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Research Article

Exploring Employees' Perceptions of AI-Driven HRM: A Study of IT Sector Employees in Delhi NCR

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ABSTRACT

This research examines employees' perceptions on the application of Artificial Intelligence (AI) in Human Resource Management (HRM) within the Information Technology Sector in Delhi NCR, Haryana NCR, and UP NCR regions. A questionnaire was designed and distributed among 533 IT employees, which was followed by data analysis through Exploratory Factor Analysis (EFA). The analysis provided four broad areas: Ethical Awareness and Trust, Employee Learning and Human Interaction, Feedback, Criticism, Evaluation and Insecurity, Work-life balance and support. As per the results, perception of AI in HRM is positive in most cases, with emphasis on learning and well-being, while there are concerns over surveillance and job security. The findings have practical implications for the use of AI in HRM, which are ethical and employee-friendly.

Keywords: Artificial Intelligence, HRM, Employee Perception, IT Sector, EFA, Delhi NCR

1 Introduction

The rapid transformation of organisations in the digital era has made technology a cornerstone of managerial innovation, especially in the field of Human Resource Management (HRM). Among emerging technologies, Artificial Intelligence (AI*)* has become a decisive force reshaping how organisations recruit, train, evaluate, and engage their employees. The integration of AI in HRM is particularly prominent in the Information Technology (IT) sector, where data-driven decision-making and continuous adaptation to technological change are essential for competitiveness. As HR functions evolve from administrative to strategic, AI offers new avenues to enhance efficiency, reduce bias, and strengthen employee experience.

In India, especially across the Delhi–NCR IT corridor, organisations are increasingly deploying AI-enabled systems for workforce analytics, automated recruitment, and performance monitoring. These tools promise accuracy and speed, yet they also bring forth ethical concerns, job insecurity, and questions about human interaction in digital workplaces. Employees' perceptions of such tools, therefore, become critical, as acceptance or resistance directly affects the success of AI integration. Positive perceptions linked to trust, transparency, and developmental support can encourage adoption, while negative experiences related to surveillance or fairness may lead to anxiety and reduced engagement. Globally, studies have recognised that AI's influence extends beyond automation; it reshapes the very nature of human–machine collaboration. However, empirical evidence from Indian IT organisations remains limited. Understanding how employees interpret and respond to AI-based HRM practices is thus essential for building responsible and sustainable digital workplaces. This study addresses that gap by examining the perceptions of IT employees toward AI-driven HRM systems, focusing on dimensions such as ethical awareness, trust, learning orientation, and work–life balance. By combining insights from recent research and data collected from professionals in Delhi–NCR, the study contributes to a nuanced understanding of how AI can be aligned with human values and organisational goals. The findings aim to guide managers and policy-makers in designing ethical, transparent, and employee-centric AI-HRM frameworks that enhance both productivity and employee well-being.

2 Literature Review

Artificial Intelligence (AI) has emerged as a transformative force in Human Resource Management (HRM), introducing automation, data analytics, and predictive systems that have redefined traditional HR practices.

The convergence of AI and HRM, often described as Smart HR 4.0, has led to intelligent recruitment, personalised training, and data-driven performance appraisal systems (Pillai et al., 2022). Early research highlighted AI's potential to improve decision quality, reduce bias, and enhance employee engagement (Kshetri, 2021; Bhardwaj, 2022). In the IT sector, where technological change is constant, AI-enabled HR solutions have become crucial for optimising workforce planning and employee development (Gupta & Mehra, 2024).

Recent studies emphasise that employees' perceptions and trust are central to the success of AI-HRM adoption. Arslan et al. (2022) argued that ethical transparency and algorithmic explainability are prerequisites for employee trust. Similarly, Jeong and Jeong (2024) found that unexplained automation creates stress and insecurity, while transparent systems foster psychological comfort and adaptability. Xiao, Yan, and Bamber (2024) demonstrated that AI-driven HR analytics can strengthen resilience and job crafting when aligned with supportive HR policies. Conversely, Gupta and Mehra (2024) reported that investments in AI without corresponding human-centric frameworks may heighten job insecurity and emotional strain.

