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Artificial Intelligence and Human Resource Management in Modern Businesses

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Abstract

Artificial Intelligence has not only influenced the human endeavours but also the way human resource management (HRM) is being practiced in today's world. As more of the work such as resume screening and interview scheduling are being handled by AI tools, the HR professionals can shift their attention to more productive tasks. But this also means that AI is gradually becoming the final filter to the world of work for many people, reducing them to mere applicants trying to pass a bot's algorithm. Thus, while AI might be making HR more efficient, we should not allow it to turn into a 'Terminator' that delivers employment destiny. The research method employed in this study was a qualitative research method that involved data analysis of secondary data. In this case, the data was gathered from a systematic literature review. The literature review was done with a view of getting information on the subject matter and with a view of discovering the gaps in the current literature. The study was intended to help understand the impact of AI on the practices of HRM. It was expected that from this research, a better understanding would be made on how AI alters the process of HRM and the impact of this change on organizational performance. The study implies that AI has a high potential to help the HRM professionals to improve their decision-making and minimize time-consuming tasks. However, there are also some risks that are associated with the use of AI in the context of HRM such as the issue of privacy, security, and ethical issues. Therefore, this research contributes to the understanding of the nature of the effects of AI on the HRM and

underlines the necessity to consider the advantages and disadvantages of the AI application in the sphere.

Keywords: Artificial intelligence, Human resource management, Opportunities and challenges.

INTRODUCTION

Artificial Intelligence (AI) is changing the workplace and human resource management (HRM) is not exception. AI also has its pros and cons on the field of HR: it is possible to increase the efficiency of the processes and minimize the costs. Another issue with the increase in the use of AI in the workplace especially in the Human Resources field is that there is the question of whether people will lose their jobs or if the work they are doing will become depersonalized. Due to the increasing application of AI in HRM, debate has been roused on whether this technology will enhance the functioning of HR, the overall performance of organisations and open new prospects (De Spiegeleire et al., 2017). AI can even facilitate the employees through designing self-learning algorithms, natural language processing, and predictive analytics in order to automate the monotonous tasks and improve the decision making abilities of the employees (Luger & Stubblefield, 2008). The first benefit of using AI in HRM is that it addresses the administrative work, so the HR personnel can concentrate on the important issues of staffing, training, and retention of employees (Fuchs, 2018). Hence, Yang (2022) noted that the use of AI can also lead to improved decision making through the use of data analysis in order to come up with new and efficient strategies in HRM. Additionally, AI can also improve the employee experience by providing solutions like the chatbots and the virtual assistants to attend to the employees' issues and questions (IEEE, 2020).

The integration of AI into HRM presents several challenges that must be addressed. Key issues include data privacy and discrimination, with concerns about mishandling sensitive employee data and the potential for AI systems to perpetuate biases present in historical

HR practices (Barocas, et al., 2019; ICO, 2021). Poorly supervised AI systems can amplify biases in hiring and promotions, undermining fairness. Additionally, ethical dilemmas arise concerning accountability and transparency in AI-driven decisions (IEEE, 2020). Another significant concern is job automation, where HR professionals fear that repetitive tasks may be replaced by AI, threatening job security (Frey & Osborne, 2017). Therefore, a systematic evaluation of AI's impact on HRM is essential to mitigate these risks. However, as it has been expected that AI will revolutionize the field of HRM, there is surprisingly little research done on the topic's larger implications to the best of the researcher's knowledge. Earlier studies have mainly concentrated on the benefits and drawbacks of individual AI solutions in such domains as recruitment, training, and performance assessment. In an attempt to fill this gap, this paper shall employ a critical review approach to assess the current state of knowledge, assess existing gaps in the literature as well as provide recommendations that may be used in enhancing the efficiency of existing and future HRM strategies.

