Economic Sciences
https://economic-sciences.com
ES (2026) 22, 1(S), 74-86| ISSN:1505-4683

Leveraging AI to Mitigate Bias in HR Functions: A Systematic Literature Review

Saket Jeswani[1], Padmavathy Dhillon[2]
[1]Research Scholar (OB & HR), Ex. PhD, Indian Institute of Management, Sambalpur
Professor & Dean, Sharda School of Business Studies, Sharda University, Agra
Email: ephd20saketj@iimsambalpur.ac.in
[2]Assistant Professor, OB & HR, Indian Institute of Management Sambalpur
Email : padmavathyd@iimsambalpur.ac.in

Abstract

Automation and advanced technologies like Artificial Intelligence (AI), Machine Learning, are expeditiously thriving; it is likely to become a progressively important tool for businesses looking to stay competitive in today's fast-paced and data-driven business environment. AI has the potential to revolutionize the operational activity more effectively and efficiently as it enables businesses to automate the tasks, freeing up employees to focus on more strategic work. Various aspects have been studied so far in terms of AI in HR, but there is a paucity of research in terms of understanding the positive impact of AI adoption that can minimize biases. The objective of the study is to examine the benefits of AI adoption in HRM Practices without bias. This study aims to perform a bibliometric analysis of the scientific literature of 11 papers selected through PRISMA framework. This study will help HR to analyze employees who perform their functions better, such as reviewing and appraisals, employee engagement more effectively and efficiently, better quality work output, employee learning, appraisal, and promotion with equal to or no business with immediate feedback of HR and superiors which eventually lead to better employee engagement.

Keywords: *Artificial Intelligence, AI, Adoption, Human Resource, HR*

1. INTRODUCTION

Artificial intelligence (AI) in human resource (HR) can provide both benefits and detriment across various HR functions. In recruitment, AI can help automate tasks such as sorting resumes and scheduling interviews. This can help reduce the time and resources required for recruitment while also improving the candidate's experience. Another benefit of AI in HR is that it can help reduce bias in the recruitment process. By removing identifying information such as name, gender, and age from resumes, AI can help ensure that candidates are evaluated based on their qualifications and experience rather than their demographic characteristics. In employee engagement, AI can provide personalized learning and development opportunities based on individual employee needs and preferences. AI can also help improve employee retention by identifying potential issues that may cause employees to leave and providing solutions to address those issues. In performance management, AI can help managers provide more accurate and timely feedback to employees based on data analysis. In compensation and benefits, AI can help provide more accurate and fair compensation based on data analysis.

AI in HR can provide many benefits across various HR functions, including recruitment, employee engagement, performance management, and compensation and benefits. Overall, AI in HR has the potential to streamline HR processes, reduce bias, and improve employee engagement, ultimately leading to a more productive and successful organization.

There are some potential detriments to using AI in HR functions. One of the main concerns is that AI may reduce the human touch in HR, which can lead to reduced employee engagement and job satisfaction. For example, if AI is used to automate tasks such as performance management, employees may feel that their contributions are not being recognized or valued. There is also a risk that AI may make errors in HR functions that can have significant consequences for employees and the

organization. For example, if AI is used to determine compensation, an error in the algorithm could lead to unfair compensation for employees. Additionally, if AI is used to screen resumes, it may miss qualified candidates who do not fit the algorithm's parameters, leading to missed opportunities for the organization.

A lot of studies have been done on this, for example Pillai et al. (2023) have said that AI is a disruptive innovation, poised to unleash the next wave of the digital transformation of organizations with rapid advancements over the last decade. AI is a fast-evolving field of technology with numerous application domains such as financial services, the treatment of diseases or Internet- and marketing related fields (Bedué & Fritzsche, 2022**).** AI technology is bringing in new functionalities to human resource management and changing the way human resources are managed in an organization (Pillai et al., 2023). With its impact on society, organizations and individuals, AI has been frequently discussed in many areas of research (Bedué & Fritzsche, 2022**)**. The momentous rise of AI is a global revolution that is expected to persist in the future. Seventy-seven percent of the consumers are knowingly or unknowingly using AI technologies ranging from interactive chatbots and smart wearables to personal digital assistants (Qamar, et al, 2021). With AI's increasing acceptance as a decision-aid tool, it is set to become an integral part of nearly all the functional areas of an organization (Qamar, et al, 2021).

At 99% of Fortune 500 companies, job applications are first evaluated by an applicant tracking system instead of a human being. These systems are often based on AI and allow HR professionals to cope with large amounts of applicant data, the pressure to give timely responses to candidates, and limited resources for finding the best talent (Mujtaba & Mahapatra, 2019; Raghavan et al., 2020). AI-based systems are not likely to entirely replace humans in hiring soon but rather to augment human decision-making (Lennart Hofeditz, Sünje Clausen, Alexander Rie, 2022).

