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THE CONCEPT OF "ARTIFICIAL INTELLIGENCE" FROM PHILOSOPHICAL AND LEGAL PERSPECTIVE

Abstract. ***Purpose.*** The purpose of the article is to study the origin of the concept of "artificial intelligence" and to compare it with the concept of "human intelligence" in the philosophical aspect. ***Results.*** The article reveals topical issues of understanding the concept of "artificial intelligence" from a philosophical perspective, researches the origin of this concept and its identification with the concept of "human intelligence". The active implementation and use of artificial intelligence in recent years in various areas of human activities, as well as the ambiguity of the interpretation of the concept of artificial intelligence, leads to a distorted and ambiguous understanding of artificial intelligence. Therefore, the article reviews publications in this area, in order to conducting an independent search for answers to the questions from a philosophical perspective. To this end, the author examines comprehensively the concept of human intelligence and consciousness as a socio-cognitive system capable of making non-standard decisions in complex, unplanned situations that a person faces on a daily basis. The study focuses on the problematic aspects of consolidating the definition of artificial intelligence, reviews the draft Strategy for the Development of Artificial Intelligence in Ukraine for 2020-2030, which states that the primary task in creating artificial intelligence is to create an intelligent system that forms artificial consciousness as a model of the functional apparatus of human consciousness. ***Conclusions.*** It is concluded that nowadays even an ordinary citizen can hardly be surprised by the concept of "artificial intelligence". However, scientists have been debating the existence of artificial intelligence for decades. During this time, programmes have been created to establish the dimension of artificial intelligence, i.e. the ability of a "machine" to think, feel, emote, cognise, understand and do all of this simultaneously, i.e. processes that occur in human activities. A complex task that has not been finally solved by scientists in various fields for several decades. The article presents an original interpretation of "artificial intelligence", relying on the literature review on this topic in recent years, enabling to draw specific conclusions.

Key words: intelligence, artificial intelligence, human intelligence, human consciousness, artificial consciousness, intelligent system.

1. Introduction

The research on an understanding of artificial intelligence requires to turn to the philosophical dimension of "human intelligence" and "personal consciousness" to highlight the genesis of the concept under consideration, since scientists are still studying the concepts of human intelligence and personal consciousness. These questions have been raised by people since the dawn of philosophy, and scientists are still trying to establish an understanding of these concepts and give a definition. The search for an answer to the definition of human consciousness has been going on for millennia and is inextricably linked to the philosophy of knowledge of existence.

The issue of revealing the concept of artificial intelligence in the philosophical aspect was considered in the studies by: A.V. Kasianenko, V.V. Fedotov, I.V. Hryhorenko, C. Jung, N.K. Tymofiieva, O.B. Stoliarenko, O.I. Stebelska, O.Ya. Moroz, etc. However, despite the studies conducted, there is currently no clear definition of the concept of "artificial intelligence" and the nature of its origin, which gives rise to further research in this area.

The purpose of the article is to study the origin of the concept of "artificial intelligence" and to compare it with the concept of "human intelligence" in the philosophical aspect.

2. Philosophical approaches to the concept of intelligence

The first definition of artificial intelligence was given back in 1956 by John McCarthy, an American computer scientist and researcher

of thinking. However, it should be noted that before the final introduction of the term "artificial intelligence", there were introductions to the intelligence of the first electronic computers. The question arises: can computers think like humans? A significant contribution was made by the English mathematician Alan Turing, who was the first to introduce a test of the ability of a computer to think like a human being. This test went down in the history of the development of "artificial intelligence" under the name of the author of the Turing test. However, the materials on his research were only theoretical and incomplete. From that moment on, scientists from various fields, namely mathematics, computer science, logic, philosophy, cryptography, etc. have been studying the issue.

The twentieth and twenty-first centuries have gone down in history as a period of rapid technological development. The development has been particularly rapid in recent years thanks to IT technologies. Technology has become pervasive in all areas of human activity. Today, it is difficult to imagine our lives without technological tools; looking back, generations of people wonder how they could have done without the things we are used to today. It is hard to find people who do not use IT technologies, it is rather beyond normal behaviour, which was not the case even 10 years ago. In the Asia-Pacific region and in the United States of America, IT technologies were introduced much earlier than in Ukraine. After the active implementation of the technological process, the question of the definition of artificial intelligence arises, both in philosophical and legal terms. In recent years, Ukraine has also been actively implementing the technological process. Of course, the development of technology affects the usual order of life, such as professional, domestic, leisure, educational spheres and others.