Statement of the problem

AI has been predicted to bring in positive impacts in the management of human resources with major benefits in workforce productivity, effectiveness, and decision-making. Still, there is a lack of extensive empirical research that explores the impact, advantages, and disadvantages of integrating AI into the HRM. This research gap has created a challenge in coming up with a coherent understanding of how AI impacts on HR practices as well as the outcomes. However, for the effective implementation of the advantages of the AI integration in changing the HRM practices, it is crucial to establish the ethical issues that are involved with this process. Some concerns have been raised on the effect of AI systems for instance in hiring, performance appraisal and promotions since they may have a negative effect through discrimination. It is therefore important that these ethical issues be addressed by the HR professionals to enable them to come up with responsible and moral

AI technologies. This research seeks to determine the impact of AI usage in HRM and so the research questions are formulated in a way that will encompass the pros and cons of AI usage fully. It is a theoretical research aim to provide the general idea about the AI usage in HR practices and analyze and discuss potential ethical issues to ensure the proper and ethical application of AI. The results of this study will help in the creation of a theoretical model that will help in ethical use of AI in HRM so as to enhance future practices of HRM.

Research Objectives

The main objective of this research is to critically evaluate and discuss the evolution of artificial intelligence and its integration into human resources management within contemporary business practices. The specific objectives of the study are to:

1. Examine the application of artificial intelligence in human resources management.
2. Discuss the benefits of artificial intelligence for human resources management.
3. Analyze the risks associated with the use of artificial intelligence in human resources management.
4. Explore strategies that modern businesses can implement to effectively integrate artificial intelligence with human resources management.

Research Questions

This study address the following research questions:

1. How is artificial intelligence utilized in human resources management?
2. What are the benefits of artificial intelligence for human resources management?
3. What challenges does artificial intelligence pose to human resources management?
4. What strategies can modern businesses adopt to effectively integrate artificial intelligence with human resources?

Literature Review

The term HRM was not even coined in the modern literature until the mid-twentieth century when the idea started to develop. As Geetha & Reddy (2018) pointed out, it was during this period that some academics started to define HRM as a distinct asset that has to be motivated in a particular manner to realise its potential. Yang (2022) continued by explaining that in modern organizations, HRM can be viewed as the enactment of organizational needs in macroeconomic contexts for the enterprise's organizational development necessities. From this perspective, HRM organizes employee's need to work, build skills, and meet the strategic goals of the enterprise (Boxall & Purcell, 2016; Armstrong, 2017). These definitions highlight several key points: First, it has been identified that there are no defined global dimensions for the concept of HRM. Second, it is a strategic function, which means that it supports the organization's strategies. Third, HRM is directed at enhancing commitment of the employees. Fourth, human capital means people and what they can do. Fifth, HRM has unitarist and individualist perspective about the employees of the company. Sixthly, to apply the concept of HRM, the needs of the organisation and its employees need to be understood.

Artificial Intelligence

John McCarthy who is considered to have come up with the definition of the term AI said that it was a branch of computer science that focused on creating intelligent machines (Wang, 2019; Sutton, 2020). As stated by McCarthy, AI is a process of designing systems that can emulate the actions of human beings in a way that could be termed as intelligent (McCarthy, 2000). Currently, Bughin et al. (2017) and Radonjić, et al., (2024) have noted that AI is a disruptive innovation regarded as the next wave of digital disruption because of the progressive technological development. AI thus refers to the technology that

replicates human intelligence as well as execute human intelligence. However, previous definitions do not pay attention to the fact that AI systems work in some environment and with some context. The European Commission (2018) therefore defined Artificial Intelligence as an all-encompassing term that refers to any machines or algorithms that have the capacity to learn from their environment, reason and even act on what they have learned.

Artificial Intelligence in Human Resource Management

The field of human resource management has a lot of expectations from AI in improving the performance of the HRM functions (De Spiegeleire et al., 2017). Hence, the research attention on AI's applicability in HRM has been directed to the areas of recruitment and recruitment management such as sourcing, assessment, interviewing, selection, and on-boarding. In another study in the same year, Qamar, et al., (2021) undertook a more contextual analysis of the effects that AI has on the talent acquisition life cycle in organizations. The authors reiterated the opinion of numerous scholars that AI has impacted almost all spheres of human activity and stated that the application of AI in HRM is rather fascinating (Fuchs, 2018; Budhwar, et al., 2022).