One management area that has begun to leverage AI applications and has presented a diverse set of AI usage implications is Human Resource Management (HRM). AI has been successfully applied in various HRM functions such as performance evaluation, employee selection, employee turnover, prediction of the level of employees' emotional involvement, and employee assignment. However, prior studies suggest that the research domain of AI in HRM is relatively nascent and underdeveloped compared to other fields (Qamar, et al, 2021*)***.**

AI helps to reduce bias in HR functions by removing human judgment and introducing objective analysis. AI can help eliminate bias in resume screening, candidate selection, performance evaluations, and compensation by analyzing data based on objective criteria. This approach can help ensure that decisions are made based on merit rather than subjective factors that can introduce bias. However, it's important to ensure that AI systems are designed and trained properly to avoid perpetuating bias or introducing new biases.

AI is an important area of study that is carried out across the globe in different contexts. AI is rapidly transforming the way we live and work, and the organizational sector is no exception. AI has the potential to reduce bias in HR by automating certain aspects of the Human Resource Department. However, it's important to ensure that the AI algorithms themselves are not biased. AI can be used in Human Resource departments to reduce bias in the hiring process, performance management, performance appraisal, and many more areas. It can help ensure that candidates are evaluated for their qualifications and experience and performance, rather than their personal characteristics.

AI is an overarching term for a variety of different design approaches that enable technical devices to perform operations like human cognition (Bawack et al., 2021). The added value that deductive reasoning, knowledge-based systems, pattern recognition and other AI technologies can provide has lately been documented in numerous different contexts (Hengstler et al., 2016; Laumer et al., 2019; Mesbah et al., 2019). Nevertheless, current implementations, especially in data-intensive industries, are still far from making full use of AI's full potential (Shonhe, (2026). This can be explained by the fact that decision makers in companies are

facing a new organizational logic of digital innovation in implementations of AI with a higher level of self-organization in-between the different operating units (Patrick Bedue and Albrecht Fritzsche, 2021).

2. Literature Review

2.1 Artificial Intelligence and Human Resource Management

AI is being increasingly used in HRM to reduce bias in the hiring process, improve employee engagement, and automate routine tasks. By using AI to analyze data, HR departments can make more informed decisions about hiring and promoting employees, which can lead to a more diverse and inclusive workforce. Additionally, AI can help automate routine tasks such as scheduling interviews and onboarding, which can save time and improve efficiency. Overall, AI can help HR departments work more effectively and make better decisions, which can benefit both the company and its employees.

AI can be used in human resource management to help reduce bias by providing data-driven insights into employee performance, identifying patterns in employee data, and providing targeted feedback and support to help employees improve. Additionally, AI can be used to anonymize employee data, removing personal information that could lead to unconscious bias in performance evaluations. This can help reduce bias by ensuring that all employees are evaluated based on objective criteria, rather than subjective factors like gender, race, or age. Overall, AI can help HR departments reduce bias in performance management by providing more objective and data-driven insights into employee performance, helping to ensure that all employees are evaluated fairly and equitably.

2.2 Benefits of AI in HR Function

AI can be valuable for the overall growth of organization. It is acting as a support function in human resource management. All the activities related to hiring, engaging, and retaining of employees are now conducted in a well-planned and structured way. Surveys from organizations like IBM indicate that about 66% of CEOs think that AI can contribute significantly to the field of HR. The increased automation in HRM has brought machines and humans closer and has fostered HR personnel to take care of aspects that are more human such as creative thinking, problem solving, and empathy. AI and machine learning techniques have now made it easy to study and understand the performance of the employees over an interval of time. Customized learning and development programs are helping employees in improving their productivity by working on their weak areas. Intelligent bots are there to answer the job-related queries of the employees and the use of advanced technology in organizational activities has helped in bringing more transparency and fairness at the workplace. The intelligent AI systems can be of great help in finding the right match for the desired job profile. AI can assist HR managers by playing the role of both assistants and consultants. “Virtual Assistant System” is taking charge of coordinating with applicants as well with the employees, composing emails, scheduling meetings, reporting, and other time-consuming tasks. The “advisor system” can support decision making by intelligently predicting future outcomes in critical areas. Big data analysis can be used to make predictions about future outcomes regarding important organizational matters. The information obtained can then further be used to take necessary preventive measures. AI can be useful in dealing with compliance issues as well. Any compliance risk can be identified beforehand by keeping a look at the network data of the organization.

1) Improved efficiency: AI can automate many of the routine tasks that HR professionals perform, such as resume screening and scheduling interviews. This can free up HR professionals to focus on more strategic tasks, such as talent development and employee engagement.

2) Increased accuracy: AI can analyze data more quickly and accurately than humans, which can help HR professionals make more informed decisions. For example, AI can be used to analyze employee data to identify trends and patterns, such as turnover rates and employee engagement levels.

3) Enhanced candidate experience: AI can be used to personalize the candidate's experience, such as by recommending relevant job openings or providing feedback on a candidate's resume. This can help candidates feel more engaged and invested in the hiring process.

Reduced bias: AI can help reduce bias in the hiring process by removing identifying information, such as a candidate's name and address, from resumes. This can help ensure that candidates are evaluated based on their skills and qualifications, rather than their demographic characteristics.

4) Improved retention: AI can be used to analyze employee data to identify factors that contribute to employee turnover, such as low job satisfaction or poor management. This can help HR professionals develop strategies to improve retention and increase employee engagement.

