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Artificial Intelligence in HR Analytics: Enhancing Strategic Personnel Management

Abstract: In the context of digital economic transformation, the use of data-driven approaches in human resource management is becoming increasingly important for enhancing organisational competitiveness and improving the quality of managerial decision-making. This study examines the application of artificial intelligence technologies in HR analytics within modern human resource management processes. The purpose of the article is to substantiate the role of artificial intelligence in HR analytics and to determine its impact on the effectiveness of managerial decision-making in personnel management. The study employs general scientific methods, including analysis, synthesis, comparison, and generalisation, as well as HR analytics tools used to interpret personnel data and assess the effectiveness of HR decisions. The study identifies key areas of AI application in HR analytics, including employee turnover prediction, recruitment automation, performance evaluation, employee development personalisation, and employer branding analysis. The findings indicate that the use of AI enhances the accuracy, speed, and objectivity of decision-making and supports the transition from intuitive and reactive HR management to data-driven, predictive, and proactive personnel management. At the same time, the study highlights the main limitations of AI implementation, including data quality issues, algorithmic bias, ethical concerns, legal restrictions, insufficient transparency of automated decisions, and limited organisational readiness for digital transformation. The findings emphasise the need for a balanced approach that combines technological solutions with human expertise, ethical governance, and the development of analytical competencies among HR professionals. It is concluded that AI-based HR analytics can become an important strategic tool for improving personnel management, strengthening organisational adaptability, and supporting sustainable competitive development.

Keywords: HR analytics, artificial intelligence, strategic HR analytics, personnel management, employer branding, organisational behaviour, digital transformation.

Abbreviations:

AI is artificial intelligence

HR is human resources

EVP is employer value proposition
KPI is key performance indicator

Introduction

In today's era of digital economic transformation, effective human resource management is becoming critical to ensuring organisations' competitiveness. Exponential business data growth drives the demand for advanced processing and interpretation tools. In this context, HR analytics is becoming particularly relevant, as it enables data-driven management decisions. At the same time, the integration of artificial intelligence technologies opens up new opportunities for improving forecasting accuracy, automating HR processes and optimising HR strategies.

The object of the study is HR management processes in modern organisations. The study focuses on AI integration within HR analytics to enhance management efficiency.

The aim of the article is to investigate the specific features of applying artificial intelligence in HR analytics and to determine its impact on the effectiveness of management decisions in the field of HR management. To achieve this objective, the following tasks have been identified: to analyse the essence of HR analytics in the context of digitalisation; to investigate the possibilities of using artificial intelligence technologies in HR processes; to determine the impact of AI tools on managerial decision-making; to outline the main limitations and risks of their application.

General scientific methods were used in the research, in particular analysis and synthesis—to summarise scientific approaches to understanding HR analytics and artificial intelligence; comparison—to contrast traditional and modern HR management tools; and generalisation—to draw conclusions regarding the effectiveness of AI application in HR analytics. Among the specialised methods, the HR analytics method was used, which allows for the interpretation of personnel data and the evaluation of the effectiveness of management decisions.

The theoretical framework of the study is based on the works of domestic and international scholars in the fields of human resource management, HR analytics and digital technologies, in particular studies focusing on data-driven approaches to management, the application of artificial intelligence in business processes, and the transformation of the HR function in the context of digitalisation.

The practical significance of the results lies in their potential use by organisational leaders, HR managers and analysts to enhance the effectiveness of human resource management through the implementation of artificial intelligence tools in HR analytical processes.

Methods

The methodological basis of the study consists of a combination of general scientific and specialised methods, ensuring a comprehensive approach to analysing the use of artificial intelligence in HR analytics.

General scientific methods include analysis, which facilitated a systematic review of theoretical frameworks surrounding HR analytics and AI evolution, as well as investigation of their role in personnel management systems. The synthesis method was applied to combine individual theoretical propositions into a coherent concept of AI use in HR analytics. The comparison method was used to contrast traditional approaches to human resource management with modern

data-driven practices. The generalisation method enabled conclusions to be drawn regarding the effectiveness of applying artificial intelligence in management processes.

