Ai-Driven Hr Practices As Drivers Of Employee Engagement And Performance In It Companies In Chennai

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Abstract
The increasing adoption of artificial intelligence (AI) in human resource management has transformed how organizations manage and develop their workforce, particularly in technology-driven industries. This study investigates the impact of AI-enabled HR practices on employee engagement and performance within Chennai's IT sector. A descriptive-analytical methodology was employed, gathering primary data from 83 IT employees via a structured questionnaire. The collected data were examined using reliability tests, Principal Factor Analysis, Pearson correlation, and regression analysis.
Principal Factor Analysis identified two main dimensions of AI-powered HR practices: AI-enabled talent and performance management, and AI-driven learning and employee support. The findings demonstrate that these AI-based practices positively influence both employee engagement and performance. Additionally, increased employee engagement was linked to better performance, underscoring its importance for improving work results. The study indicates that effectively implementing AI-powered HR practices, supported by appropriate human involvement and development, can foster an engaged and high-performing workforce. These findings are especially useful for IT organizations seeking to leverage AI-driven HR systems to improve employee engagement and performance.
Keywords: Artificial Intelligence, AI-Driven HR Practices, Employee Engagement, Employee Performance, IT Sector, Chennai

1. INTRODUCTION

Artificial Intelligence (AI) has become a key strategic tool in modern organizations, transforming the way human resources are planned, managed, and optimized. In Human Resource Management (HRM), AI-driven methods are increasingly being employed to improve workforce effectiveness, including data-based recruitment, ongoing performance tracking, personalized learning programs, and innovative employee support systems. These approaches are especially significant in the Information Technology (IT) industry, where organizational success largely relies on employee skills, adaptability, and consistent performance.
AI-powered HR practices go beyond automating administrative tasks and significantly influence employees' work experiences. By utilizing predictive analytics, real-time feedback, and personalized development plans, AI-driven HR systems can shape how employees engage with their work and improve their performance. In dynamic IT environments, such systems support timely skill development, optimize task distribution, and align performance with organizational objectives.

Employee engagement and performance are key indicators of organizational success. Engaged employees exhibit greater energy, involvement, and commitment, while performance measures how well employees meet job expectations and contribute to organizational goals. In the IT industry, where project-based work, innovation, and collaboration are vital, both engagement and performance are crucial for staying competitive. AI-driven HR practices can enhance these aspects by providing structured feedback, targeted training, and performance insights derived from objective data.

The impact of AI-driven HR practices on engagement and performance is not automatic. While companies invest in AI-enabled HR systems expecting better productivity and motivation, the actual results depend on how well these systems are integrated into daily HR routines and employee workflows. Some research shows that AI-powered HR tools can boost employee engagement by clarifying roles and supporting skill development. Still, others warn that overreliance on AI might increase workload or decrease interpersonal interactions. These varied views highlight the importance of empirical studies to understand the proper relationship between AI-driven HR practices and employee outcomes.

Chennai, a key IT hub in India, provides an ideal context to explore these issues. In this region, IT firms are increasingly adopting AI-powered HR tools to manage their expanding, diverse workforce. Employees often engage with AI-enabled HR systems for performance monitoring, training, and task assignment, making their experiences especially important for evaluating how AI-driven HR practices affect engagement and productivity.

Despite the growing body of literature on AI in HRM, there is limited empirical research that simultaneously explores employee engagement and performance as outcomes of AI-driven HR practices, particularly in the Indian IT industry. Most studies to date either concentrate on organizational efficiency or on employee perceptions of technology implementation. To address this gap, this study investigates how AI-driven HR practices affect employee engagement and performance among IT professionals in Chennai. The aim is to offer practical insights into aligning AI-enabled HR initiatives with human-centred objectives to boost workforce engagement and performance.

Objectives of the Study

1. To examine the extent of AI-driven human resource practices adopted in IT companies in Chennai.

2. To analyse the level of employee engagement and employee performance among IT employees.

3. To assess the influence of AI-driven HR practices on employee engagement and employee performance.

2. REVIEW OF LITERATURE

2.1 AI-Driven Human Resource Practices

Artificial Intelligence (AI) is increasingly integrated into human resource management through methods like automated recruiting, AI-assisted performance evaluations, predictive workforce analytics, innovative learning platforms, and HR chatbots. These AI-based practices enable organizations to analyse vast amounts of employee data, improve the accuracy of decision-making, and better align HR activities with strategic goals. Recent research indicates that AI-enabled HR systems transform HRM from a mainly transactional

role to a strategic function by facilitating evidence-based decisions and ongoing workforce improvement (Garg et al., 2022; Minbaeva, 2021).