5) Improved employee engagement: By promoting a more diverse and inclusive workplace, AI can help improve employee engagement and retention.

Overall, adopting AI in HR functions can help organizations improve efficiency, accuracy, and the candidate experience, while also reducing bias and improving retention.

2.3 Drawbacks of AI in HR Function

While there are several benefits to adopting AI in HR functions, there are also some potential disadvantages to consider, including:

While AI can greatly enhance HR functions, there are several potential harms that businesses need to be aware of. One of the primary risks of AI in HR is the potential for bias and discrimination. AI algorithms can be trained on biased data, which can lead to discriminatory outcomes in areas such as hiring, performance evaluation, and compensation. This can result in legal and reputational risks for businesses, as well as damage to employee morale and engagement.

Another risk of AI in HR is the potential for privacy violations. AI systems can collect and analyze large amounts of data on employees, including sensitive personal information such as health data and biometric data. This can raise concerns about employee privacy and data security, particularly in industries such as healthcare and finance where privacy regulations are strict.

Finally, AI in HR can also lead to a loss of human touch in the workplace. While AI can automate many routine HR tasks, it cannot replace the human empathy and understanding that is often necessary in areas such as conflict resolution, employee development, and leadership coaching. This can lead to a dehumanization of the workplace, which can negatively impact employee engagement and morale.

While AI can provide many benefits to HR functions, it is important to carefully consider the potential disadvantages and develop strategies to mitigate them. This may involve investing in training and education for HR professionals, ensuring data privacy and security, and communicating effectively with employees about the benefits of AI.

2.4 Types of Bias in HR Function

There are various biases identified that is possible in various HR functions as mentioned below:

Affinity bias: Affinity bias is the tendency to favor people who share similar interests, backgrounds, and experiences with us. Because of affinity bias, we tend to feel more comfortable around people who are like us. We also tend to unconsciously reject those who act or look different to us (Kassiani Nikolopoulou,2023).

Attribution bias: Attribution bias is the tendency to explain a person's behavior by referring to their character rather than any situational factor. In essence, it leads us to overestimate the weight of someone's personality traits and underestimate the influence of their individual circumstances. Still confused? Read on for some examples as we delve deeper into this unconscious bias.

Beauty bias: Beauty bias, or "lookism," is less well known, but has significant impacts on employees in a workplace. It involves the way in which people are perceived by others, as a result of their level of physical attractiveness.

Conformity bias: The conformity bias is the tendency people have to behave like those around them rather than using their own personal judgment. People seem to be more comfortable mimicking others, even regarding ethical matters.

Confirmation bias: Confirmation bias is the tendency of people's minds to seek out information that supports the views they already hold. It also leads people to interpret evidence in ways that support their pre-existing beliefs, expectations, or hypotheses.

Gender bias: Gender bias refers to treating a person in a more or less favorable way based on their gender. Typically, gender bias occurs due to a set of beliefs that one gender is superior or inferior to the others. Gender bias can affect society in numerous ways, for instance, pay discrepancies.

The halo effect: The halo effect is a type of cognitive bias in which our overall impression of a person influences how we feel and think about their character. Essentially, your overall impression of a person ("He is nice!") impacts your evaluations of that person's specific traits ("He is also smart!"). Perceptions of a single trait can carry over to how people perceive other aspects of that person.

The contrast effect: The contrast effect is a cognitive bias that distorts our perception of something when we compare it to something else, by enhancing the differences between them. This comparison can be either explicit or implicit, simultaneous or at separate points in time, and can apply to various traits, ranging from physical qualities, such as color and taste, to more abstract qualities, such as price and attractiveness.

2.5 Research Gap

There are numbers of studies in the field of AI in HR functions also there are a few authors that have discussed the benefits and harms in HR function through applying AI. Still the authors have directed some future research direction and research areas which are not properly studied like it would be interesting to conduct the study in a real HR environment and limit participation to experienced HR employees. As the sensitive attributes leading to discrimination might differ depending on contextual factors (e.g. Culture) or individual factors (e.g., characteristics of the decision maker), future studies should aim to explore the effects of AI recommendations and XAI with different sensitive attributes (e.g., disability) and diverse group of HR professionals (Lennart Hofeditz, Sünje Clausen, Alexander Rie,2022). Future studies could collect longitudinal data and examine employees' reactions, both skilled and semi-skilled, to utilize emerging technologies such as AI and track the productivity gains through such technologies. key decision-makers and boards' role can be important in the implementation and utilization of emerging technologies. Thus, future studies need to examine the type of leadership styles conducive to utilizing emerging technologies in the workplace (Ahmad Arslan, Cary Cooper, Zaheer Khan,2021). There is still a lot to learn and explore in the field of people analytics. As more and more companies start adopting AI technology, there will be massive competition in the market to attract top talents. In that situation, only the ability of companies to live up to the digital expectations of candidates and to provide them with the best experience will create a difference between them. The future will be ruled by the industry that prepares its workforce to constructively utilize the potential of Artificial Intelligence and big data for gaining a competitive edge (Isha Tewari, Mohit Pant, 2020).

We commit ourselves to systematic review research by raising a specific research question namely:

RQ1: How AI helps to reduce biased human decisions in HRM practices?