However, artificial intelligence originated much earlier. Historically, questions related to thinking processes were first studied in philosophy. The principles of rational thinking were formulated by Aristotle (384 - 322 BC). In the 16th century, René Descartes first published the results of his discussion of the differences between mind and matter. Thus, philosophy formulated the most important provisions governing the rational part of thinking, but their formalisation required fundamental research in another science – mathematics. For several centuries, these studies were conducted in parallel, mutually enriching both sciences. Artificial intelligence has been most influenced by the development of such branches of mathematics as logic, calculus, and probability (Kasianenko and Fedotov, 2022). It is impossible to

understand the concept of artificial intelligence without considering human intelligence.

Thus, intelligence (from the Latin *intellectus* – understanding, mind, cognition) is a relatively stable structure of an individual's mental abilities. Usually, intelligence is defined by the level of development, which is considered in connection with such cognitive processes as perception, memory, imagination, etc. The interpretation of intelligence as general mental abilities is used in the form of behavioural characteristics of an individual related to understanding and predicting events, performance, and successful adaptation to new life tasks (Dziuba, Zhukovskyi, Zhelezniak, 2014).

In the Middle Ages, idealistic and materialistic philosophers associated the concept of human intelligence with natural, innate mental abilities. Over time, intelligence has been viewed from the perspective of psychology. In the twentieth century, intelligence was viewed from a medical perspective and in the context of human brain research. Such comprehensive research has allowed scientists to come closer to solving the long-standing problem of understanding intelligence. Only to approach, because there are many definitions of human intelligence today, none of which can be rejected in the course of our work. In the end, this may affect the roots of the concept of "artificial intelligence" and clarify its nature of origin and close connection with human intelligence.

According to I.V. Hryhorenko, "intelligence can be defined as a personality's ability that determines the overall success of a person's adaptation to new environments. Intelligence is becoming one of the most essential and necessary properties of a person in the modern knowledge society, which is actively being formed in the globalising world. We see further prospects in a comprehensive analysis of the philosophical aspect of intellectual behaviour in modern society" (Hryhorenko, 2013). Therefore, the basis of human intelligence can be characterised as "flexibility" and adaptation to modern environments, independent choice of an algorithm of activities considering objective circumstances based on the individuality of each person.

Alongside the concept of "human intelligence" we can find the concept of "consciousness" of a person or personality. There is a need to understand whether these concepts are identical. For example: "human consciousness is a fundamental social and cognitive system of a person, which is a product of the brain and is capable of perceiving and recognising information, creating, forming and systematising knowledge, learning, making independent motivated decisions depending on the tasks and existing circumstances, allowing

for the laws and rules of society. A qualitative assessment of the results of a person's conscious activities correlates with the level of his or her intelligence IQ (Intelligence Quotient), which is a quantitative characteristic of intelligence. Therefore, the primary task in creating artificial intelligence is to create an intelligent system that forms artificial consciousness as a model of the functional apparatus of human consciousness" (Shevchenko, 2022). Thus, intelligence is an integral part of human consciousness, i.e. intelligence is a narrower concept than consciousness. In addition, the author argues that intelligence can be calculated and has quantitative characteristics, while consciousness includes many other factors that are more difficult to calculate (program) than of intelligence. Therefore, moving on to the definition of artificial intelligence, it is better to use the concept of "artificial intelligence" rather than the concept of "artificial consciousness". Obviously, the concept of "artificial consciousness" is unattainable today, due to the absence of precise definition of consciousness and the calculation of all the factors that need to be considered.

According to O. B. Stoliarenko, the concept of a human being means that it is a being that combines two directions of development: biological and social (a person is a carrier of consciousness, which is a social product). As an individual, a person develops in ontogeny, and as a personality, he or she goes through his or her life path, during which the individual is socialised. Therefore, *a human being* is a biosocial being with consciousness and the ability to act. Combining these three levels into a single whole makes an integral characteristic of a person - his or her individuality. *Individuality* is a combination of psychological characteristics of a person that make him or her unique and different from other people. Individuality is manifested in a person's abilities, dominant needs, character traits, sense of self-esteem, worldview, system of knowledge, skills, and level of intellectual, creative processes, individual style of activities and behaviour, type of temperament, characteristics of emotional and volitional spheres, etc. (Stoliarenko, 2012). We can see that one of the factors in the formation of a personality as a socially developed person is the development of intelligence. However, the presence of intelligence alone is not enough, all factors together are important, including the socialisation of a person in the course of life and the development of intelligence. Various theories of personality development suggest that other personality factors influence the development of a person's intelligence.

