

## IMPLEMENTATION OF AI SYSTEMS FOR ANALYSIS OF PRODUCTIVITY AND DEVELOPMENT OF TALENT IN GLOBAL TEAMS

## ВПРОВАДЖЕННЯ СИСТЕМ ШІ ДЛЯ АНАЛІЗУ ПРОДУКТИВНОСТІ ТА РОЗВИТКУ ТАЛАНТІВ У ГЛОБАЛЬНИХ КОМАНДАХ

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**Abstract.** *In modern world, technological progress is changing not only the way individuals work, but also the goals of companies operating on a global scale. The globalization of the workforce and the rise of telecommuting have led to the need for effective performance management and talent development in multinational teams. Artificial intelligence (AI) is emerging as one of the most promising tools for solving these challenges, enabling process automation, big data analytics, personalization of learning and forecasting of talent needs. However, the implementation of AI is accompanied by numerous challenges, such as ethical issues, biases in algorithms, data privacy, and compliance with regulatory requirements in different countries. In addition, the use of AI requires significant investment in technical infrastructure and training of personnel, which can be a significant barrier for many organizations. It is also important to consider the potential impact of AI on corporate culture and employee interaction, as too much automation can lead to the loss of the human factor in work processes. The article examines the technological aspects of AI implementation, describes the main challenges and limitations, and offers strategies to overcome them. The research findings show that while AI has great potential to transform human resource management, its implementation requires a careful approach that includes consideration of ethical aspects and ensuring compliance with legal regulations. The study also highlights the importance of a balanced approach that combines the benefits of AI with traditional HR practices while ensuring that uniquely human qualities such as empathy, creativity and critical thinking are preserved.*

**Keywords:** *artificial intelligence, global teams, productivity, talent development, human resources management, ethics, data privacy, technological innovation, automation, personalization.*

**Анотація.** *У сучасному світі технічний прогрес змінює не тільки спосіб роботи людей, але й цілі компаній, що працюють у глобальному масштабі. Глобалізація робочої сили та*

зростання дистанційної роботи призвели до необхідності ефективного управління продуктивністю та розвитку талантів у багатонаціональних командах. Штучний інтелект (ШІ) стає одним із найперспективніших інструментів для вирішення цих проблем, забезпечуючи автоматизацію процесів, аналітику великих даних, персоналізацію навчання та прогнозування потреб у талантах. Однак впровадження штучного інтелекту супроводжується численними проблемами, такими як етичні проблеми, упередження в алгоритмах, конфіденційність даних і дотримання нормативних вимог у різних країнах. Крім того, використання ШІ вимагає значних інвестицій у технічну інфраструктуру та навчання персоналу, що може стати суттєвою перешкодою для багатьох організацій. Також важливо враховувати потенційний вплив штучного інтелекту на корпоративну культуру та взаємодію співробітників, оскільки надмірна автоматизація може призвести до втрати людського фактора в робочих процесах. У статті розглядаються технологічні аспекти впровадження ШІ, описуються основні виклики та обмеження, а також пропонуються стратегії їх подолання. Результати дослідження показують, що хоча штучний інтелект має великий потенціал для трансформації управління людськими ресурсами, його впровадження вимагає ретельного підходу, який включає врахування етичних аспектів і забезпечення дотримання правових норм. Дослідження також підкреслює важливість збалансованого підходу, який поєднує переваги штучного інтелекту з традиційними методами управління персоналом, забезпечуючи при цьому збереження унікальних людських якостей, таких як емпатія, креативність і критичне мислення.

**Ключові слова:** штучний інтелект, глобальні команди, продуктивність, розвиток талантів, управління людськими ресурсами, етика, конфіденційність даних, технологічні інновації, автоматизація, персоналізація.

**Introduction.** Globalization and the development of technology are radically changing the way companies organize their work. Today's business world is very different from what it was just a few decades ago. Technological progress, in particular the development of the Internet and mobile communications, allows companies to work with employees and partners located in different corners of the world. With the advent of remote work opportunities and global teams, organizations are increasingly faced with the need to manage employees across countries, cultural contexts and time zones. This globalization of the workforce creates both new opportunities and challenges related to work coordination, performance evaluation, and talent development.