To answer the Research questions, this study motivates to understand the objective which helps to know the advantages and benefits of Adopting AI in HRM. Hence, the objectives are

1) To examine the benefits of adopting AI in HRM to reduce biasness, it can be used to measure employee performance appraisal, compensation management, talent acquisition etc.
2) To Investigate the role of AI in HRM and its potential for reducing bias in decision-making processes.

Economic Sciences
https://economic-sciences.com
ES (2026) 22, 1(S), 74-86| ISSN:1505-4683

Thus, at the one end of the spectrum, AI has the potential to herald a technological long wave which may impact human resources within the organization in different ways. While it may create new job roles, AI may also rationalize existing roles causing livelihood uncertainties for employees who are otherwise unable to adapt to it. Such lack of adaptation may trigger organization-wide unrest, compromising the gains from adoption of AI and increasing governance cost. On the other end of the spectrum, it is equally possible that AI may just be another management jargon, that caught the fancy of academia and practice as a novel but transient bargaining opportunity to govern industrial relations but destined for a natural demise. Or it can be anything in between or above the plane of human cognition like a singularity and whose effects likewise on the organization and its human resources are beyond comprehension. We join the conversation and focus on how organizations in general adopt and human resources progressively adapt to AI as the latter transgresses into the HRM domain.

3. Methodology

The Integrative Literature Review technique was used, which has been suggested for rigorously mapping out the existing state of research in the field of AI adoption, as submissions are searched, reviewed, and synthesized using a pre-determined explicit protocol (Pilbeam et al., 2012). This protocol guarantees a straightforward and impartial analysis methodology in the entire research domain. The following systematic steps were taken based on general management principles (Briner et al., 2009; Denyer and Tranfield, 2009).

The first move was to select relevant literature as a guide. The literature discovery method involves factors such as (a) what articles were discovered, (b) when the search was carried out, (c) who performed the search, (d) how the articles were discovered, (e) how many articles appeared and the final number of selected articles, and (f) why the articles were eventually selected.

The first step was to determine the databases to be used for the document search. The databases being queried were Google Scholar, Scopus and Science Direct (table 1), as they are currently the most relevant within our research field. The search keywords were “Artificial Intelligence” and “Human Resource” in the search field (Article Title, Abstract, and Keywords) for the period 2018–2025. The inclusion criteria included studies that focus mainly on the adoption of AI in HR to reduce bias in the organization which and has not been studied so far. The data from the selected studies extracted and analyzed using a meta-analytic Approach, in compliance with the PRISMA principle as shown in figure 1.

Therefore, this research project aims to investigate the effectiveness of AI in HR decisions and reduce biasness in organizations. However, the impact of adopting AI in HR to lessen biasness and take fair decisions for employees has not been exclusively studied. We investigate the potential of AI to change traditional HR approaches and promote more affective decision making, performance evaluating, engaging, learning and developing environment of employees by reviewing a wide range of studies and study findings.

Table1: Number of Articles Search

Database	Keyword Search	Title Search	Abstract Search	Full Paper Search	Final Papers Selected
Scopus	124	17	06	04	04
Google scholar	200	16	07	06	05
Science direct	416	36	12	04	02
Total	**740**	**69**	**25**	**14**	**11**

Economic Sciences
https://economic-sciences.com
ES (2026) 22, 1(S), 74-86| ISSN:1505-4683

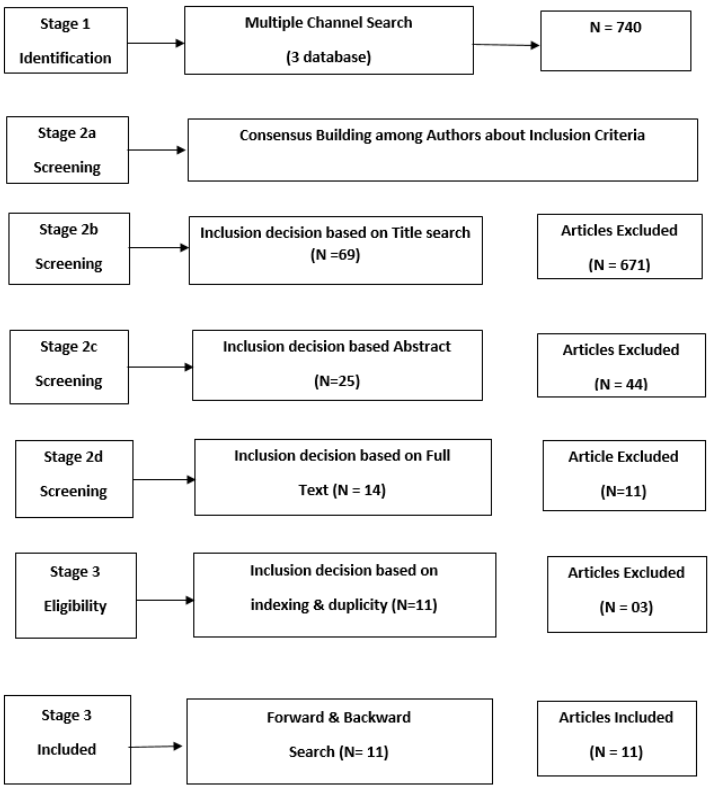

Figure 1: A PRISMA flow diagram displaying the results of the Systematic literature search

