IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE IN BUSINESS MODELS OF INTERNATIONAL AND UKRAINIAN COMPANIES

Lina Artemenko[1], Dmytro Tiutiunikov[2], Olga Guk[3*]

[1, 2, 3] National Technical University of Ukraine Igor Sikorsky Kyiv Polytechnic Institute,
Department of Enterprises Management, Faculty of Management and Marketing, Ukraine

Abstract: The article is devoted to topical issues of artificial intelligence research. Modern tools of generative artificial intelligence, which are used in the activities of companies, are analyzed. The level of implementation of artificial intelligence in business processes in different countries is indicated. The positive aspects of the implementation of artificial intelligence in the activities of companies have been identified. It is considered in which areas of business the use of artificial intelligence is the most common. The most common ways of using artificial intelligence in business in the world are given. There are examples of both successful and unsuccessful use of artificial intelligence in the activities of companies. The peculiarities of the implementation of artificial intelligence tools in the activities of companies are considered. One of the possible variants of the process of introducing artificial intelligence into the activities of enterprises is proposed.

Keywords: artificial intelligence, business activity, enterprise economy, implementation of AI, modern technologies, modernization

JEL Classification: M15, M21, O39

[1] Lina Artemenko, Assoc. Prof., PhD, National Technical University of Ukraine Igor Sikorsky Kyiv Polytechnic Institute, tarlin@ukr.net, https://orcid.org/0000-0002-8585-0252
[2] Dmytro Tiutiunikov, National Technical University of Ukraine Igor Sikorsky Kyiv Polytechnic Institute, dimatiutiunikov@gmail.com, https://orcid.org/0000-0000-0000-0000
[3] Olga Guk, Assoc. Prof., PhD, National Technical University of Ukraine Igor Sikorsky Kyiv Polytechnic Institute, olgaguk@ukr.net, http://orcid.org/0000-0002-8129-8392
* Corresponding author: Lina Artemenko, tarlin@ukr.net

Introduction

Artificial intelligence (AI) is a technology that has attracted the attention of the whole world. Increasingly, companies and government agencies are using or considering using AI. A global survey showed that 85% of surveyed executives plan to invest significant funds in AI technology in the coming years (Lee et al., 2023). Most scientists and representatives of business are inclined to the opinion that technologies will significantly change the business landscape in the 21st century, particularly the activities of organizations, industries and society (Duan et al., 2019).

The development and implementation of artificial intelligence is a complex and long-term process that involves significant investments and risks. For each company or government organization, it is necessary to analyze the consequences, results and potential changes that must be made before adopting AI. It is important to study the positive cases of other companies in order to assess all the possible consequences of implementing artificial intelligence and the factors that will influence its implementation.

Scientists around the world (for example, Lee et al. (2023), Duan et al. (2019), Kuzyomko (2021), Pizhuk (2019), Panukhnyk (2023), Sadiku et al. (2021), Huang et al. (2021), Tokar (2020), Pchelyanskyi and Voinova (2019), Reim et al. (2020), Bérubé et al. (2021), Kravchenko (2023), Mogilevska et al. (2023)) have begun to study the phenomenon of AI in various aspects related to the implementation of artificial intelligence in business activities, namely in information systems, management, operations management, decision making, customer service, as well as in various sectors of marketing, banking, education and medicine.

With the rapid development of various AI programs in society, there is a strong need for research that will provide a systematic understanding of how organizations should manage and implement AI, as well as the potential outcomes of such initiatives. Even though AI has developed significantly in recent years, there is still a lack of a complete and comprehensive study of its use, including the main stages of its implementation in business and determining the impact of AI on the success of companies.

The purpose of this article is to define the latest AI tools, consider the dynamics of the use of artificial intelligence in various areas of business and cover the most common ways of using AI in the activities of companies. It is worth noting that the main task is to reflect the process of introducing artificial intelligence into the business activities of the enterprise.

The research methodology of this study is based on collecting, assessing, and synthesizing existing knowledge on the impact of AI implementation on business models of enterprises. For indicating the purpose of the research, the impact of AI systems is represented in international and Ukrainian companies. Accordingly, this will increase opportunities for scientific research in this area, as well as contribute to the development of a comprehensive understanding of the concept of AI in view of the globalization challenges of the modern world.

