The Impact of Artificial Intelligence in Human Resource Development

Redar Hameed Ali[a], Alena Fedorova[b] and Olga Koropets[c]
[1]*Department of Personnel Management and Psychology, Ural Federal University, Mira Street, Yekaterinburg, Russia*
Redarhamid879@gmail.com, a.e.fedorova@urfu.ru, o.a.koropets@urfu.ru

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Abstract: The integration of Artificial Intelligence (AI) in Human Resource Management (HRM) has garnered significant attention due to its potential to revolutionize decision-making, streamline operations, enhance employee engagement, and improve overall organizational efficiency. This study aims to explore the benefits of incorporating AI technologies into HRM processes and to provide insights into the impact of intelligent automation on workplace outcomes. A systematic review methodology was employed, drawing data from prominent databases such as Web of Science, Elsevier, and Google Scholar. Initially identifying 150 records, a rigorous screening process resulted in the exclusion of 94 records based on predefined eligibility criteria. Subsequently, 24 reports were assessed for eligibility, revealing key themes related to the integration of AI in HRM. The findings highlight the importance of leveraging AI to enhance performance management, planning, decision-making agility, and employee development. The study underscores the need for a cohesive framework that positions HRM as a key player in bridging the gap between AI implementation and workplace outcomes. Further research is recommended to address gaps in understanding the interconnected nature of AI implementation and its implications for organizational success.

1 INTRODUCTION

When it comes to using AI in the workplace, HRM plays a crucial role for every company (Strohmeier and Piazza, 2015). A new body of research on the topic of artificial intelligence (AI) and its real and possible impacts on the workplace has emerged in recent years (Strohmeier and Piazza, 2015). As stated by Minbaeva (2021) that Additional advantages can be generated for a business by integrating HRM procedures with artificial intelligence. Artificial intelligence (AI) refers to sophisticated computer programs and systems that are able to learn, reason, and plan in a manner similar to the human brain (Pereira *et al.*, 2023). Researchers have also shown that HRM can utilize AI in a number of ways that are good for both workers and businesses (Sekhri and Cheema, 2019). When used to the task of regulating and managing performance, artificial intelligence can alleviate worries about the validity, reliability, and bias of such processes (Schneider and Schoorman, 1988). Regardless of these advancements, a cohesive framework that positions HRM as a key player in the connection between AI implementation and results in the workplace is still missing. There is a lack of a holistic view of the interconnected nature of HRM's many subfields in the existing literature. These include human resource planning, safety and well-being, performance management and appraisal, compensation and rewards management, training and development, recruitment and selection (Pereira *et al.*, 2023). There is a continuum between weak AI applications that act intelligently and strong AI machines that are intellectually on par with humans. Both types of AI are finding more and more uses in today's world (Yang, 2022). However, research and development is ongoing in the latter kind, which makes use of automated processes that can do all jobs independently (Yang, 2022).

[a] https://orcid.org/0009-0008-0973-1535
[b] https://orcid.org/0000-0002-4600-6489
[c] https://orcid.org/0000-0002-7449-3325

As argued by DiClaudio (2019) that organizations must use sophisticated technology in order to maintain competitive advantages, and prior research has shown that HRM can help train employees to use these tools effectively. The capacity to learn and adapt automatically to provide more refined reactions to circumstances is at the heart of artificial intelligence (AI), which can make judgments in real time using pre-installed computer technologies and development. HRM, which incorporates both humans and AI, can provide a better working environment for a company's workers (Pereira et al., 2023). Contextualizing AI usage inside respective HR silos is useful for understanding workplace outcomes and dangers connected with AI adoption, as AI is likely to be deployed differently across varied HRM departments. Taking into account the HR tasks that make use of AI, we provide a critical synthesis of AI and employee outcomes (Sekhri and Cheema, 2019).

The objective is following that:

1. Aims to discuss how integrating AI technologies with HR processes can revolutionize decision-making, streamline operations, enhance employee engagement, and improve overall organizational efficiency.
2. Seeks to highlight the potential benefits of AI in HRM, such as talent acquisition, performance management, training programs, and creating a more inclusive and diverse workplace.

2 METHODS

The findings of a scoping study helped us decide to conduct a systematic review on this research issue by assessing the extent and relevance of the literature and defining the subject area (Rajwani and Liedong, 2015). Our goal in conducting this systematic literature evaluation was to identify recurring themes in the field of intelligent automation in HRM and to suggest potential new research directions (Tranfield, Denyer and Smart, 2003). Because it improves the review's overall quality via the use of a clear and readily reproducible procedure, a systematic approach was considered acceptable (Crossan and Apaydin, 2010).