4. Findings and Discussions

AI can be a powerful tool for reducing bias in HR functions, but it is important to ensure that AI systems are designed and trained properly to avoid perpetuating bias. This study on how AI helps to reduce biased human decisions in HRM practices aims to explore and analyze the potential findings related to the use of AI in mitigating biases in HRM. In HRM practices, biases can arise due to a variety of factors such as personal prejudices, cognitive limitations, or even unintentional discrimination based on various characteristics including age, gender, race, or ethnicity. By incorporating AI solutions into HRM processes, organizations can potentially enhance fairness and objectivity in decision-making.

4.1 Application of AI in HR Function with Reduced Bias

AI technology is gradually reshaping all the various HRM functions. HRM functions like recruitment, selection, training and development, performance management, and workforce engagement are all now done with the involvement of virtual assistants. Human resource planning is the first and foremost step in HRM. Human Resource Information System (HRIS) plays a vital role in this process. HRIS is expressed as "a systematic procedure for collecting, storing, maintaining, retrieving and validating data needed by an organization about its human resources, personnel activities, and organization unit characteristics". HRIS can be helpful in HR planning, making job descriptions, performance evaluation, designing training programs, and so on.

Artificial Intelligence can be applied in many ways to HR functions to help reduce bias. One application is in the recruiting process, where AI can help identify qualified candidates by analyzing resumes and identifying key skills and experience that may be overlooked by human recruiters. AI can also help reduce bias in the performance evaluation process by analyzing employee performance data and identifying patterns that may be overlooked by human evaluators. Additionally, AI can be used to develop more accurate and fair compensation models by analyzing employee data and identifying

factors that contribute to pay disparities. Overall, AI can help HR departments reduce bias by providing more objective and data-driven insights into HR processes.

A. **Application of AI in Recruitment and Selection with reduced bias:** AI is helping firms and recruitment agencies to work efficiently by processing many candidate applications in very little time. By the virtue of AI, companies can now improve candidate engagement and follow both strategies of high volume and high touch thus building a steady and lasting relationship with their candidates. Bots powered by AI are utilized to get in touch with the applicants, answer their doubts, and keep them well connected and tied up throughout the entire process of hiring. AI-powered assistants or bots are well equipped with natural language processing (NLP) and thus play a leading role in all types of candidate communications. NLP can easily convert speech into text within microseconds which is increasing recruiter's efficiency by eliminating their typing work. The AI assistants help recruiters with tasks like candidate screening, establishing contact, scheduling meetings and interviews, and candidate engagement. This is further benefiting organizations by saving time and cost, hiring quality candidates, mapping talents accurately, reducing biasedness, and redressing queries of candidates quickly. According to a reference quoted by an article, making use of software powered by artificial intelligence in the recruitment process can help companies to reduce their hiring cost by 71% per candidate that will further help in increasing efficiency in recruitment activities by three times. Online interviewing platforms like HireVue are extremely helpful in conducting pre-hire assessments. HireVue allows recruiters to provide pre-set questions to the candidates which they are supposed to answer through the medium of a video. These pre-recorded videos are then assessed by the recruiters to select the suitable candidates for a final interview. Using this technology, more no. of prospects can be evaluated in a short time. Processes like this help in engaging the candidates and in simplifying the hiring process. Artificial Intelligence can be applied in recruitment and selection to help reduce bias by analyzing resumes, job postings, and candidate data to identify the most qualified candidates. AI can help HR departments identify patterns in candidate data, such as work experience, education, and skills, that may be overlooked by human recruiters. This can help ensure that all candidates are evaluated based on objective criteria, rather than subjective factors like gender, race, or age. Additionally, AI can be used to anonymize candidate data, removing personal information that could lead to unconscious bias in the hiring process. Overall, AI can help HR departments reduce bias in recruitment and selection by providing more objective and data-driven insights into candidate qualifications and potential.

B. **Application of AI in Onboarding with reduced bias:** Onboarding is the process of making new employees familiar with the organization's environment, policies, and work culture. Companies usually conduct induction sessions for this purpose. However, new employees require more attention but attending to each of them separately is an impossible task. AI is now helping with this through customized onboarding processes which are resulting in a high level of organizational adaptation among new employees [13]. Also, these days HR professionals are being assisted by bots that are there to interact with the newly joined employees and keep them informed about their job benefits, company's rules, policies, and also helps them by resolving their queries and doubts. Artificial Intelligence can be applied in onboarding to help reduce bias by providing personalized training and support to new employees. AI can analyze employee data to identify areas where new employees may need additional support or training and provide targeted resources to help them succeed. Additionally, AI can be used to provide personalized onboarding experience based on the employee's role, experience, and learning

style, helping to ensure that they are engaged and motivated from the start. Overall, AI can help HR departments reduce bias in onboarding by providing more personalized and data-driven support to new employees, helping them to succeed and thrive in their new roles.

