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MODERN TRENDS IN THE APPLICATION OF INTELLIGENT SYSTEMS IN THE MANAGEMENT OF ECONOMIC OBJECTS

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ANNOTATION **The article is devoted to the issues of improving the management processes of economic entities based on the use of artificial intelligence technologies. The work provides the general structure and components of an intelligent information system - a knowledge base, a decision-making mechanism and an intelligent interface. The knowledge base is characterized as a set of models, rules and data that allow generating and analyzing conclusions to find solutions to complex problems in a certain subject area.**

KEYWORDS Artificial intelligence, intelligent system, subject area, knowledge base, interface, expert system.

INTRODUCTION

Currently, artificial intelligence technologies are actively developing in the Republic of Uzbekistan. In accordance with this, on February 17, 2021, the Resolution of the President of the Republic of Uzbekistan "On measures to create conditions for the accelerated implementation of artificial intelligence technologies" was adopted. In order to accelerate the implementation of artificial intelligence technologies and their widespread use in the country's economy, the Program of measures to study and implement artificial intelligence technologies in various industries and areas was approved. Artificial intelligence technologies are developing especially actively in the banking and financial sectors, healthcare and pharmaceuticals. Today, one of the most important areas for improving the management processes of economic entities is the intellectualization of information technology. This means that the user can not only receive information based on data processing using computer technologies, but also use the accumulated experience and knowledge of specialists on the problem of interest.

METHODS

In conducting this study, the authors used methods of theoretical and statistical analysis and synthesis, methods of generalization and grouping, methods of monographic research, as well as methods of working with computer networks and software products in complex information systems.

In the course of working on this article, the authors studied a fairly wide range of scientific works by domestic and foreign scientists, such as G.I. Abdrakhmanova, K.O. Vishnevsky, L.M. Gokhberg. [1], M. Tim Jones [2], Golovenchik G.G. [3], S. Osovsky [4], A.V. Ostroukh [5, 6], Zhukovskaya I.E. [7], Zhukovskaya I.E., Xashimxodjayev Sh.I. [8], Xashimxodjayev Sh. I., Belalova G. A. [9], Xashimxodjayev Sh.I., Pilipenko E.F. [10], Telnov Yu.F., Bryzgalov A.A., Kozyrev P.A., Koroleva D.S. [11], Shpileva A.A. [12].

Currently, much attention is paid to the study of digital transformation issues in economic science and practice. At the same time, many foreign and domestic scientists pay special attention to the practical application of artificial intelligence technologies, consider new approaches to the activities of enterprises and organizations in the digital economy.

The research methodology is based on the theoretical provisions of scientific works of domestic and foreign scientists devoted to the problems of the digital economy, both in the methodological aspect and in the legal, technical, information, technological and software aspects.

RESULTS

The main purpose of information systems in the economy is to provide decision makers with the necessary information in a timely manner to make adequate and effective decisions in managing processes, resources, financial transactions and the organization as a whole [5].

However, with the development of information technologies, as well as the increase in the number of consumers of information resources on the part of decision-makers, it is not only a question of providing and processing primary information, but also of the need to implement the results of preliminary analysis.

An intelligent system (IS) is an automated system based on knowledge, or a set of software, linguistic and logical-mathematical tools for implementing the main task - supporting human activity and searching for information in the advanced dialogue mode in natural language [6].

The intelligent system consists of three main blocks:

- a knowledge base;
- a decision-making mechanism:
- an intelligent interface.

Knowledge engineering is closely related to the process of developing intelligent information systems in general and expert systems in particular. The methodology of developing expert systems covers the discovery, analysis and provision of expert knowledge to form a rule base. The development of expert systems has created knowledge engineering – the process of creating intelligent systems. This is a set of models, methods and technical procedures aimed at creating systems designed to solve problems using a knowledge base.

Thus, in order to create a system that works with knowledge and to some extent replaces a specialist or helps him make decisions in production management, it is necessary

to try to create the possibility of implementing these functions in the architecture of an intelligent system.

A knowledge base is a collection of models, rules and data that allows you to generate and analyze conclusions to find solutions to complex problems in a certain subject area.