Data collection the first step we started to collect data in 28.02.2024 in the process is the identification of records. In this case, records were identified through various databases such as Web of Science, Elsevier, and Google Scholar. The total number of records identified is not specified in the text. After the identification, the records were screened. The total number of articles screened was 150. This screening process led to the exclusion of 94 records for various reasons 35 articles were about ineligible subjects, meaning they did not meet the criteria set for the review. 30 articles were duplicates, i.e., they were repeated in the dataset. 29 articles were solely focused on HRM which presumably was not the focus of this review. The remaining 56 records (150 initial records – 94 excluded records) were then assessed for eligibility. However, 70 reports were not retrieved for some reason, leaving only 24 reports to be assessed. Out of these 24 reports, further exclusions were made: 11 reports were excluded because they were systematic reviews themselves. Including other reviews in a new review could lead to duplication of data. 7 reports were excluded because they were based on secondary data. The review could have been focusing on primary research articles. 6 reports were excluded because they only contained an abstract, with no full text available for a detailed review. After the entire process of identification, screening, and assessing eligibility, 24 reports were finally included in the review (Table). These are the studies that passed all the criteria and were deemed suitable for the review.

List of journals and number of articles found related to the study.

Journals (in descending order of articles number)	Articles number
The International Journal of Human Resource Management	8
Computers in Human Behavior	6
Human Resource Management Review	4
Computer Modelling & New Technologies	2
Journal of International Management	2
Journal of Information Technology	1
Heliyon	1

The provided table enumerates several academic journals, each accompanied by the number of articles procured from them. These journals are methodically arranged in descending order based on the quantity of articles found. This order implies that the journal contributing the highest number of articles is listed at the forefront. The International Journal of Human Resource Management takes the lead, contributing eight articles. It is an annual publication that covers a range of topics relevant to Human Resource Management. These topics include the management of service leavers and veterans, as well as the use of language in international HRM. Following closely is Computers in Human Behavior with six articles. This journal, holding the second position, has also made a significant contribution. Ranked third with four articles is the Human Resource Management Review. This quarterly academic journal is known for publishing scholarly conceptual and theoretical articles. These articles are related to human resource management and allied fields, such as industrial/organizational psychology, human capital, labor relations, and organizational behavior. In fourth place, with two articles, is Computer Modelling & New Technologies. However, the specific topics of these articles have not been provided in the table. The fifth position is held by the Journal of International Management. Like its predecessor, it also contributed two articles. Journal of Information Technology is sixth on the list, having contributed one article. Finally, the Journal of Heliyon also appears on the list in seventh place, with one article.

3 RESULTS

3.1 AI in HRM

According to the literature on AI, the technology can be categorized into many categories of intelligence, each with its own set of uses in corporate organizations (Chowdhury *et al.*, 2023). Sheehan, N. Garavan and Carbery (2013) said that Human resource analytics in AI is a "must have" skill for HR professionals since it helps them make better use of their employees' time and provides a mechanism to increase the strategic impact of HR initiatives. This is why AI-driven HR analytics is quickly becoming a hot topic in HRM research (Baakeel, 2020). AI has the ability to make HR decisions (involving workers, for example) less subjective and more objective by mining employee data for relevant information (Chornous and Gura, 2020). As claimed by Margherita and Bua (2021) that the creation of expert systems for assessing work performance was the first focus of AI's involvement. Due to its ability to assess several streams of large data and aid in decision-making, AI shows great promise in bolstering organizational research. AI has the potential to improve job descriptions, which in turn attracts the most qualified people, conduct sentiment analysis to track new planning, organizing, and more (Kaushik and Kakkar, 2019). The goal of implementing AI-based intelligent systems into data-driven decision-making is to improve decision-making agility and business process optimization via the use of large data (Wilson and Daugherty, 2018). Based on their analysis of the latest research on AI's effect on businesses, concludes that AI is having a significant influence on decision-making and the workforce. The strategic direction of the planning sector is being influenced by the use of AI, which is having an effect on cost management and the number of applicants for customers (Upadhyay and Khandelwal, 2018). With the use of AI, HRM procedures can be made more scalable by increasing the number of applicants for design making. This has several benefits, including a decrease in organizational time and costs and an increase in the diversity of new organizing (Wilson and Daugherty, 2018). While this is going on, a new line of inquiry is investigating how the use of AI affects HRM methods and processes. The bulk of these studies are based on theories that are developed at the level of organizations and industries. In particular, one of the most important focuses of these efforts is the investigation of how the implementation of AI affects the dynamics of the labor market and employment (Acemoglu and Lelarge, 2020). When small and medium-sized enterprises align and validate their digital and operational strategies, it improves their HRM, creates more effective teams, and ultimately builds their legacy (Bender and Fish, 2000). For instance, HR strategies that aid firms in tackling competitive technology issues impacting their goods or services and the development of scalable, agile workforces are two areas where HR scholars have emphasized the function's critical importance (Biron *et al.*, 2021). A growing number of companies have begun to use AI-powered tools to improve their HR operations in the last few years. Businesses can simplify their HR operations and make better decisions with the aid of AI, thus this trend is expected to continue (Chatterjee *et al.*, 2023). To ensure that the benefits of AI development are maximized while its hazards are avoided, its development requires careful analysis and control (Vrontis *et al.*, 2022). Businesses can lessen the likelihood of bias in their AI solutions by regularly auditing their systems and making sure they are based on several impartial data sets (Bhardwaj, Singh and Kumar, 2020). The best way for administrations to deal with this problem is to invest in retraining and skill enhancement programs so that employees can take on more human-centric roles. Organizations can benefit from AI in many ways, including better human resources procedures, improved efficiency, and better decision-making (Butler and Callahan, 2014).

