



GLOBAL JOURNAL OF MANAGEMENT AND BUSINESS RESEARCH: A
ADMINISTRATION AND MANAGEMENT
Volume 25 Issue 4 Version 1.0 Year 2025
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

Transforming Human Resource Management with AI: Challenges and Possibilities

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Abstract- Human capital is a vital asset in today's competitive world, essential for enhancing workplace performance and effectiveness. To enhance employee performance and gain a competitive edge, firms must adopt innovative human resource practices. Very shortly, human resource management (HRM) will transition from conventional practices to the most advanced ones, including augmented intelligence, automation, robotics, and artificial intelligence (AI). This literature analysis was conducted to examine the potential opportunities and challenges of practice. The proliferation of AI-based HRM practices over the past ten years has prompted a new series of research studies on the consequences of AI adoption on both human and corporate outcomes, as well as the evaluation of AI-based HRM practices. The way we work is organized in businesses as a result of the adoption of these technologies. AI has the power to fundamentally decide how we live or life and work. The AI facilitates the HRM with both an opportunities and challenges. Today's HR experts are more focused on maximizing the interaction between human and automated work to provide a straightforward and understandable working environment that provides adequate time to improve their performance.

Keywords: *artificial intelligence, human resource management, augmented intelligence, robotics, automation.*

GJMBR-A Classification: *JEL Code: M12*



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Keywords: artificial intelligence, human resource management, augmented intelligence, robotics, automation.

I. INTRODUCTION

Artificial intelligence and machine learning have become more and more common in almost every sector, including banking, marketing, biotechnology, healthcare, and communications, among others. Now, we are starting to see them applied in the human resources sector as well. The way businesses manage their staff and develop HR strategies is changing, which boosts productivity and employee engagement. Any HR department's top priority is to manage the workforce while concentrating on the rules and procedures that will improve employee performance.

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AI offers to accelerate this process by relying more on the analytical analysis of data instead of individual observations. Because of the emerging severe competition in the business world, it is essential to use a computer to stay competitive despite human limitations. This is true regardless of one's intelligence level. Employers are looking for youthful, tech-savvy individuals who are confident in taking initiative and transparently sharing information for the benefit of the business.

While organizations strive to apply Artificial Intelligence to their organization's Human resource management rapidly, they can observe the potential opportunities to develop their business further the same time they must face the respective challenges created by AI and other technology applications. This study analyses the potential opportunities and challenges of using Artificial Intelligence in Human Resource Management by analyzing the literature.

II. PROBLEM STATEMENT

Artificial Intelligence (AI) has become one of the most important terminologies in every sector especially in Human Resources Management and it has turned into a top priority for most companies to ease the HRM practices. AI is used extensively in HR, including in hiring, training, on boarding, performance analysis, retention, and other areas. Therefore, this concept research study intends to understand the possible opportunities and challenges of using AI in HRM Practices.

The connection between Artificial Intelligence and Human Resource Management has been at the forefront of numerous research in the world. In spite of the importance of artificial intelligence in using HRM practices, there are very narrow published works that overview the opportunities and challenges of artificial intelligence in using HRM practices. Hence conceptual research on AI use in HRM practices has turned out to be a research area of much prominence in today's background. As a result, attention was positioned on this topic and the research problem under the topic is as follows: Over viewing the opportunities and challenges of using Artificial Intelligence in Human Resource Management practices"



Objectives of the Study

- To understand the relationship between Artificial Intelligence and Human Resource Management.
- To explore the opportunities and challenges of using Artificial Intelligence in Human Resource Management practices.

III. LITERATURE ANALYSIS*a) Artificial Intelligence (AI)*

Artificial intelligence (AI) is a fast-developing technology enabled by the internet, and it may soon significantly influence our everyday lives, asserts Tecuci (2012). As stated by Nilsson (2005), "human-level AI" pertains to the concept that machines ought to perform the majority of tasks that require human intellect.