Specialized HR analytics was applied to transform raw personnel data into actionable insights for strategic decision-making. The application of this method made it possible to identify key areas for the use of artificial intelligence in the analysis of HR processes, in particular forecasting staff turnover, assessing employee performance and optimising recruitment processes. In addition, elements of a systems approach were utilised, ensuring that HR analytics is considered as a component of the overall organisational management system.

Thus, the use of these methods has enabled a comprehensive investigation of the possibilities for integrating artificial intelligence into HR analytics and an assessment of its impact on the effectiveness of personnel management.

Literature Review

Contemporary research in the field of human resource management is increasingly focusing on the use of analytical approaches and digital technologies to enhance the effectiveness of managerial decisions. In particular, considerable attention is being paid to the development of HR analytics as a tool for data-driven management.

The use of analytics in organisational management is thoroughly examined by Davenport and Harris (*2007*), who justify the concept of data-driven management as a key factor in competitive advantage. Further development of this idea is presented in the works of Marler and Boudreau (*2017*), who provide a systematic review of HR analytics and define it as an important tool for improving the effectiveness of human resource management. Minbaeva (*2018*) expands on this perspective, emphasising the development of analytical competence within organisations, which enables the achievement of sustainable competitive advantages. Thus, these sources form the theoretical basis for the study of HR analytics as a component of modern management.

A separate line of research concerns the critical analysis of the implementation of HR analytics in management practice. In particular, Angrave et al. (*2016*) highlight the gap between the potential of analytics and the actual capabilities of the HR function to utilise it, which is due to insufficient analytical skills and organisational change. Rasmussen and Ulrich (*2015*) stress the need to integrate analytics into strategic human resource management to prevent it from becoming a passing management trend. Boudreau and Cascio (*2017*) also highlight the challenges of implementing analytical approaches, particularly organisations' insufficient readiness to use data in decision-making. Including these sources allows exploration of the challenges of the practical application of HR analytics and justifies the need for its improvement.

An important aspect of the research is the use of artificial intelligence technologies in human resource management. Tambe, Cappelli, and Yakubovich (*2019*) examine the potential applications of AI in HR processes, particularly in recruitment and employee performance analysis, making their work crucial for understanding current trends in the development of HR analytics. Upadhyay and Khandelwal (*2018*) investigate the use of artificial intelligence in recruitment, highlighting its effectiveness in automating candidate selection. Jarrahi (*2018*) analyses the interaction between humans and artificial intelligence in the management decision-making process, emphasising the importance of combining the two. Brynjolfsson and McAfee (*2014*) view AI as a factor in the transformation of business processes in general. Recent developments in generative AI have

further expanded the analytical and decision-support capabilities of HR technologies, particularly through intelligent automation, talent acquisition support, and advanced data interpretation. Thus, these sources provide an understanding of the role of artificial intelligence in the transformation of the HR function.

A separate group comprises studies devoted to the impact of digital technologies on human resource management and the future of work. Stone et al. (*2015*) analyse the impact of technologies on the transformation of the HR function, highlighting the changing role of the HR manager. Kaplan and Haenlein (*2019*) explore the nature of artificial intelligence and its application in business, providing a deeper understanding of these technologies. Wang and Siau (*2019*) investigate the impact of automation and AI on the future of work, establishing a broader research context. Kaur et al. (*2023*) explores the role of human trust in AI, identifying it as a cornerstone for successful technology adoption.

Particular attention in academic research has been paid to the ethical aspects of using artificial intelligence in HR. In particular, Leicht-Deobald et al. (*2019*) emphasise ethical risks, specifically addressing algorithmic bias and the lack of transparency in automated decisions.

Thus, this literature review leads to the conclusion that there is considerable academic interest in the use of HR analytics and artificial intelligence in human resource management. At the same time, there is a need for further research into the integration of AI into HR analytical processes, taking into account both their capabilities and limitations.

