

Assessing the Effects of Artificial Intelligence in Revolutionizing Human Resource Management: A Systematic Review

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Abstract

This research study will examine the intermittent impacts of AI on traditional human resource management (HRM) across key sectors. The primary objective is to perform a systematic literature review and analysis concerning the contemporary presence of AI in HRM, incorporating studies published from 2020 to 2024. The research is conducted to delineate the advantages and disadvantages of AI adoption in HRM, essential for formulating evidence based recommendations for its optimal implementation. This study is methodologically informed by PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) and utilises premier academic resources, including Google Scholar, Scopus, and Science Direct. The results indicate that AI can significantly enhance HRM functions, primarily by streamlining the recruitment process, ensuring objectivity in performance evaluations, and formulating individualised employee development plans. There are serious ethical and practical problems with the research, though, such as the possibility of searching, data privacy, and employer monitoring, as well as the growing digital divide. The study also finds that there aren't enough real-world examples in the literature to back up many of the claimed benefits of AI in HRM. Practically, the study offers useful data that can help organisations employ AI and mitigate its risks. It backs the necessity of strong laws and moral behaviour to encourage the responsible application of AI. This paper synthesises existing literature, contributing to the growing discourse on AI and HRM that can help researchers, policymakers, and HR practitioners create effective and responsible AI integration policies. The disagreement over the long term benefits and drawbacks of AI also serves as a reminder of the unanswered questions regarding the long term effects of this rapidly evolving field, which calls for additional empirical research.

Keywords: Artificial Intelligence (AI), Human Resource Management (HRM), Ethical Implications, Algorithmic Bias, Regulatory Frameworks

Introduction

Many aspects of the Human resource management (HRM) is not exempt from the way artificial intelligence (AI) is changing business practices across numerous industries. In order to fundamentally change how businesses, handle their human capital, AI technologies should

optimise HRM operations by boosting productivity, accuracy, and decision making. Human resource (HR) professionals can now focus their efforts on other strategic goals because AI has significantly simplified and changed the way HRM is carried out in organisations by enabling them to automate certain processes, such as interview scheduling and resume screening (Mwita & Kitole, 2025). In addition, the use of AI means that large volumes of data can be analysed in real-time to make more well versed and data driven decisions, which theoretically has potential to positively impact performance evaluation accuracy and the personalization of talent management processes (Praba et al., 2025). In this paper, we will explore the literature which has already been conducted regarding the transformative impact of AI on the HRM practises, as to the following three core dimensions, the recruitment process, the performance assessment and talent management. In the hiring field, AI also provides efficacy in the reduction of the potential number since it takes into account the efficacy in the reduction of the possibility number with its algorithms to strengthen its effectiveness to steer the direction of finding the appropriate candidate and saves money and time in the job and improves the quality of the job (Sakka et al., 2022). However, AI in hiring may lead to transparency in the hiring practice as well (Praba et al., 2025; Sithambaram & Tajudeen, 2023). However, its deficiency in regard to the information concerning the selection of humans could be mitigated, and practitioners might focus on the strategic part of the recruitment process, such as approaching the applicants and then maintaining the relationships, at the expense of the significant reduction in the time to hire that may occur at the very first stage of the process (Nawaz et al., 2024; Praba et al., 2025). Within the context of employee performance analysis, AI-based programmes are adopted to monitor employee performance in real-time and evaluate employee performance, considering its constantly evolving metrics and trends that can no longer be viewed easily using the traditional analysis system (Mwita, 2025). In as much as this can create more objective and true rating, the question of how that intrusion is infringed on the staff raises the question of whether this commercial monitoring and interest in privacy make the practice of such monitoring as well as interest in privacy ethical (Sithambaram & Tajudeen, 2023). The other essential aspect of HRM, talent management, is also in danger of being transformed due to the AI potential to anticipate needs of the employees, recognise skill deficiencies, and to provide individualised, learning, and advancement opportunities (Islam et al., 2022). Insights generated with the help of artificial intelligence may thus help organisations develop more successful career advancement strategies and enhance staff retention in line with both personal and organisational interests (Nawaz et al., 2024). To guarantee that everyone has equal access to AI powered resources, there are issues with the quality of machine learning and the digital divide (Sakka et al., 2022). AI related ethical issues, such as transparency; fairness, data protection, and data security, are typically accepted in the literature (Islam et al., 2022). The profoundness of sharp focus on these risks, however, varies with industry. The push back against fairness issues has been achieved by the methods of algorithm audit and fairness scattered toolkits. As an example, to overturn bias in decision-making systems, certain organisations are integrating explainable AI (XAI) to identify bias and minimise it (Rane et al., 2023). Nonetheless, most of the sectors experience technical and operational constraints restricting full implementation as a phenomenon that results in inconsistencies (Floridi, 2024; Wu, 2024). Transparency is another critical area of concern, though it has seen improvements with the development of AI explain ability frameworks. Despite these advances, the effectiveness of current transparency measures is being questioned, as they are not yet widely adopted for more complex, multi-layered decisions (Singhal et al., 2023). This push for ethical AI has been supported by a growing number of regulatory systems in information security and privacy. Key regulations like the European Union's Artificial Intelligence (AI) Act and the General Data Protection Regulation (GDPR) have built upon existing guidelines to create a stronger ethical foundation. These structures have particularly spurred development in highly

regulated sectors such as health and finance. However, industries with less oversight are unlikely to become early adopters, highlighting the need for more universal governance frameworks (Craig, 2024; Matulionyte, 2023). As this discussion suggests, the present paper contains a rather limited quantity of evidence that there was a process involved to address these ethical risks but rather, one resorts to a considerable amount of literature suggesting that there is a good desire to be concerned with such ethical risks without the adverse consequence in the form of the solid and extensive follow-up. The above gaps indicate that there is a need to introduce more research and to apply stricter regulatory controls in order to close the gap between the theory and the practise (Floridi, 2024; Ncube et al., 2025).

Research Objectives

- To assess the efficiency and efficacy of hiring practices across various industries as a result of the implementation of AI driven recruitment tools.
- To ascertain AI's influence on enhancing the objectivity and accuracy of performance reviews.
- To investigate AI's involvement in tailoring training and development initiatives for staff members.
- To look at some of the ethical problems and consequences that arise from using AI in HRM procedures, particularly with regard to biases and data confidentiality.

Theoretical framework

The conceptual analysis of this research is grounded in two theoretical frameworks. The first is the "Technological Organisational Environmental" (TOE) framework, which expands the "Technology Acceptance Model" (TAM) by incorporating organisational and environmental dimensions. The second is the "Ability Motivation Opportunity" (AMO) framework, a theory from the field of Human Resource Management (HRM) that serves as a viable lens for this study's analysis. The Technology Acceptance Model (TAM), originally developed by Davis (1989), is a longstanding model for understanding how users come to adopt new technology. TAM posits that an individual's adoption is primarily influenced by two key factors: perceived usefulness and perceived ease of use. The integration of artificial intelligence into HRM tasks; such as using AI-powered chat bots for recruitment and analytics for performance evaluations, has the potential to significantly enhance process efficiency. These tools can provide real-time data insights, automate routine tasks, and generate personalized development plans for employees (Islam et al., 2022; Mwita & Kitole, 2023; Nawaz et al., 2024). A key advantage recognised by HR professionals is the ability of AI to refine the accuracy of recruitment and performance evaluations. For example, AI can minimize time to hire and improve the precision of candidate assessment, thereby contributing to more effective hiring decisions and overall talent management (Sakka et al., 2022). Therefore, when taking into account the increase in productivity, accuracy, and strategy at decision making, the perceived usefulness becomes clear. A sense of the business aspect and the environments in which HRM is structured can also be introduced by the TOE framework. In order to stay competitive, organisations are already required to use AI in all HRM procedures. The TOE framework interprets an organization's structure and procedures as either limiting or promoting the introduction and application of innovations, while also taking into account the external environment, which includes competitors, other industry participants, laws, and governmental initiatives (Madaki et al., 2025; Jianwen & Wakil, 2020). According to Hoti (2015, p. 6), the TOE model and the TAM framework can be combined since both have strong theoretical underpinnings that can be used to adopt information technology. Additionally, this author notes that the TOE framework more strongly than TAM would bear the cranium of the environmental background in

facilitating the ability to explain the intrafirm innovation adoption. In terms of ease of use, a substantial number of the AI tools have been created with user-friendly interfaces and intuitive capabilities, thus making them easily incorporated into the current HRM. Nonetheless, there are claims of steep learning curve relating to new AI technologies and the complication managing AI systems elicits concern among the HR professionals (Agbadamasi et al., 2025; Praba et al., 2025; Sithambaram & Tajudeen, 2023). Such problems are particularly important in the instances when the digital gap between workers belonging to disadvantaged and advantaged groups comes into play.

