integral characteristic of man that distinguishes him from other living beings. To understand the nature of artificial intelligence, we consider it appropriate to clarify the meaning of the term 'intelligence', which was first used in England in the late nineteenth century. anthropologist F. Halton (Yefimenko, 2013). According to the American psychologist Howard Gardner, intelligence is the ability to solve problems or come to a result assessed within one or more settings (Gardner, 2011). According to the candidate of psychological sciences, Ya. Yu. Kaplunenko, the concept of

intelligence should be defined as "a system of cognitive processes — thinking, feeling, perception, memory, imagination, which provide the opportunity to learn and transform the world." (Kaplunenko, 2016).

Researchers mainly attribute intelligence to the ability to control motor activity, plan (Baranov, 2018), count, verbal perception, verbal flexibility, identify and analyse, and memory (Alexandrov, 2004).

Artificial intelligence, in turn, is created to reproduce and copy the brain's cognitive functions. In this case, one of the main aspects is that the basis for developing artificial intelligence should be considered to mimic the cognitive functions of the human brain by completely copying architecture and complete copying of human thought processes to achieve specific results.

In general, the development of artificial intelligence dates back to the middle of the twentieth century. It is associated with the test of Alan Turing, who wanted to understand whether a machine can think for itself as a person. However, when talking the term we used to use to describe this phenomenon, it was first used by American computer scientist Don McCarthy in 1956 at a conference in Hanover (The History of Artificial Intelligence, 2022).

With the approval of the Cabinet of Ministers of Ukraine, "Concepts for the Development of Artificial Intelligence in Ukraine", on December 2, 2020, the definition of artificial intelligence was transformed and significantly expanded. Thus, following the provisions of the above concept, artificial intelligence is an organised set of information technologies which can perform complex tasks by using a system of scientific research methods and algorithms for processing information obtained or independently created during work, as well as design and use their knowledge bases, decision-making models, algorithms for working with data and identify ways to achieve goals (The concept of development of artificial intelligence in Ukraine, 2020).

In 2018, the European Commission published a report on artificial intelligence, which stated that artificial intelligence

> "refers to systems that demonstrate intellectual behaviour in their environment and taking action with a certain degree of independence to achieve specific goals." (Communication from the Commission to the European Parliament, the Council, the European Economic, and Social Committee and the Committee of the Regions, Artificial Intelligence for Europe, 2018).

Analysing the case law, we can conclude that it does not contain decisions on the definition of artificial intelligence. Therefore, we consider it appropriate to find out what approaches to the meaning of artificial intelligence exist among scientists and scientists.

According to Yu. O. Sydorchuk, artificial intelligence is a definition used to describe the intellectual capabilities of computers in their decision-making (Sydorchuk, 2017). H. Androschuk interprets the concept of artificial intelligence as

> "an artificially man-made system capable of processing the information received by it, linking it with the knowledge it already possesses, and accordingly form their idea of the objects of knowledge.' (Androschuk, 2019).

In theory, artificial intelligence is divided into three types: 1) narrow — in which its application is carried out under the influence of the limitations of one area; 2) general — may correspond cases exceed the level of human consciousness; 3) superintelligence — able to surpass all together humanity (Morhat, 2018).

According to another approach, artificial intelligence is divided into such types as 1) weak (exclusively imitation of natural intelligence); 2) intense (the system can carry out intellectual processes, including self-learning: that is, to choose their decisions based on their own experience among other, previous decisions (IBA Global Employment Institute Artificial Intelligence and Robotics and Their Impact on the Workplace, 2017). Note that weak artificial intelligence is not autonomous and requires control and human intervention in its activities, while strong can think for themselves through machine learning. The most common today is weak artificial intelligence, which cannot generate algorithms for solving problems. To be recognised as vital artificial intelligence, it must not yield to natural intelligence, communicate in natural language, have self-awareness, feel, sensory process information (Malysheva, Kasimov, 2016).

Thus, having analysed the existing approaches to this phenomenon, we can offer our definition of 'artificial intelligence'. Artificial intelligence is a computer program based on algorithms for analysing relevant data and decision-making algorithms based on autonomous decisions. It can learn from experience and improve its efficiency through data analysis to achieve its objectives.

IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE SYSTEMS IN THE CREATION OF INTELLECTUAL PROPERTY OBJECTS

The development of modern artificial intelligence systems began in the 1950s. Thus, one of the first such systems should be considered one that A. Newell created to prove the theorems in the number called 'Logic-Theorist'.

For a long time, the following approach to understanding the artificial intelligence system prevailed among the scientific community: the so-called

'expert systems', which operated on strict adherence to the algorithm laid down by man, were not autonomous and worked exclusively with human data.

However, at this stage of development, scientists have made significant progress in the development of artificial intelligence systems and developed entire systems of algorithms on which their work is based and which have more advanced functionality. In particular, considerable success has been achieved in the field of 'neural networks', which mimic the work of the human brain in their content.

In turn, the Expert Group on Artificial Intelligence at the European Commission also defines the category 'artificial intelligence systems', which is proposed to mean

> "software (and possibly also hardware) systems developed by people who, according to the goal, operate in physical or digital dimension, perceiving their environment by collecting data, interpreting the collected structured or unstructured data, considering the knowledge or processing of information obtained from this data, and deciding on the best actions to be taken to achieve this goal" (A definition of Artificial Intelligence: main capabilities and scientific disciplines: High-Level Expert Group, 2020).

In analysing modern artificial intelligence systems, it should be emphasised that such structural sets of algorithms are not performed in a clearly defined order but are used when they are objectively necessary for a structure to solve a specific task. Such systems are incredibly flexible, but whether their flexibility will achieve the flexibility of human intelligence in the future is unknown.

The question which also arises in an experimental plane is also actualised. In particular, the concepts of 'artificial intelligence system' and 'robot' are often identified; however, we note that these concepts are not identical. Because of this, the need for a fundamental distinction between these terms is primarily due to the lack to avoid possible difficulties in further determining the legal regulation of relations related to artificial intelligence. Thus, the difference between artificial intelligence and a robot is that artificial intelligence does not require a physical expression. Still, the robot can be created in the form of different designs (depending on the imagination of the inventor or its technical characteristics) (Larson, 2010). In addition, artificial intelligence can be used as part of a robot, which is called a robot with artificial intelligence. Instead, when it comes to simple work, it is considered a hardware-software system that can work exclusively on an algorithm clearly defined by man and can not be changed arbitrarily.

However, to properly understand the nature of the artificial intelligence system and provide further definition, we consider it appropriate to distinguish between the characteristics of autonomy and automation at this study stage. It is believed that an autonomous system is a system that operates without interfering in such a human process, as opposed to an automated system that works according to a pre-established algorithm.

Speaking of artificial intelligence systems, they are entirely non-automated and autonomous is incorrect because man originally programmed such a system. It is automated in determining the algorithms by which artificial intelligence learns and analyses input. At the same time, it is not entirely predictable for a person what new algorithms this system can build to use them in the process of achieving specific results, which distinguishes it from other computer systems and allows to call it autonomous in its decisions. . While conventional computer systems use a predefined algorithm, according to which decisions are made. Therefore, the ways to achieve goals and performance are predictable and automated.

Having analysed the above provisions, we consider it appropriate to give the following definition of the artificial intelligence system. Thus, the artificial intelligence system is a hardware-software, automated system, the basis for which is the technology of artificial intelligence, which helps it make autonomous decisions based on a given set of data.

Today we can see the rapid spread of artificial intelligence systems in various spheres of human life. In particular, the technologies of artificial intelligence have not escaped the relations in the field of intellectual property, including the involvement of such systems to create intellectual property. It should be noted that for legal regulation in this context, it is necessary to distinguish between works that are made using artificial intelligence (computer-aided) and autonomously created by artificial intelligence (computer-generated works) (Bonadio, McDonagh, Christopher, 2018).

Whether a person is the author of work depends directly on the level of his participation in the creation of the work: whether the person now uses software as part of technical assistance to achieve a particular goal or whether the person only provides data to artificial intelligence for training, outlining the field of activity. As a result, artificial intelligence creates work based on its logic. Thus, when it comes to creating work with artificial intelligence, it is evident that artificial intelligence as a special kind of computer program is a tool, and an author is a man.