Results

1. The essence of HR analytics and the role of artificial intelligence

In the current context of the digital economy's development, HR analytics is emerging as a key tool for human resource management, enabling data-driven decision-making. Unlike traditional approaches, which rely on managers' intuition and experience, HR analytics involves the systematic collection, processing and interpretation of personnel data to improve the efficiency of management processes. It covers a wide range of metrics, including employee productivity, staff turnover, employee engagement and training effectiveness. Thus, HR analytics transforms the approach to personnel management from intuitive to evidence-based, which helps improve the quality of management decisions.

The evolution of HR analytics is closely linked to the development of information technology and the increasing volume of data available to organisations. Whereas in the early stages analytics was limited to descriptive metrics, modern approaches include diagnostic, predictive and prescriptive analytics, which allow not only the analysis of past events but also the forecasting of future trends and the formulation of recommendations for management actions. In this context, the integration of artificial intelligence plays a key role, significantly expanding the capabilities for processing large datasets and improving the accuracy of analytical models. Thus, the development of HR analytics reflects the general trend towards data-driven management within organisations.

Artificial intelligence serves as a technological foundation for automating complex analytical processes in HR analytics and enhancing their efficiency. Machine learning algorithms make it possible to identify hidden patterns in workforce data that are often inaccessible through traditional analytical methods. In particular, AI can support employee turnover prediction, talent potential assessment, team performance analysis, and recruitment optimisation. An important advantage of

AI lies in its ability to process large volumes of structured and unstructured data, including résumés, employee feedback, and sentiment survey results. This significantly improves the accuracy, speed, and objectivity of HR analytics. Thus, the integration of artificial intelligence expands the analytical capabilities of human resource management.

At the same time, the use of artificial intelligence in HR analytics is transforming the role of the HR function within an organisation. Whereas HR managers previously performed mainly administrative tasks, today they are increasingly involved in strategic management, using analytical tools to inform decision-making. This requires the development of new competencies, in particular analytical thinking, an understanding of how algorithms work, and the ability to interpret the results of analysis. Thus, the integration of AI into HR analytics contributes to the transformation of the HR function from an operational to a strategic one.

2. The use of artificial intelligence in HR analytics

One of the key areas of application for artificial intelligence in HR analytics is the prediction of staff turnover. The use of machine learning algorithms enables the analysis of historical employee data, including satisfaction levels, performance review results, frequency of job changes, engagement levels and other factors that may influence the decision to resign. Based on this data, predictive models are developed that enable the identification of employees with a high probability of leaving and the timely implementation of management measures. This not only reduces costs associated with staff turnover but also enhances the organisation's operational stability. Thus, the application of artificial intelligence in predicting staff turnover facilitates the transition from reactive to proactive HR management. Key areas of artificial intelligence application in HR analytics are systematised in the Appendix (*Table 1*).

Modern AI-based systems are capable of processing large volumes of CVs, analysing candidates' suitability for job requirements, and assessing their potential based on prior experience and behavioural characteristics. Furthermore, AI-driven systems facilitate automated initial screenings by evaluating both verbal responses and non-verbal behavioural cues, thereby enhancing the objectivity of the selection process. Automating these processes significantly reduces the time taken for recruitment and minimises the influence of human bias. Thus, the use of artificial intelligence in recruitment enhances the efficiency, speed and quality of the candidate selection process.

Another key area is the assessment of employee performance and the management of their productivity. Artificial intelligence enables the analysis of various employee performance indicators in real time, including task completion results, KPI achievement levels, participation in team processes, and other metrics. Analytical reports are generated based on this data, helping managers make informed decisions regarding staff development, motivation and resource allocation. Furthermore, AI can be used to personalise employee training and development, taking into account their individual needs and potential. Thus, the application of artificial intelligence in performance evaluation contributes to increased labour productivity and staff development.

Of particular importance is the use of artificial intelligence to analyse the organisation's external environment, specifically competitors in the labour market and the development of the employer brand. Modern AI tools enable the processing of data from open sources, such as job vacancies, career websites, social media and employee review platforms, allowing for the analysis of salary levels, candidate requirements, competitors' offers and their employer value proposition

(EVP). This enables organisations to refine their HR strategy, enhance their employer appeal and position themselves more effectively in the labour market. Thus, the use of artificial intelligence to analyse the competitive environment contributes to the development of a competitive employer brand and improves the effectiveness of recruitment.