Qamar, et al., (2021) argued that where non-human intelligence is to be embedded into HRM functions AI must therefore be humane as possible. Since talent management which is composed of selection, acquisition, management, maintenance, and development is an imperative process for any organisation, the authors argued that IT solutions, including AI, have to be purpose-built (Palos-Sánchez, et al., 2022).

Empirical Review

In a focused study, Niehueser & Boak, (2020) adopted both qualitative and quantitative research methods to determine the perception employees have towards strategic recruitment in organisations that have adopted the use of artificial intelligence (AI) in their

operations. In their study, they pointed out that the use of AI in recruitment has brought about improvements in efficiency and productivity of those organizations. This study also supported the findings of Chwastek (2017) who stressed that talent identification is an area that is well suited for AI and that the technology can help to increase the organisational efficiency by freeing up the time of employees who can focus on more valuable tasks instead of performing mundane tasks.

Pillai and Sivathanu (2020) also explored the effects of AI on talent management with focus on acquisitions in the context of IT/ITeS organizations. These factors include; TOE framework which includes top management support, cost benefits, competitive pressures, and the HRM team's preparedness as proposed by the TTF framework. But they also stated that privacy and security issues reduced the use of Artificial Intelligence technology.

In another qualitative research, Hmoud & Várallyai (2021) sought to find out if AI could act as a substitute for conventional recurrences and selections. As for the possibilities to reduce time spent on hiring through the assistance of AI in such activities as candidate search and initial selection, they pointed out that the 'human factor' in employment would always be invaluable.

Sipahi & Artantaş (2022) also offered a systematic literature review to understand how potential assessment and talent identification employ AI. They discovered that while using AI in HRM activities can transform those activities, its application is limited to big organizations. The authors suggested additional improvements of AI systems for the best performance of HRM.

Palos-Sanchez et al. (2022) used a bibliometric analysis to uncover the usage and impact of AI in HRM. Their study focused on the knowledge awareness of the participants, the training of the HRM teams, perceived benefits and barriers to implementation of AI and established the subcomponents of AI with the most future growth. Their observations are consistent with related work by Michailidis (2018), Pillai and Sivathanu (2020), and Fritts and Cabrera (2021).

Lastly, Aswathy and Anusree (2023) adopted a descriptive research design to identify the importance of AI in the organization's recruitment strategies. They believed that AI can help in the recruitment process to increase the efficiency of the recruiters and also the candidates. Some other benefits highlighted as follows include staff turnover, morale, as well as analytics.

Theoretical Review

Two theories are relevant to this study, and they provide a theoretical framework through which the research findings can be better understood:

Technology Organisation and Environment Framework

This is a theoretical perspective that explains why organisations implement new technologies, and how the contexts within the organisations influence the technologies. Arpaci, et al., (2012) have developed the formalisation of the framework and the framework is nearly identical to Diffusion Theory as described by Rogers (1981). The theory that is being proposed posits that an organisation's decision to implement new technology will be influenced by three factors namely the organisational factors, technological factors and the environmental factors. Technological context helps make the understanding that the technology has to be beneficial to the organisation and will in most cases comprise the technology already being used in the organisation and the technology available in the market but not being used in the organisation. Organisational context is the nature of the firm and the interactions of the employees working in the firm; this can include the size of the firm, the exchange of information within the firm, etc. Environmental context is the state of the industry, availability of technology service providers and regulatory structures (Dwivedi et al 2011; Jere and Ngidi, 2020). However, in the writer's opinion, the focus and processing of information at the organisational level in the TOE framework is rather artificial in a way that the TOE does not take into account

that an organisation is made up of people and any information that an organisation may have about technology adoption will be through the people (Verhaeghe & Kfir, 2002). However, the TOE is framework is highly general with regard to its scope and does not offer competitive explanations and as such it is not easily mutable.

