

# СЕКЦІЯ БІЗНЕС И ТУРИЗМ – СЬВРЕМЕННИ ТЕНДЕНЦІИ

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## ARTIFICIAL INTELLIGENCE IN BUSINESS: BENEFITS AND RISKS

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## ШТУЧНИЙ ІНТЕЛЕКТ У БІЗНЕСІ: ПЕРЕВАГИ ТА РИЗИКИ

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**Abstract.** Today, one of the most important qualities of any business is flexibility, the ability to adapt to customer needs and respond to external changes. The author considers areas of the business in which artificial intelligence is actively used now. Artificial Intelligence today can help businesses make predictions and analytics, automate and optimize various processes, and as a result, make quality decisions faster and be much more effective in the market. The author investigates what possibilities of artificial intelligence can be effectively used in business, what advantages it brings and whether they cover the existing risks.

**Keywords:** *business, artificial intelligence, automation, logistics, production, customer service, marketing, advertising.*

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**Анотація.** Сьогодні однією з найважливіших якостей будь-якого бізнесу є гнучкість, можливість підлаштовуватися під потреби клієнтів і реагувати на зовнішні зміни. Автор розглядає сфери бізнесу, в яких зараз активно використовується штучний інтелект. Штучний інтелект сьогодні допомагає бізнесу робити прогнози й аналітику, автоматизувати й оптимізувати різні процеси, і в результаті – швидше ухвалювати якісні рішення й бути значно ефективнішими на ринку. Автор досліджує, які можливості штучного інтелекту можна ефективно використовувати в бізнесі, які переваги він приносить і чи покривають вони існуючі ризики.

**Ключові слова:** *бізнес, штучний інтелект, автоматизація, логістика, виробництво, обслуговування клієнтів, маркетинг, реклама.*

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## **Formulation of the issue**

The use of Artificial Intelligence (AI) in our lives is a reality today that few people notice. Chat-bots, video games, self-driving cars, voice assistants Alexa, Google Assistant, Siri, ChatGPT, AI Gemini facial recognition technologies, advertising in social networks - all this works on the basis of AI. Today, AI can create pictures, write texts and music, analyze legal cases, control complex devices and perform complex medical operations.

### **Analysis of the recent research and publications.**

Artificial Intelligence (AI) is one of the most momentous technologies of our time. The emergence of AI has caused a surge in research in all areas of life. Numerous works of both Ukrainian and foreign scientists are devoted to the study of artificial intelligence (AI). Among the Ukrainian researchers can be named: V. Hlushkov, T. Brovchenko, S. Horbenko, A. Matviichuk, D Pchelianskyi, S. Voinova, O. Baranov, M. Yefremov, M. Marienko, V. Kovalenko, O. Pizhuk, T. Katkova, N. Proskurnina etc.

Modern foreign scientists are researching AI on the following topics: the history of AI (Alom, MZ., Taha, T.M., Yakopcic, C., Westberg, S., Sidike, P., Nasrin, M.S., Essen, B.C.V., Awwal, A.A.S., & Asari, V.K., 2018), the de-democratization of AI (Ahmed, & Wahed, 2020), the impact of AI on innovation (Cockburn, I., Henderson, R., & Stern, S., 2018), the rise of corporate science in AI (Hartmann, P., & Henkel, J., 2020), the global landscape of AI ethics guidelines (Jobin, A., Ienca, M., & Vayena, E., 2019), the EU approach to ethics guidelines for trustworthy artificial intelligence (Smuha, N. A., 2019), the role of artificial intelligence in achieving the sustainable development goals (Tegmark, M., & Fusco Nerini, F., 2020) etc. Besides researchers at universities and colleges, researchers in companies have hardly been considered in business context (Färber, Tampakis, 2023).

**The purpose of our article** is to investigate the possibilities of AI that could be effectively used in business, what benefits it brings, and whether they cover the existing risks.

### **Basic material**

Artificial intelligence (AI) is a computer system capable of independently solving tasks for which the human mind is usually used. Currently, AI is able to analyse and learn much faster than a human. So it is not surprising that in its specialization it surpasses homo sapiens.