Knowledge about a subject area, isolated and organized in the form of separate, integrated structures of information support, becomes clear and is separated from other types of knowledge, for example, general knowledge. Knowledge bases allow thinking not only on the basis of formal logic, but also on the basis of experience, factors, heuristic.

Developments in the field of artificial intelligence (AI) are aimed at using large volumes of specialized knowledge about a particular subject area to solve complex, extraordinary problems.

The knowledge base is the foundation of the expert system, which is formed during its construction. Knowledge is reflected in such a way that it allows a clear understanding of the way of thinking and methods of solving problems, and is organized to simplify decision-making. The knowledge base, which supports awareness of the expert system, includes the knowledge of institutions, departments, specialists, the experience of a group of experts and consists of institutional knowledge (a set of qualified, updated strategies, methods, solutions). The main characteristics of knowledge bases are shown in Figure 1.

Knowledge and rules of work can be viewed from different points of view:

- ideal and superficial;
- qualitative and quantitative;
- specific and general.

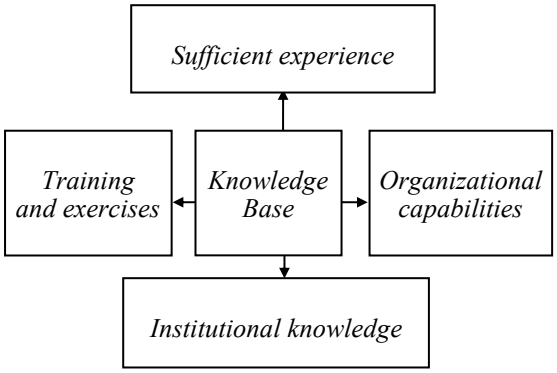

Fig. 1. Main characteristics of the knowledge base [1]

The main components of the knowledge base are:

- the knowledge base itself and its environment;
- the decision-making mechanism;
- the interface.

DISCUSSION

There are currently two definitions of the term "knowledge base":

1. A knowledge base is a package of specific specialized knowledge used in a system.

2. A knowledge base is an integrated system containing information about human experience and knowledge in a certain subject area.

All knowledge is divided into algorithmic and non-algorithmic. Non-algorithmic knowledge is divided into conceptual and factual knowledge.

In knowledge base systems, it is important to define the content of knowledge, what and how to represent. The question of what to represent is defined as follows - the solution to a specific problem must reflect the modeled or represented entity. The question of how to represent a knowledge base has the following two aspects:

1. How to organize knowledge, that is, systematize it.

2. How to present knowledge in a selective form of formulation.

Thus, the range of issues that require a solution when presenting information in a knowledge base system includes:

- etermining the content of the presented knowledge;
- organizing knowledge;
- presenting knowledge, i.e. defining a presentation model.

In this case, we use the following concepts: subject area, problem area, information, knowledge [2].

A subject area is a field of knowledge about tasks, and a problem area is a subject area and the tasks solved in this area. Information can be initial, intermediate, and resulting. Knowledge is any information, including specific evidence, stored in the system, regardless of whether the system is solving the task at a given time or not.

Direct use of data from the knowledge base to solve the problem is provided by the decision-making mechanism. The decision-making mechanism allows you to receive answers from the knowledge base, as well as receive solutions to problems that form terms stored in the knowledge base. The principle of obtaining a solution is closely related to the methods of presenting information in the knowledge base. Actions to solve equations for knowledge presented in the base are levels of the decision-making mechanism.

The decision-making mechanism has a decision algorithm - special algorithmic knowledge. On the other hand, the decision-making mechanism has a certain part of the semantics of knowledge in the event form. This is confirmed by the relativity of the boundaries between the decision-making mechanism and the knowledge base. The interface is part of the knowledge base system, providing a language of a sufficiently high level, close to the professional language of

[1] А.В. Остроух. Основы построения систем искусственного интеллекта для промышленных и строительных предприятий: – М.: ООО ≪Технологиграфцентр≫, 2008.

subject area specialists working with the knowledge base and the decision-making mechanism.

The interface also includes a corresponding language processor. In addition, the interface functions include support for a dialogue with the user, which allows the system to participate in the search for solutions, make corrections to the knowledge base.

The content of knowledge bases can be used by the user to make effective management decisions. Figure 2 shows the structure of the knowledge base and the technology of its use.