Even though artificial intelligence has been around for a while, there is still no universally accepted definition of the term (Legg & Hutter, 2007). The Oxford Dictionary (2019) defines something artificial as a material that is "created or made by humans rather than occurring in nature, particularly as a replica of something natural."

b) Human Resource Management (HRM)

Schermerhorn (2001) defined HRM as the process of obtaining and developing a qualified workforce to support the organization in attaining its objectives, including its mission, vision, and numerous present ones. Another definition of human resource management (HRM) states that it is a method of managing staff that attempts to keep a workforce that is capable and committed by utilizing a variety of tactics, such as cultural, structural, and personnel ones, to provide the company a competitive advantage (Storey, 2004).

c) Artificial Intelligence and Human Resource Management (AI and HRM)

According to a research report from 2019, Venngage, a provider of infographic and visual design software, indicated that 61% of organizations were leveraging AI to enhance human resource management (Rykun, 2019). Among the primary HRM areas that have already been transformed by AI are the labor-intensive and time-consuming tasks in recruiting, such as evaluating multiple CVs, organizing them, swiftly identifying the top candidates, and assessing which employees need specific training (Rykun, 2019). The processes in recruiting that require significant time and effort, including assessing numerous CVs, arranging them, rapidly selecting the leading candidates, and determining the training needs of employees, are some of the key HRM fields that AI has already influenced (Rykun, 2019).

Advanced nations, along with those in the Global South (GS), especially in emerging economies, are recognizing the potential advantages of AI as a

crucial resource for improving HRM strategies and boosting employee performance (Ghosh and Rajan, 2019).

Kapoor (2010) investigates the objectives of business intelligence and its connection to human resource management. A researcher analyzed the elements of business intelligence and data analytics within human resource management modules by studying the top provider of business intelligence for this report.

The function of artificial intelligence in HR management is significant. As noted by Jain (2018), most companies employ contemporary technology for different HR tasks, including recruitment, performance evaluations, and cloud-based HR services.

Buzko et al. (2016) examine the challenges AI faces in the realm of human resources, noting that it is challenging to assess the impact of training expenditures. The authors of the study highlighted that artificial intelligence technologies enable individuals to rapidly analyze data.

The title of Jarrahi's (2018) research paper is "Artificial Intelligence and the Future of Work: Human-AI Symbiosis in Business Decision Making." The study examines how individuals have gained advantages from AI. Organizations have seen improvements in decision-making, managing uncertainties, and particularly in handling ambiguous judgments through the use of artificial intelligence. Nevertheless, humans continue to play a vital role within a company, and technological systems must depend on them to evaluate and support the outcomes of subconscious decisions.

Merlin and Jayam (2018) examine the role of AI in human resources in their research paper titled, Artificial Intelligence in Human Resource Management. The authors have determined that AI benefits organizations and assists HR professionals in understanding their responsibilities and predicting issues and trends.

According to Nilsson (2005), "human-level AI" refers to the idea that machines should be able to carry out most of the tasks that human intellect requires.

An increasing volume of HR data is being generated in the cloud by both humans and learning robots, and the integration of artificial intelligence analytics enhances the understanding of execution and functionality. The effectiveness of any organization relies on its ability to strategically blend people, processes, and technology to deliver groundbreaking value at a competitive cost. Numerous back-office tasks can be effectively automated using AI to ensure reliable HR transactions and service delivery. This article highlights the idiomatic capabilities of AI for HR transactions and provides insights on intelligent automation through a chatbot that operates independently of specific technology.

The implementation of AI in HRM and recruitment is termed "the new age of HR," as it revolutionizes the hiring process by assuming responsibilities that were once handled by human recruiters (Upadhyay & Khandelwal, 2018). Scott W. O'Connor's article, *Artificial Intelligence in Human Resource Management* (2020), clearly indicates that artificial intelligence will continue to positively influence the human resources management field in the coming years. Additionally, HR professionals need to be vigilant about potential challenges they may encounter. Therefore, experts should take proactive steps to stay informed about the latest developments in the industry and build a solid foundation of HR knowledge to prepare for the future of human resource management. According to the study "To Study the Impact of Artificial Intelligence on Human Resource Management" by Prasanna Vatsa and Kusuma Gullamji (2019), the amalgamation of HR processes with AI-based applications is expected to significantly enhance organizational performance.