Results – international case

Today, artificial intelligence (AI) has begun to be widely used in various industries to increase efficiency, accuracy, and decision-making capabilities. The artificial intelligence market has been actively developing for about ten years, companies need to spend more and more time studying and implementing AI strategies in business. This has led to an increase in the full-scale deployment of various artificial intelligence technologies in various areas of business, as well as the use of its advantages in education and medicine. The results of AI implementation in companies usually help to reduce costs and increase profits. However, the implementation of artificial intelligence is not an easy task, and organizations must have a clearly defined strategy to ensure sustainable success in the market. Currently, there are more than 10,000 AI projects in the world. The most popular and most used of them are listed in Table 1. The tools listed in Table 1 will be useful both for business representatives to choose the necessary tools for their activities and for everyday use.

Table 1. Generative AI tools most popular in 2023

Scope of use of AI[1]	AI programs[1]	Scope of use of AI[2]	AI programs[2]
Voice/ sound	HeyGen, Uberduck, Revoicer, Voicify, Fliki, Eleven labs	Creation of layouts	Figma, WiXADI, Canva, Microsoft Designer, Uizard, VisualEyes, Adobe Express, ESIGNS.AI
Music	Mubert, Soundful, Audiocraft, Aiva	Branding	WiX, Hatchful, TAILOR BRENDS, DesignEvo, esigns.AI, Logomaker, Looka, Logoai
Image	Midjourney, Dalle, Bing, Canva, Adobe Firefly, Stable Diffusion, Leonardo.AI, STOCKIMG.AI, Hotpot, Jasper	Productivity	Fathom, Reclaimai COGRAM, Clara Otter.ai
Self care	FITBOD, Sleep.ai, Headspace, MealMate	Health	PALM 2, Replika, DR. SNOOZE, WYSA
Teaching	Kena.AI, Birdbrain, Babbel, Moises, Duolingo Max	Services	Forethought, DigitalGenius, TIDIO, NICE
General topics/ conducting dialogue	Grok, Perplexity, ChatGPT, Bard, MPT-7B, Chatsonic, Claude.ai, KoalaWriter, Notion AI, ProWritingAid, Grammarly, INGER, Smartwriter.ai, Phrase, Jasper, Adcopy, Writer	Writing code	Tabnine, CodeSquire.ai GitHub Copilot Amazon CodeWhisperer
		Video creation	PICTORY, PIKA Midjourney, Stable diffusion, Synthesia HeyGen, Runway Ebsynth, TOPAZ LABS
Creating an animation	Deepmotion, Cascadeur	Video editing	Descript, Topaz Video AI, Visla

Source: Based on (Solis, 2023)

It is worth noting that today 35% of the world's companies use artificial intelligence in their activities. Among all countries, China has the highest level of implementation of AI in business processes (about 58% of companies). The next country in terms of artificial intelligence adoption is India, with 57% of companies utilizing AI, followed by Canada, where 48% of companies employ artificial intelligence. The United States of America has one of the lowest rates of AI adoption, with only 25% of companies using artificial intelligence in the country.

The global AI market is expected to reach $1.85 trillion by 2030. In addition, it has been studied that large corporations use AI twice as often as small companies (Cardillo, 2023).

Undoubtedly, artificial intelligence offers many advantages to the business models of companies. First, it helps to improve customer service, because AI will be able to interact with customers in real-time and answer their questions more naturally. Second, artificial intelligence helps managers make more accurate and consistent decisions faster. Thirdly, AI contributes to the reduction of operating costs of companies. For example, by using artificial intelligence to automate business processes, it is possible to reduce the need for people to perform the same type of tasks. This will allow managers to focus on other more important functions. Fourth, AI makes it possible to better understand customers through the ability to analyze large volumes of data and identify certain trends and patterns on this basis. This information will show what needs customers have at the moment and what they want to receive from the company in the future. Finally, artificial intelligence helps companies predict sales and profits. Profit and sales forecasting is a complex task that requires many different inputs from customers, suppliers and your own staff. But with the help of AI tools, this task can be performed much faster and easier (Nguyen, 2023).

According to the latest Eurostat statistics for 2023, many companies in the European Union are already using artificial intelligence in their operations. Let us consider in which spheres its use is most common (Table 2).

Table 2. Use of artificial intelligence by EU companies by business area, 2023 (%)

EU companies by business area	Using of artificial intelligence in 2023 (in %)
Computers and electronics	17
Automotive	12
Electricity and utilities	8.5
Retail trade	7
Food manufacturing	6
Furniture, household goods	5.5
Clothing and textiles	4

Source: Compiled by the authors based on (How companies use artificial intelligence, 2023)

As can be seen in Table 2, the largest percentage of use of artificial intelligence falls on companies working in the field of computers and electronics. The smallest percentage is for companies working in the field of furniture and household appliances

production. In 2023, large enterprises (30.4%) used AI more than small (6.4%) and medium enterprises (13%). This was related to different circumstances: the complexity of implementing AI, economies of scale for large enterprises can benefit more from AI, and investment costs in AI may be more affordable for large enterprises.

