



Sustainable economy

UDC 004.8:658.5:338.012

DOI <https://doi.org/10.5281/zenodo.14598994>

The Impact of AI Assistants on Optimising Business Processes and Increasing Productivity of Enterprises in Ukraine

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Accepted: 09.12.2024 | Published: 30.12.2024

Abstract. *Artificial intelligent assistants (AI assistants) are increasingly used in management, marketing, customer service, and task automation, contributing to the productivity of enterprises. However, in Ukraine, the adoption of such technologies is accompanied by specific challenges, including limited access to knowledge, financial barriers, and ethical issues. In the context of the rapid development of digital technologies, studying the potential and barriers to using AI assistants is extremely relevant for Ukrainian enterprises, as it helps them adapt to global trends. The study analyzes current trends, economic and organizational benefits, and the main barriers and challenges associated with introducing AI assistants in business in Ukraine. The paper applies a systematic approach to the analysis of scientific publications, statistical data, and the results of surveys of entrepreneurs. The article reviews global and national trends in the use of AI assistants, assesses the benefits and barriers to their implementation, and identifies the key factors that influence the integration of these technologies into business processes. The study results show that using AI assistants helps automate business processes, reduce administrative burden, and increase the efficiency of customer interaction. At the same time, the main obstacles to implementation in Ukraine*



include lack of awareness among entrepreneurs, high cost of technology, ethical issues, and competition between employees and technology.

Nevertheless, most surveyed entrepreneurs see AI as a promising tool, are ready to invest in its implementation and recognize its significant potential to increase productivity. The study highlights the need to improve staff training, ensure the availability of software, improve the regulatory framework, and provide government support for innovation. The findings contribute to a deeper understanding of the current challenges and opportunities for integrating AI assistants in Ukrainian business, creating a basis for developing strategies for their effective implementation.

Keywords: *machine learning, innovation, information technology, economic environment.*

Вплив ШІ-асистентів на оптимізацію бізнес-процесів та підвищення продуктивності підприємств в Україні

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Анотація. Штучні інтелектуальні асистенти (ШІ-асистенти) знаходять дедалі ширше застосування в управлінні, маркетингу, обслуговуванні клієнтів та автоматизації завдань, сприяючи підвищенню продуктивності підприємств. Водночас в Україні впровадження таких технологій супроводжується специфічними викликами, серед яких обмежений доступ до знань, фінансові бар'єри та етичні питання. У контексті стрімкого розвитку цифрових технологій дослідження потенціалу та бар'єрів використання ШІ-асистентів є надзвичайно актуальним для українських підприємств, адже воно сприяє їхній адаптації до глобальних тенденцій. Метою дослідження є аналіз сучасних тенденцій, економічних та



організаційних переваг, а також основних бар'єрів і викликів, пов'язаних із впровадженням ШІ-асистентів у підприємницькій діяльності в Україні. У роботі застосовано системний підхід до аналізу наукових публікацій, статистичних даних та результатів опитувань підприємців. Проведено огляд глобальних і національних тенденцій використання ШІ-асистентів, оцінено переваги та бар'єри їхнього впровадження, а також ідентифіковано ключові фактори, що впливають на інтеграцію цих технологій у бізнес-процеси. Результати дослідження засвідчили, що використання ШІ-асистентів сприяє автоматизації бізнес-процесів, зменшенню адміністративного навантаження та підвищенню ефективності взаємодії з клієнтами. Водночас в Україні основними перешкодами впровадження є недостатня обізнаність підприємців, висока вартість технологій, етичні питання та конкуренція між працівниками й технологіями. Попри це, переважна більшість опитаних підприємців оцінюють ШІ як перспективний інструмент, готові інвестувати у його впровадження та визнають його значний потенціал для підвищення продуктивності. Проведене дослідження підкреслює необхідність підвищення рівня навчання персоналу, забезпечення доступності програмного забезпечення, удосконалення нормативно-правової бази та державної підтримки інновацій. Отримані результати сприяють глибшому розумінню сучасних викликів і можливостей інтеграції ШІ-асистентів у підприємництві України, створюючи базу для розробки стратегій їхнього ефективного впровадження.

