ARTIFICIAL INTELLIGENCE IN THE BUSINESS ENVIRONMENT

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Abstract: this article discusses the use of artificial intelligence in a business environment, as well as the use of information systems with elements of artificial intelligence, advantages and disadvantages, classification and capabilities of artificial information systems.

Keywords: artificial intelligence, business environment, information systems, intelligent information systems, knowledge representation models, adaptive systems, open systems, automation.

Introduction

In recent years, the computer and information systems in particular have become an integral part of the management system of an enterprise or organization, regardless of ownership. Due to the wide and rapid development of information and communication technologies, there is an expansion of the scope of their application. Thus, the use of information systems makes it possible to make more accurate forecasts and avoid possible errors in management. In addition, a significant array of useful information can be extracted from the preserved data and reports on the operation of the enterprise for analyzing the activities of the enterprise. The emergence of a new type of information systems with elements of artificial intelligence has made it possible to expand the computer capabilities for processing and analyzing information of various types to ensure the formation of high-quality management decisions and personalized learning.

The purpose of the work is to determine the role of artificial intelligence in the business environment, to highlight their features and characteristics, to reveal the main directions of their use.

The main material

At the present stage of development of the information society, the presence of a variety of software determines the degree and quality of processing various

types of information and performing user tasks on a computer. A significant place among software products to meet the information needs of users was occupied by information systems, which are defined as application software subsystems focused on searching, collecting, storing and processing textual and factual information [4, p. 22]. At the same time, information systems are being introduced into many areas of human activity. The active use of information systems with elements of artificial intelligence significantly transforms modern everyday reality and forms a special type of human perception of the world. Artificial intelligence can be defined as the branch of computer science concerned with the automation of intelligent behavior. Modern technology, which contains signs of artificial intelligence, has become an everyday means of increasing the level of comfort and safety [1, p.94].

These regularities have led to the emergence of a new type of information systems called intelligent information systems (IIS), which are understood as knowledge-based automated information systems, or a set of software, logical, mathematical and linguistic tools to support human activities and search for information in a dialogue mode. between computers and the user by means of natural language [1, p. 92]. Intelligent information systems accumulate the most science-intensive technologies with a high level of automation not only in the processes of preparing information for decision-making, but also in the processes of developing decision options based on the data received by the information system. They are characterized by the following features:

• developed communication skills that characterize the way the end user interacts with the system;

• the ability to solve complex problems that are poorly formalized (tasks that require the construction of an original solution algorithm depending on the specific situation. Such problems may be characterized by uncertainty and dynamism of the initial data and knowledge);

• the ability to self-learning (the ability to automatically generate and extract knowledge to solve problems based on accumulated experience in a specific subject area);

• adaptability (ability to develop the system in accordance with objective changes in the model of the problem area);

• the use of a specific component in IIS - the knowledge base, is a container of facts and rules of a specific subject area [4, p. 23].

The characteristic features that distinguish IIS from conventional information systems are:

1. Representation of the model of the object under study and its environment in the form of a knowledge base and means of deductive and plausible conclusions, combined with the ability to work with incomplete or inaccurate information.

2. IIS solutions have the property of transparency, that is, they can be explained to the user at a qualitative level.

3. The ability to automatically detect certain patterns in previously accumulated facts with the accumulation of a knowledge base.

4. IIS give the user a solution that is not inferior to the decision of a human expert in terms of quality and efficiency [5, p. 18].

Intelligent information systems can be classified according to:

- subject area of application (IIS management, risk management, investments, IIS in the military sphere, etc.);

- degree of autonomy from corporate IS or database (autonomous in the form of independent software products with their own knowledge base, fully integrated);

- method and efficiency of interaction with the object (static, dynamic, real time);

- degree of adaptability (IIS that are learning, that is, systems whose parameters and structure change in the process of learning or self-learning, IIS, the parameters of which are changed by the administrator);

- knowledge representation models (nonmonotonic, modal and temporal logics, Markov and Bayesian networks, casual trees, IIS based on the Dempster-Shafer theory, fuzzy systems, etc.) [5, p.20].

Most often, IIS are used to solve complex, poorly structured problems. The complexity of these tasks is associated with the use of poorly formalized knowledge of practitioners, where the logical processing of information dominates the

computational one. This concerns decision support in emergency situations, natural language understanding, diagnosis and treatment recommendations, analysis of visual and audio information, control of dispatch consoles and security systems [1, p. 47]. Along with the traditional use of intelligent information systems, there is now a trend when other approaches to the use of artificial intelligence in software are being implemented, namely:

1. Adaptive systems and self-learning systems designed to solve certain problems by taking into account a priori information and information entering the intellectual system during its operation. Such systems develop on the basis of the experience of their work, and the assimilation of this experience is one of the technological stages in the creation of such systems.

2. Open systems of a large scale, which are designed by a large number of different developers, often unrelated. Their development does not take place according to a specific plan created in advance, but chaotically. Systems of this type create a conditional public access information environment where developers and users can contribute, regardless of their location [4, p.261].

Did not bypass artificial intelligence and the business environment. Artificial intelligence is already widely used in business applications, including automation, data analysis, and natural language processing. Across industries, these three areas of AI are streamlining operations and improving efficiency. Automation makes it easier to perform repetitive or even dangerous tasks. Data analytics gives businesses never seen before opportunities. Natural Language Processing enables intelligent search engines, helpful chatbots, and better accessibility for the visually impaired.

