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USING ARTIFICIAL INTELLIGENCE IN ADMINISTRATIVE MANAGEMENT: ADVANTAGES AND RISKS

The article examines the advantages and risks of integrating artificial intelligence (AI) into administrative management. AI has become a crucial tool for automating routine tasks, enhancing analytical processes, and improving decision-making, thereby increasing the efficiency of management operations. The study explores technologies such as machine learning, neural networks, natural language processing (NLP), and robotic process automation (RPA), which are actively employed to optimize organizational workflows and adapt to dynamic environments.

The risks associated with AI implementation are also highlighted, including concerns about data privacy, algorithm accuracy, and the reduction in employment opportunities due to automation. Ethical challenges, such as ensuring transparency in AI decision-making processes and adhering to legal frameworks like GDPR, are discussed. Furthermore, the study emphasizes the importance of strategies to mitigate potential threats, including workforce retraining, data security, and legal responsibility allocation.

The research provides recommendations for effectively leveraging AI in administrative management to enhance organizational competitiveness in the era of digital transformation while maintaining a balance between innovation and associated risks.

Keywords: *artificial intelligence, administrative management, automation, managerial processes, risks.*

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ВИКОРИСТАННЯ ШТУЧНОГО ІНТЕЛЕКТУ В АДМІНІСТРАТИВНОМУ МЕНЕДЖМЕНТІ: ПЕРЕВАГИ ТА РИЗИКИ

У статті досліджено переваги та ризики використання штучного інтелекту (ШІ) в адміністративному менеджменті. ШІ є інноваційною тех-

нологією, яка дедалі більше інтегрується в управлінські процеси, сприяючи оптимізації ресурсів, підвищенню продуктивності та забезпеченню точності прийняття управлінських рішень. Визначено основні технології ШІ, такі як машинне навчання, нейронні мережі, обробка природної мови (NLP) та роботизована автоматизація процесів (RPA), які застосовуються для автоматизації рутинних завдань, моніторингу діяльності організацій та аналізу великих обсягів даних.

Водночас у статті розглянуто ризики, пов'язані з використанням ШІ в управлінні. Зокрема, акцентовано увагу на етичних викликах, включаючи захист конфіденційності даних та дотримання міжнародних стандартів, таких як GDPR. Обговорено технічні обмеження, залежність від точності алгоритмів і якісності даних, які можуть спричинити помилкові управлінські рішення. Розглянуто соціальні наслідки, зокрема зниження рівня зайнятості через автоматизацію, та необхідність перекваліфікації працівників для роботи з новітніми технологіями. Окрему увагу приділено правовим аспектам, включаючи юридичну відповідальність за рішення, прийняті системами ШІ, та прозорість алгоритмів.

У статті обґрунтовано важливість формування ефективних стратегій інтеграції ШІ в управління організаціями, що передбачає розвиток цифрової грамотності, забезпечення безпеки даних та врахування правових аспектів.

Результати дослідження сприятимуть розробці рекомендацій щодо ефективного використання ШІ в адміністративному менеджменті, зокрема для підвищення конкурентоспроможності підприємств в умовах цифрової трансформації. Запропоновані підходи дозволять адаптувати організаційні процеси до сучасних викликів, зберігаючи баланс між інноваційними перевагами та потенційними ризиками.

Ключові слова: *штучний інтелект, адміністративний менеджмент, автоматизація, управлінські процеси, ризики.*

Formulation of the problem. In today's rapidly evolving digital landscape, Artificial Intelligence (AI) has become an integral component of business processes, particularly in administrative management. The use of AI enables the automation of routine tasks, enhances the accuracy and speed of managerial decision-making, and optimizes communication processes within organizations. These developments contribute to significant productivity gains and competitive advantage for enterprises, especially in the context of globalization and the volatile nature of the market environment.

However, the implementation of AI technologies is accompanied by various risks, including threats to data privacy, job displacement in administrative roles due to automation, and organizational reliance on digital systems that may be vulnerable to cyber threats. Moreover, the widespread adoption of AI necessitates new approaches to management ethics, trust in automated systems, and the development of digital literacy among employees.

The relevance of this study is driven by the need for a comprehensive analysis of the advantages and risks associated with AI use in administrative management, the identification of optimal approaches for its implementation, and the development of recommendations to minimize potential threats. The findings of this research will support more effective AI integration into organizational management and the adaptation of modern businesses to the demands of the Fourth Industrial Revolution.