However, speaking about creating works with artificial intelligence, we state that not everything is clear on this issue. First, it is necessary to analyse who can be the author following current legislation.

Even though the rules of the Berne Convention for the Protection of Literary and Artistic Works (Berne Convention for the Protection of Literary and Artistic Works, 1974) and the World Copyright Convention (World Copyright Convention, 1952) do not explicitly determine that the author can only be a person (citizen), but such a conclusion can be obtained by interpreting the provisions of these regulations. We also note that these international acts do not disclose the concepts and criteria of creative work.

Because of the above, under the provisions analysed above, we conclude that the author in the continental legal system to which, in particular, Ukraine belongs, is recognised exclusively by man. However, it should be noted that another important feature for the recognition of authorship is the creative contribution (a fundamentally important feature). However, when a work is created by artificial intelligence, given that the results of its work are unpredictable, can we say that this work was created by human creativity? Moreover, even if we still accept that the author, in this case, is an individual, there is a new problem — the definition of this person: the developer of artificial intelligence, the system owner, the user, or someone else.

In addition, the possibility of recognising the author of artificial intelligence is urgent. It is necessary to determine the legal status of artificial intelligence in general and determine whether artificial intelligence systems' work, given its nature, can be called creative work. Unfortunately, all these issues remain unresolved today, so the objects created by artificial intelligence are outside the legal framework.

Solving these problems has recently become increasingly important, as the inability to protect objects created by artificial intelligence and intellectual property rights in the future may slow down the development of art and science because authors/inventors will not be able to protect their rights, gain economic benefits developments, and as a result — will be discouraged in creating new works, inventions.

Considering the above provisions, first of all, in the course of our research, we need to focus on determining the legal status of artificial intelligence and explore the main criteria for protection that the work must meet to be recognised as intellectual property law property.

LEGAL STATUS OF ARTIFICIAL INTELLIGENCE

Due to the rapid development of artificial intelligence technologies and their active implementation in everyday life, almost every country in the world identifies artificial intelligence systems as one of the main directions, taking into account relevant strategic plans for clear steps in this direction. Ukraine is no exception.

As noted earlier, on December 2, 2020, the Cabinet of Ministers of Ukraine approved the "Concept of Artificial Intelligence in Ukraine", the provisions of which define the purpose, principles, and objectives of artificial intelligence in Ukraine as one of the priority areas in scientific and technological research (The concept of development of artificial intelligence in Ukraine, 2020). It is important to emphasise that this concept is purely recommendatory and declarative and pays attention only to the direction in which it is necessary to develop artificial intelligence systems in Ukraine, outlining possible ways to solve problems arising in the course of such activities. However, as mentioned above, the provisions of the Convention do not determine the legal status of artificial intelligence. However, given the spread of artificial intelligence technologies, outlining its legal status and answering whether it can be defined as a full-fledged subject of legal relations or can be considered an object — is very important today.

Given the legal nature of the relationship, in general, the following options can be identified for the legal status of artificial intelligence: 1) recognition as an object; 2) recognition as a subject; 3) depending on the content of certain legal relations, the recognition of artificial intelligence as a subject and object.

Thus, to confirm the first approach, most scientists argue that artificial intelligence systems are exclusively ancillary elements in social relations, which can be implemented, in particular, without their direct participation in these processes; In favour of the second approach, the scientific community makes the following statement: the artificial intelligence system should be recognised as a party in one way or another because it can make appropriate decisions, unpredictable by man, based on independent analysis of the environment (Baranov, 2017).

According to the Civil Code of Ukraine, participants in civil relations are individuals and legal entities, the state of Ukraine, the Autonomous Republic of Crimea, territorial communities, foreign states, and other public law entities (Civil Code of Ukraine, 2003). Note that today a similar approach to determining the range of subjects of legal relations is common to all developed and developing countries. As we can see, artificial intelligence does not fall into any of the categories of the above subjects. However, artificial intelligence is not directly defined as an object of civil law, so the question of its legal status remains open.