C. **Application of AI in Training and Development with reduced bias:** In this current rapidly changing environment, it is of utmost importance that the employees are aware of the latest trends, developments, and changes related to their work. Therefore, a proper training facility is a must in any organization for having a professional and technically skilled workforce. New technologies in the area of training and development are helping HRs in making their training programs more effective and smarter through online learning platforms. It is important to find out how satisfying and beneficial these training sessions have been for the employees and that is why they are requested to give feedback and suggestions based on their experience during the training period. AI helps the HR department in such feedback activities as well.

Artificial Intelligence can be applied in training and development to help reduce bias by providing personalized training and development opportunities to employees. AI can analyze employee data to identify areas where employees may need additional training or development and provide targeted resources to help them improve. Additionally, AI can be used to provide personalized training experience based on the employee's role, experience, and learning style, helping to ensure that they are engaged and motivated to learn. This can help reduce bias by providing employees with the skills and knowledge they need to succeed, regardless of their background or personal characteristics. Overall, AI can help HR departments reduce bias in training and development by providing more personalized and data-driven support to employees, helping them to reach their full potential.

D. **Application of AI in Employee Engagement with reduced bias:** It has now become easier for organizations to predict the engagement level of their employees through various prediction techniques supported by artificial intelligence. These tools and techniques are capable of analyzing large data sets, deriving important outputs from them, and predicting both the present and future engagement levels of the employees. The face recognition technology is helping he organizations in identifying the mood of their employees by reading their expressions on any particular day. This helps the organization in understanding the behavior of the employees in a better way which, in turn, makes employees feel important and valued. This eventually leads to a higher level of employee engagement within the organization.

Artificial Intelligence can be applied in employee engagement to help reduce bias by providing personalized feedback and support to employees. AI can analyze employee data to identify patterns in employee behavior, such as work habits, job satisfaction, and performance, and provide targeted feedback and support to help employees improve. Additionally, AI can be used to provide personalized engagement experiences based on the employee's role, experience, and preferences, helping to ensure that they are engaged and motivated to contribute to the company's success. This can help reduce bias by providing employees with equal opportunities to engage and contribute to the company, regardless of their background or personal characteristics. Overall, AI can help HR departments reduce bias in employee engagement by providing more personalized and data-driven feedback and support to employees, helping them to feel valued and motivated to succeed.

E. **Application of AI in Compensation Management with reduced bias** Compensation Management is a very essential part of HRM and is directly linked with employee performance at work. It is a process that relates to determining employee compensation based on certain policies and standards. An effective compensation management system in the organization helps in

enhancing both individual performance as well as group performance. A technique called artificial neural networks can be a useful tool in establishing a level of fairness in the process of compensation evaluation. The neural network system can recognize relationships in big data sets by imitating the functioning of the human brain.

Artificial Intelligence can be applied in compensation management to help reduce bias by providing data-driven insights into employee performance and compensation. AI can analyze employee data to identify patterns in employee performance, such as work quality, productivity, and contribution to the company's success, and provide targeted compensation recommendations based on this data. Additionally, AI can be used to anonymize employee data, removing personal information that could lead to unconscious bias in compensation decisions. This can help reduce bias by ensuring that all employees are evaluated based on objective criteria, rather than subjective factors like gender, race, or age. Overall, AI can help HR departments reduce bias in compensation management by providing more objective and data-driven insights into employee performance and compensation, helping to ensure that all employees are compensated fairly and equitably.

F. **Application of AI in Performance Management with reduced bias:** Performance management is yet another very important HRM practice. Systems supported by artificial intelligence have made this process very quick and efficient. Scientific Assessment methods like 360-degree appraisal are now conducted automatically. Employee evaluation criteria are fed into the system along with other useful data to obtain performance-based results. Artificial Intelligence can be applied in performance management to help reduce bias by providing data-driven insights into employee performance. AI can analyze employee data to identify patterns in employee performance, such as work quality, productivity, and contribution to the company's success, and provide targeted feedback and support to help employees improve. Additionally, AI can be used to anonymize employee data, removing personal information that could lead to unconscious bias in performance evaluations. This can help reduce bias by ensuring that all employees are evaluated based on objective criteria, rather than subjective factors like gender, race, or age. Overall, AI can help HR departments reduce bias in performance management by providing more objective and data-driven insights into employee performance, helping to ensure that all employees are evaluated fairly and equitably.

G. **Application of AI in Employee Retention with reduced bias:** Artificial Intelligence is also helping the organization in employee retention. With the use of AI-based software, it is easier to find out employees who might be thinking of exiting the organization. This is done by keeping an eye on the browsing activity patterns of the employee's computer system. The data is studied from one month by using an AI system and any indication that points towards the exit of the employee are reported to the employer for taking necessary action towards preventing the same.

Artificial Intelligence can be applied in employee retention to help reduce bias by identifying factors that contribute to employee turnover. AI can analyze employee data to identify patterns in employee behavior, such as work habits, job satisfaction, and performance, and use this information to develop more effective retention strategies. For example, AI can be used to analyze employee feedback and identify common themes and concerns, which can be addressed by management to improve employee satisfaction and retention. Additionally, AI can be used to identify employees who are at risk of leaving the company, allowing management to take proactive steps to retain them. Overall, AI can help HR departments reduce bias in employee retention by providing more objective and data-driven insights into employee behavior and retention strategies.