The research illustrates that AI is widely utilized in various HR functions, including recruitment, training, on boarding, performance evaluation, retention, and more. However, many organizations are still behind due to the high costs associated with integrating AI into their HR operations. The use of AI in HRM and recruitment is referred to as "the new age of HR," as it transforms the hiring landscape by taking over routine activities that were previously performed by human recruiters (Upadhyay & Khandelwal, 2018).

Hypothesis

Hypothesis 1:

The integration of Artificial Intelligence in Human Resource Management significantly improves HR efficiency by automating routine tasks such as recruitment, on boarding, and performance analysis.

Hypothesis 2:

The use of AI-driven data analytics in HRM enhances decision-making quality, leading to better employee selection, performance evaluations, and retention strategies.

Hypothesis 3:

Organizations that adopt AI in HRM experience higher employee productivity and engagement compared to those relying on traditional HR practices.

Hypothesis 4:

The adoption of Artificial Intelligence in HRM positively impacts employee retention by identifying high-performing employees and implementing personalized training and development programs.

Hypothesis 5:

Despite its potential benefits, the high cost of implementing AI in HRM limits its widespread adoption, particularly in small to medium-sized enterprises.

IV. METHODOLOGY

The goal of the authors' study technique is to provide a comprehensive evaluation of the opportunities and challenges associated with utilizing artificial intelligence in human resource management practices. To this end, they have adopted a systematic literature review strategy. Inspired by the aforementioned study objectives, the authors included studies that looked at how artificial intelligence (AI) affects HRM practices both nationally and internationally.

Based on the focus, several targeted keywords about robots, artificial intelligence, and HRM techniques were added to the search string using the Boolean operators "OR" and "AND." This evaluation was conducted using the following keyword search algorithm: ("robotics" OR "artificial intelligence" OR "AI" AND ("human resource practices" OR "human resource management" OR "human resource management functions" OR "HRM Practices").

The authors refined the preliminary research findings and used the search algorithm on all search engines (including Base, Google Scholar, Research Gate, Semantic Scholar, SCOPUS, and others) to locate full-text, peer-reviewed English-language publications within the 2015–2022 timeframe.

Given that the research involves conceptual literature review analysis, out of the 100 papers that were downloaded, 80 could be screened out because 20 of them were deemed irrelevant. The screened papers state that the authors carefully consider each of the 80 and provide a summary of the advantages and disadvantages of utilizing AI in HRM.

In this research paper, Artificial Intelligence is abbreviated as AI and Human Resource Management is abbreviated as HRM.

V. DISCUSSIONS AND FINDINGS

a) Opportunities

Despite the lack of research on AI-HRM, contemporary breakthroughs in automation technologies offer significant advantages for HRM (Bersin & Chamorro-Premuzic, 2019; Maedche et al., 2019; Prikshat et al., 2021). Organizations from both local and multinational corporations (MNEs) have acknowledged the benefits of AI-based tools and tactics to enhance employee satisfaction, commitment, and job engagement (Castellacci & Vias-Bardolet, 2019).

According to a study of the use of automation technologies in HRM (Castellacci & Vias-Bardolet, 2019), there is still insufficient understanding of how AI-enabled HRM activities affect individuals, their job outcomes, and overall organizational outcomes. It is also vital to show how these AI-focused HR solutions maximize positive outcomes while minimize negative ones. As a result, we argue that the social- technological framework can be enhanced even more to produce positive outcomes.

Examples include adaptable organizational design, suitable training, anxiety and change management, and staff upskilling. We further argue that it is crucial to include unique personnel traits like personality and emotional intelligence since they have an impact on business outcomes (Huang et al., 2019).

The most crucial benefit of these AI-focused HRM is that they improve employee outcomes including job happiness, commitment, employee engagement, and involvement, which in turn boosts employee performance (Aouadni & Rebai, 2017; Azadeh et al., 2018; Castellacci & Vias-Bardolet, 2019).