Analysing the case law, we can conclude that there are no precedents for endowing artificial intelligence systems with legal personality today. Therefore, we consider it appropriate to consider the existing approaches in the doctrine to determine the legal status of artificial intelligence.

After analysing the legislation of several countries worldwide, we can conclude that none of these countries currently recognises the legal personality of artificial intelligence. We consider it impossible to identify artificial intelligence

as a subject of legal relations since artificial intelligence is not characterised by the presence of will (natural will of man as an individual and the choice of legal entities) because its decisions are still human will) given that artificial intelligence only mimics the cognitive functions of the human brain; he is not able to exercise his rights and responsibilities on his own; he cannot be held liable for lack of corpus delicti (no guilt); it cannot be required to adhere to ethical rules that are important for the protection of human rights (only its developers/users).

Thus, taking into account the technical complexity of artificial intelligence systems, the focus of their development on human needs, the involvement of artificial intelligence of a wide range of people, and a relatively high level of difficulty in finding out responsible persons in case of violation of other people's artificial intelligence, it is reasonable to define artificial intelligence as a special kind of objects of legal relations, including to prevent human abuse in the process of using such systems.

However, given that we have previously defined artificial intelligence as a computer program, a computer program is the object of intellectual property rights, which is enshrined in Part 1 of Art. 420 of the Civil Code of Ukraine, we can conclude that artificial intelligence is an object of intellectual property law covered by computer programs' legal regime.

MAIN APPROACHES TO DETERMINING THE AUTHORITY OF OBJECTS CREATED BY OR WITH THE HELP OF ARTIFICIAL INTELLIGENCE

The practice of artificial intelligence creation of intellectual property today is quite widespread worldwide. In particular, repeated cases of artificial intelligence creating paintings, literary and musical works, and even inventions are already known in Ukraine.

Even though in many cases this kind of work is created using artificial intelligence systems, when a man only uses artificial intelligence as a means to achieve a pre-planned result (in this case, an author is a man), today, due to the rapid development of advanced technologies, artificial intelligence can also easily create work independently, autonomously, achieving results that are unexpected for a person. In this case, the definition of authorship is already becoming a significant problem. This is because neither national nor international law currently recognises artificial intelligence as a subject of intellectual property rights. As we mentioned earlier, only a person who has created such an object due to his creative activity can be recognised as an author. However, can an author be considered an author of an intellectual property object created by artificial intelligence? Thus, they did not directly participate in creating such an object — it remains an open issue that needs to be addressed immediately.

The importance of solving the problems mentioned above of authorship is confirmed by the legal position of the World Intellectual Property Organization, which intends to discuss "Intellectual Property and Artificial Intelligence" for two years in a row. It is worth noting that the first such discussion was held on September 27, 2019, in Geneva (WIPO Conversation on Intellectual Property (IP) and Artificial Intelligence, 2019), while the second was scheduled for May 11-12, 2020, but was postponed. WIPO Conversation on Intellectual Property (IP) and Artificial Intelligence (AI). Second Session. Draft Issues Paper on Intellectual Property Policy and Artificial Intelligence, 2019). Thus, the issues discussed and planned to be discussed in the future included matters directly related to determining the authorship of works created by artificial intelligence, examining such results, and the feasibility of revising the legislation governing intellectual property relations.

However, it should be noted that the European Parliament, in Resolution 2015/2103,

> "warns against the introduction of new intellectual property rights in the field of robotics and artificial intelligence, which may hinder innovation and exchange of experience" (European Parliament resolution of February 16, 2017, with recommendations to the Commission on Civil Law Rules on Robotics 2015/2103 (INL), 2017).

Analysis of many domestic and foreign legislation norms allows us to state the regulatory uncertainty of the place of artificial intelligence in their legal systems. The countries' legislation does not provide for the endowment of artificial intelligence with copyright. However, this does not solve the actual problem of who can be endowed with such rights.

