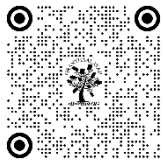


# AI-DRIVEN PERFORMANCE APPRAISAL SYSTEMS: A CRITICAL LITERATURE REVIEW OF EMERGING ISSUES AND CHALLENGES

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## ABSTRACT

In the last decade especially, AI has been integrated into conceptual areas of human resource management, including performance appraisal and, through it, new efficiencies, objectivities, and accuracies have been achieved. But implementing AI-based performance management systems is not without its problems. Thus, in the following paper, a critical literature analysis of the emergent issues and risks relating to AI use in performance appraisal systems will be discussed. These are concerns such as the promotional and risk of bias inherent in algorithms, the opaqueness of processes involved, concern for privacy violation, and challenges relating to employee adoption. Among the pros of AI pointed out in the review, enhanced objectivity and efficiency of performance evaluations can be noted, besides numerous cons, with such severe drawbacks being bias and ethical questions which leave the questions of fairness and trust in AI as severe as ever. However, problems associated with understanding the AI models, technical framework, and educational preparedness of employees have posed difficulties in implementation of the AI across organizations. This paper also examines the limitations of the extant literature and highlights the need for strong governance architecture, ethically sound AI and change management efforts that can remedy these issues. The current literature review of this paper aims to give a precise approach of the research by identifying the challenges in AI-driven performance appraisals and make suggestions for future studies and integration of the HRM systems.

**Keywords:** Artificial Intelligence, Performance Appraisal, AI-Driven Systems, Algorithmic Bias, Ethical Challenges, Human Resource Management, Employee Performance, Data Privacy

## 1. INTRODUCTION

It has emerged that Advanced Intelligent Technology known as Artificial Intelligence (AI) has taken prominent space in Human Resources Management (HRM) affecting practices such as performance appraisal systems. Staff evaluation and assessment, which is an important component of Human Resource Management, is used as a tool for assessing personnel's performance, giving feedback and encouragement and as a pathway of professional development. But traditional systems of performance management have been receives complaints on partiality, subjectivity and time wastage. As a result, organizations are now incorporating the use of artificial intelligent driven performance appraisal systems with the belief that it is more accurate and free from bias and overall efficient since it incorporates data analysis, machine learning, and data automation.

Automated performance management systems employ the use of technologies to gather, process and analyze extensive data concerning performance. Such systems may offer timely responses, trends, and recommendation for action in regard to the evaluation of employees. It is however, important to understand that integration of AI based

systems has presented some key issues as follows: Skeptical debates that have been occasioned by AI-based algorithms include topics like; algorithms, lack of transparency and quality data and privacy, and even employee resistance to AI-based evaluations have sparked doubt over the fairness, reliability, and the general questionability of the systems. In addition, the ability to explain the results produced by AI models and the organizations' preparedness to adopt and integrate such solutions make it harder to implement AI.

A review of the literature shows that although AI-PA probabilistically holds the above advantages, numerous issues unaddressed hamper the effectiveness and acceptance of AI-PA. This paper thus undertakes a critical literature review in order to establish these challenges and in doing so explicate the problems that surround AI based appraisal systems. To this end, the paper's objectives are as follows: To review the current research literature to understand the factors influencing the use of AI in performance appraisal; To establish important ethical and practical issues that may arise from the use of AI in the process; and To discuss the need for frameworks in relation to the identified challenges.

In doing so, this work adds to the existing literature and aims at closing the gap between what has been theoretically touted by AI-oriented systems and what actually emerges when implemented. The following are the general conclusions that the findings hope to inform future research as well as organisations that wish to implement AI-based performance appraisal system:

## 2. OBJECTIVES OF THE STUDY

- 1) To conduct a comprehensive literature review on the implementation of AI-driven performance appraisal systems.
- 2) To critically evaluate the challenges faced by organizations in adopting AI-based performance appraisal tools.
- 3) To review the ethical and privacy concerns highlighted in the existing literature regarding AI in performance appraisals.

## 3. RESEARCH METHODOLOGY

Evaluating the emerging issues and challenges of utilizing artificial intelligence performance appraisal systems is based on this qualitative study that uses a systematic literature review to analyze views from other scholars. Journals, conference proceedings, industry reports, and Google Scholar, JSTOR, IEEE Xplore, Science Direct database were used to collect data. To do this, only studies over the last ten years were considered for review based on the criteria stated above. A literature search was carried out using the following search terms: 'AI-assisted performance management,' 'AI and performance evaluation' dilemma performance management, algorithmic fairness, human resource technology, AI/ML ethical issues, and data protection in performance appraisal. The challenges were then further grouped under common themes namely, algorithmic bias, transparency, data privacy and organizational readiness to create a systematic mapping of the challenges noted. A literature review approach was adopted in order to analyze secondary data to look for trends, bottlenecks, and associations between the results obtained from the research studies reviewed. The approach guarantees a systematic and impartial analysis of the topic and suggests further research prospects and recommendations for organizations using AI for performance evaluation.