3.2 Human Resource development

Domain specialists in AI are working tirelessly to train machine-learning algorithms to imitate human capabilities. However, AI still has a long way to go before it can replicate higher-level talents like reasoning, leading, sense-making, connection building, problem-solving, and communication (Huang and Rust, 2018). When applied to HRM, AI refers to a suite of software algorithms that automates tasks typically performed by humans. In HRM, most software algorithms are static; that is, their computer-programmed steps don't change no matter what data is entered into them. However, in AI, and development algorithms like machine learning change depending on the data they process (Meijerink *et al.*, 2021). Thus, AI-powered HRM is of HRM. In HRM, a self-learning algorithm can alter the factors used to forecast an applicant's future performance, the relative importance of those variables, or the sequence in which the predetermined steps are executed. In a similar vein, self-learning algorithms improve the distribution of assignments to employees on learning and developing services by analyzing data availability (Newlands, 2021). found that fast-growing companies had a tough time with a lot of issues, including getting workers involved in decision-making and creating an open work environment, recruiting top talent, retaining employees with important knowledge or confidential information, having who can articulate the company's vision, and training executives to be effective leaders and managers (Saunders and Chan, 2002). With the development of IA technologies, companies can improve their methods for training and development as well as performance management. In the past, managers often had to invest a lot of effort on staff development (Belanche, Casaló and Flavián, 2019). As cited by Li (2023) Performance management is another area that is seeing the application of AI. This system can sift through data from a variety of sources, including, job satisfaction, developing employee, and training opinions. And also (Tarhini *et al.*, 2017) said that Personal innovation can help human resource managers recruit and maintain teams who are creative, inventive, and full of new ideas to improve healthcare processes. Human resource managers can discover employees with an entrepreneurial spirit by encouraging personal creativity. Afterwards, these employees can participate in programs designed to foster growth in their capacity for innovative and inventive problem-solving. One way to measure an employee's ability to come up with new ideas and approaches is to look at their level of personal innovativeness (Širůček and Galečka, 2017). By automating HR operations, enhancing strategy and talent acquisition, increasing engagement and the employee experience, streamlining decision-making, and easing the development and upskilling of employees, AI is transforming HR procedures (Nam *et al.*, 2021). Based on Dalal and Akdere (2018), companies value their bright employees highly because they help with strategy and help the company stay ahead of the competition. Companies gain when employees acquire new skills.

As directed by Bondarouk and Brewster (2016) that in HRM, AI is often utilized for activities such as planning, providing ongoing strategy and development, assessing performance, creating job descriptions, and improving the overall work experience for current employees. Similarly, new technology like electronic HR information systems provide a number of chances to enhance and lower the expense of HRM tasks like, say, evaluating job candidates and evaluating employees' performance (Abraham *et al.*, 2019). When it comes to adopting new technologies, human resources managers can be changing agents. Their openness to AI adoption, therefore, has the dual effect of reducing opposition to change and giving doubtful workers a voice (Caldwell, 2001). Kehoe and Wright (2013) said that Investing in personnel and implementing HR policies that harness their talents and expertise to produce strategic value are highlighted in research on strategy. Coleman-Jensen, Gregory and Singh (2014) mention that strategy and planning has been used to gauge employee well-being by evaluating its effects on organizational performance or by mediating the relationship between work satisfaction and anxiety.