Firstly, the findings of the study may reveal that AI algorithms can help to reduce biases in the recruitment and selection process. Traditional methods, such as resume screening, interviews, or even performance evaluations, can be influenced by conscious or unconscious biases of HR professionals. However, AI-powered tools can be designed to assess candidates solely based on their qualifications, skills, and abilities, minimizing the impact of biases and promoting a more diverse and inclusive workforce.

Secondly, the study may uncover that the adoption of AI in performance management can decrease biases commonly associated with subjective evaluations. Human evaluations can be influenced by various factors including personal relationships, recency bias, or even affinity biases, leading to disparities in assessments and potentially limiting opportunities for certain individuals. AI-driven performance management systems can provide objective and data-driven evaluations that are less susceptible to such biases. The study's findings might include evidence showing more consistent and fair performance evaluations, resulting in enhanced employee satisfaction and increased productivity.

Thirdly, the study may explore how AI can reduce biases in compensation decisions. Salary disparities based on gender, race, or other factors have been well-documented in HRM practices. AI can help mitigate such biases by analyzing extensive data on various factors affecting compensation, such as qualifications, experience, performance, and market rates, providing organizations with more objective salary recommendations. The findings might reveal that AI-driven compensation processes can result in fairer and more equitable pay structures, reducing the gender or race pay gap and promoting a more inclusive work environment.

Lastly, the study may uncover potential challenges or limitations related to the use of AI in HRM. Despite its promises, AI is not immune to biases. The findings might include insights into potential algorithmic biases, ethical considerations, or the unintended consequences of relying solely on AI systems, highlighting the importance of continuous human oversight to ensure fairness and avoid reinforcing or perpetuating biases.

This research on how AI helps to reduce biased human decisions in HRM practices can yield valuable findings that demonstrate the efficacy of AI solutions in promoting fairness, objectivity, and diversity in HRM processes. The results of the study can enhance the understanding of organizations and policymakers about the potential benefits and limitations of AI adoption in HRM and guide the development of effective strategies for reducing biases in decision-making.

5. Economics of Scale Model

The proposed model (figure 2) explains how the adoption of AI in HR functions generates economies of scale while simultaneously reducing decision-making bias. AI adoption involves high initial fixed costs in terms of infrastructure development, algorithm training, data integration, and system implementation. However, once these systems are deployed, the marginal cost of executing additional HR decisions—such as resume screening, performance appraisal, compensation analysis, and employee engagement monitoring—declines substantially.

AI-enabled HR systems facilitate scalability by automating repetitive tasks, standardizing decision criteria, and leveraging learning effects from large datasets. As the volume of HR transactions increases, AI systems continuously improve in accuracy and consistency through data reuse and algorithmic learning, thereby strengthening scale efficiencies. Unlike human decision-makers, AI does not experience fatigue or cognitive overload, allowing fairness and objectivity to improve with scale rather than deteriorate. These scale mechanisms result in two critical operational outcomes: reduced cost per HR decision and minimized bias arising from subjective judgment. Over time, these operational efficiencies translate into strategic organizational outcomes, including enhanced fairness, improved efficiency, stronger strategic value of HR, and sustained competitive advantage. Thus, the model demonstrates that AI-driven HR systems not only enhance efficiency but

Economic Sciences
https://economic-sciences.com
ES (2026) 22, 1(S), 74-86| ISSN:1505-4683

also institutionalize equitable and consistent decision-making at scale.