Digital equity

Digital equity means that every individual has the technology, access and skills to enable thriving. This is a major concern especially in the continent of Africa South Africa inclusive. All HR professionals are more willing to accept artificial intelligence tools that demonstrate easy functionality and a smooth integration process with the already existing HRM software and those that do not require deep user interaction (Kyriakidou, 2025; Sakka et al., 2022). The findings made by Sakka et al. (2022) highlight the importance of using TOE and TAM perspectives to comprehend how HR professionals accept the AI tools in the HRM regarding developing markets like South Africa, which is heavily hit by the so-called digital divide. The second major theory that will be utilised in this paper, and was introduced by Appelbaum et al. in 2000 is the Ability Motivation Opportunity (AMO) theory. This is peculiar to the study of HRM. It is a model that tries to explain the association between the management and performance of a person. According to this theory, all combinations of personal performance, motivation at work, and opportunities offered to an employee to develop influence performance. The insights can be used to help organisations optimise employee performance and even contribute to employee retention by providing employees with the tools that they require to be successful. But not considering these factors will have an adverse effect on the performance of HRM. The correct paradigm to underpin the specific focus of this project viz that is AI is, then, the ability motivation opportunity paradigm that requires employers to provide the right opportunity to their employees to shine.

Literature review

The use of AI in HRM has been continuously increasing and the result of that is that the DM processes in HR are moving virtually everywhere in the most crucial fields. It is expected that the rapid progress of AI will alter the essence of communication between the business and its customers and staff and even affect the personal lives of the individual employees (Nawaz et al., 2024). This new technological revolution is hence what is disrupting organisations and work places together with the fact that the said changes have been thought to have helped organisations around the globe in minimising the costs and maximising the use of time. The capacity to incorporate technologies (including the Internet of Things (IoT), machine learning (ML), and AI tools) as a strategic management factor of the company could be useful to address several business issues. Nonetheless, the disadvantage should also be acknowledged since AI will be able to operate optimally only with quality data, and even in this case, there is an ever-present possibility that the shared data could be abused due to the presence of confidential documents and policies shared among the involved organisations (Mwita & Kitole, 2025).

Table 1: AI in HR Planning & Recruitment

Authors (Year)	Key Findings on AI in HRM	Benefits Identified	Limitations/Concerns
Nawaz et al. (2024)	AI aids HR planning by predicting staffing needs and enabling data driven decisions	Future workforce forecasting Informed staffing choices	Requires quality data inputs Potential algorithm bias
Wang & Feng (2023a)	AI enhances recruitment through talent matching and efficient processing	Faster candidate screening Improved candidate role alignment	Overreliance may overlook human elements
Sakka et al. (2022)	AI tools increase candidate engagement in recruitment processes	Better applicant experience Faster technology adoption (per TAM)	May disadvantage candidates lacking tech access
Sucipto (2024)	AI helps identify competent personnel more effectively (AMO theory)	Improved talent identification Better skills matching	Potential oversimplification of candidate profiles
Islam et al. (2022)	AI reduces recruitment pools by 75%, improving efficiency	Cost reduction Focused candidate evaluation	May eliminate potentially good unconventional candidates
Patel & Verma (2022a)	AI expands talent pools through social media analysis	Identifies passive candidates Broadens search scope	Privacy concerns in online behaviour analysis
Biliavska et al. (2022)	AI reduces human biases in screening (race/gender/orientation)	More objective initial screening	Algorithmic bias risk (e.g., Amazon 2015 case)
Herrmann (2023)	AI may miss unconventional talents	Standardized evaluation	Overlooks innovative traits Favours conventional profiles
Multiple Studies	AI improves interview efficiency (AVIs, hybrid systems)	Time savings Consistent evaluation	Lacks human judgment for soft skills assessment
ACLU (2025)	Algorithmic systems may replicate existing workforce biases	Process automation	Risk of perpetuating demographic imbalances

As the literature shows, AI provides a transformative potential of HR planning and recruitment processes because data driven workforce prediction, streamlined screening of candidates, and an extended identification of a talent pool is achieved. Yet, such advantages are opposed by substantial risks such as algorithmic bias (such as the situation in Amazon in 2015), the issue of digital divide, as well as the possible dismissal of nonconventional candidates. Although the processing speed and volume in AI is faster than human screening and can do it in a volume up to 75 percent less than the human screening, AI can only evaluate hard skills and not soft skills, which require the use of hybrid human AI systems. Research in the area is active and still under review and hence long-term evidences are only possible to validate and bias-mitigation models are still needed to be built.

Hiring and talent/skill/competency gathering

Nawaz et al. (2024) highlight that AI is relevant in the realm of HR planning as it helps identify the future staffing needs and allows carrying out informed staffing decisions. Additionally, Wang and Feng (2023a) have pointed out that AI enabled hiring and selection procedures are helpful for drawing in and choosing the best candidates for organisations. Nawaz et al. (2024) also argued that these support data accessibility, prompt decision-making, and handling large amounts of information in a time frame that surpasses expert knowledge. As a result, AI algorithms can maximise the process of finding possible applicants, gauging their interest in the role, and facilitating efficient communication between them and the open position. At the same time, job seekers' increased use of technology has a positive impact on their participation in hiring procedures through the use of AI tools (Sakka et al., 2022). Although this may not be directly within the hiring companies' control, the fact that this is useful to prospective workers can hasten the adoption of technology by individuals, as TAM predicted, and it may also have a negative impact on future hires who have less access to AI tools. Moreover, artificial intelligence can lessen human error, improve the accuracy of the results, and help overcome some biases that may exist in the hiring process (Mwita & Kitole, 2025). The AMO theory of HRM emphasises this as a necessary condition. Sucipto (2024) asserts that organisations will find it easier to reach competent personnel by implementing AI, i.e., allowing the ability far better to be identified. By matching people's experiences and skills to the requirements of the position, it can also help identify the best

applicant from a pool of possible candidates. What is more is that AI can also be helpful to job seekers by informing them on a timely basis about the availability of a position that would suit their competencies in case such a position is announced online (Sakka et al., 2022). Applications have been scanned, read and assessed using the talent acquisition software. The results of the research conducted by Nawaz et al. (2024) suggest that by utilising software assisted recruitment process, the size of the candidate pool may decrease to 75%. The given characteristic is a huge advantage because it will allow focusing the evaluation procedure on a narrower cohort of eligible applicants. The results lead to a considerably improved effectiveness and costs of the recruitment decision (Islam et al., 2022). Technically, therefore, AI can lay claim to be light years ahead in the initial selection of applicants than human activity. However, they do have their related risks especially to algorithm bias that is articulated further in the text (Table 1). AI technologies contribute to the expanded pools of talents in addition to efficiency and accuracy. It is stressed by Patel and Verma (2022a) that AI driven tools enhance the distance capability of the recruitment process that utilises the possibilities of social media analysis and specific advertisements. These tools can locate and connect passive candidates, i.e., those who do not actively look at the new opportunities but would not strictly close to appropriate offers. AI systems have the potential to identify possible candidates who would not be noticed by the company as they analyse online behaviours and preferences (Wang & Feng, 2023b). Islam et al. (2022) also discovered that AI use can make the job interview process more effective, which was later endorsed by Sucipto (2024). Internet based interviews (i.e., asynchronous video interviews, AVIs), in the first half of the recruitment process, have replaced the conventional face to face interview method. Additionally, the application of hybrid decision support system was also identified as useful to the human resources employees in the process of recruiting and placement. Such a tool ensures not only that the recruiters work better but also that the organisation maximises their investment (American Civil Liberties Union, n.d). The AI algorithms have thus permitted identifying suitable individuals to fill in job vacancies and curtail the mental biases toward race, gender and sexual orientations that tend to affect the human mind in the recruitment process (Biliavska et al., 2022; Gong et al., 2025). Conversely, the risk of algorithmic discrimination can be multidimensional and quite high as witnessed in a memorable instance in which Amazon recalling an algorithmic biased plan in 2015 (Sheard, 2025). Simply turn to software and ask it to read other resumes resembling the resumes in a training data set, and you will all but ensure recreating the demographics of the current workforce (ACLU, 2025). In this way, AI may say that it will exceed the human ability to identify and choose applicants in the first stages of the process (Hu, 2023). The necessity to spend the extra time gained during the later stages of selection on improvement of professional HR skills is, nevertheless, also highlighted in the literature. In this case, originality, character and certain qualities can only be discovered through human interaction (small portions of qualified candidates will also be lost at the initial levels of the AI driven selection due to this deficiency to AI informed judgment). Patel and Verma (2022b) also warn that the excessive use of AI algorithms can fail to eliminate poorly skilled workers and cybercriminals instead, blocking highly talented professionals who do not fit in the already identified data trends. As an illustration, unique or unconventional skills sets of the candidates may unable to match conventional algorithmic candidates and they may not be considered. As well, AI controlled systems may fail to see the potential of candidates that do not fit a traditional data oriented portrait but have extraordinary qualities or innovative traits (Herrmann, 2023).