Ключові слова: машинне навчання, інновації, інформаційні технології, економічне середовище.

Problem statement. In the modern world of digital technologies, enterprises face a growing need to adapt to new business conditions. Competition, globalization, an unstable economic situation, and rapid technological changes require enterprises to improve the efficiency of business process management. Artificial intelligence



(AI), particularly its application in the form of AI assistants, offers innovative solutions to optimize routine tasks, automate decision-making processes, improve communications, and reduce costs. In the world's leading countries, AI assistants are rapidly adopted in various industries, but in Ukraine, such innovations have not yet become widespread. Numerous challenges currently limit the effective implementation of AI assistants in domestic enterprises. These include a lack of understanding of AI's potential, integration strategies, limited financial resources, and technological inequality between large and small businesses. In this regard, there is a need to investigate how AI assistants can influence the optimization of business processes, what economic, technological, and organizational benefits they can provide, and how Ukrainian enterprises can overcome the barriers to implementing these technologies. Thus, the problem of finding ways to effectively use AI assistants to increase the productivity and competitiveness of enterprises in Ukraine in the face of current challenges arises.

Analysis of the latest research and publications. In recent years, scientists and practitioners have been increasingly paying attention to the role of AI assistants in the business environment. Introducing artificial intelligence technologies into management and operational processes can significantly reduce costs, increase efficiency, and automate routine tasks. In particular, numerous studies have shown that using AI assistants can substantially optimize customer interaction, decision-making, and HR management.

A study conducted by M.R. Martins [1] and J.P. Bharadiya [2] showed that companies that actively implement AI technologies could achieve higher productivity than those that do not use these tools. Similar results have been recorded in several other international publications, such as the works of C.D. Prima, S. Bevilacqua [3], N. Noponen [4], and T. Auvinen [5], where it was found that AI assistants are effective in areas such as logistics, financial analysis, and human resources management.



In Ukraine, the topic of introducing AI assistants is relatively new. However, there are already a number of studies that cover the adaptation of these technologies in domestic enterprises. For example, the works by Y. Krasnikov, I. Ninyuk [6], K. Chyzhmar, and O. Dnipro [7] address the issues of AI integration into Ukrainian business, in particular, in small and medium-sized enterprises, where the use of AI assistants helps to optimize sales and inventory management processes. At the same time, the authors E. Sydorova and O. Dnipro [8] note that many enterprises face problems due to the lack of appropriate infrastructure and human resources for AI implementation.

Identification of previously unresolved parts of the overall problem. An analysis of recent research shows that although there has been some progress in using AI assistants in Ukraine, there are significant gaps in knowledge about their effectiveness in the specific conditions of Ukrainian enterprises. In particular, most existing studies focus on the technical aspects of AI implementation. In contrast, the economic and organizational impact of these technologies on the productivity of domestic enterprises has not been sufficiently studied.

This study fills this gap by focusing not only on the technical but also on the economic and organizational aspects of using AI assistants in Ukraine. In addition, the article analyzes real-life cases of Ukrainian enterprises that have already implemented these technologies, which allows for a more accurate assessment of the effectiveness of such solutions in the context of the Ukrainian economy.

Formulation of the article's objectives (statement of the task). The purpose of the article is to study the impact of AI assistants on the optimization of business processes and the increase of productivity of enterprises in Ukraine and also to identify the main advantages and problems arising from introducing these technologies in the domestic business environment.

In accordance with this goal, the following research objectives have been identified:



- analyze current trends in the use of AI assistants in the global and Ukrainian context;
- to assess the economic and organizational benefits of using AI assistants to increase the productivity of enterprises;
- to identify the main barriers and challenges Ukrainian enterprises face when implementing AI assistants.