In the IT industry, where rapid technological advances and skill obsolescence are frequent, AI-powered HR practices hold particular value. These tools help organizations pinpoint skill gaps, tailor training programs, and track performance in real-time, thereby enhancing employee growth and organizational flexibility (Chowdhury et al., 2023). However, experts stress that the success of AI-driven HR should be evaluated not just by efficiency but also by its effects on employees.

2.2 Employee Engagement

Employee engagement refers to the degree to which employees' emotional, cognitive, and behavioural participation in their roles. Engaged staff show increased motivation, commitment, and willingness to go beyond basic requirements, leading to better organizational outcomes. Past studies have reliably shown that engagement is influenced by factors such as meaningful work, performance feedback, learning opportunities, and supportive HR policies (Malik et al., 2021).

Recent studies indicate that AI-powered HR practices can boost employee engagement by offering prompt feedback, tailored learning paths, and clearer roles. AI-based learning management systems and performance analytics enable employees to monitor their progress and build necessary skills, potentially increasing engagement (Huang et al., 2023). Nonetheless, some research warns that over-reliance on algorithms may reduce face-to-face interactions, potentially harming engagement if not handled appropriately.

2.3 Employee Performance

Employee performance generally refers to how well employees fulfil their job duties and support organizational objectives. In industries like IT, which rely on specialized knowledge, performance is often tied to skills, innovation, problem-solving, and teamwork. Human Resources practices significantly impact performance by affecting recruitment quality, training programs, and performance evaluation systems.

AI-driven HR practices improve employee performance through objective measurement, predictive analytics, and targeted skill development. These AI-based systems offer data-driven insights that clarify performance expectations and highlight areas for improvement (Vrontis et al., 2022). Studies show that organizations employing AI-supported HR analytics experience increases in individual productivity and task efficiency (Johnson et al., 2020). However, researchers stress that the effectiveness of these performance improvements depends on the proper integration of AI tools with human judgment and managerial support.

2.4 Relationship between AI-Driven HR Practices, Employee Engagement, and Performance

The link between HR practices, employee engagement, and performance is well-documented in HRM literature. Engaged employees tend to perform better, and HR practices focused on development and recognition support both these outcomes. Recent research further explores this connection in the context of AI-powered HR systems, indicating that such systems can boost engagement and performance by improving the quality of feedback, learning efficiency, and goal alignment (Malik et al., 2022).

Empirical research on AI-driven HR practices as predictors of both employee engagement and performance within a single framework is limited, especially in developing countries. Most existing studies focus either on organizational outcomes or on technology adoption

rather than on individual employee behaviours. This underscores the need for studies that evaluate how AI-driven HR practices affect both employee engagement and performance.

2.5 Research Gap

While the literature recognizes the increasing importance of AI in HRM, there is limited empirical evidence on how AI-driven HR practices simultaneously affect employee engagement and performance, particularly in the Indian IT sector. Most research either concentrates on technological efficiency or investigates engagement and performance separately. To fill this gap, this study explores the impact of AI-driven HR practices on both employee engagement and performance among IT employees in Chennai, offering valuable employee-focused insights to the growing body of AI-enabled HRM literature.

3. RESEARCH METHODOLOGY

This study uses a descriptive-analytical approach to explore how AI-driven HR practices affect employee engagement and performance in the IT sector. It was conducted among employees at IT companies in Chennai, where AI-enabled HR measures are actively in place. Data were gathered from 83 IT employees through convenience sampling. A structured questionnaire was distributed online, and only complete and valid responses were included in the final analysis.

The questionnaire was created following a comprehensive review of recent literature on AI-based HR practices, employee engagement, and performance. It comprises two parts: the first gathers respondents' demographic information, while the second includes statements to assess AI-driven HR strategies, employee engagement, and performance. Responses were collected on a five-point Likert scale ranging from strongly disagree to agree strongly.

AI-driven HR practices were treated as the independent variable, with employee engagement and performance as dependent variables. Cronbach's alpha assessed the reliability of the measurement scales, showing acceptable internal consistency. Content validity was confirmed through the adaptation of items from established studies and expert review. The data were analysed using IBM SPSS software. Descriptive statistics summarized the demographic profile and study variables. Pearson correlation examined the relationship between AI-driven HR practices and both employee engagement and performance. Multiple regression analysis evaluated the impact of AI-driven HR practices on these outcomes. Ethical considerations, including voluntary participation, confidentiality and respondent anonymity, were observed throughout the study.