Additionally, according to Forbes Advisor, the most common ways in which business owners around the world used AI in 2023 were in customer service (56%), improving cybersecurity (51%), developing digital personal assistants (47%), CR management (46%), inventory systems (40%), content creation processes (35%), product design recommendations (33%), accounting and supply chain operations (30%), and recruiting and talent sourcing (26%). It is rapidly evolving in market segmentation, human resources, accounting, product offering development, etc.

Today there are many examples of successful application of artificial intelligence in the activities of companies. For example, Netflix has mastered artificial intelligence in business to create the most personalized video content for users. Google uses artificial intelligence in almost all areas of its business, from understanding web pages for its search engine based on artificial intelligence to improve interaction with clients using digital transformation tools. In addition, their speech recognition system has made significant advances in machine learning, data analytics, and natural language processing capabilities.

Artificial intelligence is used quite effectively by Amazon. It makes it possible to personalize the product offer according to the tastes of each individual buyer. The company uses AI to detect suspicious activity on its site, which helps prevent fraud. Apple has been working with artificial intelligence for quite some time. Using the power of big data, the company's managers provide their customers with comprehensive personalized opportunities and develop special commercial offers for them. Meta actively uses artificial intelligence in its operations, usually in the form of machine learning models and natural language processing, to provide a better experience for users of social networks, as well as to protect their data and interests (Spizheva, 2023).

As one of the vivid examples of the use of artificial intelligence in business, it is worth highlighting the system of chatbots that provide support to customers in real-time. For example, the H&M company uses a chatbot in Facebook Messenger, which helps customers find the right size of clothes, find out about product availability, and get other necessary information. Chatbots are based on machine learning and natural language processing technologies, so they can quite accurately understand customer requests and provide answers to questions in real-time. This makes it possible to reduce customer support costs and increase their satisfaction.

However, there are examples of unsuccessful use of AI. So, in 2018, Amazon launched a recruitment program that used artificial intelligence algorithms. However, the system proved to be unfair because the abilities of women and people from certain ethnic groups were rated lower than the abilities of people from other ethnic groups.

The now widespread ChatGPT has already led to business risks several times. In April 2023, it became known for the data leak of the Samsung company. It turned out that the company's developers were testing computer programs written with the help of AI. However, they did not take into account that all the data transferred to the database would become publicly available.

Results – Ukrainian case

Regarding the development of artificial intelligence in Ukraine, it is worth noting that is gradually developing in the field of AI and is already known for some successful projects. For example, Grammarly uses AI to improve stylistics in English texts. The Rozetka company uses a system for forecasting demand for goods and optimizing delivery processes. Retailer Fozzy Group uses personalized recommendations and has developed its own AI solution that can recognize dishes in an establishment and generate payment for them. Genesis is a Ukrainian IT company that develops software for automating banking operations. AI is used to solve problems in the field of risk management, analysis of financial data and automation of routine processes. Other examples of the use of artificial intelligence in business model of Ukrainian companies include the automated planning and logistics management system of the SoftServe company, and the analysis system data for decisions in the financial sphere of the Datrics company.

Among the sectors in which AI technologies are applied in Ukraine, medicine should be considered separately. The Intermedika company has created a system for diagnostics. The service uses neural networks to recognize signs of diseases on X-ray images, which makes it possible to make a more accurate diagnosis and prescribe appropriate treatment. One of the risks of using AI in business processes is the loss of jobs for many people in case of further development and expansion of the use of this technology. Disputes on this matter occur in the legal field. At the same time, on the territory of Ukraine, as in most countries of the world, there are currently no regulatory acts regulating the use of AI.

In 2020, the Concept of the Development of Artificial Intelligence was developed, which contains the definition of AI, the specifics of the problem, and the possible positive results of its influence in various spheres of life. The implementation of the Concept is planned until 2030. In addition, the Ministry of Digitization approved the road map for the regulation of AI in Ukraine at the legislative level, which provides for joining the methodology for assessing risks and the impact of AI systems on human rights, democracy and the rule of law, and subsequently adopting a regulatory act based on the European model. Implementation is planned until 2027 according to the YC.Market blog by YouControl Informational and analytical system.