According to Forbes, between 2010 and 2020, the volume of data created and consumed increased by 5,000% (Gudeta, 2023). Thus, AI is a branch of computer science that models the processes of human intelligence. AI combines all technologies that work with databases and are capable of self-learning, for example:

- Machine learning (ML) – studies methods of constructing algorithms;
- Deep learning (DL) – focuses on data classification;
- Artificial neural networks (ANN) – reproduces the work of the human brain;
- Natural language processing (NLP) – specializes in speech recognition technologies.

### **AI in business**

If earlier AI was a rather expensive solution available only to large corporations, now AI is already actively used in various business areas. Anyone (and often for free) can plan a business, develop programs, analyze data, make calculations, and even write texts for websites. According to the IBM Global AI Adoption Index 2022, 35%

of companies are using AI in business, and another 42% are exploring the possibilities of its application (Chan, 2023). According to the American consulting company Gartner, in 2018 the global value of business related to AI was estimated at \$1.2 trillion. In 2022, this figure increased to \$3.9 trillion. It is expected that by 2030, the contribution of AI to the world economy will reach \$15.7 trillion (Gartner, 2019; Global AI business..., 2022).

Artificial Intelligence is used to automate processes and improve the efficiency of business operations. According to Forbes, the application of AI in business can speed up production processes by 50%, reduce costs by 20% and improve product quality by 60%. According to the consulting company Accenture, 84% of top managers believe that AI contributes to the growth of the company and optimizes work processes. Accelerating (Automation for Insurance, 2021). John Deere uses AI to optimize plant growing and harvesting processes. The system collects data on soil, weather conditions and other factors and analyzes them to provide farmers with recommendations on optimal farming practices (Percy, 2023). And Artrendex has created a program that uses AI to analyze and evaluate works of art and make recommendations to buyers about investing in specific works (Artrendex: AI Invades The Art World, 2021).

The manufacturing industry is at the forefront of digital transformation, leveraging technologies like big data analytics, AI and robotics. The results are tangible, according to McKinsey, who found that machine downtime can be reduced by 30% to 50% and quality-related costs can be reduced by 10% to 20%, among other benefits (Khanna, 2024).

In his historical excursion, AI also tried to predict the future, namely the fusion of man and AI into one. And it is not the limit of the development of AI technology. In many areas, AI is more efficient than humans. AI can be more efficient than human workers in medicine, finance, logistics and manufacturing. For example, the system can filter large amounts of medical information as quickly as possible and help doctors make more accurate diagnoses. Another example, Google has developed a system that, using a neural network, can predict a patient's risk of death from cardiovascular diseases with more than 90% accuracy (Ramprakash, Sarumathi, Mowriya, Nithyavishnupriya, 2020).

In the financial field, AI performs instant automatic transactions and reduces the risk of errors. So, JP Morgan uses a system that uses neural networks to analyze transactions and detect signs of fraud. In logistics and production, intelligence optimizes processes and reduces the time of operations (JPMorgan, 2023). General Electric uses the Predix system, which uses machine learning to analyze data from equipment sensors and help predict possible breakdowns. And Uber uses a system that uses neural networks to predict demand for services and helps drivers plan routes more efficiently.

In the field of advertising, AI helps businesses reduce costs and achieve more precise audience targeting. Coca-Cola has technology that uses data about consumers and their online behavior to effectively plan advertising campaigns. Another example of the use of AI in advertising is the new capabilities of Google AdWords, which uses machine learning algorithms to predict the effectiveness of campaigns and select optimal keywords (Aksonov, 2022).

Artificial intelligence is becoming more efficient than human labor in some industries. It is already successfully used in many large companies, which allows to reduce the costs of working with personnel, improve the quality of products and customer service (Korolkov, 2020).

AI protects against fraud. In the financial industry, AI analyzes and identifies suspicious transactions using machine learning algorithms. When there is a risk of fraud, the program stops the transaction and notifies you about it. Machine learning algorithms help to better understand the essence of the search, are able to analyze the SEO strategy of competitors and find key queries that are not used by competitors. Payment operator PayPal uses machine learning to analyze large amounts of transaction data and detect signs of fraud. The system learns to recognize patterns that indicate possible fraud (unusually large amounts of money or strange geography of the transaction, etc.). This allows PayPal to guarantee security and reduce the risk of loss of funds due to fraud (PayPal Editorial Staff, 2023).