4. DATA ANALYSIS AND INTERPRETATION

4.1 Introduction to Data Analysis

Data from 83 IT employees in Chennai were analysed to explore how AI-driven HR practices affect employee engagement and performance. The analysis used IBM SPSS software. First, reliability and factor analyses identified core dimensions of AI-driven HR practices. Then, correlation and regression analyses evaluated the relationship and impact of these practices on both engagement and performance.

4.2 Principal Factor Analysis of AI-Driven HR Practices

Principal Factor Analysis (PFA) was performed to uncover the key dimensions of AI-driven HR practices. The appropriateness of the data for factor analysis was evaluated with the Kaiser–Meyer–Olkin (KMO) measure and Bartlett's Test of Sphericity.

Table 4.1 KMO and Bartlett's Test

Measure	Value
Kaiser–Meyer–Olkin (KMO)	0.78
Bartlett's Test of Sphericity	$\chi^2 = 412.36$, $p < 0.001$

Table 4.1 displays the results of the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity, both used to evaluate whether the data are suitable for Principal Factor Analysis. The KMO score of 0.78 exceeds the minimum threshold of 0.60, confirming that the sample size is adequate and that the correlations among variables are sufficiently strong for factor extraction. This indicates that the items related to AI-driven HR practices share common variance and are suitable for uncovering underlying factors.

Furthermore, Bartlett's Test of Sphericity is highly significant ($\chi^2 = 412.36$, $p < 0.001$), indicating we can reject the null hypothesis that the correlation matrix is an identity matrix. This demonstrates that meaningful relationships among the variables exist, making factor analysis suitable. Consequently, the findings strongly support proceeding with Principal Factor Analysis to identify the key underlying dimensions of AI-driven HR practices among IT employees in Chennai.

Table 4.2 Total Variance Explained

Factor	Eigenvalue	% of Variance	Cumulative %
Factor 1	3.42	42.8	42.8
Factor 2	1.87	23.4	66.2

Table 4.2 shows the Total Variance Explained by the factors extracted through Principal Factor Analysis. The findings reveal that two factors with eigenvalues exceeding one were kept, following Kaiser's criterion. The first factor has an eigenvalue of 3.42 and explains 42.8% of the total variance, signifying it as the primary dimension of AI-driven HR practices among IT employees in Chennai. The significant variance captured by this factor indicates that it accounts for a large share of the shared variance among the observed variables.

The second factor has an eigenvalue of 1.87, accounting for an additional 23.4% of the total variance. Together, both factors explain 66.2% of the variance, surpassing the typical threshold for social science research. This suggests that these factors provide a solid, meaningful understanding of the core dimensions of AI-driven HR practices. Consequently, the factor structure is deemed reliable and appropriate for further analysis.

Table 4.3 Rotated Factor Matrix (Varimax Rotation)

AI-Driven HR Practice Items	Factor 1	Factor 2
AI-based recruitment and screening	0.81	
AI-supported performance appraisal	0.78	
AI-driven workforce analytics	0.74	
AI-enabled training and skill development		0.83
AI-based learning recommendations		0.79
HR chatbots for employee support		0.72

Table 4.3 shows the rotated factor matrix obtained via Varimax rotation, displaying the factor loadings of AI-driven HR practice items on the identified factors. This rotated solution offers a more transparent and more understandable factor structure by maximizing the variance of loadings and reducing cross-loadings between factors. The first factor includes items related to AI-based recruitment and screening (0.81), AI-supported performance appraisal (0.78), and AI-driven workforce analytics (0.74). These items have high loadings, indicating a strong link to this factor. Therefore, Factor 1 is labelled as AI-Enabled Talent and Performance Management, representing the application of AI in talent identification, performance evaluation, and workforce data analysis to inform strategic HR decisions.

The second factor encompasses items related to AI-enabled training and skill development (0.83), AI-based learning recommendations (0.79), and HR chatbots for employee support (0.72). The strong loadings of these items indicate that this factor reflects AI-Driven Learning and Employee Support, emphasizing AI's role in ongoing education, personalized growth, and immediate employee assistance. The distinct separation of items into these two factors, with no notable cross-loadings, confirms the robustness and validity of the factor structure. Together, these two dimensions highlight the main aspects of AI-driven HR strategies in IT firms, showing that organizations primarily use AI for talent and performance management, as well as for employee learning and support.

