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Management and Artificial Intelligence: Issues of Relationship

Abstract: The article explores the concepts of management, intelligence, and artificial intelligence, their interrelationships and interactions. It investigates the problems of implementing AI in human activities.

Keywords: management, artificial intelligence, implementation, concept, correlations.

If we accumulate the existing concepts of management, it is a process of systemic management consisting of a set of technologies, methods, and tools that aim to increase the efficiency of a certain type of human activity.

It appears that of all the areas where artificial intelligence (AI) can be integrated into human existence, it is most in demand in management in its specified interpretation, and from it, it will continue to develop in specific directions. In all cases, the field of AI application in management is wider than in the areas where it is being artificially introduced.

As a rule, managers successfully use discoveries from other sciences for their professional purposes and often develop them much better than the original data.

However, in our opinion, before discussing the implementation of AI, it is necessary to define its essence and the essence of its basis, which is intelligence.

In various concepts, perspectives, and interpretations, the concept of intelligence has been considered by almost all philosophers of the ancient world, as well as in subsequent stages of human development up to our time.

According to the concepts of Plato and Aristotle, intelligence is a force that determines a person, since the ideal as a reflection of the universal is the result not of contemplation, but of human activity [5].

Spinoza regarded the concepts of reason and intelligence as identical [1], while E. Kant understood intelligence as the highest cognitive ability that gives principles to reason [3].

American psychologist J. Guilford created a structural model of intelligence, in which each factor is characterized by a combination of one of five types of mental operations: cognition and understanding of presented material; searching in one direction with a single correct answer; searching in multiple directions with several equally correct answers; evaluation of the correctness or logic of a given situation; and memorization and reproduction of information [2, pp. 433-456].

According to the theory of British-American psychologist R. Cattell, the general factor is divided into two components: "crystallized intelligence", based on the subject's use of their existing experience, and "fluid intelligence", which is displayed in tasks requiring adaptation to new conditions and situations, and is influenced by genetic factors. In addition to basic intellectual abilities, R.

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Cattell included the ability to manipulate images in solving divergent tasks (visualization factor), the ability to store and reproduce information (memory factor), and the ability to maintain a high reaction rate (speed factor) in the structure of intelligence [11, p. 22].

Summarizing the essence of the given definitions, it can be stated that intelligence is most often understood as a stable combination of a person's mental abilities, characterizing their capabilities in terms of successful performance of various types of activities, as well as a sufficiently high level of development of human abilities that can be accurately quantified using psychological methods.

Currently, there are many definitions of artificial intelligence that also have fundamental differences. In terms of logic, it is the same intelligence, but not natural, but man-made.

Thus, according to the Oxford English Dictionary edited by A. Rieber, artificial intelligence: a) is an interdisciplinary field that combines cognitive psychology and computer science research and theories, focusing on the development of artificial systems that demonstrate human-like thinking or intelligence; b) any artificially created intelligence, which is the goal of the field's research [6].

According to "The Psychology of Consciousness" by Antti Revonsuo, artificial intelligence refers to computers and programs that reproduce human intellectual and cognitive abilities or exceed them [8].

According to the Psychological Encyclopedia by R. Corsini and A. Auerbach, artificial intelligence is an abstract theory of human, animal, and machine cognition [4].

Therefore, all definitions of artificial intelligence by these authors include machine learning algorithms as an integral part of it.

However, in 1989, British mathematician Roger Penrose published the book "The Emperor's New Mind", in which he argued the impracticality of achieving strong artificial intelligence, as certain problems that can be solved by the human brain represent unsolvable arbitrary algorithms [7].

In January 2019, Canadian and Israeli mathematicians jointly concluded that machine learning algorithms encounter the problem of set theory - Russell's paradox, which has no solution for fundamental reasons [10].

Nevertheless, it appears that research in this direction will not cease, as the idea of creating an artificial human remains very attractive, with roots extending far into the past.

It is also necessary to consider the risks of using new technologies [9]. For example, as reported by The Verge, scientists from Collaborations Pharmaceuticals, a company specializing in finding drugs to treat rare diseases, developed an artificial intelligence capable of designing tens of thousands of chemical weapons. Initially, this technology was intended to be used for creating new drugs, but in just six hours, the program was able to generate more than 40,000 potentially lethal molecules. It was oriented towards searching for molecules rather than eliminating their toxic effects. The composition and action of the molecules were very similar to VX - a nerve agent phosphorus-containing organophosphate that was used during World War I [9].

In summary, it can be argued that artificial intelligence is necessary to eliminate or minimize the subjective elements of natural intelligence. This is primarily due to self-interest in a specific outcome, driven by corruption and other "natural" factors that exclude objectivity and fairness, even in their everyday understanding.

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Менеджмент и искусственный интеллект: проблемы соотношения

Аннотация: Рассматриваются понятия менеджмента, интеллекта и искусственного интеллекта, их взаимосвязи и взаимоотношения.

Исследуются проблемы внедрения ИИ в человеческую деятельность.

Ключевые слова: менеджмент; искусственный интеллект; внедрение; понятие; корреляции.

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