Other common applications of AI in business include:
• data transfer and cross-references; file update;
• predicting consumer behavior and product recommendations;
• fraud detection;
• personalized advertising and marketing messages;
• customer service by phone or via chatbots [1, p.114].

Indeed, many experts note that AI business applications have reached such a level of development that we live and work with it every day without even realizing it.

In 2018, the Harvard Business Review predicted that AI would have the biggest impact on marketing services, supply chain management, and manufacturing. Two years later, we are seeing these predictions come true in real time. For example, the rapid growth of social media marketing using AI makes it easier than ever for brands to personalize customer interactions, keep in touch with them and track the success of their marketing efforts. Supply chain management is also poised to make significant advancements based on AI in the next few years. Process mining technologies will increasingly provide companies with accurate and comprehensive insights to monitor and improve operations in real time.

Transparency and data security is another area where AI is expected to make a significant difference in the coming years. As customers learn how much data companies collect, the need for more transparency about what data is collected, how it is used, and how it is protected will only grow [2, p. 370].

In addition, there is still a significant opportunity to increase the use of AI in finance and banking, two data-heavy sectors with huge potential for AI-driven modernization that still rely heavily on legacy processes.

In some industries, the widespread adoption of AI depends on ethical considerations to ensure public safety. Note, however, that while cybersecurity has long been a concern in the tech world, some companies must now also consider physical threats to the public. In the business world, this is especially true. For example, the question of how autonomous vehicles should react in the event of an imminent plant accident is a big topic of discussion. Tools such as MIT's Moral Machine have been developed to gauge public opinion about how self-driving cars should operate when human harm cannot be avoided. Given the need for specificity in the development of decision-making algorithms, an international body would naturally be needed to set the standards by which moral and ethical dilemmas are resolved [7, p. 117].

It is important to emphasize the global aspect of these standards. Countries around the world are in an AI arms race, rapidly developing powerful systems. Perhaps too fast. If the race to develop artificial intelligence leads to sloppiness in the creation of "ethical" algorithms, the damage could be enormous. International standards can provide designers with guidelines and parameters that ensure that machine systems reduce risk and damage as much as, if not better than, a human being. There are many misunderstandings in the business world about the current capabilities and future potential of AI. Many business owners believe that AI can do everything a human can do and more. The best approach involves identifying specific use cases.

For companies looking to use AI, the first step is to look at what parts of their current operations can be digitized. Instead of coming up with a magic solution, businesses should consider existing technologies that can free up resources or provide new insights. AI doesn't start with AI. It all starts at the company level. For example, companies that have already digitized payrolls will find that they collect a lot of data that can help predict future spending. This allows businesses to hire and operate with greater predictability, as well as simplify accounting tasks [6, p. 163].

Rather than serving as a substitute for human intelligence and ingenuity, artificial intelligence is generally viewed as a supportive tool. Although artificial intelligence currently has difficulty performing sensible tasks in the real world, it can process and analyze massive amounts of data much faster than the human brain. The AI software can then come back with a synthesized action plan and present it to the human user. In this way, people can use artificial intelligence to help identify the possible consequences of each action and simplify the decision-making process.

"Artificial intelligence is sort of the second coming of software," said Amir Hussein, founder and CEO of machine learning company SparkCognition. "It is a form of software that makes decisions on its own, capable of acting even in situations unforeseen by programmers. Artificial intelligence has more decision-making capabilities than traditional software."

These traits make artificial intelligence very valuable in many industries, whether it's simply helping visitors and staff navigate a corporate campus efficiently,

or doing something as complex as monitoring a wind turbine to predict when it needs repairs. Machine learning is often used in systems that collect huge amounts of data. For example, smart energy management systems collect data from sensors attached to various objects. The datasets are then contextualized by machine learning algorithms and delivered to decision makers to better understand energy and maintenance needs.

Artificial intelligence is also changing customer relationship management (CRM) systems. Software like Salesforce or Zoho requires a lot of human intervention to stay up to date and accurate. But when you apply artificial intelligence to these platforms, your regular CRM system becomes a self-updating, self-correcting system that stays on top of managing your relationships for you.

Another example of the versatility of artificial intelligence is the financial sector. Dr. Hossein Rahnama, founder and CEO of artificial intelligence concierge company Flybits and visiting professor at MIT, has worked with TD Bank to integrate artificial intelligence into common banking operations such as mortgages. Using this technology, if you have a mortgage with a bank that is renewable within 90 days or less, if you walk past a branch, you will receive a personalized message inviting you to go to the branch and renew your purchase. If you are looking for a property for sale and spend more than 10 minutes there, a possible mortgage offer will be sent to you [5, p. 152].

Conclusions

Thus, the combination of elements of artificial intelligence and information systems has led to the emergence of a new qualitative type of software products called intelligent information systems. Today, there are significant developments in the use of these systems in education, science, business. Multi-agent intelligent systems have proven themselves well and are widely used in business. In business, artificial intelligence has a wide range of applications. In fact, most of us interact with AI in one form or another on a daily basis. From the mundane to the exciting, artificial intelligence is already disrupting virtually every business process in every industry. As AI technologies proliferate, they are becoming an imperative for businesses that want to maintain a competitive edge.

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