Summary of the primary research material. Artificial intelligence (AI) is a technology that allows computer systems and programs to perform tasks that usually require human intelligence, such as speech recognition, data analysis, decision-making, and forecasting. Recently, AI has been actively integrated into various aspects of business processes, mainly through AI assistants. These are software interfaces capable of performing user support, task automation, data analysis, and forecasting based on machine learning. Due to their numerous capabilities, AI assistants are becoming powerful tools for optimizing business processes and increasing the productivity of enterprises (Table 1).

Table 1

Functionality of AI assistants

Functionality	Function description	Example of application	Benefits for business
Data processing and analysis	Collecting, structuring, and analyzing large amounts of information for decision-making, creating forecasts and recommendations.	Analyzing financial data and identifying patterns in consumer behavior.	Improving forecast accuracy, reducing risks, and making informed business decisions.
Automation of routine tasks	Performing tasks that do not require intellectual intervention, such as scheduling meetings, processing requests, and	Automatic appointment scheduling, report	Reducing the workload of employees, saving time and resources.



	creating standard documents.	generation, and email request processing.	
User experience	Interactive communication with users through text or voice interfaces to provide assistance or information.	Virtual assistants (Siri, Alexa), and chatbots for customer support.	Improved customer experience, 24/7 availability, and increased satisfaction.
Forecasting and decision-making	Application of machine learning algorithms to predict future events based on historical data analysis.	Forecasting demand for products and assessing financial risks.	Improving the efficiency of strategic planning and optimizing resources.

Source: author's own development

According to numerous studies, investment dynamics in the world's top 100 startups specializing in artificial intelligence have shown rapid growth over the past decade [9, pp. 224-225]. In 2011, the volume of investments was only USD 25.88 million, but by 2016, it had already increased to USD 1,866.6 million. This indicates a significant increase in investor interest in promising AI-based projects that open up new horizons for innovative development.

Further analysis of the data, particularly from the Statista platform, one of the leading sources of statistical information in the world, shows even more impressive results [9, pp. 224-225]. As of the fourth quarter of 2020, total investment in AI-based startups reached USD 10.9 billion. Over the next year, in 2021, investments rose to a record \$18.9 billion. However, there was a slight decline in activity in 2022, with investment stabilizing at around USD 10 billion.

These trends indicate a growing interest in AI as a driver of transformation in various business sectors. Investments in the top 100 startups doubled annually during the first years of the analysis and reached peak levels, indicating global recognition of artificial intelligence's potential. In the 10 years from 2011 to 2021,



investments in the top startups increased from USD 25.88 million to USD 7.3 billion. In 2021, total investment in AI startups reached an all-time high of USD 18.9 billion.

This data confirms that artificial intelligence is one of the key technologies of the future, capable of providing significant advantages in a competitive environment. Investors see AI as a promising platform for innovation and empowerment, making it a central element of modern technological progress.

Digitalization in business involves changes in organizational structures, introducing new management methods, and automating many routine processes. In this context, the speed of a company's adaptation to change is important, as the modern market requires an instant response to changes in demand, technology, or the competitive environment [10, p. 198]. AI assistants allow organizations to respond quickly by processing large amounts of data and providing accurate recommendations for making management decisions. This significantly improves decision-making efficiency at all levels of the organization's hierarchy, which is important in maintaining competitive advantage.

The application of AI in business also stimulates active innovation. Thanks to AI's data processing and analysis capabilities, companies can find new opportunities to optimize their business processes and offerings. This allows for the continuous development and implementation of the latest technologies, which is important for maintaining competitiveness. In addition, AI enables the automation of numerous business processes, such as marketing, customer relationship management, or demand forecasting, significantly reducing human resource costs and providing a high level of personalized customer service.

One of the most significant effects of using AI assistants is the ability to make quick and accurate management decisions by processing large amounts of data in real-time. This allows businesses to adjust their strategies quickly, respond to changes in market conditions, and maintain sustainable development even in crises. Using such technologies reduces risks and provides more informed and effective decisions, which is critical in today's competitive environment.