Literature Review. In contemporary scientific literature, increasing attention has been devoted to studying the impact of Artificial Intelligence (AI) on administrative management and organizational processes. This issue has been partially addressed in works by researchers such as Klyan A. [6], Maksymenetsva N. and Maksymenets M. [8], Marutyany R. [7], among others. These studies highlight the relevance of exploring AI's impact on administrative management and the need for further development of methods for integrating intelligent technologies into contemporary management practices.

The purpose of the article. The aim of the article is to analyze the advantages and risks associated with the use of artificial intelligence (AI) technologies in administrative management, to examine their impact on the efficiency of managerial processes, and to develop recommendations for the optimal integration of AI into organizational activities to enhance competitiveness and resilience to contemporary challenges.

Presentation of the main research materials. Artificial intelligence (AI) is one of the most promising technologies of our time, finding extensive application across various areas of human social activity, particularly in management processes. The definition of AI is widely understood but remains a topic of debate.

For the first time, in 1956, at the Dartmouth Conference, John McCarthy proposed the following definition: "Artificial intelligence is the science and engineering of creating intelligent machines, particularly intelligent computer programs" [1].

The expert group of the European Commission on Artificial Intelligence proposes the following definition: "Artificial intelligence refers to systems developed by humans that, having received complex objectives, operate in both physical or digital environments, perceiving the surroundings, interpreting structured or unstructured data collected, and based on knowledge derived from these data, making the best decisions (according to predefined parameters) to achieve the set objectives" [2].

Another definition of AI states that it is the machine or computer-based intelligence that allows for the imitation or replication of human abilities [3].

The primary AI technologies applied in administrative management are machine learning, neural networks, natural language processing (NLP), and robotic process automation (RPA).

According to the Concept for the Development of Artificial Intelligence in Ukraine, approved by the Cabinet of Ministers of Ukraine Resolution No. 1556-r dated December 2, 2020, AI is understood as an organized set of information technologies that enables the solution of complex, multifaceted tasks through the use of scientific methods of research and algorithms for processing information—whether obtained or self-created during operations. It also involves the creation and utilization of knowledge bases, decision-making models, information processing algorithms, and the determination of methods for achieving set objectives. The field of AI refers to the area of activity within the realm of information technologies, ensuring the development, implementation, and use of AI technologies [5].

In summary, artificial intelligence (AI) refers to a set of technologies that enable systems and computer programs to imitate human-like cognitive functions, including learning, data analysis, decision-making, and task execution with minimal human involvement. The key AI technologies applied in administrative management include machine learning, neural networks, natural language processing (NLP), and robotic process automation (RPA).

In the context of management processes, AI provides a range of advantages, such as automating routine tasks, improving analytics and decision-making, optimizing resources, and enhancing productivity through the rapid analysis of large volumes of data. Through the capabilities of machine learning and NLP, AI contributes to greater accuracy, efficiency, and cost reduction in management processes.

The integration of these technologies allows for significant optimization of key functions, including:

- Planning and Control: AI aids in creating detailed schedules, forecasting potential risks, and monitoring performance metrics in real-time;
- Report Generation and Data Processing: Intelligent systems facilitate the rapid processing of large volumes of data for operational analysis;
- Automation of Routine Tasks: RPA implementation enables the automation of tasks such as data entry, document approvals, and standard query responses.

Table 1 provides a breakdown of AI definitions into two categories, highlighting key characteristics of AI in each category, along with algorithms and models of AI, and examples of its application in administrative management.

Table 1. The impact of artificial intelligence on management processes in administrative management

Key characteristics	The impact of AI on management processes	Algorithms and models	Applications
The first group of definitions of artificial intelligence: endowing machines with absolute properties			
The ability to adapt to changes	Optimizing work processes through adaptation to dynamic market conditions, reducing the time required for analysis and decision-making	Machine learning (ML) algorithms for real-time data analysis	Automated task management systems, such as Asana, with AI integration for analyzing changes in priorities
Achieving a defined goal	Ensuring the accuracy of task execution and achieving strategic goals through the use of intelligent planning systems	Machine learning (ML), linear programming (LP) optimization	Project management tools (e.g., Microsoft Project AI) that help predict task completion timelines
Prediction, recommendations, or decision-making to influence the real or virtual environment	Automated decision-making in complex conditions, analyzing large volumes of data to uncover key insights	Prediction algorithms and clustering (predictive analytics, clustering)	Business analytics systems (e.g., Power BI with AI) that automatically generate reports and forecasts