In M. Y. Varii's opinion, human *consciousness* has the following layers: 1 - initial level of consciousness; 2 - low level of consciousness; 3 - medium level of consciousness; 4 - high level of consciousness; 5 - perfect level of consciousness. The highest (in ascending order) is the superconscious level of the human psyche, which contains mental phenomena, acts and states that have arisen as a result of interaction with the Universe, as well as the psi-programmes of such interaction. This level has the following layers: 1 - intuitive; 2 - segmental; 3 - comprehensive. However, the psyche of each individual person functions as a single integral complex, in which the unconscious, subconscious, conscious and superconscious affect all subsystems (Varii, 2011).

For example, Freud presented the mental life of the individual as a constant arena of struggle between the irreconcilable forces of the conscious and unconscious, reason and instincts, which compete for control over behaviour. This concept of mental life is called *psychodynamic*. Instead, in the theory of A. Adler's theory does not contain any postulates about hidden immense forces and structures of mental life. According to Adler, the main force that determines human behaviour and life is not innate drives, not innate archetypes, but the sense of community with others (Stoliarenko, 2012).

The level of intelligence is different for each person and has its own characteristics. Therefore, it is generally accepted to divide them into: mental abilities/ intelligence quotient (IQ); emotional quotient (EQ); positive quotient (PQ); adaptive quotient (AQ); social quotient (SQ); learning quotient (LQ); spiritual quotient (SQ); love quotient (LQ); linguistic (verbal) quotient; logical and mathematical quotient; musical quotient; bodily and kinaesthetic quotient; spatial quotient; interpersonal (communicative) quotient; intrapersonal quotient; naturalistic quotient; existential quotient. Of course, this is not a complete list of types of intelligence, but even this list gives an idea of the complex system of human mental abilities.

Therefore, the psychophysiology of the concept of "intelligence", which is naturally inherent in humans, as the main component of human mental capacity (the biological in humans) is closely related to other dimensions that touch on the "social" in humans. The issue under consideration will provide some answers to the definition of "artificial intelligence". When considering the concepts of "human intelligence" and "artificial intelligence", it is impossible to ignore cognitive psychology, active scientific research and origins thereof date back to the mid-twentieth century. The development of artificial intelligence has contributed to the improvement of postulates that revealed

the problems of processing and storing information in memory, as well as language learning.

3. Comparing artificial intelligence with human intelligence

All the studies conducted on the nature of artificial intelligence are related to the comparison with human intelligence. For example, in order to create artificial intelligence, it is necessary to identify the properties of natural intelligence and develop a way to model it. There are many definitions of artificial intelligence in the literature, but there is no precise definition of this science yet. Intelligence is the ability to understand the world around us and solve various problems. We use the term "mind" as a synonym, which expresses the ability to think, i.e. analyse and draw conclusions. One of the concepts of artificial intelligence is the formalisation of problems and tasks that are similar to human actions. Different authors model natural intelligence in different ways. For example, artificial intelligence is defined as the ability of a digital computer to respond to information coming to its input devices in much the same way as a human being would react under the same information conditions. This approach is based on the principle of self-organisation of the model and is called heuristic. In this paper, human intelligence is considered as an intuitive system. That is, intuition is understood as the process of optimal decision-making in relation to the external environment (Tymofiieva, 2022).

Furthermore, O. Stebelska raises the issue of creating artificial intelligence, based on previous research: "In Penrose's theorem, this problem sounded sharp and categorical: "No matter how powerful a device with the architecture of a finite machine (computer, in the modern sense) is, human thinking has some capabilities that are not available to such a device". It should be noted that the main problems of implementing artificial moral machines is not so much in the technical as in the philosophical and methodological plane Modern futurists also constantly predict an impressive future, but so far scientists have not been able to create a machine equivalent to a human in terms of its capabilities. This is due to many reasons discussed above. But the main problems lie in the philosophical and methodological plane. First of all, it is unclear how to create a smart machine. In addition, research in the field of artificial intelligence has one common drawback: scientists try to model and prescribe something that they themselves cannot unambiguously and clearly explain: consciousness, morality, imagination, creativity, emotions and feelings, freedom, etc. Human consciousness is such a complex, ambiguous, multifaceted phenomenon that it

is currently not amenable to technologicalisation. Even the term "intelligence" itself has no clear definition. However, the aforementioned obstacles in the creation of intelligent machines have a positive side: the more we try to create artificial intelligence, the more we deepen our understanding of our own nature" (Stebelska, Fedoriv, 2019).