Marketing is one of the most profitable areas for using AI assistants [11, p. 57]. Marketing tasks include understanding customer needs, creating an appropriate Product-Market Fit, forming a desire to buy a product, and contrasting it with competitive offers. AI significantly expands the capabilities of marketers in these areas. For example, using algorithms such as Bayesian Learning and Forgetting, you can get an accurate picture of customer sensitivity to specific marketing campaigns in advance. This allows companies to adjust strategies and increase their effectiveness quickly. In 2021, the global AI in marketing market was valued at \$15.84 billion, and researchers predict that by 2028, this amount will exceed \$107.5 billion [12].

One of the main advantages of using AI is the ability to process and analyze large amounts of data in real time, which helps to make informed decisions in a changing business environment. AI-based platforms allow you to efficiently process and analyze relevant information to create accurate forecasts, formulate strategies, and adapt to market changes. For example, AI software can be configured to produce highly accurate sales forecasts based on historical data. These forecasts help companies plan better and mitigate risks.

AI also has great potential in sales automation. AI-based solutions can significantly optimize sales and customer relationship management processes (CRM systems such as Salesforce, PipeDrive, Zoho, Keap, etc.). These systems allow automating a significant portion of the tasks previously performed manually, leading to cost savings and increased efficiency.

Another important aspect of using AI is predicting future sales. AI-powered software can use past sales data to train machine learning models that can eventually accurately predict future results. This allows companies to plan their resources more precisely, adjust sales strategies, and provide more accurate forecasts of future trends. In particular, using such technologies will enable businesses to increase profits as forecasts become more accurate with each new data cycle.



In general, using AI to automate business processes can reduce employees' workload, cut down on information processing costs, and improve customer experience. For example, AI-powered chatbots and virtual assistants can promptly respond to customer inquiries, process requests, and even make personalized offers without human resources. This not only saves time but also improves the level of service, allowing companies to work with customers 24/7.

When exploring the potential of artificial intelligence in business, it is essential to consider how ordinary companies can integrate these technologies into their processes. According to a Forbes Advisor survey of 600 business owners, most are already implementing or planning to implement AI in their operations [13]. Almost all respondents (97%) believe that AI-based technologies, including ChatGPT, can improve the functioning of their businesses, mainly due to the ability to create content in other languages. In addition, many business owners note the significant potential of AI in areas such as content marketing, internal communications, cybersecurity, and fraud protection.

According to a Deloitte study, in 2022, most CEOs viewed efficiency as the main result of AI implementation [14]. Teams that actively use these technologies reported an average 28% increase in their processes' productivity, which became a significant incentive for further innovation.

In addition, the impact of AI on employee comfort and productivity is another important factor. AI-based technologies can boost team morale and contribute to job satisfaction. The Deloitte survey confirmed this, with 82% of respondents indicating that using AI positively impacted their productivity and satisfaction with work processes. This approach improves task quality and contributes to a favorable working environment.

Another significant advantage is the release of human resources from routine administrative tasks. A McKinsey study has shown that up to 30% of such tasks in sales, marketing, and analytics departments can be automated using existing AI



technologies [11, p. 59]. This allows employees to focus on more strategic and creative work, contributing to innovation and business development.

Despite its many advantages, integrating AI into business is accompanied by specific challenges. For instance, some respondents expressed concern about the impact of AI on their websites' traffic, and more than 40% of business owners point to the risks of overdependence on technology [13]. At the same time, almost two-thirds of respondents say AI can significantly improve customer relations by personalizing services and responding quickly to requests. The study conducted by V. Petrenko analyses entrepreneurs' attitudes to using artificial intelligence in their activities and its impact on business processes [15, p. 134-138]. Of the 25 entrepreneurs surveyed, 84.8% stated they had used AI-based websites, applications, or devices at least once. Their areas of activity were quite diverse. The largest representatives came from retail (23.8%), financial and insurance services, arts and entertainment, mass media, technology, and IT (9.5% each). Other industries, including catering, tourism and hospitality, education, public sector, law, design, video production, real estate, automotive, manufacturing, and design, had 4.8% of representatives each.