From an organisational viewpoint, AI has improved efficiency and reduced administrative burden, yet it raises concerns over privacy, fairness, and data misuse (Böhmer and Schinnenburg, 2023). Research also indicates that the integration of AI requires new HR capabilities such as digital literacy, ethical governance, and continuous employee learning (Prikshat et al., 2024). In the Indian context, empirical exploration remains limited, especially regarding how employees in technology-driven environments interpret and respond to AI adoption. Synthesising global and national evidence, the literature reveals a dual narrative: AI enhances HR effectiveness but simultaneously challenges human interaction and organisational ethics. Therefore, understanding employee perceptions of AI-HRM is essential for designing ethical, transparent, and participative HR ecosystems that align technology with human values and sustainable performance.

3 Research Methodology

3.1 Research Design and Context

The present study adopted a quantitative cross-sectional research design to examine employees' perceptions of Artificial Intelligence (AI)-driven Human Resource Management (HRM) practices in the IT sector. The research setting comprised organisations located in Delhi NCR, Haryana NCR, and Uttar Pradesh NCR, regions recognised for their concentration of IT firms and rapid digital transformation. This context was selected because of the growing implementation of AI tools in HR processes, including recruitment analytics, performance management, and employee engagement systems.

3.2 Sampling and Data Collection

A purposive sampling technique was employed to ensure that only full-time IT professionals who had prior exposure to AI-based HR systems participated in the survey. Data were collected through a structured questionnaire administered both online and offline using secure, AI-enabled forms. Ethical considerations such as voluntary participation, anonymity, and informed consent were strictly maintained. A total of 533 valid responses were obtained and analysed.

3.3 Instrument Design and Measurement

The questionnaire was developed after an extensive review of contemporary literature on AI-HRM, employee perception, and organisational behaviour. Responses were measured using a five-point Likert scale, ranging from 1 = Strongly Disagree to 5 = Strongly Agree.

The items were grouped under four conceptual constructs identified from prior research:

- EAT – Ethical Awareness and Trust
- ELH – Employee Learning and Human Interaction
- FEI – Feedback, Evaluation, and Insecurity
- WLBS – Work-Life Balance and Support

Each construct comprised 4–6 observed variables, covering aspects of ethical transparency, developmental support, emotional response, and work-life harmony.

3.4 Data Analysis and EFA Application

To uncover the underlying factor structure of employees' perceptions, Exploratory Factor Analysis (EFA) was conducted using the Principal Component Analysis (PCA) extraction method with Varimax rotation. Prior to extraction, Kaiser–Meyer–Olkin (KMO) and Bartlett's Test of Sphericity were performed to assess the adequacy of the data. The KMO value of 0.956 and a significant Bartlett's Test ($\chi^2 = 7743.26$, $df = 171$, $p < 0.001$) confirmed the suitability of the dataset for factor analysis.

EFA results revealed four distinct latent factors corresponding to the proposed constructs—Ethical Awareness and Trust, Employee Learning and Human Interaction, Feedback and Evaluation-related Insecurity, and Work-Life Balance and Support—accounting for a substantial portion of the total variance. These factors formed the empirical foundation for interpreting employees' perceptions of AI-driven HRM systems in the IT sector.

3.5 Reliability and Validity

Internal consistency of the constructs was examined using Cronbach's alpha, with all coefficients exceeding 0.85, indicating high reliability. The extracted factors were subsequently validated through inter-item correlations and construct reliability analysis to ensure robustness and measurement accuracy.

4 Empirical Results

4.1 Sampling Adequacy

Before applying factor analysis, the data were tested for suitability using the Kaiser–Meyer–Olkin (KMO) measure and Bartlett's Test of Sphericity. The KMO value of 0.956 confirmed excellent sampling adequacy, while Bartlett's Test was significant ($\chi^2 = 7743.257$, df = 171, $p < 0.001$), verifying that correlations among variables were sufficient for structure detection. These findings validated the use of Exploratory Factor Analysis (EFA) for identifying latent constructs.