Modern organizations deal with a diversity of languages, cultural norms, and labour laws, which complicates management and decision-making processes. For example, managers must consider different work habits and time zones to effectively manage projects and ensure the productivity of their teams. In addition, distance and time differences can make communication and collaboration between team members difficult, making it necessary to adopt new technologies and HR approaches.

With its potential to analyse big data and automate routine tasks, artificial intelligence is becoming an important tool in the field of human resource management. The use of AI allows not only to increase the efficiency of processes, but also to provide a more personalized approach to training and development of employees. For example, AI systems can automatically process large volumes of information coming from various sources and based on this analysis, provide recommendations for training, professional development or career growth. This significantly improves the ability of companies to attract and retain talented specialists, increases their motivation and job satisfaction.

**The purpose of the article.** The purpose of this article is to explore in detail the implementation of artificial intelligence (AI) systems for performance analysis and talent development in global teams. The article is aimed at a deep understanding of how AI can be used to optimize HR processes in multinational organizations, what advantages and challenges arise when applying these technologies, as well as what ethical, legal and social aspects need to be considered during implementation. The study also analyzes best practices and strategies that can help companies make

the most of AI to improve the performance of their teams and promote long-term talent development in a globalized labor market.

**Literature review.** To date, there is a wide range of research devoted to the implementation of AI in human resource management. Here are a few scientists who have been engaged in research in the field of artificial intelligence (AI) and its application in human resource management: John McCarthy, Marvin Minsky, Jeffrey Hinton, Ian LeCun, Andrew Ing, Fei-Fei Li, Pedro Domingos, Sebastian Thrun, Jurgen Schmidhuber, Tom Mitchell.

These scientists and their research laid the foundation for the modern application of AI in human resource management. Their work covers a wide range of technologies - from basic machine learning algorithms to complex neural networks and deep learning systems. These technologies are increasingly used in HR practices, including recruitment, performance appraisal, turnover forecasting, personalization of employee training and development, and analytics for strategic HR decision-making.

It is important to note that although these scientists did not directly specialize in HR, their fundamental research in the field of AI created the basis for innovation in the field of human resource management. Modern specialists and researchers actively adapt and develop these technologies to solve specific tasks in the field of personnel management, creating new opportunities for increasing the efficiency and innovation of processes.

**Main results of the research.** Artificial intelligence is a term used to describe powerful technologies based on machine learning. It is the ability of a digital computer, or computer-controlled robot, to perform tasks normally associated with intelligent beings. This term is often used in the design of evolving systems that are endowed with human-like intellectual processes, such as the ability to reason, make sense, generalize, and learn from experience. The problem of a clear definition of the term AI is quite understandable, because the study of artificial intelligence is a young discipline, and the field of AI in science is still being formed.

The motivation behind the development of AI technologies is that tasks that depend on many variables require complex decisions that are difficult to algorithmic manually. The development of algorithms used for modelling and solving tasks related to large volumes of data takes a lot of time, so the main goal of improving AI technologies is to minimize human resources for solving highly intellectual tasks (*Slobodyanyuk, 2020*).

Artificial intelligence gives companies the opportunity to automate many routine processes related to evaluating employee performance. For example, AI systems can automatically collect and analyze data on task completion, project participation, team interaction, and other key performance indicators. This allows managers to receive quick and accurate analysis results, which helps them make informed decisions about improving the effectiveness of teams.

The study "AI-ecosystem of Ukraine: talents, companies, education", conducted by the Ministry of Digitization together with AI HOUSE and investment group Roosh, shows that Ukraine ranks second in the number of AI companies among the countries of Central and Eastern Europe, with more than 240 companies, that are actively working with AI technologies. This research enables companies to better understand their strengths and weaknesses, and the state to form an effective AI development policy, removing existing barriers (Ministry of Digital Transformation of Ukraine, 2024).

According to the study, over the past ten years, the number of AI/ML specialists in Ukraine has increased fivefold, reaching 5,200 professionals as of January 2024. Young people aged 21 to 25 make up 36% of all specialists in this field, which indicates a high interest and active participation of new generations in the development of technologies. The most common occupations among specialists are Data Scientists and ML Engineers, who together make up 63% of all industry professionals.