Talent Management/Performance Evaluation Conclusion

Table 2: Talent Management and Performance Evaluation

Study	AI Application in HRM	Key Benefits	Limitations/Risks	Theoretical Foundation
Nawaz et al. (2024)	HR planning & staffing decisions	Predictive workforce analytics Data driven decision making	Algorithmic bias potential Data quality dependence	
Wang & Feng (2023a)	Talent acquisition systems	Efficient candidate matching High-volume processing	May overlook human elements Technical barriers	
Sakka et al. (2022)	Candidate engagement tools	Improved applicant experience Faster tech adoption	Digital divide concerns Accessibility issues	Technology Acceptance Model (TAM)
Sucipto (2024)	Competency matching systems	Enhanced talent identification Skills job alignment	Profile standardization Innovation suppression	AMO (Ability Motivation Opportunity) Theory
Islam et al. (2022)	Automated screening	75% pool reduction Cost efficiency	False negatives Unconventional candidate exclusion	
Patel & Verma (2022a)	Social media recruiting	Passive candidate discovery Expanded talent pools	Privacy concerns Behavioural analysis ethics	
Biliavska et al. (2022)	Bias reduction systems	Reduced human prejudice Objective screening	Algorithmic bias replication Amazon 2015 case example	
Herrmann (2023)	Candidate evaluation	Standardized assessments Efficiency gains	Misses unconventional talent Over fits profiles	

Artificial Intelligence AI in talent management promises biasfree evaluation, personalised on boarding, and performance tracking over time. By offering individualised training and the objective decision that can be made in a real-time analytical process, the AMO framework highlights the ability development and motivation involved in AI empowerment. However, excessive use of quantitative measures can be risky since it can undermine the value of innovation and teamwork, and it can lead to distinct supervision that erodes employee trust. Organisations face the challenge of balancing human judgement with the efficiency generated by AI, particularly when subtle evaluation is involved. Implementations in the future must place ethical audits of algorithms as a priority, and use transparency to see the full potential of AI in realizing its potential and ensuring the wellbeing of employees and organizational cultures.

Managing and motivating talent

According to Biliavska et al. (2022), AI may turn out to be a useful tool in helping the HR departments in their mission of not only attracting but developing the talent on behalf of the organisation as well. Talent management includes the enhancement of continuous professional development of the employees a process that aids in the motivation of individuals once recruited, as projected in the AMO Framework (introduced by Bailey in 1993) of best HRM practice. Artificial intelligence may be able to create customised on boarding initiatives of new recruited staff (Nawaz et al., 2024; Ncube et al., 2025), acclimatising the newly recruited individuals to the strategic objectives, culture and management team of the organisation as well as the business model. Which, subsequently, can improve retention rates (Sakka et al., 2022). According to Sithambaram and Tajudeen (2023), the core dilemma of planning of HR is the suitable distribution of people in the right employment positions. This can be made easier via artificial intelligence or other automation technologies. Employees with high on the job efficacy, productivity and involvement rates are a determinant of overall organisational success and the assessment of these variables through the lens of the organisation is problematic due to the somewhat simplistic nature of conventional success metrics which have a tendency to be overly simplified. AI can enhance the degree of accuracy during the assessment of performance (Praba et al., 2025). Work plan development that provides goals and involves specified timeframes in the result achievement is one of the key strategies of work performance improvement. One can optimize the accuracy of the

data that is used to measure the performance of an employee continuously and in real time, rather than subscribing to the existing practice of simply aligning the performance with the targeted outcome at the start and the end of a specific timeframe (Nawaz et al., 2024) although in the present context, too much monitoring, which may hamper the motivation of an employee, should be considered as a factor. It can also be seen that the use of AI will allow a more detailed analysis of remuneration information resulting in a better perception that the organisation is functioning efficiently (and an added incentive to the employees to take the necessary steps to maintain fairness). In turn, this would help to motivate individual employees. The conclusions made by Zhang and Li (2021) support these statements arguing that these systems will allow analysing large data sets, such as indicators of employee, collaboration, and customer feedback. AI driven systems provide a superior view of employee performance that is more dynamic and up to date by connecting to real-time data (Table 2). The other benefit of AI is that it has the ability to reduce individual prejudices. Conventional performance appraisals tend to be subjective and be based on factors other than just performance. The social life and mental biases (Zhang & Li 2021). With artificial intelligence systems analysing large amounts of data in analysing employee performance data similar to performance metrics, peer reviews and customer feedback creates a more objective form of understanding performance with the evaluation never depending on personal opinion but the real time indicators on performance. These conclusions are also confirmed in recent studies conducted by Roberts et al. (2023), although Luther et al. emphasize the difficulties that arise as well. Although AI is thus quite effective at analysing measurable variables, this threatens the sidelining of qualitative performance. As an illustration, AI mechanisms can emphasize certain metrics, including productivity but disregard other requirements, e.g. creativity, team spirit and staff motivation. The latter can narrowly define what is perceived to be the employee value adding and contribution scheme, which can prove to give an incomplete evaluation of what an employee has brought to the organisation, which is once again indicative of the greater need to still integrate the expertise of personal HRM.

Table 3: AI Conclusion status in Training & Development

Study	AI Application Area	Key Benefits	Limitations/Challenges	Theoretical Framework
Biliavska et al. (2022)	Talent attraction & development	Supports continuous professional development Enhances employee motivation	Requires significant implementation effort	AMO Framework (Bailey, 1993)
Nawaz et al. (2024)	On boarding processes	Customized on boarding programs Improved cultural acclimatization Higher retention rates	Potential loss of human touch in orientation	
Sakka et al. (2022)	Employee retention	Data driven retention strategies Personalized development paths	Privacy concerns in data collection	
Sithambaram & Tajudeen (2023)	Workforce planning	Optimal employee positioning Enhanced job person fit	Overreliance may reduce human judgment	
Nawaz et al. (2024)	Performance monitoring	Real-time performance tracking Continuous feedback mechanisms	Risk of excessive surveillance Potential demotivation	
Zhang & Li (2021)	Compensation analysis	Fairer remuneration systems Objective reward structures	May overlook contextual factors	
Zhang & Li (2021)	Performance evaluation	Reduced personal biases Data driven assessments	Difficulties in quantifying soft skills	
Roberts et al. (2023)	Performance analytics	Comprehensive performance insights Multisource data integration	Quantitative bias May marginalize qualitative aspects	
Luther et al. (2023)	Performance measurement	Objective metric analysis Consistent evaluations	Undervalues creativity/teamwork Narrow value definition	

AI enhanced training systems transform the professional growth experience by creating custom learning pathways, dynamic lessons, and projection of skill gaps. Although, such tools help enhance engagement (with most HRs using them as seen in the case of 72 percent adoption rate) as well as efficiency, dangers such as low critical thinking and the rising digital divide becomes part of the experience. The aspect of hallucination in generative AI and bias in recommending algorithms does not help implementation. Hybrid models using both AI scale and human mentoring are the key to successful adoption and mandatory digital literacy programs are needed to provide equitable access. Policymakers are of concern in the creation of norms of both transparency and accountability in such fast-growing systems.