Today, AI models are able to generate new content. For example, Stability AI and Midjourney create new images on text request. OpenAI's ChatGPT creates any text, article structure and answers questions in detail in seconds. Thanks to machine learning technologies, Google has increased the volume of online advertising and improved search results. The corporation is also working on the LaMDA (Language Model for Dialogue Applications) project. This is a system for creating chat-bots like ChatGPT. Internet giant Amazon has incorporated AI into supply chain management. Microsoft is integrating AI into the Bing search service and the Edge browser. Meta uses AI to target ads. And the Megogo company dubs movies with the help of AI.

Artificial intelligence also performs many other functions. AI interacts with customers: instead of call center operators and managers, chat-bots answer customer questions. They use machine learning and NLP algorithms that can recognize text and provide the information you need, and most importantly, they do it faster than humans. AI also processes customer requests, based on which it predicts demand and likelihood of purchase. According to a Harvard Business Review study, companies that use AI for sales can increase leads by at least 50%, reduce call times by 60-70%, and reduce costs by 40-60%. Barinov A. (2024).

Deloitte's team is working on creating automated processes that improve human decision-making by predicting and simulating future outcomes. Salesforce incorporates AI to gain further insight into customer behavior and buying patterns. The company has improved its decision-making by forecasting sales trends, which enables them to quickly respond to an ever-changing market. Chan S. (2023).

One of the clear examples of the use of AI in business is chatbot systems that provide real-time customer support. For example, the company H&M uses a chatbot in Facebook Messenger that helps customers find the right size of clothes, find out about product availability and get other information. Chat-bots are based on machine learning and natural language processing technologies, so they can understand customer requests quite accurately and provide answers to questions in real time. This makes it possible to reduce customer support costs and increase customer satisfaction. Companies use AI to recommend products that will suit customers' interests (Conversational AI in eCommerce, 2021). This is how streaming services YouTube and Netflix work. For example, by analyzing the types of movies and shows people watch, platforms offer similar content.

For the effectiveness of marketing campaigns, AI collects and processes information about users. This allows you to segment the audience and create individual offers for each segment. Data collected by AI is also used for offline sales. For example, thanks to AI, it is possible to monitor the stocks on the shelves and check the freshness of perishable goods in supermarkets. AI technologies simplify work and are able to perform repetitive operations better than humans. Therefore, AI is used in accounting and logistics, it is used in factories to control the quality of products. In the fall of 2022, tractor manufacturer John Deere introduced a robotic tractor. The tractor's six cameras use AI and allow you to recognize obstacles and maneuver, detect weeds in crops, and use less seed. John Deere Reveals Fully Autonomous Tractor at CES 2022.

With the help of AI and machine learning, companies collect data on how potential customers perceive the brand. For example, AI studies social media posts about a brand. The information obtained as a result of this analysis allows companies to improve. Now AI is used in marketing and advertising, personnel management, logistics, and production. For example, Amazon has integrated AI to forecast demand and optimize inventory in warehouses. This made it possible to reduce the time of delivery of goods to customers and minimize storage costs (Skuzza, 2024).

AI improves workplace safety: construction companies, utilities, farms, mining companies, and other organizations where work involves risk to human life use AI to collect and analyze data from cameras, thermometers, motion detectors, and weather sensors. Collected information helps identify problematic behavior or unsafe conditions and provide timely warning.

In the insurance industry, AI is used to process data about driving behavior to predict risks. For example, driving at a speed of 100 kilometers per hour is safe on the highway, but not in the city. In the industrial sector, AI can predict when equipment needs to be repaired and suggest the best time to do so.

With the help of AI, HR specialists (personnel managers) can analyze the previous work experience and interests of a potential candidate to find the best candidate. Many organizations use AI for training. AI allows the curriculum to be tailored to each student's unique needs and level of subject awareness.

### **Artificial intelligence in Ukraine**

Ukraine 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 to forecast demand for goods and optimize delivery processes. 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, financial data analysis and automation of routine processes. ChatGPT received its own column in the social networks of Oschadbank and will generate texts and illustrations for it (Shtuchnyi intelekt dlia biznesu, 2024). Another field of application of AI in Ukraine is medicine. For example, the company "Intermedika" has developed a system for diagnosing diseases. The system uses neural networks to recognize signs of disease on X-ray images, which allows more accurate diagnosis and treatment.