During the war, artificial intelligence is used in various fields. The military application of AI covers surveillance and various types of intelligence, logistics, command, control, etc., and helps in solving humanitarian issues and training the military (Kravchenko, 2023). The implementation of artificial intelligence elements in business models is becoming more and more popular among managers and business owners, despite the high cost, complexity of implementation, and risks in use. Experts estimate the degree of impact of artificial intelligence and other innovative technologies on the economy more than, say, the impact of political risks or climate change (Kuzyomko, 2021).

Some researchers believe that the massive use of artificial intelligence, automation and robotics may lead to job cuts. However, most scientists agree that artificial intelligence will not be able to do without humans for a long time. Undoubtedly, the

development of artificial intelligence will lead to the extinction of some professions, but at the same time, it will launch the creation of its own industrial relations (Kuzyomko, 2021).

Introducing AI into business processes can meet three important business needs: business process automation, data mining, and customer and employee engagement. Currently, the most common type of use of AI is the automation of digital and physical tasks. This technology is the cheapest and easiest to implement, and it provides a quick and high return on investment. The technology is particularly well suited to work in several internal systems (Mogilevska et al., 2023). In the scientific literature, there are different views on the process of introducing artificial intelligence into the activities of enterprises. Scientists and practitioners consider its stages and sequence in different ways. In our opinion, the main stages of AI implementation in any business activity are the following (Figure 1).
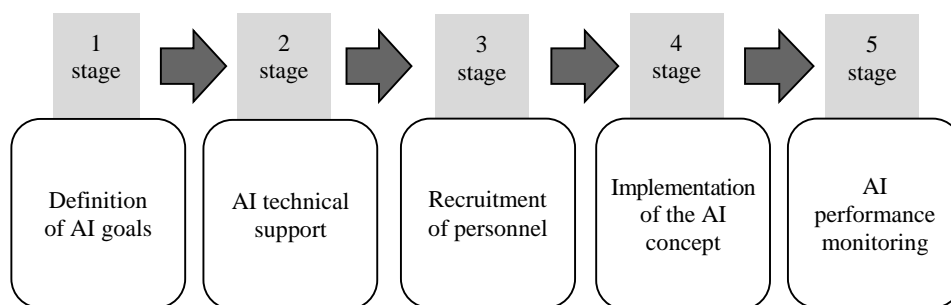

Figure 1. The process of introducing artificial intelligence into the enterprise's business model

Source: Developed by the authors

In the first stage, it is necessary to establish the goals of introducing artificial intelligence into the company's activities and determine what AI should solve to improve the operation of the enterprise and increase its competitiveness. The goals must be clear, precise, relevant and correspond to the general concept of the company's activities. The second stage – technical support for the implementation of AI – provides for the availability of the necessary automated equipment for the effective performance of tasks using individual artificial intelligence tools. In this stage, it is necessary to think over all the features of the application of certain technologies and ensure their smooth functioning.

The next stage is the selection of personnel responsible for working with artificial intelligence. Personnel must be specially trained to work with AI, have the necessary skills and desire to constantly learn in the field of modern information technologies and artificial intelligence. The fourth stage involves the direct implementation of artificial intelligence in the company's activities. At this stage, it is important to understand all the potential risks that may arise in the process of AI implementation and, since to develop a special plan of measures to avoid or minimize any negative impact from artificial intelligence.

The last stage of the process of introducing artificial intelligence into the business activities of companies is monitoring the effectiveness of AI. In this stage, it is necessary to constantly investigate the effectiveness of artificial intelligence in business models to evaluate its impact on the company's activities. This task is not easy, as it is not always easy to evaluate the effectiveness of the use of certain AI tools in business; however, it is possible to trace the change in the general dynamics of the main indicators of the enterprise during their application and predict the future trend of profit growth. This process involves establishing key performance indicators (KPIs) to measure efficiency gains and innovation impact, quantifying the impact of AI on various operational aspects such as processing speed, measuring the time it takes to complete tasks and processes, and comparing AI-enabled workflows with traditional methods (Olutimehin et al., 2024).

In general, the process of introducing artificial intelligence into the business model of any company should be well-planned and organized. As numerous studies show, the most common mistakes in the implementation of artificial intelligence in the activities of companies are unclear goals, the wrong time for the introduction of AI, the lack of necessary skills for working with artificial intelligence among employees, insufficient availability of necessary data, insufficient overall organizational structure of the company.