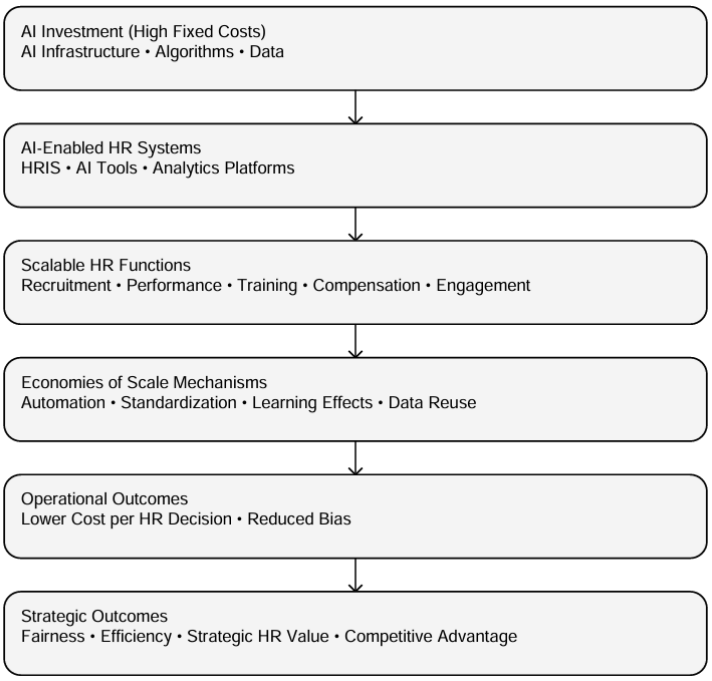

Figure 2: Economics of Scale Model of AI Adoption in HR Functions

6. Implications of AI in HR Function with Reduced Bias

AI has several implications in HR functions. One of the most significant implications is that AI can automate repetitive tasks, such as resume screening and scheduling interviews. This frees up HR professionals to focus on more strategic tasks, such as developing employee engagement programs and creating company culture initiatives. Another implication is that `AI can help with diversity and inclusion efforts. By removing human bias from the hiring process, AI can help ensure that all candidates are evaluated based on their qualifications, rather than their gender, ethnicity, or other personal characteristics. This can lead to a more diverse and inclusive workforce, which can improve company performance and employee satisfaction.AI can also be used to analyze employee data, such as performance metrics and engagement surveys, to identify trends and patterns that can help HR professionals make more informed decisions. Finally, AI can be used to improve the employee experience. Chatbots and virtual assistants can provide employees with instant access to information and support, such as benefits enrollment and time off requests. This can improve employee satisfaction and reduce the administrative burden on HR professionals.

7. Future Research Directions

The potential limitations of AI in fully eradicating bias, acknowledging other forms of bias that AI may introduce or fail to address completely. One potential limitation is that AI algorithms may be biased themselves, based on the data they are trained on. An AI algorithm is trained on a dataset that is biased against a certain group of people, the algorithm may perpetuate that bias in its decision-making.Another potential limitation is that AI algorithms may not be able to fully understand the context of a situation, leading to biased decisions. For example, an AI algorithm may not be able to understand the nuances of language or cultural differences, leading to biased decisions based on incorrect assumptions.

Additionally, AI algorithms may not be able to fully account for the complexity of human decision-making, leading to biased decisions that are difficult to identify or correct. An AI algorithm may be able to identify patterns of bias in hiring decisions, but may not be able to fully account for the many factors that go into a hiring decision, such as a candidate's experience, personality, or fit with the company culture.

Finally, there is also the potential for AI to introduce new forms of bias that were not present before. An AI algorithm may be biased against certain types of job applicants based on their social media activity or other online behavior, even if that behavior is not related to their job performance.Overall, it is important to acknowledge the potential limitations of AI in fully eradicating bias and to work to develop new AI tools and techniques that are more effective at addressing bias in all its forms.

8. Conclusion

The effectiveness of AI algorithms in mitigating bias during the recruitment and selection process, performance evaluations, and other HRM practices. The study has found that AI-enabled systems demonstrated reduced bias compared to human decision-makers by implementing objective criteria and unbiased algorithms. AI can eliminate potentially discriminatory factors such as gender, race, or age from decision-making processes, leading to fairer outcomes. The benefits of using AI systems in enhancing objectivity, transparency, and efficiency in decision-making. It addresses any potential concerns or challenges associated with the implementation and adoption of AI technologies, such as ethical considerations, cost implications, or resistance from employees or HR professionals. The conclusion might recommend investigating the impact of specific AI algorithms or techniques on bias reduction, exploring the role of organizational culture in influencing AI adoption in HRM practices, or analyzing the long-term effects of AI implementation on organizational outcomes.

References

1. bawack, R. E., Wamba, S. F., Carillo, K. D. A., & Akter, S. (2022). Artificial Intelligence In E-Commerce: A Bibliometric Study And Literature Review. *Electronic Markets*, *32*(1), 297–338. Https://Doi.Org/10.1007/S12525-022-00537-Z
2. Briner, R. B., Denyer, D., & Rousseau, D. M. (2009). Evidence-Based Management: Concept Cleanup Time? Academy Of Management Perspectives, 23, 19-32. Https://Doi.Org/10.5465/AMP.2009.45590138
3. Choung, H., David, P., & Ross, A. (2022). Trust In AI And Its Role In The Acceptance Of AI Technologies. *International Journal Of Human–Computer Interaction, 39*, 1727 - 1739.
4. Denyer, D., & Tranfield, D. (2009). Producing A Systematic Review. In The SAGE Handbook Of Organizational Research Methods (Pp. 671–689). SAGE Publications Inc.
5. Pilbeam, Stephen & Jenkins, Debbie & Adam-Smith, Derek. (2013). The Value Of Competency-Based Interviewing In Recruitment And Selection Decisions. 10.1007/978-1-137-27224-9_9.
6. Pillai, R., Sivathanu, B., Rana, N. P., Preet, R., & Mishra, A. (2025). Factors Influencing Customers' Apparel Shopping Intention In Metaverse. *Journal Of Computer Information Systems*, *65*(2), 190–205. Https://Doi.Org/10.1080/08874417.2023.2280842
7. Qamar Y, Agrawal RK, Samad TA, Chiappetta Jabbour CJ (2021), When Technology Meets People: The Interplay Of Artificial Intelligence And Human Resource Management. *Journal Of Enterprise Information Management*, Vol. 34 No. 5 Pp. 1339–1370, Doi: Https://Doi.Org/10.1108/JEIM-11-2020-0436
8. Shonhe, L. (2026). Modelling The Antecedents Of Perceived Trust In AI-Based Records And Information Management Systems. Mousaion: South African Journal Of Information Studies.