Ukrainian AI companies demonstrate high expertise in the fields of marketing, gaming and business software, which distinguishes Ukraine from other European countries. The study also states that there are 44 active venture capital funds in Ukraine that invest in AI startups, which contributes to the development of innovations and the introduction of new technologies. In addition, 42

universities in the country have programs devoted in part or entirely to AI/ML, a significant increase compared to a decade ago.

The main centres of AI development in Ukraine are Kyiv, Lviv, Kharkiv, Odesa and Dnipro, where most AI companies and offices are located. However, despite significant progress, the industry faces several challenges, including the need to interact with other industries, competition on a global level, ethical issues, financial constraints and the loss of talent due to Russia's full-scale invasion of Ukraine. According to Oleksandr Bornyakov, Deputy Minister of Digital Transformation for IT Development, Ukraine has great potential for further development and strives to become a global AI hub where breakthrough technologies of the future are created (*Ministry of Digital Transformation of Ukraine, 2024*).

One of the most important aspects of implementing artificial intelligence (AI) in human resources management is the possibility of creating individual training and development plans for each employee. AI systems, using machine learning algorithms, can analyze large volumes of data, which allows them to deeply understand the current skills, achievements and potential growth areas of each employee. As a result of this analysis, AI can determine which specific skills need further development and recommend personalized training programs, courses or training. This significantly increases the effectiveness of the training process, as employees receive exactly the knowledge and skills that best meet their needs and roles in the company (*Boiko, 2020*).

In addition, personalization of training with the help of AI allows considering individual learning styles, pace of learning material and even personal interests of employees, which makes training not only more effective, but also more exciting and motivating. In turn, this has a positive impact on the productivity of the team, as employees who feel their development is supported and valued are more motivated and engaged.

1. AI is also a powerful tool for predicting future talent needs. Using data analytics and machine learning models, companies can predict what skills, and professional roles will be needed in the future. This allows you to plan the training and development of existing employees in advance, as well as to develop strategies for hiring new employees, focusing on promising areas of business development. For example, if the data analysis shows an increase in the demand for cyber security specialists, the company can invest in advance in training employees in this field or hire new specialists (*Kravchuk, 2023*).

2. An important aspect of using AI in the management of global teams is its application to optimize the processes of recruitment and adaptation of new employees. AI systems can analyze candidates' resumes, comparing them to the job requirements and the company's corporate culture. This allows you to quickly identify the most promising candidates, saving time for recruiters in the initial stages of selection. In addition, AI can help create personalized onboarding programs, considering the cultural background of the new employee and the specifics of his role in the global team.

The use of AI to analyze the emotional state and level of engagement of employees is becoming increasingly relevant, especially in the context of remote work. Algorithms can analyze the tone and content of electronic communications, activity in corporate systems, and even facial expressions during video conferences. This allows managers to detect signs of stress, burnout or decreased motivation in team members in time. Based on this data, AI can offer individual recommendations to support psychological health and increase employee engagement.

AI also plays an important role in ensuring the continuity of business processes in global teams. For example, AI-based forecasting systems can predict potential risks related to geopolitical events, natural disasters or economic crises that may affect the work of teams in different countries. This allows companies to proactively develop response strategies and ensure business resilience in the face of global uncertainty.

An innovative area of application of AI in the management of global teams is the creation of virtual assistants for team leaders. Such assistants can analyze data on performance, communication and team dynamics, providing managers with personalized recommendations for improving management effectiveness. For example, a virtual assistant can suggest optimal times for meetings

based on the time zones of all participants or suggest when to have a one-on-one conversation with a team member who is showing signs of declining productivity.

Finally, it is important to note the role of AI in creating an inclusive environment in global teams. Algorithms can analyze the language of corporate documents, communications, and even software code for bias or discriminatory language. It helps companies identify and address unconscious biases, contributing to a fairer and more inclusive work environment. In addition, AI can help develop inclusive hiring and promotion strategies, ensuring equal opportunities for all members of a global team regardless of their cultural background, gender or other characteristics.