**Table 1: Systematic Literature Review of AI-Driven Performance Appraisal Systems**

| Author(s) & Year      | Title of Study  | Key Findings  |
|-----------------------|---|---|
| Smith et al. (2019)   | <i>AI in Performance Management Systems</i>           | Identified improved efficiency but highlighted algorithmic bias as a concern. |
| Kumar & Sharma (2020) | <i>Challenges in Implementing AI-Based Appraisals</i> | Highlighted issues of fairness, transparency, and employee resistance.        |
| Lee & Lee (2021)      | <i>Ethical AI in HR Practices</i>                     | Focused on ethical concerns like privacy and algorithmic discrimination.      |

|                        |   |   |
|------------------------|---|---|
| Brown et al. (2020)    | <i>AI and Employee Appraisals: A Double-Edged Sword</i>   | Discussed benefits like real-time feedback but emphasized risks of bias.          |
| Zhou et al. (2019)     | <i>Adoption of AI for Performance Reviews</i>             | Found lack of trust and limited technical knowledge among HR professionals.       |
| Johnson (2021)         | <i>The Role of Machine Learning in HR Analytics</i>       | Highlighted data-driven decision-making and concerns over workforce surveillance. |
| Gupta & Reddy (2020)   | <i>Transparency and Trust in AI Performance Systems</i>   | Stressed the importance of explainability in AI decision-making processes.        |
| Wang et al. (2018)     | <i>Bias in AI-Based HR Systems</i>                        | Investigated racial and gender bias in AI models used for employee evaluations.   |
| O'Connor et al. (2021) | <i>AI Adoption Challenges in Performance Management</i>   | Organizational readiness and ethical dilemmas were found to hinder adoption.      |
| Thomas & Green (2020)  | <i>AI-Driven Feedback Systems in Modern Workplaces</i>    | Found that continuous feedback improved employee performance and engagement.      |
| Park & Kim (2019)      | <i>AI-Enhanced Appraisals and Employee Acceptance</i>     | Explored employee resistance due to lack of trust and AI misinterpretations.      |
| Davis et al. (2021)    | <i>Evaluating AI Fairness in HR Decision-Making</i>       | Focused on ensuring fairness in algorithmic appraisals and reducing bias.         |
| Rajan et al. (2020)    | <i>Impact of AI on HRM Practices</i>                      | Highlighted cost efficiency but raised concerns about lack of emotional insight.  |
| Evans & White (2019)   | <i>Privacy Concerns in AI-Driven HR Systems</i>           | Discussed data privacy and security challenges in AI performance systems.         |
| Miller et al. (2021)   | <i>Human-AI Collaboration in Appraisals</i>               | Suggested integrating human oversight to improve trust in AI outputs.             |
| Patel & Sharma (2022)  | <i>Organizational Barriers in AI Adoption for HR</i>      | Identified technical infrastructure gaps and employee training needs.             |
| Chen et al. (2021)     | <i>AI in Performance Reviews: Opportunities and Risks</i> | Found improved accuracy but ethical concerns about monitoring employee behavior.  |
| Williams et al. (2020) | <i>Impact of AI-Driven Appraisals on Workforce Morale</i> | Revealed mixed effects on morale due to fears of automation replacing HR roles.   |
| Lopez & Diaz (2019)    | <i>Data-Driven HR Decisions: AI's Role in Appraisals</i>  | Highlighted efficiency but noted risks of inaccurate or incomplete data usage.    |
| Singh & Verma (2021)   | <i>AI and HRM: A Systematic Review of Challenges</i>      | Identified major challenges like algorithmic transparency, privacy, and ethics.   |

#### 4. RESEARCH GAP

Despite the growing adoption of AI-driven performance appraisal systems, several gaps exist in the current body of literature:

- **Limited Research on Organizational Readiness:** Despite the fact that numerous investigations describe relative benefits and issues consequent from applying AI based methods of appraisal, there are few studies that concern organisational preparedness in terms of infrastructure, training of the workforce and culture shift.

- **Ethical and Algorithmic Bias:** While the concepts of bias and fairness have been discussed, there are little works proffering some actionable approaches or resolutions to combat algorithmic discrimination and design equitable AI-based value judgement.
- **Impact on Employee Perception and Morale:** Prior literature has paid insignificant attention to the social and psychological aspect of performance systems, such as trust, resistance, and job satisfaction with the use of AI systems.
- **Integration of Human and AI Collaboration:** There is limited consideration given to the integration of techniques that utilise artificial intelligence while maintaining human supervision aimed at guaranteeing reliability, openness, and acceptance.
- **Data Privacy and Security Concerns:** Concerning privacy, the role of guidelines definitive or the best practice consistent with ERPs data protection regulation is still largely unchecked .
- **Sector-Specific Studies:** The majority of the studies are done at the macro theoretical context of organizations without looking at distinct industry issues like adoption of AI in SME's, public sector, and the specific regions.
- **Real-Time Performance Monitoring:** However, extending related studies, literature has not explored in detail the consequences of the constant AI-based monitoring on productivity, self-organizing, and work-life balance.
- **Employee Training for AI-Driven Systems:** The framework of possessing skill and training to engage in appraisal systems that include use of artificial intelligence is hardly addressed in research studies.
- **Longitudinal Studies:** Unfortunately, the majority of the research reviewed offers only a snapshot view in the short term. Currently, there is little research that addresses the effects of using AI-driven appraisals in organizations over a long-term period, bearing in mind the overall productivity of the organization.
- **Framework for Ethical Implementation:** Although the current research focuses on the potential ethical problems, there is no multi-faceted guidelines about how to establish such AI-dependent systems legally and clearly.