Having gone through the path of artificial intelligence research from the initiation of the idea to its implementation and active use in recent decades, it was only in 2020 that the Concept for the Development of Artificial Intelligence in Ukraine was approved, which consolidated the concept of artificial intelligence as an organised set of information technologies that can be used to perform complex tasks using a system of scientific research methods and information processing algorithms, received or independently created in the course of work, as well as create and use their own knowledge bases, decision-making models, algorithms for working with information and determine ways to achieve the tasks set (Decree of the Cabinet of Ministers of Ukraine On the approval of the Concept of the development of artificial intelligence in Ukraine, 2020).

4. Conclusions

Therefore, having considered different points of view, we can state that the issue of development and formation of artificial intelligence has been considered by scientists from different perspectives. For example, in terms of the existence of artificial intelligence, which is actively used to solve problems in the field of production, agriculture, services, education, IT, and others, as programmed tasks to facilitate their implementation, or the possibility of bringing artificial intelligence closer to human intelligence in terms of the ability to make independent decisions, awareness of threats, danger, the ability to make intuitive or emotional decisions, and other manifestations of human consciousness, and not just pragmatic actions that do not go beyond the plan or programme. Moreover, with regard to the programme, it should be noted that the creation of artificial intelligence is due to human mental abilities, especially in relation to the development of artificial intelligence and developments in this area in recent years. An interesting issue of considering artificial intelligence arises not only from a practical perspective, but also from the philosophical understanding and nature of the origin of such a name, which is still closer to human intelligence, that is, the ability of a machine to make independent "volitional" decisions with the help of artificial intelligence. With regard to the qualitative characteristics of artificial intelligence, it should be noted that

artificial intelligence has long gone beyond human mental abilities. For example, a primitive calculator from the last century is likely to be better than an average citizen in the correct solution of multiplication with three-digit digits, in a few seconds. However, a person is capable of making non-standard (unplanned) decisions, can act on an intuitive level, sometimes in the absence of logic and consistency, and such a decision will be correct in a particular situation. In recent years, machines have been equipped with such programmes that can independently choose the path to achieve their goal, but still cannot go beyond the programme. Such a programme involves several situations in which the machine needs to choose a path and make the only right decision in accordance with the objective situation. The most important thing to remember is that all artificial intelligence is created thanks to the mental abilities of humans and is, of course, aimed at serving humanity.

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ПОНЯТТЯ «ШТУЧНИЙ ІНТЕЛЕКТ» У ФІЛОСОФСЬКО-ПРАВОВОМУ РОЗУМІННІ

Анотація. *Мета.* Метою статті є проведення дослідження щодо витоку походження поняття «штучний інтелект», проведення співставлення із поняттям «інтелект людини» у філософському аспекті. *Результати.* У статті розглянуті актуальні питання розуміння поняття «штучний інтелект» з філософської точки зору, здійснений шлях пошуку витоку цього поняття та ототожнення його з поняттям «інтелект людини». Активне впровадження та використання штучного інтелекту останніми роками в різних сферах діяльності людини, неоднозначність інтерпретації поняття штучного інтелекту призводить до викривленого та неоднозначного трактування штучного інтелекту. Тому стаття присвячена огляду публікацій за вказаним напрямом з метою проведення самостійного пошуку відповідей на поставлені запитання з філософської точки зору. З цією метою детально розглянуто поняття інтелекту та свідомості людини як соціально-когнітивної системи, яка здатна на прийняття нестандартних рішень у складних незапланованих ситуаціях, з якими людина стикається щоденно. В дослідженні було звернено увагу на проблемні моменти закріплення визна-

чення штучного інтелекту, розглянуто проєкт Стратегії розвитку штучного інтелекту в Україні на 2020–2030 роки, де зазначається, що першочерговим завданням у створенні штучного інтелекту є створення інтелектуальної системи, що формує штучну свідомість як модель функціонального апарату свідомості людини. ***Висновки.*** Зроблено висновок, що сьогодні навряд чи можна здивувати визначенням «штучний інтелект» навіть пересічного громадянина. Однак учені вже десятиріччями ведуть запеклі суперечки з приводу існування штучного інтелекту. За цей час створені програми для встановлення виміру штучного інтелекту, тобто здатності «машини» на роздуми, відчуття, емоції, пізнання, розуміння і це все одночасно, тобто такі процеси, які відбуваються у діяльності людини. Складне завдання не може бути остаточно розв'язане вченими різних галузей уже декілька десятиліть щодо розуміння «штучний інтелект», у статті дано власне бачення на основі оглянутих публікацій з цієї тематики за останні роки, що дало змогу зробити конкретні висновки.

Ключові слова: інтелект, штучний інтелект, інтелект людини, свідомість людини, штучна свідомість, інтелектуальна система.