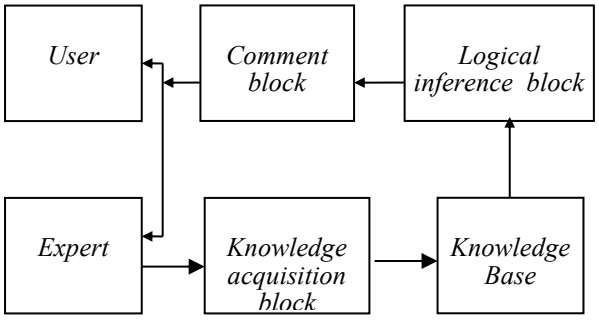

Fig. 2. Technology of using knowledge bases[2]

An expert is a specialist who is able to find effective solutions in a specific subject area.

The knowledge acquisition block reflects the stage of knowledge base aggregation, knowledge and information updating.

In conclusion, the knowledge base reflects access to high-quality expertise at the level of thinking of a qualified expert, making expert systems cost-effective for the needs of businesses and clients.

CONCLUSION

To sum up the above, it should be noted that in the modern period the development of intelligent systems is at a high level. The use of intelligent systems in the activities of economic entities is a driver for the development of not only a separate economic entity, but also all related industries and spheres of the country's economy.

As experience shows, the implementation of various intelligent solutions contributes to increased production efficiency, development of the agricultural sector, adoption of innovative management decisions, and improvement of the qualifications of employees working with intelligent assistants, which ultimately serves as the basis for the competitiveness of enterprises and organizations in the economic market.

References

[1] G.I. Abdrakhmanova, K.O. Vishnevsky, L.M. Gokhberg. What is the digital economy? Trends, competencies, measurement: report to the XX April International Scientific Conference on Problems of Economic and Social Development, Moscow, April 9-12, 2019. M.: Publishing House of the Higher School of Economics, 2019. - 82 p.

[2] M. Tim Jones. Programming Artificial Intelligence in Applications. – M.: DMK Press, 2018. – 312 p.

[3] Golovenchik, G.G. Digitalization of the Belarusian economy in modern conditions of globalization / G.G. Little head. - Minsk: BSU Publishing Center, 2019. – 257 p.

[4] S. Osovsky. Neural networks for information processing. – M.: "Hot Line-Telecom", 2016. – 448 p.

[5] A.V. Ostroukh. Intelligent systems: monograph. - Krasnoyarsk: Scientific and Innovation Center, 2020. - 316 p.

[6] A. V. Ostroukh. Fundamentals of constructing artificial intelligence systems for industrial and construction enterprises.- M.: Tekhpoligraftsentr, 2008. - 280 p.

[7] Zhukovskaya I.E. Digital platforms are an important aspect of the digitalization of higher education. Open education. 2022;26(4):30-40. https://doi.org/10.21686/1818-4243-2022-4-31-40.

[8] Zhukovskaya I.E., Xashimxodjayev Sh.I. Digital solutions are an important factor in the development of the socio-economic potential of the country // Periodical scientific journal "Izvestia" of the St. Petersburg State University of Economics. - St. Petersburg, 2023. No. 5 (October). pp. 121-127.

[9] Xashimxodjayev Sh. I., Belalova G. A. Features of digital development of the national economy of the Republic of Uzbekistan // Economics and Innovative Technologies, 2022, № 2, - pp. 332 – 337. http://iqtisodiyot.tsue.uz.

[10] Xashimxodjayev Sh.I., Pilipenko E.F. Information security is an important factor in the effective development of economic entities in the context of digital transformation. Scientific notes of the Faculty of Law, St. Petersburg State University of Economics. Issue №1, 2022, pp.38-42.

[11] Telnov Yu.F., Bryzgalov A.A., Kozyrev P.A., Koroleva D.S. Choosing the type of business model for implementing the strategy of digital transformation of a network enterprise // Business Informatics. 2022. No. 4. P. 50-67.

[12] Shpileva A.A. Digitalization processes in small and medium-sized businesses in a pandemic // Economics, entrepreneurship and law. 2021. Volume 11. No. 2. S. 299–312.

[13] www.lex.uz - Database of regulatory legal acts of the Republic of Uzbekistan.

[2] Разработано авторами