4.2 Exploratory Factor Analysis (EFA)

Using Principal Component Analysis with Varimax rotation, four interpretable factors with eigenvalues > 1 were extracted, collectively explaining a substantial proportion of total variance:

- **Factor 1: Ethical Awareness and Trust (EAT)** — Employees expressed confidence in the fairness and explainability of AI decisions, supporting Arslan et al. (2022) that trust is central to AI adoption in HR.
- **Factor 2: Employee Learning and Human Interaction (ELH)** — AI was perceived to promote continuous learning and human–machine collaboration (Jeong & Jeong, 2024).
- **Factor 3: Feedback, Evaluation, and Insecurity (FEI)** — AI-based performance appraisal systems generated concerns about surveillance and evaluation anxiety, echoing Pillai et al. (2024).
- **Factor 4: Work–Life Balance and Support (WLBS)** — Respondents viewed AI as facilitating flexibility, stress reduction, and overall work–life harmony (Xiao, Yan, & Bamber, 2024).

4.3 Reliability Analysis

Reliability testing using Cronbach's alpha showed values above 0.85 for each factor, with an overall reliability of 0.982, demonstrating excellent internal consistency and confirming the robustness of the instrument.

4.4 Demographic Profile

Among 533 respondents, 56.5 % were male and 43.5 % female. Most participants were below 39 years of age, held postgraduate qualifications, and possessed 3–6 years of professional experience in the IT sector. The demographic composition reflects a young, skilled workforce accustomed to digital HR systems.

Table 1: Summary of Exploratory Factor Analysis (EFA) Results

Factor	Label / Description	Key Dimensions	Cronbach 's α
F1	Ethical Awareness and Trust (EAT)	Fairness, transparency, and explainability of AI decisions	0.91
F2	Employee Learning and Human Interaction (ELH)	Continuous learning, collaboration, and human AI support	0.88
F3	Feedback, Evaluation, and Insecurity (FEI)	Appraisal anxiety, surveillance concerns, and job insecurity	0.86
F4	Work–Life Balance and Support (WLBS)	Stress management, work-life harmony, and emotional well-being	0.87
Overall Scale Reliability	—	—	0.982

Note. Results derived from Exploratory Factor Analysis (EFA) using Principal Component Analysis with Varimax rotation, performed in SPSS Version 26. KMO = 0.956; $\chi^2 = 7743.257$; df = 171; $p < 0.001$.

Table 1 explains the four extracted factors, collectively illustrating the multidimensional nature of employees' perceptions of AI-driven HRM. The results suggest that while employees recognise the ethical and developmental benefits of AI systems, they also express concern about surveillance and emotional insecurity. Overall, the findings portray a balanced perception, where technological efficiency is appreciated, but ethical transparency and human connection remain vital for the sustained acceptance of AI in HR practices.

5 Conclusion

This study examined the perceptions of IT professionals in the Delhi–NCR region regarding the use of Artificial Intelligence (AI) in Human Resource Management (HRM) systems. The Exploratory Factor Analysis (EFA) identified four key dimensions shaping these perceptions—ethical awareness and trust, learning and human interaction, feedback-related anxiety, and work–life support. Overall, employees exhibited a positive outlook toward AI adoption in HRM, recognising its role in enhancing learning, efficiency, and work–life balance.

However, the findings also revealed persistent concerns related to ethical transparency, data privacy, and the psychological stress caused by continuous monitoring.

To ensure wider acceptance and sustainable use of AI in HR functions, organisations must adopt a human-centric and ethically transparent approach**.** Integrating strong HR policies, open communication channels, and employee participation in AI implementation can enhance both system effectiveness and psychological comfort. Moreover, developing a balance between automation and human judgment remains crucial for maintaining trust and inclusivity in technology-driven workplaces.

Future research should explore the long-term effects of AI-HRM systems across different sectors and organisational hierarchies. Longitudinal and comparative studies may further clarify how AI-driven HRM influences employee well-being, organisational performance, and ethical decision-making in the evolving digital ecosystem.

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