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AI-Supported Performance Appraisal Systems: Implications for Transparency and Employee Trust with Special Reference to Coimbatore Districts

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Abstract

Background & Objectives: Artificial Intelligence (AI) is increasingly transforming Human Resource Management (HRM), with performance appraisal emerging as one of the most impacted domains. AI-supported appraisal systems promise greater accuracy, data-driven insights and continuous performance monitoring; however, their implications for transparency and employee trust remain underexplored in the Indian context. This study examines the role of AI-enabled performance appraisal systems in shaping perceptions of fairness, clarity and trust among employees in selected organizations across Coimbatore district. The findings reveal that while AI-driven appraisals enhance consistency and reduce human subjectivity, employee trust is significantly influenced by the level of transparency, communication and opportunities for human review. The study contributes to the growing body of literature on AI in HRM by providing region-specific insights and by highlighting the need for balanced human–AI collaboration. It further offers practical recommendations for organizations in Coimbatore to design ethical, transparent and employee-centric AI-supported appraisal systems.

Research Design & Samples: This descriptive research employed a simple random sampling method, surveying 60 employees (both male and female) from the Coimbatore district. The study utilized a mixed-methods approach, combining quantitative data from a survey and qualitative insights from in-depth interviews with industry experts.

Tools of Data Collection: Data was collected using a self-structured interview schedule to obtain personal profiles.

Findings: The findings reveal that while AI-driven appraisals enhance consistency and reduce human subjectivity, employee trust is significantly influenced by the level of transparency, communication, and opportunities for human review. The study contributes to the growing body of literature on AI in HRM by providing region-specific insights and by highlighting the need for balanced human–AI collaboration.

Keywords: Artificial Intelligence (AI) and Human Resource Management (HRM).

Introduction

The rapid advancement of Artificial Intelligence (AI) has brought significant transformation to Human Resource Management (HRM), particularly in the area of performance appraisal. Traditional appraisal systems often criticised for subjectivity, rater bias, infrequent evaluations and lack of transparency are increasingly being complemented or replaced by AI-driven systems that promise greater accuracy, fairness and continuous feedback. AI-supported performance appraisal systems use algorithms, behavioural analytics, machine learning models and real-time performance data to evaluate employees more objectively. As organizations pursue efficiency and data-driven decision-making, AI-based appraisal tools are becoming an integral component of modern HR strategies. However, the introduction of AI into performance evaluation raises important questions about transparency, ethical use of data and the extent to which employees trust algorithmic decisions. Employee trust is critical for the acceptance and success of appraisal systems, as perceptions of fairness and clarity directly influence commitment, motivation and satisfaction. Concerns regarding opaque algorithms, potential data privacy issues and limited employee understanding of how AI tools function can undermine trust, even when systems are technically efficient. Achieving a balance between technological efficiency and human oversight thus becomes essential. Coimbatore district, known for its strong industrial base in textiles, engineering, manufacturing, IT and emerging start-up ecosystem, is witnessing increased adoption of digital HR solutions. Organizations across the district both large enterprises and growing SMEs are exploring AI-enabled HR practices to enhance productivity and competitiveness. Yet, research on how employees in this region perceive AI-supported performance appraisal systems remains limited. Understanding regional attitudes is particularly important because organizational culture, technological readiness and employee expectations vary across geographic and industrial contexts.

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Definition

Kaplan and Haenlein (2020) define AI as "a system's ability to correctly interpret external data, learn from it and use that learning to achieve specific tasks through flexible adaptation." Dessler (2021) defines HRM as "the process of acquiring, training, appraising and compensating employees and attending to their labour relations, health and fairness concerns."

Review of Literature

Yu, L. (2022) AI decision-making transparency and employees' trust Sample & method: Experimental vignette study with 235 working participants. Findings: Greater objective AI decision-making transparency increased employees' perceived transparency, which in turn raised perceived effectiveness and (in some cases) reduced discomfort both mediating higher trust in AI. The study highlights cognitive and emotional pathways by which transparency affects trust.