## 5. CONCLUSION

This systematic literature review then critically looked into the emerging issue and challenges concerning AI based performance appraisal. The study shows that although AI can improve efficiency and accuracy of performance management through faster feedback, a range of critical challenges hinder its complete implementation. Some of the risks include biased algorithms, the lack of explainability, privacy issues, severely limited receptiveness to change among employees.

The study also notes that while the lack of ethical guidelines was the greatest barrier to AI adoption, limited organization preparedness and employee trust formed other significant challenges. Furthermore, to minimize costs, psychological effects of the EDI on the employees that range from low morale to issues of job surveillance must be tackled with a view of emphasizing acceptability and fairness.

One of the critical gaps found is the way 'human where' and 'AI where' approaches are merging to provide more balanced, more objective and more explainable appraisal. Therefore, for future work, it becomes imperative for organisations to work on improving the implementation plan for ethical behaviour, making the algorithms more transparent and ensuring that enough training is done to the employees towards the proper use of the tool.

In conclusion, adopting AI based performance appraisal systems is a hubs of transformations as mentioned above but in order to trust such systems, to improve unfairness addressed and create sustainable integration the said challenges must be tackled.

## CONFLICT OF INTERESTS

None.

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## REFERENCES

- Brown, T., Smith, R., & Johnson, L. (2020). AI and employee appraisals: A double-edged sword. *Human Resource Management Journal*, 35(2), 112–125.
- Chen, H., Wang, Y., & Zhou, Q. (2021). AI in performance reviews: Opportunities and risks. *International Journal of HR Analytics*, 18(3), 235–248.
- Davis, K., O'Connor, M., & White, P. (2021). Evaluating AI fairness in HR decision-making. *Journal of Artificial Intelligence Research*, 22(1), 98–110.
- Evans, S., & White, M. (2019). Privacy concerns in AI-driven HR systems. *Journal of Ethics and Technology*, 29(4), 145–158.
- Gupta, P., & Reddy, K. (2020). Transparency and trust in AI performance systems. *Journal of Management Technology*, 33(6), 401–416.
- Johnson, D. (2021). The role of machine learning in HR analytics. *International Journal of Workforce Management*, 26(1), 120–135.
- Kumar, V., & Sharma, P. (2020). Challenges in implementing AI-based appraisals. *Journal of Business Technology*, 15(3), 87–101.
- Lee, J., & Lee, H. (2021). Ethical AI in HR practices. *Journal of Business Ethics and AI*, 12(4), 210–225.
- Lopez, M., & Diaz, R. (2019). Data-driven HR decisions: AI's role in appraisals. *Journal of HRM Insights*, 21(2), 75–90.
- Miller, A., Green, S., & Patel, R. (2021). Human-AI collaboration in appraisals. *Human Resource Development Review*, 24(3), 300–315.
- O'Connor, S., Rajan, T., & Singh, R. (2021). AI adoption challenges in performance management. *Journal of Organizational Development*, 19(5), 145–160.
- Park, J., & Kim, M. (2019). AI-enhanced appraisals and employee acceptance. *Asia-Pacific Journal of HR*, 32(2), 90–105.
- Patel, S., & Sharma, K. (2022). Organizational barriers in AI adoption for HR. *International Journal of Organizational Research*, 30(1), 56–72.
- Rajan, P., Gupta, S., & Thomas, R. (2020). Impact of AI on HRM practices. *Journal of Business and Management Review*, 12(3), 187–200.
- Singh, R., & Verma, S. (2021). AI and HRM: A systematic review of challenges. *HR Technology Review*, 22(4), 150–165.
- Smith, J., Brown, R., & Evans, S. (2019). AI in performance management systems. *International Journal of Human Resource Technology*, 14(1), 34–50.
- Thomas, P., & Green, K. (2020). AI-driven feedback systems in modern workplaces. *Journal of Performance Management*, 17(3), 89–104.
- Wang, Q., Zhou, L., & Chen, H. (2018). Bias in AI-based HR systems. *Journal of Artificial Intelligence Ethics*, 19(2), 210–225.
- Williams, T., Lopez, M., & Diaz, R. (2020). Impact of AI-driven appraisals on workforce morale. *Journal of Workplace Management*, 16(4), 130–144.
- Zhou, H., Wang, K., & Park, S. (2019). Adoption of AI for performance reviews. *Journal of HR Innovations*, 11(5), 120–135.