3. The Impact of Artificial Intelligence on Management Decision-Making in Human Resources

One of the key advantages of using artificial intelligence is the ability to forecast future trends and scenarios in HR processes. Thanks to the use of predictive analytics, managers are able not only to react to existing problems but also to prevent them from arising. For example, forecasting staff turnover or a decline in productivity allows for the timely implementation of measures to retain employees or boost their motivation. This significantly enhances the strategic level of HR management and enables decision-making that takes long-term consequences into account. Thus, the use of AI facilitates the transition to proactive management within organisations.

An important aspect is the enhancement of the objectivity of management decisions by minimising the influence of the human factor. Artificial intelligence is capable of analysing data without bias, which helps reduce the risks of discrimination or subjective assessment of employees. This is particularly relevant in recruitment processes, performance evaluation, and decision-making regarding career development. At the same time, completely eliminating the human factor is impractical, as interpreting analysis results and making final decisions require managerial experience and a contextual understanding of the situation. Thus, the most effective approach is to combine the capabilities of artificial intelligence with the professional expertise of managers.

Furthermore, the use of AI in HR analytics helps to speed up management decision-making. The automation of data collection and analysis processes significantly reduces the time between identifying a problem and resolving it. This is critically important in a highly dynamic business environment, where the speed of decision-making often determines an organisation's competitiveness. At the same time, speed must not compromise the quality of decisions, which requires proper verification and interpretation of analytical results. Thus, the use of artificial intelligence strikes a balance between the speed and soundness of management decisions.

4. Limitations and risks of using artificial intelligence in HR analytics

Despite the significant advantages of using artificial intelligence in HR analytics, its implementation is accompanied by a number of limitations and risks that must be taken into account when making management decisions. One of the key issues is the dependence of the quality of analysis results on the quality of input data. Poor data quality—whether incomplete or biased—compromises analytical integrity and leads to flawed management strategies. This is particularly relevant in situations where employee data is collected from various sources and may contain errors or subjective assessments. Thus, the effectiveness of artificial intelligence directly depends on the quality and representativeness of the data.

Another significant limitation is the issue of algorithmic bias, which may arise from the use of historical data reflecting existing social or organisational inequalities. In such cases, artificial intelligence algorithms may reproduce or even exacerbate these biases, leading to unfair management decisions, particularly in recruitment or employee assessment processes. This creates risks of discrimination and may negatively impact the organisation's reputation as an employer. Consequently, the use of AI in HR analytics requires constant monitoring and adjustment of algorithms to ensure their objectivity and ethicality.

Ethical and legal restrictions on the use of artificial intelligence are also an important aspect. Handling sensitive workforce data necessitates robust security frameworks to prevent privacy breaches and ensure regulatory compliance and adherence to relevant regulations. Furthermore, the use of AI in management decision-making may lead to mistrust among employees, particularly where the principles underlying the algorithms are not sufficiently transparent. This can have a negative impact on organisational culture and staff engagement levels. Consequently, the implementation of artificial intelligence must be accompanied by measures to ensure transparency, ethical standards and data protection.

Another limitation is the lack of readiness among organisations to implement artificial intelligence technologies. This is due both to the absence of the necessary technical infrastructure and to a lack of digital and analytical skills among staff. Implementing AI requires significant investment, as well as changes to business processes and corporate culture. Without proper preparation, this can lead to the inefficient use of technologies or even their rejection within the organisation. Thus, the successful integration of artificial intelligence into HR analytics requires a comprehensive approach, including skills development, process adaptation and strategic change management.

Discussion

The results of the study confirm that the integration of artificial intelligence into HR analytics represents not only a technological innovation, but also a structural transformation of human resource management. AI-based HR analytics changes the logic of personnel management by shifting it from retrospective reporting and managerial intuition towards predictive, evidence-based and strategically oriented decision-making. This transformation is especially important in the context of digital economic development, increasing labour market volatility and the growing need for organisations to respond quickly to changes in employee behaviour, workforce expectations and competitive conditions.