Continuation of Table 1

Key characteristics	The impact of AI on management processes	Algorithms and models	Applications
Perceiving the environment and interpreting data	Improving data analysis accuracy in real-time for faster responses to changes in both external and internal organizational environments	Natural Language Processing (NLP), Computer Vision (CV)	Intelligent monitoring systems that analyze employee performance and market conditions
Making the best decisions considering the given conditions	Ensuring optimal resource allocation and risk reduction through the integration of multi-factor analysis algorithms	Machine learning with deep learning (Deep Learning)	Risk management tools, such as RiskWatch with AI elements
The second group of definitions of artificial intelligence: endowing machines with qualities and capabilities similar to human cognition			
Imitation of cognitive functions: learning, thinking, decision-making	Automation of routine tasks requiring an intellectual approach, such as text analysis or document verification	Machine learning models for text classification and natural language processing (NLP)	Contract verification systems (e.g., Kira Systems) that analyze legal documents
The ability to perceive, understand, plan, act, and learn	Replacing traditional analysis tools with intelligent systems that enable strategic management	Data processing algorithms for demand forecasting	Demand forecasting systems (e.g., SAP Integrated Business Planning) that help adapt production to market changes
Performing cognitive tasks with higher efficiency than humans	Improved forecasting accuracy and reduced costs for performing routine cognitive tasks	Machine learning for the automation of financial analytical processes	AI-driven analysis of financial markets using algorithms, such as on the Bloomberg Terminal platform
Imitation or replication of human cognitive abilities	Replacing manual operations, such as generating reports or responding to customer queries, with automated intelligent systems	Algorithms using deep neural networks (Deep Neural Networks)	Chatbots based on NLP (e.g., ChatGPT integrated into customer support systems)

Source: synthesized and supplemented based on [4]

For example, the use of Asana with AI integration can help managers automatically adjust schedules, tasks, or resources in response to changes in priorities or conditions. Risk management tools such as RiskWatch utilize AI to identify and analyze risks.

The system automates risk management processes, including monitoring compliance with regulatory standards, detecting cybersecurity vulnerabilities, and minimizing losses due to human error.

Contract verification systems like Kira Systems are powerful tools that use machine learning to analyze documents and automate contract review processes. Similar systems include alternatives such as:

1. Luminance – a platform that uses AI for contract analysis, quickly identifying risks, key provisions, and compliance with regulatory requirements.
2. Seal Software – known for its functionality in contract lifecycle management automation, providing integration with corporate systems.
3. DocuSign Insight – enables AI-based contract management, focusing on search, analysis, and monitoring of contracts.
4. ContractPodAi – offers a full contract lifecycle management system with AI elements, including automated contract creation, editing, and review.
5. Eigen Technologies – specializes in rapid analysis of legal documents and data extraction for decision-making.

These platforms, like Kira Systems, help lawyers and managers significantly reduce the time spent on routine contract reviews while enhancing the accuracy of contract analysis, ensuring compliance with regulatory requirements, and minimizing risks.

SAP Integrated Business Planning (IBP) is a comprehensive solution for supply chain management that integrates demand planning, supply, inventory, sales, and operations planning for improved coordination and adaptation to market changes. This system combines data from various organizational departments, including sales, marketing, and production, to create a unified action plan and provides real-time forecasts that allow for swift responses to changing market conditions. SAP IBP is a powerful tool for companies seeking to enhance supply chain transparency, optimize resource allocation, and reduce operational risks, particularly in complex and dynamic market environments.

Chatbots powered by Natural Language Processing (NLP), such as ChatGPT, are interactive systems that leverage artificial intelligence (AI)

to understand, process, and generate human language. In the context of customer support systems, these technologies are increasingly integrated to automate communication and enhance customer interaction efficiency. Built-in intent analysis systems enable chatbots to identify whether a customer seeks information, wants to place an order, or needs to resolve an issue. NLP models are trained on vast amounts of dialogue examples, documents, and texts to provide responses that closely align with user queries.