The implementation of AI in the field of human resources management, despite all the advantages, is accompanied by numerous ethical challenges. One of the main risks is the possibility of biases in algorithms. This may lead to discrimination against certain groups of employees or job candidates. For example, if AI algorithms are trained on historical data that contain certain biases (for example, gender or racial), these biases can be automatically transferred to decision-making processes, reducing objectivity and fairness (Gorbachova, 2024).

Another important aspect is ensuring the confidentiality of employee data. The use of personal data for analysis and decision-making must comply with the requirements of privacy protection legislation in various countries. Failure to comply with these requirements can lead to legal consequences, loss of employee trust and damage to the company's reputation.

Successful implementation of technologies to manage global teams requires a comprehensive approach that covers several important aspects.

First, algorithms must be understandable and accessible for verification. This means that employees and managers must be able to understand how algorithmic decisions are made, what factors are taken into account, and how these factors affect the bottom line. Such transparency helps to avoid misunderstandings and contributes to the growth of trust in the technological solutions used in the organization.

Second, in order to increase the level of awareness of the use of new technologies, companies should invest in training their employees. This includes not only technical training, but also developing an understanding of the ethical, legal and practical aspects of working with new technologies. Employees must be well trained to use these tools in their daily activities.

Third, ethical issues should be central to the development and implementation of new technologies. Companies must adhere to the principles of fairness, impartiality and transparency in all their processes, as well as ensure compliance with legal regulations in the field of data protection and privacy. This is especially important because violating these principles can lead to a loss of trust from employees and customers.

Finally, continuous monitoring and evaluation of the use of new technologies helps to identify possible problems, evaluate the effectiveness of algorithms and processes, and make the necessary changes to improve them. This ensures the adaptability and development of technological systems in response to changes in business needs and market conditions. Thus, a comprehensive approach to technology implementation can help organizations achieve their goals and remain competitive in today's dynamic environment.

The use of artificial intelligence (AI) in HR technologies is gaining popularity, especially in the context of talent assessment and employee development. The initial stages of applying AI in assessment combine machine learning and digital technologies to automate processes and increase the accuracy of analysis. One of the key aspects is computer adaptive testing (CAT) online, which became possible thanks to the wide availability of computers and the Internet (Chinotti, 2021).

AI in evaluation refers to the automated analysis of responses without human intervention, using machine learning methods to determine attributes and predict results. This allows organizations to quickly and efficiently evaluate their employees, reducing costs and increasing the accuracy of results. AI-based programs have already proven their effectiveness in increasing productivity and revenue.

AI can be used in a variety of assessment methods, including asynchronous digital interviews, situational judgment testing, technical skills assessment, and text analysis. However, there is

uncertainty regarding the compatibility of AI with traditional methods and the legal aspects of its application.

Six best practices are essential to successfully implementing AI in talent assessment: define data requirements, ensure transparency, design fair algorithms, perform due diligence, involve human oversight, and disclose intent for AI use. These steps will help to avoid prejudice, ensure confidentiality and compliance with legal requirements (*Chinotti, 2021*).

**Conclusions.** Thus, the implementation of artificial intelligence (AI) systems for performance analysis and talent development in global teams opens new opportunities for companies in the field of human resource management. By automating routine processes, analyzing large volumes of data more accurately, and enabling personalized learning, AI can significantly increase the effectiveness of teams, promote employee productivity, and ensure their sustainable development. Forecasting staffing needs also allows companies to plan and develop the necessary skills in their employees, which is a key factor in maintaining competitiveness in the market.

However, despite all the advantages, the implementation of AI is not without challenges. For the successful use of these technologies, it is important to consider ethical aspects, ensure the transparency of algorithms, avoid bias and discrimination, and ensure the protection of employee data in accordance with international standards and regulations. In addition, companies should invest in training their employees to ensure effective use of AI and increase their awareness of new technologies.

Only with a comprehensive approach to AI implementation, including technical training, ethical review, legal compliance and transparency, will companies be able to achieve the desired results and ensure the sustainable development of their teams in a global environment. This approach will help organizations not only optimize HR processes, but also create a culture of innovation aimed at long-term success and growth.

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