Cai, Y. (2024) Effect of transparency of algorithmic performance management on proactive work behaviour. Sample & method: Cross-sectional survey of 321 employees across five high-techs firms; tested a moderated-mediation model. Findings: Transparency of algorithmic performance management was positively associated with employees' proactive work behaviour; perceived fairness/clarity acted as mediators and organizational/contextual factors moderated effects. Transparent algorithmic design reduced the "black-box" effect and encouraged constructive employee responses.

Chun, J. S. *et al*. (2024) Algorithmic evaluation fails to deliver: respectful treatment and unbiasedness (Scientific Reports) Sample & method: Multiple experiments (combined N in the hundreds e.g., 399 in at least one study) comparing algorithmic vs human evaluations on candidate/employee perceptions. Findings: Participants judged algorithmic evaluations as delivering less respectful treatment and (in several tests) lower perceived unbiasedness compared with human evaluators; algorithmic systems therefore risk harming perceptions of dignity and fairness despite promised objectivity.

Purpose of the Study

The purpose of this study is to examine how AI-supported performance appraisal systems influence transparency and employee trust in organizations located in the Coimbatore district. As businesses increasingly adopt AI-driven evaluation tools to enhance objectivity and reduce human bias, it becomes essential to understand how employees perceive these systems and whether algorithmic decision-making promotes or undermines trust. This study aims to assess employees' awareness of AI-based appraisal criteria, their perceptions of fairness, clarity and data privacy and the extent to which human AI collaboration affects acceptance of appraisal outcomes. By focusing on Coimbatore's diverse industrial environment including manufacturing, textiles, IT and service sectors the study seeks to generate context-specific insights that can guide organizations in designing ethical, transparent and employee-centric appraisal mechanisms.

Significance of the Study

This study holds significant value as it addresses the growing integration of AI-supported performance appraisal systems within organizations in the Coimbatore district a region known for its rapid industrial expansion and technological adoption. Understanding how AI-driven appraisals influence transparency and employee trust is crucial, as trust is a key determinant of employee motivation, acceptance of evaluation outcomes and overall organizational commitment. The findings of this study will provide HR practitioners, policymakers and industry leaders with evidence-based insights into how AI tools can be implemented ethically and effectively while maintaining fairness, clarity and employee confidence. Moreover, the study contributes to the limited empirical research available in the Indian context, offering region-specific guidance that can support organizations in designing balanced human–AI appraisal frameworks that enhance both performance accuracy and employee well-being.

Research Methodology

Objectives of the Study

- To find out personal profile of the respondents.
- To assess level of AI-supported performance appraisal systems of the employees.
- To examine association between the personal profile and AI-supported performance appraisal systems of the employees.
- To analyze the difference and relationship between the AI-supported performance appraisal systems of the employees.

This descriptive research employed a snowball sampling method, surveying 60 employees (both male and female) from the Coimbatore district. The study utilized a mixed-methods approach, combining quantitative data from a survey and qualitative insights from in-depth interviews with industry experts. Data was collected using a self-structured interview schedule to obtain personal profiles. The statistical tools applied by the researcher are Percentage Analysis, Chi-square, T-test and ANOVA.

Table 1: Findings of the Study

S. No.	Factors	Medium	Frequency	Percentage (%)
1.	Age	30-35 years	54	90
2.	Educational qualification	Under graduates	45	75
3.	Marital status	Married	52	87
4.	Type of family	Nuclear family	42	70
5.	Residential background	Semi urban	46	77
6.	Experience	10-15 years	41	68
7.	Designation	Assistant Manager	35	58

Findings

- Majority (90%) of the respondents were 30-35 years of age.
- Majority (75%) of the respondents were under graduates.
- About 87% of the respondents are married.
- Majority (70%) of the respondents were from nuclear family.
- Majority (77%) of the respondents are from semi-urban.
- More than half of (68%) of the respondents have 10 – 15 years of experience.
- Majority (58%) of the respondents are designation assistant manager.