Chatbots offer 24/7 support without the need for additional staffing during off-hours. They can handle thousands of simultaneous requests, a capability far beyond human operators. Customers receive instant responses to common inquiries (e.g., order status, returns, etc.), improving service quality. Integration with CRM systems allows chatbots to deliver personalized responses based on a customer's interaction history with the company. NLP-powered chatbots are the future of customer support, reducing costs and enhancing service quality through intelligent technologies.

Among the significant advantages of AI in administrative management, several risks and challenges also emerge. The use of artificial intelligence (AI) in management introduces a range of ethical concerns, with data privacy and security at the forefront. AI systems can collect, process, and analyze vast amounts of sensitive information, including personal data of employees and clients, posing risks of data breaches or misuse. These scenarios can violate international data protection standards, such as the General Data Protection Regulation (GDPR). This is particularly relevant for chatbots and automated systems that handle confidential information in real-time.

The technical effectiveness of AI systems depends on the quality of input data and algorithms. Poor-quality or irrelevant data can lead to inaccurate results. Additionally, AI algorithms can reflect biases present in training data, which may contribute to social inequality or errors in decision-making. For instance, in demand forecasting or risk analysis, such errors can lead to significant financial losses for organizations.

The automation of management processes through AI transforms the structure of the labor market. The decline in demand for routine professions, such as secretaries or administrative assistants, may create employment risks for many workers. At the same time, there is an increasing demand for AI-related skills, necessitating the retraining of workers. However, this transition often brings significant socio-economic challenges, including rising inequality.

Legal issues related to the use of AI remain among the most complex. The lack of transparency in decision-making by algorithms ("black boxes") complicates the identification of responsible parties in cases of erroneous decisions, such as in lending or personnel selection. Moreover, many countries lack clear legislative frameworks to regulate accountability, creating legal uncertainty.

Conclusions and suggestions. Artificial intelligence (AI) has a significant impact on management processes, particularly in the field of administrative management. The use of AI enables the automation of routine tasks, enhances data analysis, facilitates more informed decision-making, optimizes resource utilization, and reduces risks. AI contributes to improving productivity, accuracy, and efficiency in management processes, which is essential for achieving an organization's strategic goals. Automation through AI helps reduce the time and effort required, enhances workflow, and ensures better data interaction.

At the same time, integrating AI into management requires careful consideration of risks. Developing reliable data protection mechanisms, improving algorithms, ensuring legal transparency, and adapting to evolving employment conditions are key tasks for successful AI integration in management processes.

REFERENCES

1. Pratik R. (2021). Artificial Intelligence: A Rising Star of Mobile Technology. Intuz Blog. URL: https://www.intuz.com/blog/artificial-intelligence-a-rising-star-of-mobile-technology (accessed: December 13, 2024).

2. European Commission. (2018). A definition of Artificial Intelligence: main capabilities and scientific disciplines. Report High-Level Expert Group on Artificial Intelligence. URL: https://ec.europa.eu/futurium/en/system/files/ged/ai_hleg_definition_of_ai_18_december_1.pdf (accessed: December 13, 2024).

3. Kanade, V. (2022). What Is Artificial Intelligence (AI)? Definition, Types, Goals, Challenges, and Trends in 2022. Spiceworks. URL: https://www.spiceworks.com/tech/artificial-intelligence/ (accessed: December 13, 2024).

4. Baranov, O.A. (2023). Definition of the term «artificial intelligence». Information and Law, (1)44. Pp. 32 – 49. URL: http://il.ippi.org.ua/article/view/287537 (accessed: December 18, 2024).

5. Approval of the Concept for the Development of Artificial Intelligence in Ukraine: Cabinet of Ministers of Ukraine Resolution dated December 2, 2020,

No. 1556-r: as of December 29, 2021. URL: https://zakon.rada.gov.ua/laws/show/1556-2020-p#Text (accessed: December 18, 2024).

6. Klyan A. (2023) Legal Regulation of Artificial Intelligence in Ukraine and Worldwide. GOLAW Law Firm. URL: https://golaw.ua/ua/insights/ (accessed: December 18, 2024).