4.3 Descriptive Statistics of Study Variables

Table 4.4 Descriptive Statistics

Variables	N	Mean	Standard Deviation
AI-Driven HR Practices	83	3.90	0.60
Employee Engagement	83	3.94	0.56
Employee Performance	83	3.87	0.58

Table 4.4 displays the descriptive statistics for the key study variables: AI-driven HR practices, employee engagement, and employee performance, based on 83 IT employees from Chennai. The average score for AI-driven HR practices (Mean = 3.90) suggests that respondents generally see a high level of AI adoption in their HR functions, with AI-enabled tools actively used in recruitment, performance management, learning, and employee support. The mean for employee engagement (Mean = 3.94) indicates a positive level of involvement, motivation, and commitment among IT employees. Similarly, the mean score for employee performance (Mean = 3.87) reflects favourable perceptions of their performance, highlighting effective task execution and contribution to organizational goals. The standard deviations, between 0.56 and 0.60, show moderate variability, suggesting a reasonable level of agreement among respondents. Overall, these statistics point to a supportive work environment in which AI-driven HR practices are linked to high employee engagement and performance among IT staff in Chennai.

4.4 Correlation Analysis

Table 4.5 Correlation between AI-Driven HR Practices, Engagement, and Performance

Variables	AI-HR Practices	Engagement	Performance
AI-HR Practices	1		
Employee Engagement	0.62**	1	

Employee Performance	0.59**	0.65**	1

Note: Correlation is significant at 1% level

Table 4.5 presents the Pearson correlation results, examining the relationships among AI-driven HR practices, employee engagement, and performance among IT employees in Chennai. The correlation coefficient between AI-driven HR practices and employee engagement ($r = 0.62$) indicates a strong positive association, suggesting that higher levels of AI-driven HR practices are associated with greater employee engagement. This suggests that effective AI use in HR functions boosts employee involvement, motivation, and commitment at work. Likewise, the correlation between AI-driven HR practices and employee performance ($r = 0.59$) is positive and statistically significant at the 1% level, indicating that better AI-driven HR practices are linked to improved employee performance. This emphasizes the supporting role of AI-enabled HR systems in increasing productivity and task effectiveness.

Additionally, the correlation between employee engagement and performance ($r = 0.65$) is strong and positive, indicating that more engaged employees tend to perform better. The significance of all correlation coefficients confirms meaningful relationships among these variables. Overall, the findings suggest that AI-driven HR practices are strongly linked to both employee engagement and performance, with engagement playing a key role in improving performance outcomes.

The results demonstrate that AI-driven HR practices in IT companies in Chennai consist of two major dimensions: AI-enabled talent and performance management, and AI-driven learning and employee support. These practices have a strong, significant influence on employee engagement and performance. The findings highlight that effective integration of AI-driven HR practices can enhance employee involvement, motivation, and work performance.

5. FINDINGS AND SUGGESTIONS

Findings

The study reveals that AI-driven human resource practices are widely implemented in IT companies in Chennai and are perceived positively by employees. Principal Factor Analysis identified two major dimensions of AI-driven HR practices, namely AI-enabled talent and performance management, and AI-driven learning and employee support. This indicates that organizations primarily use AI to improve recruitment efficiency, performance evaluation, workforce analytics, training, and employee support services.

The findings further indicate that AI-driven HR practices have a significant and positive influence on employee engagement. Employees working in organizations with well-integrated AI-driven HR systems demonstrate higher levels of involvement, motivation, and commitment towards their work. The regression results confirm that AI-driven HR practices account for a substantial proportion of the variation in employee engagement, highlighting the role of AI-enabled HR systems in fostering an engaging work environment.

In addition, the study establishes a strong positive relationship between AI-driven HR practices and employee performance. AI-enabled performance monitoring, feedback mechanisms, and personalized learning systems contribute to improved task efficiency and productivity among employees. The results also reveal a positive association between employee engagement and employee performance, suggesting that engaged employees are

more likely to perform better in their roles. Overall, the findings demonstrate that AI-driven HR practices can be an important enabler of employee engagement and performance in the IT sector.

Suggestions

Based on the findings, IT organizations should strategically strengthen AI-driven HR practices to enhance employee engagement and performance. Organizations should focus on integrating AI tools that support transparent performance evaluation, continuous feedback, and personalized learning opportunities. Emphasis should be placed on aligning AI-driven HR systems with employees' developmental needs rather than using them solely for monitoring or control.

Organizations are also encouraged to invest in training programs that help employees effectively interact with AI-enabled HR systems. Enhancing employees' understanding of AI-driven HR tools can increase their engagement and improve performance outcomes. Additionally, while adopting AI-driven HR practices, organizations should maintain a balance between automation and human intervention to preserve interpersonal relationships and managerial support.

Regular evaluation and updating of AI-driven HR systems are recommended to ensure their relevance and effectiveness. By adopting a human-centric approach to AI implementation, IT companies in Chennai can leverage AI-driven HR practices not only to improve operational efficiency but also to foster an engaged and high-performing workforce.

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