Confirmation that no one can be recognised as the author of a work is contained in judicial practice. In particular, in the case of IceTV Pty Ltd v. Nine Network Australia Pty Ltd, The Supreme Court has confirmed that work will be protected by copyright only if it comes from an individual or individuals who have made sufficient efforts of a creative nature and skill (IceTV Pty Ltd v. Nine Network Australia Pty Ltd., 2009). Also, in Acohs Pty Ltd v. Ucorp Pty Ltd, the Austrian court pointed out that the work created by the computer is not subject to copyright (the company claimed copyright to the table of data on material safety, which was developed by the computer) (Acohs Pty Ltd v. Ucorp Pty Ltd., 2012).

Thus, in exercising its powers, the courts have repeatedly confirmed that the author of a work must be a human being, but otherwise, such work cannot be considered copyrighted.

Researcher P. M. Morhat singled out the following possible concepts of authorship for works created by artificial intelligence: 1) machine-centric — the author is artificial intelligence; 2) hybrid authorship — co-authorship of human and artificial intelligence; 3) official work — artificial intelligence acts as an employee; 4) anthropocentric — an author is a man, and artificial intelligence is only a tool in human hands; 5) zero authorship; 6) mixed concept (Morhat, 2018).

Let's consider each of the above concepts in more detail and analyse the possibility of their application in Ukraine's national intellectual property law because of our previously established conclusions on the idea of artificial intelligence and its legal status.

Speaking of the first, the machine-centric approach, it should be noted that today this concept is purely theoretical and has no legal basis. As we said earlier, the author can be considered only a natural person in the Ukrainian legal system. For artificial intelligence to be recognised as an author, first of all, it must belong to the subjects of law; however, today, neither national nor foreign legislation gives artificial intelligence a legal personality.

Regarding the co-authorship of human and artificial intelligence, it should be noted that both in Ukraine and in other foreign countries, copyright law allows the creation of a work or invention by the joint work of several people; however, such work must be creative. However, artificial intelligence cannot be recognised as creative work. Moreover, it is not considered a subject of law and, therefore, can not be a co-author.

The application of the concept of official work in Ukraine is as impossible as the application of the machine-centric idea and the idea of hybrid authorship because, according to Ukrainian law, employees (in this case, employees — artificial intelligence) remain personal inalienable rights. Exclusive rights of the author and exclusive property rights can be fixed. This fact brings us back to the possibility and feasibility of implementing artificial intelligence systems of this kind of right. And as we've seen before, that's impossible.

Thus, all the above concepts, namely the machine-centric concept, the idea of hybrid authorship, and office workers, do not have objective grounds for their practical implementation.

In this case, if we reject the possibility of recognising artificial intelligence as the author of the object of intellectual property created by him, we have to consider two more: the transition of the work/invention to the public domain and recognition of the author as a person.

The concept of the transition of a work/invention to the public domain is based on the idea that a work created as a result of artificial intelligence is not considered a source of creative or intellectual activity for any person. Therefore a person cannot be granted a copyright.

In our opinion, the implementation of this concept would lead to the fact that trade secrets would protect all objects created by artificial intelligence because their publication would make no sense, given that immediately after their promulgation, the right to them would become public property, and therefore, persons who in one way or another participated in their creation, would not have a real opportunity to obtain the so-called economic effect of their work and exercise their property rights.

Given this, the only possible concept that can be implemented is anthropological, according to which the author is recognised as an individual.

First, such a concept does not require radical changes in the rules of intellectual property law in particular and in law in general and therefore is the easiest to implement. Since Ukraine is characterised by recognising the author or inventor exclusively as a person, this approach will not change the personal composition of legal relations in intellectual property. Secondly, the activity of artificial intelligence can not be considered entirely autonomous because for it to create an object of intellectual property, it is necessary that a person first set the data and program it for learning. Therefore the human contribution, in this case, can not be underestimated. Third, this concept contributes to the development of science and art because people, in this case, will be interested in publishing a work or invention created by artificial intelligence to realise their property rights.

We consider it appropriate to consider who can be recognised as the author/inventor among those involved in creating artificial intelligence objects of intellectual property rights (whether the developer, manufacturer, owner or user). Consider in more detail in the next section their interdependence with such a criterion of protection as a creative contribution.