Conclusions

Thus, considering all of the above, we can conclude that artificial intelligence has already become an integral part of the activities of companies in general, as well as people's lives. It cannot be unequivocally stated that artificial intelligence will completely replace human labor in the future because so far AI cannot fully work without human resources.

There are many benefits of implementing artificial intelligence in the business models of companies: improving customer service and interaction with customers in real-time, helping to make decisions faster, reducing the operating costs of companies, the ability to analyze large amounts of data and identify certain trends, helps companies predict sales and profits.

According to forecasts, its rapid development will take place in the next few years, which will allow companies to find new ways of using it, introduce new management tools, and expand the boundaries of their business model and activities. To implement forecasts, we first define strategic goals for the company. Companies need to determine how they want to use AI to achieve their business goals. This may include automating tasks, improving decision-making, creating new products or services, and improving the customer experience including demographics, browsing behavior, purchase history, social media activity and AI-powered analytics in business models. By leveraging AI, businesses can find hidden patterns and trends, leading to sharper predictions and strategic decisions for quick adaptations to market dynamics.

Companies must evaluate the available AI technologies and determine which ones best suit their needs. This may include research and development of own AI solutions, or use of ready-made AI products and services.

The next step is to develop an AI implementation plan that will include milestones, resources, and budget. This can include staff training, data and infrastructure preparation, and testing and evaluation of AI solutions. After completing the above stages, it is necessary to promote the development of ethical norms and standards for the use of AI to minimize risks to society.

Then, we invest in training and retraining people to work with AI technologies, as the implementation of AI in business has significant potential to stimulate economic growth, create new jobs, and increase the competitiveness of countries in the global market. The emergence of new business models and the creation of new approaches to value creation and monetization are exploring AI-based subscription models, pay-per-use services, and outcome-based pricing models to capitalize on AI-driven innovation and sustainable long-term growth.

We carry out risk management with the data obtained from the conducted activities. Companies must identify and mitigate the risks associated with the use of AI. This may include ethical, privacy, security, and workplace risks.

The conclusion is monitoring and adaptation. The process of the successful integration of AI into business models requires strategic and collaborative approaches for business needs: business process automation, data mining, and customer and employee engagement. Companies must constantly monitor the development of AI and adapt their plans according to new technologies and trends.

References

Bérubé, M., Giannelia, T., & Vial G. (2021). *Barriers to the implementation of AI in organizations: Findings from a Delphi Study*. http://hdl.handle.net/10125/71425 (accessed: 14.07.2024).

Cardillo, A. (2023). *How many companies use AI?*. https://explodingtopics.com/blog/companies-using-ai (accessed: 14.07.2024).

Duan, Y., Edwards, J. S., & Dwivedi, Y. K. (2019). Artificial intelligence for decision making in the era of Big Data – evolution, challenges and research agenda. *International Journal of Information Management*, *48*, 63-71. DOI: 10.1016/j.ijinfomgt.2019.01.021

How companies use artificial intelligence. (2023). *Economist Intelligence.* https://www.eiu.com/n/how-companies-use-artificial-intelligence/ (accessed: 14.07.2024).

Huang, J., Saleh, S., & Liu, Y. (2021). A review on artificial intelligence in education. *Academic Journal of Interdisciplinary Studies*, *10*(3), 206-217. DOI: 10.36941/ajis-2021-0077

Kravchenko, N. (2023). *Yak v Ukrayini vykonuye shtuchnyy intelekt*. https://ms.detector.media/trendi/post/33704/2023-12-10-yak-v-ukraini-vykorystovuyut-shtuchnyy-intelekt/ (accessed: 14.07.2024).

Kuzyomko, V. M. (2021). Mozhlyvosti vykorystannya shtuchnoho intelektu u diyalʹnosti suchasnykh pidpryyemstv. *Ekonomika ta suspilʹstvo. 32*. DOI: 10.32782/2524-0072/2021-32-67

Lee, M., Scheepers, H., Lui, A., & Ngai, E. (2023). The implementation of artificial intelligence in organizations: A systematic literature review. *Information & Management*, *60*(5), 103816, DOI: 10.1016/j.im.2023.103816

Mogilevska, O. Y., Slobodianyk, A. M., & Sidak, I. V. (2023). Vplyv shtuchnoho intelektu na ukrayinsʹku i mizhnarodnu ekonomiku. *Kyyivsʹkyy ekonomichnyy naukovyy zhurnal*, *1*, 45-52.

Nguyen, L. (2023). *Advantages of Artificial Intelligence (AI) in Business*. Revenue Grid. https://revenuegrid.com/blog/advantages-of-artificial-intelligence/ (accessed: 14.07.2024).