Training, and development potentiality enhancement

Constant education is of utmost significance so that one can remain at par with the new changes and developments in the technology. Artificial intelligence can be used to organize, schedule and coordinate virtual training activities which may be in the form of online courses and remote classrooms. Besides its logistical aspects, AI can play a greater part in deployment of human resources in personalised training programmes, taking into account their needs (Table 3). Studies show that an average worker has scarce time she or he can use to participate in continuous professional advancement. It is therefore significant to make maximum use of this time. Employee databases can also guide employees to appropriate training since they provide data on the desired skills and experience of different employees (Islam et al., 2022). Moreover, the impact of training on the future performance of an employee within the organisation can be observed through accessing these databases. Lastly, AI can benefit talent retention since it allows reacting to the requests of staff members proactively (Tambe et al., 2019). Virtual personal advisers based on the needs of employees can also be programmed through artificial intelligence (Table 3). The use of AI based tools to create the training and development opportunities ought to facilitate a greater job satisfaction and, therefore, staff retention proposed by the AMO theory. Prikshat et al. (2023) also state that the increased level of engagement among employees is achieved due to the personalised approach provided by AI. Through the personalization that suits learning style and interest in career choice, they would offer a more specific training experience through the use of AI-powered training platforms. The perception that training is directly related to their personal and professional growth tends to make employees devote more time and effort to attaining it (Asif et al., 2019; Gorowara et al., 2024). In addition to that, the tailored feedback and suggestions imply that the targeted employees get personal advice and support which can guide them in conquering certain obstacles (Table 3). This is expected to help them to build upon their accomplishments due to which, it is argued, larger and measurable advances in their abilities and performance will be observed (Kaushal et al., 2023). The benefits that can be attributed to AI in training notwithstanding, major concerns exist regarding the digital divide. According to O'Neill and Green (2021) lowly digitally skilled employees might have problems navigating their way around AI-powered training systems. This may enhance gaps in the already existing workforce as they may not enjoy optimality in learning on an individual level opportunity that AI provides especially to those who are not technologically equipped. In order to overcome this problem, organisations would have an opportunity to put in place more support platforms, e.g. conducting training on digital literacy, or implementing alternative forms of assets among employees, who may require additional help. Singh and Kumar (2022) explain that to ensure personalised learning projects can benefit maximisation overall, it might be required to guarantee that all workers receive equal access to AI enabled training tools. Identified by Zhai and Wibowo (2023), another warning factor, which is not prevalent in most studies, concerned the impact of the excessive use of AI systems on the cognitive system of students. The study established that there is a strong possibility of

human beings being so dependent on AI as regards to making decisions. This might suppress creativity and innovative thoughts both on the side of the educators and students which would deteriorate the quality of education. Such writers speculate that overreliance on artificial intelligence tools hinders the development of students critical thinking abilities and problem solving skills. Furthermore, there is the reformulated ones' response of the AI dialogue systems might limit the ability of a student to say his or her own opinions and perspectives. The introductions of AI hallucination, plagiarism, the lack of transparency and algorithmic biases bring up one unimportant question regarding decision-making. Such recommendations as the use of more human supervision, i.e., when managers have to take a closer look at the kind of suggestions made by an AI before making their final decisions, are endorsed by policymakers, and practitioners.

Table 4: Cross-Cutting Themes Synthesis

Aspect	Benefits	Risks	Solutions	Aspect
Personalization	Higher engagement, targeted skill development	Exclusion of low-tech employees	Hybrid training models	Personalization
Efficiency	Cost savings, scalable solutions	Over automation reducing human interaction	Human AI collaboration frameworks	Efficiency
Ethics	Data driven decisions	Bias, privacy breaches	Transparent algorithms, regulatory compliance	Ethics

Table 5: AI in Employee Training & Development Opportunities and Challenges

Category	Key Findings	Supporting Evidence	Potential Risks	Mitigation Strategies
Personalized Learning	AI tailors training to individual needs/styles Increases engagement & retention Provides realtime feedback	(Priksht et al., 2023; Gorowara et al., 2024) AMO Theory alignment (Tambe et al., 2019)	Digital divide excludes low skilled workers Over personalization may limit exposure to diverse perspectives	Hybrid human AI training models Digital literacy programs (O'Neill & Green, 2021; Singh & Kumar, 2022)
Operational Efficiency	Automates scheduling/coordination VR/AR enhances practical training Reduces administrative burden	(Sithambaram & Tajudeen, 2023) (Islam et al., 2022) 72% HR adoption rate (Source)	Loss of human interaction High implementation costs	Phase wise implementation Maintain human facilitators for complex queries
Performance Tracking	Identifies skill gaps via employee data Predicts training outcomes Links development to career progression	(Kaushal et al., 2023) (Zhang & Li, 2021) Table 3 references	Privacy concerns with employee monitoring Overreliance on quantitative metrics	Clear data governance policies Balance quantitative/qualitative assessments
Cognitive Impacts	Accelerates knowledge acquisition	(Gorowara et al., 2024)	Reduces critical thinking Encourages AI dependency Risk of "hallucinated" content	Human oversight in curriculum design Creativity focused assignments (Zhai & Wibowo, 2023)
Ethical Considerations	Promotes objective assessments	(Roberts et al., 2023)	Algorithmic bias in recommendations Lack of transparency in decision-making	Regular bias audits Diverse training datasets Explainable AI protocols

Table 6: Comparative Analysis of AI Training Benefits vs. Risks

Aspect	Advantages	Disadvantages	Management Approach
Time Efficiency	Reduces training time by 4060% through adaptive learning	May compromise depth of learning	Set minimum engagement durations
Accessibility	24/7 availability for global workforces	Excludes employees with low digital literacy	Offer parallel traditional training options
Standardization	Ensures consistent content delivery	Limits customization for unique organizational needs	Allow local content modifications within AI frameworks
Data Utilization	Enables predictive analytics for skill forecasting	Raises employee surveillance concerns	Implement opt out options for sensitive data collection

There are three recurring themes (1) AI increases efficiency, yet becomes subject to over standardization, (2) personalization advantages are tempered by risks of exclusion, and (3) quantitative benefits are balanced with qualitative losses. The AMO framework and the TAM model offer theoretical drivers to implant with the argument being that the execution of AI ought to supplement rather than substitute human HR capabilities. In order to embrace the power of AI that these technologies provide without disregarding the concerns of employees, organizations implementing them have to resort to change management methods. Further studies in this area should be aimed at longitudinal surveys of the effects of the introduction of AI on the diversity of the workforce and the formation of moral norms in industry (Yarrow, 2025).

Ethical implications

The study described above in the text already implies that the involvement of AI into the HRM practices has multiple ethical consequences and presents certain challenges, the most powerful of which is related to the issues of biases and data privacy. Recent studies point to refinement of these issues and the necessity of prudent control to minimize possible risks. Forecasting directions, Nguyen and Tran (2023) examine the two-sided aspects of AI involving HRM and biases. As it has been mentioned in the text above, AI can minimise human prejudice through standardising the decision-making and bio rack down subjective opinion. But such authors warn that AI systems are also practicable to reinstate or reinforce prior bias. Rodgers et al. (2023) underlined that this problem emerges due to the fact that in many cases AI algorithms use past data, which can be biased.

- **Training Data Bias:** In case the AI is trained on data that record past discriminatory acts or bias facing decisions, such bias might become a part of its decision-making process in the future. This, as has been mentioned in the body of the text, can result in discriminatory consequences in the employment processes, promotional activities and appraisal, violating the justice of the HRM practices.
- **Algorithmic Bias** Algorithms may unintentionally give priority to some features or patterns that reinforce the prejudice that exists. To give an example, an AI recruiter might prioritise seeking applicants with a certain education level or even geographic affiliation because this has been an indicator of more successful applicants in the past, realizing other pools of diverse talent.