A significant portion of respondents, 85.7%, have used AI to generate business ideas, and 76.2% are actively implementing it in their business activities. Those who have not used AI explained this by a lack of knowledge about its application (66.7%), a lack of opportunities to integrate AI into their business, or not considering AI a useful resource (22.2% each), as well as ethical considerations (11.1%).

The main areas of AI application in business were content generation (87.5%), automation of routine tasks such as organizing meetings and sending emails (43.8%), market research (31.3%), customer support (12.5%), and internal training and employee support (18.8%). Entrepreneurs rated their responses to tools such as ChatGPT on a scale of 1 to 5. All respondents rated these responses between 3 and 5, indicating overall satisfaction with the results.



An interesting aspect of the study was comparing the effectiveness of using AI and hiring employees to perform the necessary tasks. Opinions were equally divided: 50% of respondents chose AI, while the other 50% preferred human resources. At the same time, 75% of entrepreneurs admitted that it would be difficult to stop using AI for commercial purposes, and 93.8% are ready to pay for its implementation, depending on the cost.

The results of this study confirm that AI is becoming an essential tool in business, not only optimizing workflows but also opening up new opportunities for innovation and efficiency. The use of AI assistants by Ukrainian businesses is accompanied by several challenges that require a comprehensive approach. One of the key issues is the correct interpretation of queries and control over the results generated by AI. Effective use of these technologies requires a deep understanding of their functionality and regular verification of the results to avoid inaccuracies. Training employees in the basics of working with AI and using the latest versions of such systems that offer broader functionality and up-to-date data can be an essential step toward solving this problem.

Automating business processes with AI can help increase efficiency, but the high cost of advanced software and the need for specialized skills to use it create barriers to adoption. Solutions to this problem include developing more affordable software options and supporting SMEs through government or grant programs.

Another challenge is AI's limitations in creativity and uniqueness. Despite its ability to optimize costs, human creativity remains irreplaceable. To this end, combining technology with human talent is important to ensure a unique approach to creating products and services.

Uncertainty about intellectual property rights related to AI-generated products is also a concern. To avoid conflicts and ensure transparency, this issue requires more precise legal regulation.

Using AI can lead to standardizing products and services, threatening personalization and business competitiveness. To overcome this problem, it is



important to implement mechanisms that allow AI solutions to be tailored to the needs of a particular customer or market.

A comprehensive solution to these challenges will allow Ukrainian businesses to effectively integrate AI assistants into their operations, maintaining a balance between technological progress and social responsibility.

Conclusions. The analysis of current trends in the global and Ukrainian context shows an active growth of interest in implementing artificial intelligence technologies in business processes. AI assistants are used to automate tasks, increase efficiency, create content, conduct market research, and improve customer experience. Globally, businesses are increasingly integrating these tools to reduce costs and increase productivity. In Ukraine, the trend is similar, although AI adoption faces some specific barriers.

An assessment of the economic and organizational benefits of using AI assistants shows a significant increase in business efficiency due to process automation, reduced administrative tasks, and improved customer service. Such tools can significantly optimize enterprises' resources, increasing their competitiveness. At the same time, a significant advantage is the ability to scale operations without substantially increasing costs.

The article identifies the main barriers and challenges to Ukrainian enterprises' introduction of AI assistants. These include limited knowledge of AI technologies, high software costs, insufficient algorithm flexibility and creativity, and ethical and legal aspects. These issues make integrating AI into business processes difficult, especially for small and medium-sized enterprises.

Based on the study, several recommendations have been formulated to address the identified problems, including staff training, development of accessible AI programs, improvement of the regulatory framework, and support for innovation by the state. Implementing these measures will facilitate more active implementation of AI assistants and ensure maximum use of their potential for developing enterprises in Ukraine.



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