Olutimehin, D. O., Ofodile, O. C., Ejibe, I., Odunaiya, O. G., Soyombo, O. T. (2024). Implementing ai in business models: strategies for efficiency and innovation. *International Journal of Management & Entrepreneurship Research*, *6*(3), 863-877. DOI: 10.51594/ijmer.v6i3.940

Panukhnyk, O. (2023). Shtuchnyy intelekt v osvitnʹomu protsesi ta naukovykh doslidzhennyakh zdobuvachiv vyshchoyi osvity: vidpovidalʹni mezhi zmistu SHI. *Halytsʹkyy ekonomichnyy visnyk*, *83*(4), 202-211. DOI: 10.33108/galicianvisnyk_tntu2023.04.202

Pchelyanskyi, D., & Voinova, S. (2019). Shtuchnyy intelekt: perspektyvy ta tendentsiyi rozvytku. *Automation of Technological and Business Processes*, *11*(3), 59-64. DOI: 10.15673/atbp.v11i3.1500

Pizhuk, O. I. (2019). Shtuchnyy intelekt yak odyn iz klyuchovykh drayveriv tsyfrovoyi transformatsiyi ekonomiky. *Ekonomika, upravlinnya ta administruvannya*, *3*(89), 41-46. DOI: 10.26642/ema-2019-3(89)-41-46

Reim, W., Åström, J., & Eriksson, O. (2020). Implementation of Artificial Intelligence (AI): A Roadmap for Business Model Innovation. *AI*, *1*(2),180-191. DOI: 10.3390/ai1020011

Rotaru, I. (2023). *How is AI used in business in 2024?*. https://chatfuel.com/blog/ai-in-business (accessed: 14.07.2024).

Sadiku, M. N., Ashaolu, T. J., Ajayi-Majebi, A., & Musa, S. M. (2021). Artificial intelligence in education. *International Journal of Scientific Advances*, *2*(1), 5-11. DOI: 10.51542/ijscia.v2i1.2

Solis, B. (2023). *Introducing The Gen AI Prism Infographic: A Framework for Collaborating with Generative AI*. Brian Solis. https://briansolis.com/2023/12/introducing-the-genai-prism -infographic-a-framework-for-colalborating-with-generative-ai/ (accessed: 14.07.2024).

Spizheva, D. (2023). *Using AI: Examples of How to Optimize Artificial Intelligence in Business*. https://turnkeystaffing.com/tech-trends/businesses-using-ai/ (accessed: 14.07.2024).

Tokar, L. V. (2020). Shtuchnyy intelekt na varti spravedlyvosti: utopiya chy perspektyva lyudstva. *Porivnyal'no-analitychne parvo*, *2*, 273-275. https://dspace.uzhnu.edu.ua/jspui/handle/lib/35614 (accessed: 14.07.2024).

YC.Market blog by YouControl (2024). https://blog.youcontrol.market/zastosuvannia-shi-u -masshtabakh-vielikogho-bizniesu/ (accesed: 14.07.2024).

WYKORZYSTANIE SZTUCZNEJ INTELIGENCJI W MODELACH BIZNESOWYCH MIĘDZYNARODOWYCH I UKRAIŃSKICH FIRM

Streszczenie: Artykuł poświęcony jest aktualnym zagadnieniom badań nad sztuczną inteligencją. Analizie poddano nowoczesne narzędzia generatywnej sztucznej inteligencji, które znajdują zastosowanie w działalności przedsiębiorstw. Wskazano poziom wdrożenia sztucznej inteligencji w procesach biznesowych różnych krajów. Zidentyfikowano pozytywne aspekty wdrażania sztucznej inteligencji w działalności przedsiębiorstw. Rozważono, w jakich obszarach biznesu wykorzystanie sztucznej inteligencji jest najpowszechniejsze. Podano najczęstsze sposoby wykorzystania sztucznej inteligencji w biznesie na świecie. Znane są przykłady zarówno udanego, jak i nietrafionego wykorzystania sztucznej inteligencji w działalności przedsiębiorstw. Rozważono specyfikę wdrażania narzędzi sztucznej inteligencji w działalności firm. Zaproponowano jeden z możliwych wariantów procesu wprowadzania sztucznej inteligencji do działalności przedsiębiorstw.

Słowa kluczowe: sztuczna inteligencja, działalność gospodarcza, gospodarka przedsiębiorstw, wdrażanie AI, nowoczesne technologie, modernizacja