The findings are consistent with the broader concept of data-driven management, according to which organisational competitiveness increasingly depends on the ability to collect, process and interpret data for managerial decision-making (*Davenport & Harris, 2007*). In the field of human resource management, this means that HR departments are no longer limited to administrative functions such as documentation, payroll support or operational recruitment. Instead, they gradually become analytical and strategic units capable of forecasting workforce risks, evaluating employee performance, supporting talent development and strengthening employer positioning in the labour market. This corresponds to the argument that HR analytics should be considered a strategic instrument for increasing organisational effectiveness rather than a secondary technical function (*Marler & Boudreau, 2016*; *Minbaeva, 2018*).

One of the most significant implications of the study is the confirmation of the proactive potential of AI in HR analytics. Traditional HR management often reacts to problems after they have already occurred: employees leave the organisation, productivity declines, recruitment takes too long or employee engagement decreases. AI-based analytics makes it possible to identify early signals of such problems and respond before they become critical. For example, predictive models of employee turnover can reveal risk patterns based on engagement indicators, performance dynamics, job mobility, satisfaction data and other variables. This allows organisations to

implement retention measures in advance and reduce the costs associated with staff replacement, adaptation and loss of organisational knowledge.

The analysis also shows that AI has particular value in recruitment and selection. Automated CV screening, natural language processing, video analysis and behavioural assessment tools can reduce the duration of recruitment cycles and improve the consistency of candidate evaluation. These findings correspond to studies emphasising the potential of artificial intelligence to increase the efficiency of recruitment processes and support candidate-job matching (*Tambe et al., 2019*; *Upadhyay & Khandelwal, 2018*). However, the use of AI in recruitment should not be interpreted as a simple replacement of human recruiters. Recruitment decisions involve contextual judgement, organisational culture, ethical responsibility and long-term assessment of candidate potential. Therefore, AI should function as a decision-support tool rather than as an autonomous decision-maker.

The role of AI in performance management is also significant. Real-time KPI dashboards, productivity monitoring systems and personalised employee development recommendations can improve the quality of managerial decisions related to motivation, training and resource allocation. Such tools allow managers to move beyond episodic performance reviews and towards continuous assessment of employee development. At the same time, this creates a new managerial challenge: performance data should be interpreted carefully and ethically. Quantitative indicators may show trends, but they cannot fully capture employee motivation, creativity, interpersonal contribution, emotional labour or contextual difficulties. Therefore, performance analytics must be combined with qualitative managerial judgement.

An important contribution of the article lies in emphasising external HR analytics and employer branding. In contemporary labour markets, organisations compete not only through salaries and job descriptions, but also through employer value propositions, reputation, corporate culture and career development opportunities. AI tools can process data from open sources, job platforms, social networks, review websites and competitors' vacancies in order to assess labour market positioning and improve employer branding strategies. This expands the traditional boundaries of HR analytics: it becomes not only an internal management instrument, but also a tool for analysing the external labour market environment and strengthening organisational competitiveness.

The findings also confirm that AI transforms the professional role of HR managers. As HR analytics becomes more technologically advanced, HR professionals need new competencies: data literacy, understanding of algorithmic logic, ability to interpret analytical outputs, ethical awareness and strategic thinking. This supports earlier arguments that the implementation of HR analytics may fail if HR departments do not develop sufficient analytical capabilities and organisational influence (*Angrave et al., 2016*; *Boudreau & Cascio, 2017*). Therefore, the effectiveness of AI in HR analytics depends not only on software or data infrastructure, but also on the ability of HR specialists to translate analytical results into meaningful managerial decisions.