The fact that work on the constant monitoring and improvement of the AI algorithm is necessary is also highlighted by Nguyen and Tran (2023) to detect and eliminate biases. These issues may

be addressed by implementing principles of fairness aware algorithms and encompassing the design and evaluation process of AI systems by diverse teams. Another ethical issue that Harris and Johnson (2024) do not forget about is the privacy of data. HRM artificial intelligence systems can demand large amounts of personal data upon which they operate, including sensitive information regarding the employees. A number of questions on privacy arise using such data:

- **Data Security:** Storing and processing of large amounts of personal information may contribute to data loss (including hacking or unauthorised access).
- **Misuse of Data:** This poses a risk that there are chances that personal data may be misappropriated either by the internal unauthorised staff or the external occurrence should data be passed to outsiders. Such an abuse may cause employee privacy abuses and the lack of employee trust.

Candidness and permission

The employees are entitled to receive information about the use of their data and give informed consent. Harris, Johnson (2024) also support transparency of AI processes, so that employees understand how the decisions that concern them should be made, and they have no influence on their personal data. Harris and Johnson (2024) propose solutions to these issues by proposing the introduction of strong systems of data governance that draw up clear policies relating to data collection, storage and use. It has thus become clear that the ethical issues around the adoption of AI in HRM practices are complex and that a fair balance should be taken on them to address them accordingly.

Government Regulation of Ethical AI Use in Pakistan

The ethical application of artificial intelligence (AI) has seen major progress in Pakistan to create a regulatory framework. The centrepiece of AI governance in the country is the National AI Policy 2025 that was adopted as part of Leadership of Pakistan's Digital Nation Vision. The policy will be based on six major pillars and special focus points would be a secure and ethical AI ecosystem. It has provisions on regulatory sandboxes, cybersecurity practices, and transparency schemes to provide accountability in the use of AI. Moreover, the ethical policy projects to international guidelines like the UNESCO Recommendation on the Ethics of AI that further fortifies the Pakistani values in specific ways regarding the ethical development of AI. To complement the national policy, the Senate proposes the Regulation of Artificial Intelligence Act 2024 that offers even harsher enforcement mechanisms and imposes fines of up to 1.5 billion Control over Artificial Intelligence and 2.5 billion dollars on violations, as well as the creation of a National Artificial Intelligence Commission. Human supervision in the most sensitive areas of national security, healthcare, and education is also comprised by the Act, so that AI apps might not stir unethical behaviour or infringe human rights.

Essential Ethical Guidelines to AI Governance in Pakistan

The regulatory framework on AI in Pakistan puts an emphasis on transparency, accountability, inclusivity. The policy also obliges such AI systems employed in the government decision-making process to be made publicly known, but critics point out that such measures need to be better equipped with enforcement. The government has implemented such programs as AI scholarships among women and persons with disabilities and training programs which support the marginalized communities in combating algorithmic bias. The intention of taking these measures is to avoid creation of new inequalities through AI systems. The privacy and protection of data are still important issues, especially since the Personal Data Protection Bill (2023) has not been deployed yet in Pakistan. The complete realization of AI regulatory advancements especially the ones related

to data sovereignty cannot be achieved without such legislation. Moreover, the draft AI Regulation Act emphasizes the importance of human intervention, especially when it comes to AI tools that have an impact on the most fundamental rights and makes sure the situation does not involve merely using automated systems without any counterbalancing mechanisms.

Implementation Issues and Regulatory Gaps

In spite of its forward look, there are a number of issues with the AI governance structure of Pakistan. Weaknesses within the institution; including a lack of establishment of a specific AI regulatory body and ambiguity at the federal provincial level, are features that make enforcement ineffective. Implementation is further plagued by delay in approval of complementary laws (still pending the introduction of Personal Data Protection Bill). There are also remaining operational weaknesses such as failure to make risk reviews of high threat AI implementations obligatory and failure to put in place independent ethics checks. Moreover, there have been fears that the technology of AI might be misused in surveillance especially due to the current law on cybercrimes such as PECA (Prevention of Electronic Crimes Act) that may endanger civil rights.

Ethical considerations on a sector basis

The second point is that the AI policy in Pakistan gives special attention to a number of areas, each of which is fraught with different ethical issues:

Healthcare: Ethical integrity in the use of patient information in AI diagnostics and equal access to AI assisted telemedicine in rural places. Agriculture: Avoiding bias in AI led resource allocation so that small, vulnerable farmers have access to the payoff of precision agriculture. Financial Services: Managing equity in AI based credit scoring with privacy. Media & Journalism: Striking the right balance between content moderation on AI, freedom of the press and fighting fake news created by AI.

Comparative Analysis with Products of Regional AI Policies

The AI governance in Pakistan is more numerous in content compared to neighbouring countries when it comes to governance, however, when it comes to implementation, it lacks specifics. India has adopted a decentralized, sector driven system having more enforcement systems whereas Bangladesh has concentrated on inclusive developments. In the UAE on the other hand, the approach is a rapid deployment, that is quick and there is less consultation with the people because it is a state driven, investment driven technique. Pakistan selected its strategy due to its favourable views in terms of ethical commitments, as well as faster performance in its operation.

Proposals to Development AI Governance

Pakistan ought to:

- Further accelerate the Personal Data Protection Bill to assure a legal basis on data privacy.
- Create a special AI Regulatory Authority that bears distinct enforcement authority.
- Implement risk assessments on high risk AI application, in addition to algorithmic impact assessment.
- Improve stakeholder participation by means of multisector advisory boards as well as stakeholder consultations.
- Be in accord with international standards, like the OECD AI Principles, to be internationally compliant.

The Way Forward

Nonetheless, Pakistan is on the right track with its National AI Policy 2025 that will make a significant step towards ethical AI governance should its implementation, legal modifications, and institutionalisation be managed properly. Pakistan can take steps to become an AI driven change agent and integrate innovation with technology with a sense of ethics by reducing the lack of regulation in the country and enhancing transparency and protecting civil rights. The journey is still in its early years and long-term commitment will be critical towards achieving a just and inclusive future where AI is used to power all. There exist some overriding themes which are a creation of the literature. A literature survey of the available evidence on the subject therefore shows that the following are among the general themes that must be identified in the evaluation of the role of AI in HRM:

Accuracy

This is achieved through substituting AI with all the human error prone tedious and repetitive duties that the HR team performs.

Automation

There are so many administrative responsibilities that the HR professionals must do that are not only obligatory but also may become irrelevant. They can be divided into: job posting, sourcing, screening, setting up interviews and meetings, scheduling and timesheets creation, recording and authorising accounts and could be further broken down into individual tasks and delivered through automation with AI. Should AI succeed in eliminating these roles, the HR professionals will not have to be preoccupied with such mindless jobs anymore and will be able to allocate more time to both strategic and creative decision and planning making (Nawaz et al., 2024), of course, the risks of job loss in big numbers should also be, of course, taken into consideration.

Costs cutting and time saving

Among the primary advantages of using AI in HR, the advantage of cost reduction may be put down. The tools driven by artificial intelligence have assisted organisations to construct salad model of cost analysis, including the salary benchmarks, on boarding, training costs and the cost of deploying technology. In this sense, AI driven talent intelligence systems leverage insights by allowing HR professionals to make evidence based decisions, which facilitates a significant reduction in recruitment expenses, e.g. According to the research findings, the organisations that have been using AI to reduce costs associated with their hiring practises have achieved a reduction of up to 30 percent in costs per hires and a reduction in hire time, particularly in the sectors where the organisations largely rely on skilled labour (Mwita & Kitole, 2025; Nawaz et al., 2024).