Unified Theory of Acceptance and Use of Technology

Venkatesh et al (2016) proposed the theory as the techno centric model of the unified theory of acceptance and technology forms the theoretical framework for this study. According to the theory, the level of acceptance of the technology is arrived at through the analysis of performance expectancy, effort expectancy, social expectancy and facilitating conditions. The first three are just the indicators of intention and behaviour and the last one is the standpoint of the users' behaviour. As for this research the Unified Theory of Acceptance will be the theoretical framework of this research and will be used in the analysis and conclusion section of this research. In this case, the four factors of effort expectancy, performance expectancy, social expectancy and the enabling conditions must all be favourable for there to be an easy implementation of the technology (Chao, 2019). Performance expectancy can be defined as the perceived level of improvement in an organisation's goals that can be expected from the use of a new technology. Effort expectancy is described as the degree of perceived ease when a technology user employs certain information system (Chao, 2019). Social influence as a factor captures the importance that an individual believes people will give to his or her use of the new technology or information system. The perceived enabling conditions emphasize how much an individual is assured that the current technology and organisational environment will support the use of the technology (Ambarwati et al 2020).

Methodology

This research work therefore, use an interpretivist research philosophy for direction. Interpretivism as a research philosophy holds that reality is a construction, social and therefore complicated (Blackwell, 2018). The research supports this philosophy by arguing that all kinds of statements about the world are indeed socially constructed and that social realities are constructed, negotiated and performed. Also, the use of inductive research method is done since it enables the researcher to present and make generalizations on secondary data. This approach is well suited for studying the impact of AI on HRM in today's business settings with respect to areas like staffing and talent acquisition, employee engagement, performance appraisal, and training and development. The application of the inductive method allowed the researcher to obtain secondary data regarding the effects of AI on HRM's key competencies right from the beginning. This research work is a purely secondary research work and only secondary research data has been used in it and the sources have been chosen based on a critical evaluation of the literature available on the subject. The sources that were used while compiling the literature review include the textbooks, journal articles, market and industry surveys. Secondly, secondary data from a study conducted by Johansson and Herranen (2019) were used to support the study. The choice of literature was informed by the following steps of defining specific keywords that are used in different electronic library databases. Two criteria were applied: first, the research questions helped in determining the right keyword or research string; second, the study adopted a number of words associated with the study's keywords. Search terms include technology employment artificial intelligence human resource management risks of artificial intelligence benefits of artificial intelligence were inputted to search engines like Scopus Elsevier EBSCO pro quest JSTOR and Wiley. The search produced a large pool of articles, policies and business documents, which were then filtered. Based on the initial search, 200 articles were identified and after the application of filters 40 articles remained. All these 40 resources were reviewed in order to meet the objectives of the study.

The research themes obtained are AI in human resources, the benefits of AI in HR and the drawbacks of AI in HR.

Findings and Discussion

Based on the analysis of the literature related to the subject, some of the findings that were made in the course of the study include the following.

1. Human Resource Management (HRM) and the use of Artificial Intelligence

As a result of the critical review of the literatures considered in this study, it is possible to infer that AI has had significant roles to play in the HRM and it is reshaping the business arena. A fact that can be viewed as quite interesting regarding the subject is the fact that according to the study, HRM was established as a result of industrial welfarism around early 1890s. Since then, there has been a transition from a one way approach to the management of human resources to a technical system of management that has fostered professionalism and development in the setting of the organisation. One thing that is clear from the several ideas that authors have put forward is that organisations need to increase the value of their competitive advantage by identifying, attracting, developing and integrating human capital with organisational and physical assets (Stone et al 2015). The authors Woiceshyn and Daellenbach (2018), Papaevangelou, et al., (2023), and Palos-Sanchez et al (2022) concur that AI is strategic in the recruitment process, on-boarding, employee turnover, internal transfers, remuneration, and process consolidation in the HRM field. However, Johansson and Herramen (2019) noted that while implementing an AI tool in the HRM department that will address the above identified areas, organisation must first understand first-hand, what will enhance their operations, and stressed the need for implementing AI that will address these HRM areas. The authors also discovered that identifying the main driver and what it seeks to accomplish as a corporate organisation will also determine the impact of AI. The argument advanced by Johansson and Herramen (2019) brings into focus the UTAUT postulate that stated that technology that is accepted

has to meet the performance expectancy criterion. On the point of the application of AI from the perspective of one of the HRM professionals interviewed by Johansson and Herramen (2019), the respondent remarked that:

'*There should be greater focus on what is the thing we need to change in the organization on the long-term level and let's help in identifying how we train machines as well people to identify the right skills of individuals to succeed the company for the long term'* (Johannson and Herramen, 2019, p.47)

The answer given by the interviewed HRM professional implies that AI cannot be adopted by organisations without the specification of the prospective adopting organisation of the purposes that the AI will serve. In line with the criterion of enabling conditions and social expectancy in the Unified Acceptance Theory, this study established that the implementation of AI technology in organisations in the context of HRM is not sufficient. Such efforts should be supported by efforts on the part of organisations to train their HRM personnel on how to use and navigate the AI tools or instruments. In Johansson and Herramen (2019), the same respondent remarked explained that:
'In the future it should focus more on the training of machines as well as well people to recognize the talent bearing in the mind the long terms objectives of the organization' (Johansson and Herramen, 2019, p. 47)

Gupta & Kumar (2024) also noted that AI has turned out to be one of the most influential tools used by recruiters in various organisations to perform their recruitment tasks. According to Gupta & Kumar (2024), 76 percent of the recruiters hold robust perceptions about the role of AI in the alteration of the recruitment duties in HRM. Their reason for this is not farfetched and it is mainly based on the fact that recruitment is one of the most central activities of HRM functions (Oswal, et al., 2022).

As highlighted by Premnath and Arun (2019) in the areas of on boarding, training and development and compensation of employees, AI has been very instrumental in satisfying the need of the employees in the identified areas that are emotional, psychological and financial. Organisations have the responsibility to make sure their employees are current in all areas of their professional lives by training their employees so that they can perform their professional duties more adequately and productively (Krishnan, et al., 2023). In this aspect, AI assists the employees to manage their training and development requirements, and also the environment that such employees can use to develop themselves. In Premnath and Arun (2019) one of the respondents interviewed by the authors explained that:

'Each employee is different from the other. They all have their own individual learning pace, understanding capability, skill set, knowledge bank and likes and dislikes in terms of how a certain information is presented to them, etc. As an HR, designing training modules to suit all these different needs is always difficult. You are always looking to give the necessary information in the best way possible for the trainees to understand easily. This is why we use AI to ensure that each employee gets a very personalized experience. The AI tool is able to identify the level of the employee based on the results of the continuous assessment conducted at the end of every step in the training program' (Premnath and Arun, 2019, p.1197).

2. Benefits of AI in HRM

Some of the benefits of AI in the HRM were highlighted by Aswathy and Anusree (2023). The first advantage that the authors indicated and which has also been supported by Upadhyay and Khandelwal (2018) is that AI enhances productivity in HRM. AI has the potential of increasing the efficiency of a business organization in the execution of its tasks by eradicating the need for repetitive tasks within the HRM department of any organization. AI reduces the time that recruiters spend reviewing curriculum vitae or

resumes of prospective applicants. Hence, AI helps in avoiding boring and outdated tasks that are repetitive in nature. In Johansson and Herramen (2019), a respondent explained that:

'*Recruiting becomes less time consuming when it comes to screening through applicants and here AI help recruiters to identify talented job applicants by doing short lists*' (Johansson and Herramen, 2019, p. 48).

The above remark by the respondent is in line with the Hmoud and Laszlo (2019) and Pillai and Sivathanu (2020) who can use AI to reach a higher number of applicants and in the process, reduce the number of documents that the organisation processes. It may also be mentioned that AI can help in ranking the applicants; thus, providing the recruiters with a chance to pick the best candidates. Similarly, Oswal, et al., (2022) in a case study on the effect of artificial intelligence on Unilever Plc discovered that, the technology brought efficiency in cost-savings for the company's HRM department and the potential candidates. In the same research, the author's survey identified that AI implementation in Unilever's HRM process reduced candidates' time by over 50,000 hours and reduced recruiters' time by over 75%. Also, Raju & KS (2022) have identified that by implementing AI in its HRM processes, Unilever was able to cut the recruiting costs by 25%. Closely related to the point earlier made is that, through the use of AI, the following functions of HRM are easier to accomplish. It is able to do this by eradicating human errors and thus provide a more enhanced experience for the HRM professionals and other employees. AI also enhances the activities of HRM since it makes it easier to perform on-boarding and come up with the right training methods.