PROTECTION OF OBJECTS CREATED BY ARTIFICIAL INTELLIGENCE OR WITH ITS HELP

Nowadays, adequate legal protection of intellectual activity results is one of the most urgent issues. This is because, in the context of globalisation processes, society is moving into a relatively new era when the principal value is information and knowledge in the context of the qualities to create something new (Utkina, Bondarenko & Malanchuk, 2021). Also, it should be noted that its significance is explained by the fact that the economic intellectualisation process takes place in light of global development. In the end, such a phenomenon influences the financial security of a particular country (Baranov et al., 2019).

Before focusing on the ‘creative contribution’ as a so-called criterion of intellectual property protection, it is necessary to consider what standards for the safety of such objects are generally provided by current legislation.

Thus, Article 7 of the Law of Ukraine "On Protection of Rights to Inventions and Utility Models" states that an invention meets the conditions of patentability (criterion of protection ability) if it is new, has an inventive step, and is industrially applicable, 1993).

The object of the invention, which is granted legal protection under the Law "On Protection of Rights to Inventions and Utility Models", is a product (device, substance, the strain of microorganism, cell culture of plants and animals, etc.); process (method), as well as a new application of a known product or process. Legal protection under the same law does not apply to such objects of technology as plant varieties and animal breeds; basically, biological methods of reproduction of plants and animals that do not belong to non-biological and microbiological processes; topography of integrated circuits; results of artistic design (Article 6 of the Law "On Protection of Rights to Inventions and Utility Models").

Speaking about the objects of copyright, it should be noted that the current legislation of Ukraine does not explicitly provide protection requirements for them. However, taking into account the norm of Part 3 of Art. 8 of the Law of Ukraine "On Copyright and Related Rights" according to which legal protection applies only to the form of expression of the work and does not apply to any ideas, theories, principles, methods, procedures, processes, systems, practices, concepts, discoveries, even if they are expressed, described, explained, illustrated in work — it is possible to conclude that there is an objective (material) embodiment of the objects of intellectual property rights so that they can be protected by copyright.

Regarding the requirement of originality, which is characteristic of US copyright, it is worth noting that the provisions of the current legislation of Ukraine do not provide such a requirement. At the same time, the condition of originality takes place in European legislation concerning such objects of copyright as computer programs and databases. Following Part 3 of Art. 1 of Directive 91/250 / EEC,

> "a computer program will be protected if it is original in the sense that it is the intellectual creation of the author and other criteria under this article cannot be established" (Directive of the Council of the European Community on the legal protection of computer programs (91/250 / EEC), 1991).

According to Article 16 of Directive 96/9 / EC, no criterion other than originality in the author's intellectual creation should determine whether a database is subject to copyright. In particular, no aesthetic or qualitative criteria

should be used. (Directive 96/9 / EC of the European Parliament and the Council on the legal protection of databases, 1996).

Thus, we can conclude that originality is an intellectual/creative activity.

Given that the concepts of originality and intellectual/creative activity are identified in the Directives as mentioned above, we can conclude that the requirement to create a work/invention by human intellectual/creative activity is analogous to the criterion of originality, which is characteristic of Anglo-Saxon law.

Analysis of the nature of such requirements as industrial applicability, novelty, a form of expression, and inventive step allows us to conclude that they are all directly aimed at the object of intellectual property rights, not the subject. Therefore, the creation of artificial intelligence or intellectual property may not interfere with protecting such things, except when they do not meet the above requirements.

In this aspect, more problematic, in our opinion, is the criterion of 'creative contribution', which has no definition in the current legislation of Ukraine.

It is interesting that for a specific object to acquire the status of protected intellectual property per national law, its prior verification of originality or guarantee of the author's creative activity is not required due to the author's presumption that the author is the person indicated as the author on the original or copy of the work is considered.

Moreover, the Resolution of the Plenum "On the Application by Courts of the Law on Copyright and Related Rights" of June 4, 2010, No. 5, stipulates that "unless proven otherwise, the result of intellectual activity is considered to be a creative work" (Resolution of the Plenum of the Supreme Court of Ukraine "On the Application by Courts of the Law in Matters of Protection of Copyright and Related Rights", 2010).