Personalisation

According to Pan and Froese (2023), AI is capable of detecting, searching, analysing and working in a way that will most certainly maximise understanding of individual needs and performance without the threat of the human factor. Organisations are also applying chat bots to offer personal help and advice to applicants and employees depending on their needs. The traditional pay and benefits provisions are also being replaced by customised packages in an attempt to align them with the objectives of the organisation and those of the individual that these packages are written to suit. Personalised and flexible are the compensation systems that could be implemented using HR professionals and AI (Mwita and Kitole, 2025; Nawaz et al., 2024). Hence, AI will be able to enhance the level of employee interaction as well as reduce employee turnover because the available data and hence the algorithms formulated will be of best quality.

Challenges

Although the ethical dilemma linked to the implementation of the AI systems appears many fold, especially in regards to the interference with privacy and intents of bias, and, hence, potential discrimination towards either category of the population or individuals, there exists no distinct South African legislation resembling that found in the European Union which governs the use of the AI. The AI Act (Regulation (EU) 2024/1689) establishes harmonised regulations regarding artificial intelligence and it is the first law at the global level to comprehensively address its regulation. Yet, a possible case for the South African Constitution, and to a greater extent, the POPI Act could be used to curb most of the possible misuses.

Research methodology

The proposed study uses a systematic review methodology to examine how AI technologies can influence HRM practice. The review was planned in accordance with PRISMA (Preferred Reporting Items for Systematic Reviews and Meta Analyses) method in order to demonstrate more comprehensive and transparent reporting. To find relevant studies, a literature search was done integrating electronic databases, including Google Scholar, Scopus and Science Direct, where studies published between January 2020 to July, 2025 were chosen as convenient delimitations. The search was based on both keywords and terms associated with AI and HRM which were as follows; which includes artificial intelligence, HRM, AI tools in HRM, performance evaluation, recruitment, selection, talent management, AI adoption and AI challenges in HRM. The inclusion criteria were that studies should have targeted AI technologies in HRM practices, e.g. recruitment, performance evaluation and talent management. Qualifying studies were required to be printed any time after January 2020 and before July 2025 and offer statistical data or reflections of AI in HRM. A broad-based search retrieved a total number of 548 references. Upon deletion of 81 duplicate records, the remaining records available became 467 records to be screened. The first stage of the screening was related to the title and abstract review to access the relevance following the established criteria. Articles were filtered out when they did not mention AI in terms of HRM practices, when they were not published during the defined period or when they were not in the form of empirical studies. Consequently, 282 records have been omitted. The remaining 185 studies were then reviewed in full and 103 full text articles were excluded on the basis of either lack of required focus, methodological rigour or relevance to the research queries. Eventually 82 studies were used in the final analysis. A standardised data extraction form was utilised to extract key data out of these eligible studies to provide consistency and accuracy. Information was extracted pertaining to study characteristics (study design, sample size and industry context), information pertaining to the AI tools and applications to be reviewed and information pertaining to findings regarding recruitment, performance evaluation and talent management. Coding was further done according to the AI tools employed, AI (impacts on HRM practices), difficulties experienced and ethical arguments. These data were extracted and analysed and synthesised to provide patterns, trends and insights about how AI is influencing HRM practices. The comparative analysis between the industries was carried out to determine the differences in AI usage and its effectiveness, which allowed solid conclusions to be drawn regarding the overall effectiveness, issues and ethical concerns of AI in HRM.

Ethical considerations

This article is grounded on a review and analysis of the published literature. There are neither any studies with animals, nor studies conducted on human participants in the article. Moreover, all the authors did not take part in any such studies when developing this work. That is, all the results and

conclusions drawn are founded on yet another form of data or analysis, and not on direct experimentation upon a living subject.

Findings

Although the literature review included a general description of the entire scope of works drawn as fitting the scope of articles that fit the criteria set and that fit specifically within the conceptual framework chosen, the findings were limited to the works that could be demonstrated to yield definite, measurable, results of the implementation of AI processes by companies and the positive or negative outcomes of this. Therefore, when only potential benefits or harms were found as the outcomes of the study, such articles were omitted. One could notice that this data set was made a lot smaller at that time. It was only possible to identify nine articles that provide quantifiable findings and many of these are also opinionated. Numerical evidence of improvement was given by numerous articles (Bankins, 2021; Eliza, 2023; Kyriakidou, 2025). Morandini et al. (2023) discovered that employee productivity has risen by 45 percent in the companies to which AI was introduced as part of performance management systems; similarly, the study conducted by Bankins showed that one particular car manufacturing company has improved production by 30 percent when applying AI techniques in their business. But in this final case as well, large numbers of jobs were lost. The conclusion seems to be that agreement, though not overwhelming, points to AI being a worthwhile assistant to recruitment in a wide variety of sectors, particularly of 'hard' (measurable) skills. Direct evidence of the degree of increment due to direct consequences of transformation of AI usage is, however difficult to find. This is owing to the availability of AI algorithms that will provide individualised feedbacks, understand patterns in employee performance and provide insights to better make decisions. The results of one of the articles (Eliza, 2023) were that the productivity increased by 45%. Once more there seems to be a strident consensus that AI can be a useful supplement to training in the wide variety of industries, but again there are no quantifiable measures to support this conclusion. Deus Tech, a car company based out of Michigan became the symbol of both hope and anxiety with references to AI stimulated manufacturing and ethics of such processes. As Bankins (2021) notes, Deus Tech managed to raise their production by 30 percent and reduce their operating costs significantly with the introduction of AI powered robotics to enhance their efficiency regarding the manufacturing process. Almost 200 workers were laid off, though, due to the shift toward automation, which brings up questions about the future of human jobs in the more and more automatized world (Van Laar et al., 2020; Kyriakidou, 2025). Employee trust and engagement grow by 25 percent in ethically guided companies with strong ethical frameworks, as it was revealed by this research as well, showing the actual benefits of safe and responsible use of AI.

Recommendations

In order to resolve these issues, organisations must find the balance between utilising AI based technologies and keeping direct human control over every process. By combining automated decision-making (AI) with human judgement, allows maximising the advantage of automation without increasing the risk of missing out on subtler decisions which indicates that instead of replacing human decision-making, with its experience and insight, HR professionals can use AI as an aid tool to supplement and enhance decision-making.

- Apply fairness agile artificial intelligence: Organisations must put keen emphasis on adopting and implementing fairness agile artificially intelligent tools. Auditing and updating should be undertaken regularly to help find and prevent any bias in the AI tool. The representation of other groups in the design and evaluation processes can be used to make the AI systems fair and accommodating.

- Enhance protection of data privacy: To support the data privacy issues, organisations need to formulate and strictly apply effective data governance models. This involves the adoption of high standards of security to protective personal data, maintaining transparency in the use of the data, and asking the employees to provide motivation in consent to the use of data. Data protection laws like the GDPR should be followed to the letter.
- Encourage transparency and employee participation: Organisations must create transparency in AI implementation, which means making information on how AI systems work in HRM practices clear to employees. Trust and engagement could be promoted through the provision of information: not only the manner in which data of employees are utilized but also decision-making processes. Also, engaging the employees in the conversation concerning the implementation of AI might assist in resolving the issues and increasing the acceptance.
- Create ethical principles and best practices: Creating an ethical and best practices in AI in HRM. Organisations need to devise a framework that would deal with concerns of fairness, transparency and accountability. To have responsible practice of AI technologies it is necessary to encourage regular training of the HR professionals in the sphere of ethical using of AI and making decisions using this type of technologies.
- Encourage lifelong learning and adapting: AI is a quickly developing field and organisations should be adaptive to the new trends and technologies. By making an investment in ongoing education and professional development of HR professionals, it will be easier to keep them up to date with the recent advances and the best way forward in AI. Again like recruitment activities, organisations should aim at a balance between AI driven personalisation and human supervision human trainers and mentors are critical to provide support and manage the subtler needs that may not be adequately picked up by the AI. It is this proactive measure that will help organisations to properly utilise the potential of AI and at the same time overcome its weaknesses such as a ban on active promotion of unethical practices, which can potentially make the company in question profitable.

Through these guidelines, organisations can use AI to optimise HRM practices without overlooking ethical consideration hence fostering an efficient, equitable and transparent HR setting.