A central issue emerging from the study is the balance between automation and human judgement. AI can improve the speed, accuracy and objectivity of HR decisions, but it cannot fully replace managerial interpretation. Organisational decisions concerning recruitment, promotion, employee development, dismissal or talent retention involve not only statistical probability, but also ethical, psychological and strategic considerations. This supports the concept of human-AI

symbiosis in organisational decision-making, according to which the most effective decisions arise from the combination of machine analytical capacity and human contextual understanding (*Jarrahi, 2018*). In HR management, this balance is especially important because decisions directly affect people's careers, income, motivation and professional dignity.

The study also highlights a number of risks that should be taken seriously. The first of these is data quality. AI systems depend on the completeness, accuracy and representativeness of input data. If HR data are incomplete, inconsistent or historically biased, AI models may produce misleading conclusions. Poor-quality data can lead to incorrect predictions of turnover, unfair performance assessments or inaccurate recruitment recommendations. Therefore, before implementing AI-based HR analytics, organisations must develop reliable data governance systems, standardise HR metrics, ensure data integration and regularly verify the quality of personnel datasets.

The second major risk is algorithmic bias. AI models trained on historical organisational data may reproduce existing inequalities or discriminatory practices. For example, if previous recruitment decisions were biased in favour of certain groups, an AI system trained on such data may continue to privilege similar candidates. This confirms the concerns raised in the literature regarding algorithm-based HR decision-making and personal integrity (*Leicht-Deobald et al., 2019*). Consequently, organisations must regularly audit algorithms, test models for bias, document decision rules and ensure that automated recommendations do not violate principles of fairness, equal opportunity and non-discrimination.

The third risk concerns transparency and trust. Employees may perceive AI-based HR analytics as a form of surveillance if organisations do not explain what data are collected, how they are analysed and how the results influence management decisions. Trust in AI is a key condition for its successful adoption (*Kaur et al., 2023*). If employees do not understand the logic of AI tools or believe that decisions are made by opaque algorithms, their engagement and organisational commitment may decrease. Therefore, organisations should develop transparent communication policies, explain the purpose of AI use, ensure data protection and provide mechanisms for human review of automated recommendations.

The fourth risk is organisational readiness. The implementation of AI in HR analytics requires not only technological infrastructure but also changes in processes, skills, culture and governance. Organisations may invest in AI tools without having sufficient analytical competence or managerial readiness to use them effectively. In such cases, AI may become a formal innovation that does not significantly improve decision-making. This reflects the broader warning that HR analytics can become a management trend rather than a real strategic capability if it is not integrated into organisational decision processes (*Rasmussen & Ulrich, 2015*).

From a theoretical perspective, the study contributes to the understanding of HR analytics as a strategic management mechanism. It shows that AI-based HR analytics connects several dimensions of organisational development: data-driven decision-making, strategic workforce planning, employee performance management, employer branding and organisational behaviour. This broader interpretation is important because HR analytics is sometimes reduced to technical measurement or operational reporting. The present analysis demonstrates that its strategic value lies in the ability to connect personnel data with organisational goals, competitive positioning and long-term workforce sustainability.

From a practical perspective, the study suggests that organisations should implement AI in HR analytics gradually and systematically. The first stage should include an audit of HR data quality and the development of unified personnel metrics. The second stage should focus on selecting appropriate AI tools for specific HR tasks, such as turnover prediction, recruitment automation, performance analysis or employer branding. The third stage should involve training HR professionals and managers to interpret analytical results. The fourth stage should introduce ethical governance mechanisms, including algorithmic audits, transparency policies, data protection rules and procedures for human review. Such a staged approach can reduce implementation risks and increase the effectiveness of AI-based HR analytics.

The results also have implications for organisational strategy. AI-based HR analytics can strengthen workforce stability, reduce recruitment costs, improve employee development and support employer competitiveness. However, these benefits can be achieved only when analytics is connected to real managerial action. Predicting turnover has little value if the organisation does not develop retention measures. Analysing employee performance is ineffective if it is not linked to development plans. Studying employer branding is insufficient if the organisation does not improve its employee value proposition. Therefore, AI-based analytics should be embedded in the full cycle of HR strategy, from diagnosis to action and evaluation.