This encourages upper-level management to reevaluate the effectiveness of HR in the company and come up with fresh strategies, such as cutting-edge training and development programs, to improve HR operations (Nagendra and Deshpande, 2014). Training, Virtual training assistants powered by AI can also tailor their lessons to each employees' unique requirements and learning style. Implementing these strategies can enhance the efficacy of training programs and foster more employee engagement (Pan *et al.*, 2022). The use of AI can aid in the detection of possible performance problems and the delivery of coaching and training to enhance employee performance (Li, Bonn and Ye, 2019). As provided by Lin and Albert (2014) that AI computer agents have been seen as valuable resources for improving employees' abilities to engage in strategic and negotiating settings, which in turn saves a lot of time and produces better results. The integration of AI in HRM has proven to be a transformative tool, enhancing areas like strategic planning, performance assessment, job description creation, and overall employee experience.

Furthermore, technological innovations like electronic HR information systems have simplified HR tasks such as candidate evaluation and performance review, resulting in both improved efficiencies and cost reductions. HR managers play a pivotal role as change agents, facilitating the adoption of AI and minimizing resistance to change while giving a voice to skeptical employees.

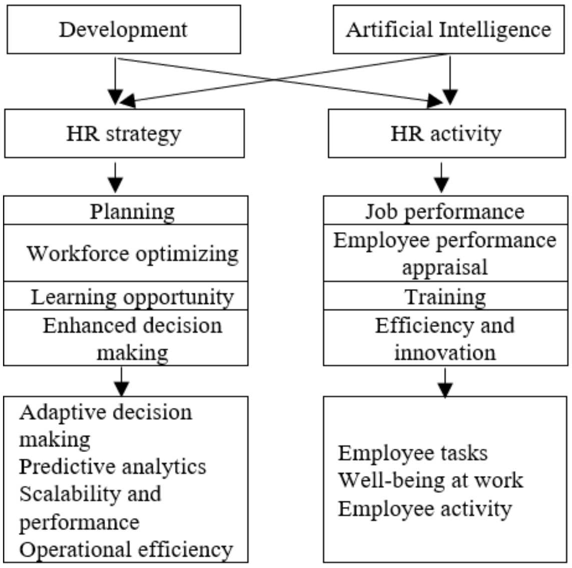

Figure 1: Theoretical framework of the study.

Research underscores the importance of investing in personnel and implementing strategic HR policies to leverage their skills and expertise. AI can also enhance training programs, tailoring them to individual learning styles, and boost employee engagement. AI tools can help identify performance issues, provide coaching, and improve employees' strategic and negotiation skills, leading to time savings and better results.

4 DISCUSSIONS

The integration of AI in HRM has the potential to revolutionize the way businesses operate and manage their workforce. By incorporating AI technologies into HR processes, organizations can enhance decision-making, streamline operations, and improve employee engagement. AI can assist HR professionals in making more informed and objective decisions by analyzing large volumes of employee data to identify patterns and trends. This can lead to more effective talent acquisition, performance management, and training programs. Additionally, AI-powered tools can help HR departments automate repetitive tasks, freeing up time for strategic initiatives and employee development. Furthermore, AI can contribute to creating a more inclusive and diverse workplace by facilitating unbiased recruitment processes and promoting equal opportunities for all employees. By leveraging AI for job matching and candidate screening, organizations can ensure a fair and transparent hiring process. Overall, the adoption of AI in HRM holds great promise for enhancing organizational efficiency, optimizing decision-making processes, and fostering a positive work environment for employees. As businesses continue to embrace AI technologies, the role of HR professionals in driving organizational success is evolving to encompass a more data-driven and strategic approach.

5 CONCLUSIONS

The integration of AI with HRM procedures presents significant opportunities for businesses to enhance performance management, decision-making, and employee development. The evolving landscape of AI in HRM research highlights the potential benefits of leveraging AI technologies to streamline operations, improve decision-making agility, and optimize business processes. However, there remains a need for a cohesive framework that positions HRM as a key player in bridging the gap between AI implementation and workplace outcomes. By embracing AI-driven HR analytics and intelligent systems, organizations can create a more objective and efficient work environment that fosters innovation, talent retention, and strategic growth. A systematic review was conducted by collecting data from various databases such as Web of Science, Elsevier, and Google Scholar. Initially, 150 records were identified, of which 94 were excluded due to ineligible subjects, duplicates, and focus solely on HRM. After screening, 24 reports were assessed for eligibility, with exclusions made for systematic reviews, secondary data-based reports, and abstract-only articles. In the end, the systematic review identified key themes in the field of intelligent automation in HRM, suggesting potential new research directions. The analysis highlighted the importance of integrating AI with HRM procedures to enhance decision-making, streamline operations, and improve employee outcomes. Further research is needed to address gaps in understanding the interconnected nature of AI implementation and its impact on the workplace.

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