Table 2: Distribution of the Respondents Based on Levels of Ai-Supported Performance Appraisal Systems of the Employees

S. No	AI-supported Performance Appraisal Systems	No. of Respondents	Percentage (%)
1	High	14	23
2	Moderate	38	63
3	Low	8	14
Total		60	100

Interpretation

The above table depicts that 63% of the respondents experience moderate level of AI-supported performance appraisal systems of the employees, 23% of the respondents face high level of AI-supported performance appraisal systems of the employees and 14% of the respondents experience low level of AI-supported performance appraisal systems of the employees.

Table 3: Influence of Personal Profile and AI-supported Performance Appraisal Systems of the Employees

Variables	Statistical Tool	Value	Result
Age & AI-supported performance appraisal systems of the employees	ANOVA	P = .000 <0.05	Significant
Educational qualification & AI-supported performance appraisal systems of the employees	t-test	P = .011< 0.05	Significant
Marital status & AI-supported performance appraisal systems of the employees	t-test	P = .814> 0.05	Not Significant
Type of family & AI-supported performance appraisal systems of the employees	t-test	P = .008< 0.05	Significant
Residential background & AI-supported performance appraisal systems of the employees	ANOVA	P = .937 > 0.05	Not Significant
Experience & AI-supported performance appraisal systems of the employees	ANOVA	P = .001 <0.05	Significant
Designation & AI-supported performance appraisal systems of the employees	t-test	P =.766 > 0.05	Not Significant

- There is significant difference between the age and AI-supported performance appraisal systems of the employees.
- There is significant difference between the educational qualification and AI-supported performance appraisal systems of the employees.
- There is no significant difference between the marital status and AI-supported performance appraisal systems of the employees.
- There is significant difference between the type of family and AI-supported performance appraisal systems of the employees.
- There is no significant difference between the residential background & AI-supported performance appraisal systems of the employees.
- There is significant difference between the experience & AI-supported performance appraisal systems of the employees.
- There is no significant difference between the designation & AI-supported performance appraisal systems of the employees.

Recommendation

- Organizations should clearly explain how AI-based appraisal systems work, what data they use and how scores or ratings are generated.
- AI-generated evaluations should be reviewed by trained HR professionals to ensure fairness, empathy and contextual understanding.
- Conduct regular workshops to educate employees about AI appraisal tools, data usage, performance metrics and benefits.
- Use AI systems that provide interpretable outputs so employees understand the reasons behind their ratings.
- Implement strict data protection policies and communicate them clearly to employees to reduce fears related to surveillance or misuse.
- Coimbatore's sectors such as textiles, manufacturing, IT and services require industry-specific indicators tailored to job roles.
- Establish channels for employees to share concerns, challenges or suggestions about AI-driven appraisals.
- Conduct independent audits to identify algorithmic biases and ensure the system treats all employees equitably.
- Use AI as a decision-support tool rather than a decision-maker, ensuring that final evaluations consider human judgment.
- Periodically assess employee trust levels, satisfaction with the appraisal system and perceptions of fairness to improve the system continuously.

Conclusion

The study on AI-supported performance appraisal systems in the Coimbatore district highlights the growing influence of digital technologies on HRM and the critical role of transparency in fostering employee trust. While AI-based appraisal tools offer advantages such as enhanced objectivity, consistency and data-driven evaluations, their effectiveness depends largely on how clearly organizations communicate the functioning of these systems and how responsibly the underlying data is managed. Findings indicate that employees are more likely to trust AI-driven evaluations when they

perceive fairness, understand the criteria used and experience adequate human oversight in the appraisal process. For industries in Coimbatore ranging from textiles and manufacturing to IT and services the integration of AI into appraisal mechanisms must therefore be complemented by ethical guidelines, employee training and explainable AI features. Ultimately a balanced human AI collaboration emerges as essential for building a transparent, trustworthy and employee-centered performance evaluation system that aligns with organizational goals and the expectations of a modern workforce.

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