7. Marutyany R. R. (2018) Information Technologies of Intellectual Management in Public-Administrative Practice: Foreign and Domestic Experience. Bulletin of the National University of Civil Protection of Ukraine. State Administration. 2018. Issue 2 (9). Pp. 146 – 153. URL: http://nbuv.gov.ua/UJRN/VNUCZUDU_2018_2_22. (accessed: December 18, 2024).

8. Maksymenetsva N. O., Maksymenets M. H. (2024) Artificial Intelligence in Public Administration: Advantages of Digital Technologies and Threats to Sovereign Information Space. Derzhavne Upravlinnya: Udoskonalennya ta Rozvytok. 2024. No. 2. URL: https://doi.org/10.32702/2307-2156.2024.2.7 (accessed: December 18, 2024).

ЛІТЕРАТУРА

1. Pratik R. (2021). Artificial Intelligence: A Rising Star of Mobile Technology. Intuz Blog. [Pratik R. (2021). Artificial Intelligence: A Rising Star of Mobile Technology. Intuz Blog.] URL: https://www.intuz.com/blog/artificial-intelligence-a-rising-star-of-mobile-technology (accessed: December 13, 2024).

2. European Commission. (2018). A definition of Artificial Intelligence: main capabilities and scientific disciplines. Report High-Level Expert Group on Artificial Intelligence. [European Commission. (2018). A Definition of Artificial Intelligence: Main Capabilities and Scientific Disciplines. Report High-Level Expert Group on Artificial Intelligence.] URL: https://ec.europa.eu/futurium/en/system/files/ged/ai_hleg_definition_of_ai_18_december_1.pdf (accessed: December 13, 2024).

3. Kanade, V. (2022). What Is Artificial Intelligence (AI)? Definition, Types, Goals, Challenges, and Trends in 2022. Spiceworks. [Kanade, V. (2022). What Is Artificial Intelligence (AI)? Definition, Types, Goals, Challenges, and Trends in 2022. Spiceworks.] URL: https://www.spiceworks.com/tech/artificial-intelligence/ (accessed: December 13, 2024).

4. Baranov, O.A. (2023) Vyznachennia terminu «shtuchnyi intelekt». Informatsia i pravo Vol. 1 (44). Pp. 32 – 49. [Baranov, O.A. (2023) Definition of the Term "Artificial Intelligence." Information and Law] URL: http://il.ippi.org.ua/article/view/287537 (accessed: December 18, 2024).

5. Pro skhvalennia Kontseptsii rozvytku shtuchnoho intelektu v Ukraini: rozporiadzhennia Kabinetu Ministriv Ukrainy vid 02.12.2020 № 1556-r: stanom na 29 hrud. 2021 r. [Approval of the Concept for the Development of Artificial Intelligence in

Ukraine] URL: https://zakon.rada.gov.ua/laws/show/1556-2020-p#Text (accessed: December 18, 2024).

6. Klyan A. (2023) Pravove rehuliuvannia shtuchnoho intelektu v Ukraini ta sviti. Yuridychna firma GOLAW. [Legal Regulation of Artificial Intelligence in Ukraine and Worldwide] URL: https://golaw.ua/ua/insights/ (accessed: December 18, 2024).

7. Marutian R. R. (2018) Informatsiini tekhnolohii intelektualnoho upravlinnia u publichno-upravlinskii praktytsi: zarubizhnyi ta vitchyzianyi dosvid. Visnyk Natsionalnoho universytetu tsivilnoho zakhystu Ukrainy. Derzhavne upravlinnia. 2018. Vol. 2 (9). Pp. 146–153. [Information Technologies of Intellectual Management in Public-Administrative Practice: Foreign and Domestic Experience] URL: http://nbuv.gov.ua/UJRN/ VNUCZUDU_2018_2_22 (accessed: December 18, 2024).

8. Maksimenetsva N. O., Maksimenets M. H. (2024) Shchutchnyi intelekt u publichnomu upravlinni: perevahy tsyfrovykh tekhnolohii ta zahrozy suverennomu informatsiinomu prostoru. Derzhavne upravlinnia udoskonalennia ta rozvytok. 2024. Vol. 2. [Artificial Intelligence in Public Administration: Advantages of Digital Technologies and Threats to Sovereign Information Space] URL: https://doi.org/10.32702/2307-215 6.2024.2.7 (accessed: December 18, 2024).

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