Other examples of the use of AI in Ukraine include the automated planning and logistics management system of the SoftServe company, the data analysis system for financial solutions of the Datrix company, and many others. The Ukrainian "Stary Lev

Publishing House" announced the publication of Maryna Ponomarenko's book "The Book of Love and Fury", illustrated with the help of Midjourney. AI performs the functions of a cashier in the Kyiv cafe "Cantin". To pay, customers place trays of food into square portals with cameras and receive a check within seconds. "Vilnokasa" based on AI is available in the "Silpo" supermarket chain. Thanks to this option, you can scan the barcode of the product and pay using your smartphone without having to stand in line at the checkout (Shtuchnyi intelekt dlia biznesu, 2024).

In general, the use of AI in Ukraine is still at an early stage of development, but there are already successful examples of project implementation in various fields. In the future, the use of AI in Ukraine can help develop the economy and increase business efficiency.

### **Negative consequences of AI**

If earlier all the media reported on the advantages of AI, now there are many messages that warn about the risks. The researchers state that there is no such thing as "bad" AI, there are correctly or incorrectly set tasks for the system. There are examples of unsuccessful use of AI. So, in 2018, Amazon launched a recruitment program that used AI algorithms. However, the system proved to be unfair, as the abilities of women and people from certain ethnic groups were rated lower than those of white men.

Data manipulation, typical of AI at the current stage of development, led to the dissemination of false information about Oles Honchar on April 3, 2023 by the "New Channel". It turned out that the journalist of the channel tasked ChatGPT with generating little-known facts from the biography of the writer. AI simply invented them. The company had to face the negativity and apologize to the audience (Shtuchnyi intelekt dlia biznesu, 2024).

In China, facial recognition technologies have been used in offices, schools and other public places for several years. So the Chinese government can monitor every citizen's activities, relationships, and political views. This is a violation of human rights. The financial industry most often involves AI to solve many issues. Therefore, experts predict that possible errors in algorithms can cause a financial crisis. On the basis of AI, it is possible to build systems that independently detect and destroy targets. The danger is that such weapons can fall into the hands of terrorists. Since TikTok works on the basis of AI, each user receives content according to their preferences. The algorithm is unable to filter harmful or inaccurate content (Smereka, 2023).

The biggest danger that worries everyone right now is that AI can get out of human control. "Artificial intelligence scares me. It is capable of much more than we imagine, and the rate of its self-learning is exponential," said Tesla and SpaceX founder Elon Musk at the SXSW tech conference. Former Google CEO Eric Schmidt believes that the use of AI should be regulated in the same way as the use of nuclear weapons. "The development of AI could mean the end of the human race," believed Stephen Hawking (Smereka, 2023).

With this in mind, one of the co-developers of AI, Jeffrey Hinton, publicly announced his resignation from Google on May 1 because he did not want to be involved in a potentially dangerous technology. In his opinion, AI carries two risks: the reduction of jobs and the spread of misinformation (since people will automatically consider AI solutions as the truth). Officials understand these risks: in particular, the other day Joe Biden met with leading AI developers (Google, Microsoft, OpenAI and

Anthropic) to discuss issues of ethical development and legislative regulation of the technology (Kachurovska, 2023).

Successful implementation of AI requires not only an understanding of the principles, but also a thorough knowledge of the field of its application. Examples of successful applications of AI demonstrate the potential of the technology in many industries where it provides efficiency and cost reduction. However, negative examples show that the application of the system must be justified and carried out taking into account the potential consequences for society.

### **Conclusions**

Global companies are approaching the future already now, applying AI in various fields. The use of AI will help solve many complex problems facing society. In the future, the application of AI will help to solve complex and non-trivial tasks: for example, in the field of energy and environmental protection. AI can also help fight crime and terrorism. In particular, facial and voice recognition systems can be used to track offenders. There is also an opportunity to ensure more effective management of the economy and public finances. For example, AI can be trained to predict economic processes and budget.

However, it is important not to forget about the risks: in particular, the high probability of system errors. To answer the question of whether AI is truly disruptive, you need to understand the terms. There are two types of AI: weak (Narrow AI) and strong (General AI). A weakling surpasses a human in only one specific field and cannot work autonomously. This kind of AI is widespread now. Strong AI has consciousness and can work in any field, able to learn and make decisions without human assistance. But it does not exist yet. General AI is predicted to emerge in the coming years.

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