The limitations of the study should also be acknowledged. The article is conceptual and analytical in nature and does not include empirical testing of AI-based HR analytics tools in a specific organisation. It does not compare the effectiveness of different AI models or quantify their impact on HR performance indicators. In addition, the study focuses on the general potential and risks of AI in HR analytics rather than on sector-specific or country-specific implementation conditions. These limitations open directions for further research.

Future research should examine the practical effectiveness of AI tools in different HR processes and organisational contexts. Empirical studies may analyse how AI-based turnover prediction affects retention outcomes, how automated recruitment tools influence candidate diversity, how AI-supported performance management changes employee motivation and how external HR analytics contributes to employer brand competitiveness. Further research should also focus on ethical governance models, algorithmic transparency, employee trust and the relationship between AI adoption and organisational culture. Comparative studies across industries and countries would help determine how organisational size, sector, digital maturity and regulatory environment influence the success of AI implementation in HR analytics.

Overall, the discussion confirms that artificial intelligence has the potential to significantly enhance HR analytics and strategic personnel management. Its value lies in improving the accuracy, speed and predictive capacity of managerial decision-making. At the same time, AI should not be treated as a universal solution to HR problems. Its effectiveness depends on data quality, ethical governance, organisational readiness and the professional competence of HR managers. The most promising model is a balanced approach in which artificial intelligence supports human decision-making, while managers retain responsibility for interpretation, ethical evaluation and strategic action.

Conclusions

Our findings confirm that HR analytics is a vital engine for organisational transformation, shifting management from intuition to evidence-based strategy, facilitating the transition from an intuitive to a data-driven approach in managerial decision-making. The study demonstrates that the integration of artificial intelligence significantly expands the capabilities of HR analytics, in particular through the automation of data processing, improved forecasting accuracy, and the identification of hidden patterns in HR processes.

The main areas of application of artificial intelligence in HR analytics have been examined, including forecasting staff turnover, automating recruitment processes, assessing employee performance, as well as analysing the competitive environment and building an employer brand. The findings indicate that the application of AI in these areas contributes to increased labour productivity, the optimisation of HR processes, and the improvement of the quality of management decisions.

The results confirm that the use of artificial intelligence is transforming the nature of human resource management, facilitating a shift towards a proactive and strategic approach. The findings demonstrate that AI enables greater objectivity, speed and efficiency in managerial decision-making, whilst preserving the important role of the human factor in interpreting analysis results and formulating managerial actions.

At the same time, the main limitations of using artificial intelligence in HR analytics have been identified, including dependence on data quality, risks of algorithmic bias, ethical and legal aspects, as well as organisations' insufficient readiness to implement such technologies. The study shows that the effective use of AI is only possible provided there is a comprehensive approach, which includes ensuring data quality, developing staff competencies, and implementing the principles of ethical management.

Thus, the results of the study confirm the advisability of integrating artificial intelligence into HR analytics as an important tool for improving the effectiveness of personnel management, providing a strategic framework for organisational resilience and sustainable growth.

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Conflict of Interest

The author declares that there is no conflict of interest.

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Appendix

Table 1. Conceptual Framework of AI Application in HR Analytics

Application Area	AI Tools and Technologies	Practical Application	Strategic Management Impact
Employee Turnover Prediction	Machine Learning, Predictive and Prescriptive Analytics	Identifying turnover risks and early retention signals through historical data analysis	Reduced turnover costs and improved workforce stability through proactive management
Recruitment and Selection	NLP, AI Screening, Video Analysis and Non-verbal Cue Assessment	Automated candidate sourcing, CV screening, and initial behavioural evaluation	Faster hiring cycles, enhanced selection objectivity, and minimized human bias
Performance Management	AI Monitoring Tools, Real-time KPI Dashboards	Real-time productivity assessment and personalized employee development plans	Improved decision quality in resource allocation and increased labour productivity
External HR Analytics and Employer Branding	Big Data Analytics, External Market Intelligence Tools	Competitor EVP analysis and labour market positioning based on open-source data	Enhanced employer brand competitiveness and stronger data-driven positioning in the labour market