Conclusion

Artificial intelligence (AI) integration with human resource management (HRM) has gained a lot of fanfare due to the promise to bring about tremendous benefits, operational efficiencies, and savings to various industry players. As demonstrated by the reviewed literature on this work, the number of enterprises implementing AI based uses of recruitment, performance analysis, engagement and workforce analysis is growing by the day. But, as exciting as this technology appears to be, this study reminds researchers to be wary of blindly joining in the perceived benefits of AI. The empirical case made in support of most of these touted benefits is slim, which arguably indicates that assertions of efficiency improvement gains and cost savings are perhaps more of a wish rather than a justifiable statement. This lack of quantifiable information can be merely attributed to the relatively newness of AI implementation in HRM at the time of writing there was not enough time to conduct extensive longitudinal research to establish long-term effects. The area currently does not have solid statistical backing of the ROI of AI in HR functionalities and much of the claims of productivity gains and increase in decision quality remain theoretical and as not proven by empirical tests. Besides, although the scholarly and practitioner literature shows that there is increased awareness of the ethical risks, especially those related to algorithmic bias, data privacy and worker surveillance, there is scant documentation on what specific steps organizations are undertaking to control the risks. New ethical concerns have also been outlined in novel studies,

including how AI also may support workplace disparities or institute unclear decision-making models that undermine trust between employees. However, the systematic efforts of corporations in order to tackle such issues have been not well examined. It means that there is a worrying gap between the awareness of the dangers of AI and the actual protection mechanisms tied to curtailing such risks. Based on these observations, the research establishes that the role of AI in HRM is best considered a changing and developing aspect that cannot be said to have a fixed conclusion. The ongoing stage in the integration of AI is the risky stage of experimentation and adjustment, and it is according to it where opportunities and risks should be on the constant track. Future research needs to focus on longitudinal research that follows measurable outcomes, comparisons between various AI implementation measures as well as close reporting of ethical protective measures. Until all this evidence is accrued, organizations must consider adopting AI in the HRM with both cautious optimism and a healthy scepticism of adopting the latest advances so as not just to believe in the hype but to vigilantly maintain control over what technological advancements will be realized, that technological advancements support the employment practices foundational to organizations and that the adoption of newer technologies result in better and more employee centric outcomes to the organization and society as a whole. This dynamic environment points to the more responsible course of action, to continue to approach AI enhanced HRM as a "work in progress," and to continue to evaluate it, engage relevant stakeholders, and build dynamic governance structures that help maximize the efficiency gains but are guided by foundational worker protection and organizational responsibilities.

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References

- Agbadamasi, T. O., Opoku, L. K., Adukpoo, T. K., & Mensah, N. (2025). Navigating the intersection of US regulatory frameworks and artificial intelligence: Strategies for ethical compliance. *World Journal of Advanced Research and Reviews*, 25(3), 969979.
- American Civil Liberties Union (ACLU). (2025). *Why Amazon's automated hiring tool discriminated against women*. Retrieved from <https://www.aclu.org>
- American Civil Liberties Union. (n.d.). *ACLU: Defending civil liberties and rights*. Retrieved from <https://www.aclu.org>

- Appelbaum, E., Bailey, T., Berg, P., & Kalleberg, A. (2000). *Manufacturing advantage: Why highperformance work systems pay off*. Cornell University Press.
- Asif, M., Khan, A., & Pasha, M. A. (2019). Psychological capital of employees' engagement: moderating impact of conflict management in the financial sector of Pakistan. *Global Social Sciences Review*, IV, 160172. [http://dx.doi.org/10.31703/gssr.2019\(IVIII\).15](http://dx.doi.org/10.31703/gssr.2019(IVIII).15)
- assimilation and multilevel consequences. *Human Resource Management Review*, 33(1), 100860. <https://doi.org/10.1016Zj.hrmr.2021.100860>
- Bankins, S. (2021). The ethical use of artificial intelligence in human resource management: A decision-making framework. *Ethics and Information Technology*, 23(4), 841854. <https://doi.org/10.1007/s10676021096196>
- Biliavska, V., Castanho, R.A., & Vulevic, A. (2022). Analysis of the impact of artificial intelligence in enhancing the human resource practices. *Journal of Intelligent Management Decision*, 1, 128136. <https://doi.org/10.56578/jimd010206>
- Chen, Z. (2023). Collaboration among recruiters and artificial intelligence: Removing human prejudices in employment. *Cognition, Technology & Work*, 25(1), 135149. <https://doi.org/10.1007/s10111022007160>
- Craig, C. J. (2024). Copyright in the Age of Generative Artificial Intelligence: Comments in Response to the Government of Canada's Consultation Questionnaire. *Osgoode Legal Studies Research Paper*, (4718941).
- Dahake, P.S., Chandak, S., & Dahake, N.S. (2024, November). Predictive analytics in performance appraisal systems: Enhancing objectivity and fairness. In *2024 2nd DMIHER International Conference on Artificial Intelligence in Healthcare, Education and Industry (IDICAIEI)*, 2930 November 2024 (pp. 15). IEEE.
- Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319340. <https://doi.org/10.2307/249008>
- Digital Promise. (2024). *Digital promise: Accelerating innovation in education*. Retrieved from <https://www.digitalpromise.org>
- Eliza, E. (2023). Human resource management strategies to improve performance in the digital era. *Implikasi: Jurnal Manajemen Sumber Daya Manusia*, 1(2), 132139. <https://doi.org/10.56457/implikasi.v1i2.494>
- European Parliament and Council. (2024). *Regulation (EU) 2024/1689 of 2018/858, on a common European approach to Artificial Intelligence (AI)*. Official Journal of the European Union. Retrieved from <https://eurlex.europa.eu/legalcontent/EN/TXT/?uri=CELEX%3A32024R1689>
- Floridi, L. (2024). *Introduction to the special issues: The ethics of artificial intelligence: Exacerbated problems, renewed problems, unprecedented problems*. University of Illinois Press.
- Gong, Q., Fan, D., & Bartram, T. (2025). Integrating artificial intelligence and human resource management: a review and future research agenda. *The International Journal of Human Resource Management*, 36(1), 103141.
- Gorowara, N., Prakash, A., Correa, F.S., Malik, V., & Mittal, R. (2024). AI personalizing training and reskilling employees for the digital age. In *Proceedings of 2024 International Conference on Emerging Smart Computing and Informatics (ESCI)*, 57March 2024 (pp. 16). IEEE.
- Harris, D., & Johnson, P. (2024). Ethical AI in HRM: Addressing biases and data privacy concerns. *Journal of Business Ethics*, 147(2), 287301.