According to Castellacci and Vias-Bardolet (2019), workers can utilize the internet to develop practical life expectations and impressions of their working environment as well as to advance their skills and training. AI applications can also provide relax to human resources and time for a number of forecastable and daily tasks (Maedche et al., 2019).

However, the literature also highlights how these automated technologies may have a negative impact on workers. An organization must deal with negative employee effects such as job insecurity, high employee turnover intentions, higher stress, and negative attitudes and behaviors toward newly adopted technologies. Additionally, difficulties related to employees' well-being at work are brought up by how they engage with internet use (Castellacci & Vias-Bardolet, 2019).

According to research on the implementation of AI-enabled HRM, it increases productivity, lowers costs, improves operational efficiency (such as flexibility, scalability, safety, and dependability), and fosters customer engagement and loyalty (Botha, 2019; Lu et al., 2020; Prentice & Nguyen, 2020; Ransbotham et al., 2017; Tarafdar et al., 2019). Additionally, AI can increase returns on investment by making the company more cost-effective (Torres & Mejia, 2017).

The other business-productivity outcome of AI technology is cost-effective service excellence (CESE), which refers to firms that are simultaneously among the best performers in their competitive market regarding customer satisfaction and productivity. Examples of companies that have achieved the CESE milestones include Singapore Airlines and Amazon, one of the biggest online merchants in the world. Emerging technologies like artificial intelligence (AI), big data, machine learning, mobile technology, the Internet of Things, geotagging, virtual reality, speech recognition, and biometrics offer a wealth of opportunities for significant service innovations that could simultaneously enhance customer experience, service quality, and productivity (Wirtz, 2019).

The other two examples, service robots and AI, are likewise anticipated to offer remarkable economics of scale and scope because they only incur significant costs during their development phases. Robots

deployed at information counters, however, come at a low cost, while fully virtual robots (such voice-based chatbots in an app or on a website) cost almost nothing more. Robots are capable of gathering data from a wide range of sources, including the internet, cameras, microphones, sensors, and CRM and organizational knowledgebase systems. The robot can deliver highly customized and individualized service on a large scale at a low marginal cost by using biometrics (facial and voice recognition technologies) to identify a customer (Wirtz, 2019).

b) Challenges

Although the 4IR changes how major operations are carried out in organizations, it is yet unclear how well it will affect the people, processes, systems, and structures of those organizations. More research examines the negative effects of implementing automation-based technology at work. For instance, Dwivedi et al. (2021) predict that 70% of commercial activities will have incorporated AI technology into their production or business processes by the year 2030.

Furthermore, according to academics, AI, robots, and algorithms might replace 57% of current occupations in the OECD. As a result, most organizations are under pressure to make progress in developing AI data analytics skills (Brougham & Haar, 2020).

Brougham and Haar (2020) discovered in their research that the possibility of technology disruptions increases employee job insecurity and, as a result, increases intents to leave their jobs. Additionally, they contend that when there are fewer choices for career mobility, employees experience less technology interruptions. This study also claims that although workers quit companies, turnover has negative consequences, such as low employee job satisfaction.

Therefore, according to a number of studies, employees become more afraid of technology improvements in the workplace because they may negatively affect their responsibilities and occupations. Another major obstacle to properly incorporating modern technology in the workplace is employees' negative attitudes about technological advancements (Brougham & Haar, 2020). Therefore, the question of how to allay employee anxiety around the adoption of new technologies in HRM tasks must be addressed.

VI. CONCLUSION

This research study makes it abundantly clear that AI has a significant impact on HRM practices in both positive and challenging ways. AI must cooperate with HRM practices in order to prosper in the new environment. As a result, AI's difficulties must be addressed and its opportunities must be properly tapped.

According to this study, literature analysis gives HR practitioners the right understanding of how AI interacts with HRM practices and aids in the creation of comprehensive HR plans that will improve HR administration across the board.

a) *Future Research Direction*

- Researchers can be able to be extended conceptual literature review to qualitative and quantitative methods to analyze the impact of AI on HRM practices.
- Researchers focus on specific HRM practices or HRM functions and how it influenced by AI.
- Researchers put more concentration on different AI tools and techniques and how it individually benefited towards the HRM practices.

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