3. Challenges of AI in HRM

Shamsi, (2023) in their conference paper have described some of the challenges of AI in HRM and some of the risks that organisations face when they adopt AI in their HRM processes. The first issue that arises from the application of AI in the HRM is that it would

depersonalise the face of HRM because it is believed to turn HRM into a mechanical process than humanistic. Luger and Stubblefield (2008) and De Spiegeleire, Mass and Sweijs (2017) in their respective researches discovered that there is a tendency that the integration of algorithmic governance into the operations of HRM may cause the elimination of humane governance that is characteristic of HRM. Fritts and Cabrera (2021) in their study also identified that AI recruitment in HRM processes also generate the potential of the dehumanisation. The last issue that the integration of AI in the process of HRM raises is the fact that AI can be vulnerable to the problem of learning bias. AI is not an independent technology since it depends on the instructions given by programmers as well as what it is able to learn from the environment to complete given tasks and functions (Geetha & Reddy, 2018). In the research of Johansson and Herramen (2019) one of the respondents explained that:

'The biggest challenges for AI are programmed and training biases, as can be noticed from the Amazon example.' (Johansson and Herramen, 2019, p. 50).

Implications of Findings

Based on the findings of the study, the areas of research implications can be categorised broadly into ethical implications and employee experience. First, in terms of the ethical consideration, there is a possibility that AI systems will bring bias or discrimination into the HRM processes if the systems are not developed with the consideration of fairness and transparency. More research should be conducted in order to analyze the ethical concerns arising from the usage of AI in HRM and to enable the HRM professionals and organizations to come up with ways of addressing these concerns. Second, with the help of the AI in the field of HRM, there is an opportunity to provide an individual approach to learning and development, instant feedback, and individualization of the packages offered. It will be seen that HRM professionals can design a more stimulating and fulfilling work context for their employees. There must be papers that look into how AI can be adopted to

improve the employee experience for one to learn how organizations can attract and retain the best talent.

Conclusion

This research seeks to establish the effects of AI on HRM in the three broad areas of recruitment, training as well as compensation. Human resource of any organisation is not an entity or a department but it is the soul of the organisation. By channelling resources through the HRM department, resources are put in the human capital aspect of a company's operations so that the organisation can get the best value out of its investment. The traditional recruitment model has been marked by the issues of restricted access to a wide pool of talent that will enable the company to upscale its operations. Furthermore, conventional recruitments are very costly, and they require organisations to use a lot of money and people's time. But the evolution of AI has dramatically shifted the dynamics of contemporary commerce, and this research specifically examined how organisations have employed AI to shape their HRM practices. This study found that:

1. The application of AI has significantly altered the processes of HRM in the area of applied-technology that has modified the recruitment, training, development and compensation aspects of the HRM operations.
2. AI has benefitted adopting organisations in their HRM procedures through the cost saving advantages, improvement of an organisation's reach to a diverse talent pool, elimination of obsolete and repetitive administrative tasks, and elimination of human errors.
3. The problems of AI for HRM are that the AI may develop bias, has a poor adaptability rate, and dehumanises the HRM process.

Recommendations

Flowing from the findings of the study and based on the Unified Theory of Acceptance, the following measures are suggested as recommendations to ensure a proper integration of AI and HRM:

1. It is important for the HRM professionals to be educated on the AI in the sense of what the AI does, why the organization procured the AI and how the AI operates. In this way, there is a certain level of co-ordination between the AI and its users (which could be the human resource professionals).
2. The following are the recommendations that should be implemented in order to ensure quality control measures to handle the prospects of human biases that may be inherent in AI products used in HRM processes;
3. Organizations need to undertake extensive and intensive research on the needs and demands of their HRM units or departments to enable them determine the right AI technology to adopt.

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