Thus, the object of intellectual property rights can be considered created by man's creative work until it is disputed.

In our study, it is essential to determine whether artificial intelligence can be considered creativity or creativity. In this case, human activity creates an object indirectly through the artificial intelligence system rather than independently.

As we have seen before, artificial intelligence is a computer program by nature, so thinking, consciousness, and creativity are not specific to it. In addition, artificial intelligence can be considered neither a subject of legal relations nor an author or inventor.

Therefore, it is necessary to find out which person's contribution to artificial intelligence can be considered creative and which person from the circle of persons connected with the activity of artificial intelligence is the author of the object created by artificial intelligence.

Neil Brustlin supports the legal position that the intellectual property rights to the work created by the program should belong to the programmer because it is thanks to his work (software) done another work. Therefore, he is the logical owner of its rights (Burstyn, 2015).

However, we believe this approach is objectively wrong because the programmer's activities are essentially aimed at artificial programming intelligence, i.e., creating an algorithm for which the artificial intelligence system will learn; however, its activities are not aimed at creating a specific object of intellectual property. The same situation exists with manufacturers of artificial intelligence systems, which focus on constructing the physical component of artificial intelligence and, in any case, not on its application.

Thus, in our opinion, users of artificial intelligence should be considered the subject of intellectual property rights to objects created by artificial intelligence, given their crucial role in implementing these processes. The users determine and set the necessary parameters of artificial intelligence while deciding the data that are the basis for achieving artificial intelligence the desired results. In addition, user activity is the creative contribution that ultimately creates a potentially secure facility. In addition, as a result of the user's activities, the pre-established abstract possibilities of artificial intelligence acquire material expression.

However, it should be noted that the granting of rights to users of intellectual property created by artificial intelligence in no way infringes the copyright of the developer of artificial intelligence because the developers of such systems exercise their copyright in artificial intelligence and benefit from them to the process of transferring to users property rights to such artificial intelligence.

CONCLUSIONS

Artificial intelligence is a computer program based on algorithms for analysing relevant data and decision-making algorithms based on autonomous decisions. It can learn from experience and improve its efficiency through data analysis to achieve its objectives.

During the study of the implementation of artificial intelligence systems in the creation of intellectual property, it was found that the term ‘artificial intelligence system’ should be understood as a hardware-software, automated system based on artificial intelligence technologies that help it based on given data set to make autonomous decisions. In addition, several features were identified to distinguish between the concepts of ‘artificial intelligence system’ and ‘robot’, which in practice are often identified;

Describing the legal status of artificial intelligence, we can say that today the most relevant to the nature of artificial intelligence is the legal status of the

object of intellectual property rights, which is covered by the legal regime of computer programs.

We consider it impossible to recognise artificial intelligence as a subject of legal relations because artificial intelligence is not characterised by the presence of will (the natural will of man as an individual and the choice of legal entities). After all, its decisions are still human will given that artificial intelligence only mimics the cognitive functions of the human brain; he is not able to exercise his rights and responsibilities on his own; he cannot be held liable for lack of corpus delicti (no guilt); it cannot be required to adhere to ethical rules that are important for the protection of human rights (only its developers/users).

Examining the main approaches to determining the authorship of objects created by artificial intelligence or with its help, we can say that the only possible concept that can protect the copyright of persons involved in the creation of artificial intelligence intellectual property rights and encourage them to further development/use of artificial intelligence is an anthropological concept, according to which the author is recognised as an individual.

Analysis of the criteria of protection, which is directly or indirectly established by current legislation on the possibility of particular objects to be protected by intellectual property rights, as evidenced by the interpretation of the law, is aimed at assessing the thing and not the process of creating such an object. 'object). In our opinion, users of artificial intelligence should be considered the subject of intellectual property rights to objects created by artificial intelligence, given their crucial role in implementing these processes because it is the users who set the necessary parameters of artificial intelligence while determining the data that are the basis for achieving artificial intelligence the desired results.

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