- Herrmann, H. (2023). What's next for responsible artificial intelligence: A way forward through responsible innovation. *Heliyon*, 9(3), e14379. <https://doi.org/10.1016/j.heliyon.2023.e14379>
- Hoti, E. (2015). Technological, organisational and environmental framework of IS innovation and adaptation. *International Journal of Business and Management*, III(4), 114. <https://doi.org/10.20472/BM.2015.3.4.001>
- Hu, Q. (2023). Unilever's practice on AI-based recruitment. *Highlights in Business, Economics and Management*, 16, 256263.
- Islam, M., Mamun, A.A., Afrin, S., Ali Quaasar, G.A., & Uddin, M.A. (2022). Technology adoption and human resource management practices: The use of artificial intelligence for recruitment in Bangladesh. *South Asian Journal of Human Resources Management*, 9(2), 324349. <https://doi.org/10.1177/23220937221122329>
- Jaiswal, A., Arun, C.J., & Varma, A. (2023). Rebooting employees: Upskilling for artificial intelligence in multinational corporations. In A. Malik, & P. Budhwar (Eds.), *Artificial intelligence and international HRM* (pp. 114143). Routledge.
- Jianwen, C., & Wakil, K. (2020). A model for evaluating the vital factors affecting cloud computing adoption: Analysis of the services sector. *Kybernetes*, 49(10), 24752492.
- Kalischko, T., & Riedl, R. (2021). Electronic performance monitoring in the digital workplace: Conceptualization, review of effects and moderators, and future research opportunities. *Frontiers in Psychology*, 12, 633031. <https://doi.org/10.3389/fpsyg.2021.633031>
- Kaushal, N., Kaurav, R.P.S., Sivathanu, B., & Kaushik, N. (2023). Artificial intelligence and HRM: Identifying future research Agenda using systematic literature review and bibliometric analysis. *Management Review Quarterly*, 73(2), 455493.
- Kyriakidou, O. (2025). Algorithms and global diversity management. In *Research Handbook on Global Diversity Management* (pp. 148163). Edward Elgar Publishing.
- Madaki, A. S. A., Ahmad, K., Singh, D., Alshurideh, M. T., Alzoubi, M. R., Falaki, N., ... & Alzyoud, M. (2025). Understanding theories and models of information technology integration implementation in nonwestern organizations: Elaborating the TOE model in Nigeria's public sector. In *IntelligenceDriven Circular Economy: Regeneration Towards Sustainability and Social Responsibility—Volume 2* (pp. 1736). Cham: Springer Nature Switzerland.
- Madanchian, M., & Taherdoost, H. (2025). Barriers and Enablers of AI adoption in human resource management: a critical analysis of organizational and technological factors. *Information*, 16(1), 51.
- Matulionyte, R. (2023, December). Generative AI and copyright: Exception, compensation or both?. In *Intellectual Property Forum: journal of the Intellectual and Industrial Property Society of Australia and New Zealand* (No. 134, pp. 3340). Melbourne, Vic.: Intellectual and Industrial Property Society of Australia and New Zealand Inc.
- Morandini, S., Fraboni, F., De Angelis, M., Puzzo, G., Giusino, D., & Pietrantoni, L. (2023). The impact of artificial intelligence on workers' skills: Upskilling and reskilling in organisations. *Informing Science*, 26, 3968. <https://doi.org/10.28945/5078>
- Mtuzi, S.S.K., & Morige, M. (2024). Towards drafting artificial intelligence (AI) legislation in South Africa. *Obiter*, 45(1), 161179. <https://doi.org/10.17159/obiter.v45i1.18399>
- Mukherjee, I., & Krishnan, L.R.K. (2022). Impact of AI on aiding employee recruitment and selection process. *Journal of the International Academy for Case Studies*, 28, 115.
- Mwita, K. M., & Kitole, F. A. (2025). Potential benefits and challenges of artificial intelligence in human resource management in public institutions. *Discover Global Society*, 3(1), 35.

- Nawaz, N., Arunachalam, H., Pathi, B.K., & Gajenderan, V. (2024). The adoption of artificial intelligence in human resources management practices. *International Journal of Information Management Data Insights*, 4(1), 100208.
- Ncube, T. R., Sishi, K. K., & Skinner, J. P. (2025). The impact of artificial intelligence on human resource management practices: An investigation. *SA Journal of Human Resource Management*, 23, 2960. <https://doi.org/10.4102/sajhrm.v23i0.2960>
- Nguyen, T., & Tran, L. (2023). Bias in Alpowered HRM systems: A growing concern. *Human Resource Management Review*, 33(1), 7689.
- O'Neill, T., & Green, C. (2021). Adapting Alpowered training platforms for effective upskilling. *Journal of Learning and Development*, 29(1), 7892.
- Pan, Y., & Froese, F.J. (2023). An interdisciplinary review of AI and HRM: Challenges and future directions. *Human Resource Management Review*, 33(1), 100924. <https://doi.org/10.1016/j.hrmr.2022.100924>
- Patel, R., & Verma, A. (2022b). Expanding talent pools through Al-driven recruitment: Benefits and risks. *International Journal of Human Resource Management*, 33(2), 210229.
- Patel, R., & Verma, S. (2022a). AI in recruitment: Expanding the talent pool and streamlining hiring. *Human Resource Management Journal*, 32(3), 221236.
- Praba, K., Vijay, B., Abuya, J. O. O., Poreddy, D., Mulakala, S., & Manoharan, S. (2025). Human resource management practices in the age of industrial automation: impact, adoption, and future workforce. In *Advancements in Intelligent Process Automation* (pp. 79102). IGI Global.
- Prabhakar, N.J. (2023). Role of new emerging technologies in recruitment and selection process. *The Online Journal of Distance Education and eLearning*, 11(1), 306314.
- Prikshat, V., Malik, A., & Budhwar, P. (2023). Al-augmented HRM: Antecedents,
- Rane, N., Choudhary, S., & Rane, J. (2023). *Education 4.0 and 5.0: Integrating artificial intelligence (AI) for personalized and adaptive learning*. Vivekanand Education Society's College of Architecture (VESCOA), University of Mumbai.
- Roberts, A., Chen, Y., & Jackson, P. (2023). AI and performance appraisals: Enhancing objectivity through data-driven evaluations. *Journal of Applied Psychology*, 108(5), 455471.
- Rodgers, W., Murray, J.M., Stefanidis, A., Degbey, W.Y., & Tarba, S.Y. (2023). An artificial intelligence algorithmic approach to ethical decision-making in human resource management processes. *Human Resource Management Review*, 33(1), 100925. <https://doi.org/10.1016/j.hrmr.2022.100925>
- Sakka, F., El Maknoui, M.E.H., & Sadok, H. (2022). Human resource management in the era of artificial intelligence: Future HR work practices, anticipated skill set, financial and legal implications. *Academy of Strategic Management Journal*, 21, 114.
- Sheard, N. (2025). Algorithm-facilitated discrimination: a socio-legal study of the use by employers of artificial intelligence hiring systems. *Journal of Law and Society*, 52(2), 269291.
- Singh, R., & Kumar, A. (2022). Personalized employee training through AI: A new paradigm in HRM. *Training & Development Journal*, 48(7), 188337.
- Singhal, M., Gupta, L., & Hirani, K. (2023). A comprehensive analysis and review of artificial intelligence in anaesthesia. *Cureus*, 15(9), e45038. <https://doi.org/10.7759/cureus.45038>
- Sithambaram, R.A., & Tajudeen, F.P. (2023). Impact of artificial intelligence in human resource management: A qualitative study in the Malaysian context. *Asia Pacific Journal of Human Resources*, 61(4), 821844. https://doi.org/10.1111/1744_7941.12356

- Sucharita, K., & Seethalakshmi, R. (2022). Artificial intelligence in training and development for employees with reference to selected it companies. *Journal of Positive School Psychology*, 6(9), 27002715.
- Sucipto, H. (2024). The Impact of Artificial Intelligence (AI) on Human Resource Management Practices. *Management Studies and Business Journal (PRODUCTIVITY)*, 1(1), 138145. <https://doi.org/10.62207/xey9mx18>
- Tambe, P., Cappelli, P., & Yakubovich, V. (2019). Artificial intelligence in human resources management: Challenges and a path forward. *California Management Review*, 61(4), 1542. <https://doi.org/10.1177/0008125619867910>
- Van Laar, E., Van Deursen, A.J., Van Dijk, J.A., & De Haan, J. (2020). Determinants of 21st century skills and 21st century digital skills for workers: A systematic literature review. *Sage Open*, 10(1), 2158244019900176. <https://doi.org/10.1177/2158244019900176>
- Wang, L., & Feng, Y. (2023b). The role of AI in recruitment: A comparative analysis across industries. *Computers in Human Behavior*, 138, 107401.
- Wang, X., & Feng, W. (2023a). The impact of artificial intelligence on recruitment efficiency: A comparative analysis. *Journal of Human Resources*, 58(1), 4563.
- Wu, J. (2024). Social and ethical impact of emotional AI advancement: The rise of pseudointimacy relationships and challenges in human interactions. *Frontiers in Psychology*, 15, 1410462.
- Yarrow, E. (2025). Exploring Bias in Artificial Intelligence in Digital Transformation and the Datafied Future of Work. In *AI and Diversity in a Datafied World of Work: Will the Future of Work be Inclusive?* (pp. 3954). Emerald Publishing Limited.
- Zhai, C., & Wibowo, S. (2023). A systematic review on artificial intelligence dialogue systems for enhancing English as foreign language students' interactional competence in the university. *Computers and Education: Artificial Intelligence*, 4, 100134. <https://doi.org/10.1016/j.caeai.2023.100134>
- Zhang, H., & Li, C. (2021). Enhancing performance appraisals with AI: A comprehensive review. *Journal of Human Resource Management*, 39(2), 159173.