“Artificial intelligence-driven human resource practices and employee well-being: Examining the mediating effect of employee engagement”

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ARTIFICIAL INTELLIGENCE-DRIVEN HUMAN RESOURCE PRACTICES AND EMPLOYEE WELL-BEING: EXAMINING THE MEDIATING EFFECT OF EMPLOYEE ENGAGEMENT

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Abstract

Artificial intelligence can be strategically integrated into human resource management to enhance employee well-being in the information technology (IT) industry. The paper deals with a quantitative approach using structural equation modeling (SEM) to examine the relationships between AI-enabled HR practices, employee engagement, and well-being. Data were collected through an online survey conducted between October 2024 and February 2025, employing a stratified random sampling method to select IT professionals across various roles and levels from leading IT companies in Chennai, India, a major hub for technology-driven enterprises. A standardized questionnaire was administered to collect data from 323 IT employees. The results indicate that AI-enabled training and development, performance appraisal, compensation, and reduced workload significantly and positively impact employee engagement ($\beta = 0.560, 0.351, 0.366, 0.292$; $p = 0.000, 0.001, 0.000, 0.000$), which in turn has a significant effect on employee well-being ($\beta = 0.451$; $p = 0.001$). Moreover, these HR practices directly enhance employee well-being ($\beta = 0.253, 0.258, 0.330, 0.241$; $p = 0.000$). Employee engagement was found to significantly mediate the relationship between AI-enabled HR practices and well-being ($\beta = 0.194, 0.149, 0.121, 0.132$; $p = 0.000, 0.003, 0.000, 0.000$), while technology readiness positively moderates the relationship between AI practices and engagement ($\beta = 0.252, 0.158, 0.165, 0.212$; $p = 0.002, 0.000$). These findings demonstrate AI's positive impact on employee well-being and provide practical guidance for HR professionals in Chennai's IT sector to effectively leverage AI technologies for a healthier, more engaged, and productive workforce.

Keywords AI-enabled HR practices, information technology, employee engagement, technology readiness, employee well-being, Chennai, India

JEL Classification M10, M12, M15

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INTRODUCTION

In today's rapidly evolving business environment shaped by globalization, technological advancements, and changing employee expectations, organizations must maintain continuous competitiveness by adopting innovative and strategic approaches that effectively manage workforce diversity while balancing innovation with employee well-being and engagement. One effective and forward-looking strategy involves integrating artificial intelligence into HRM practices. AI-driven HR practices have transformed many industries by improving decision-making, operational efficiency, and employee attraction and retention efforts. The Indian information technology (IT) sector, despite its global success, continues to struggle with persistent employee attrition. Prior studies indicate that high turnover is driven by individual and organizational factors, including poor employee engagement, job stress, inadequate training opportunities, inefficient performance appraisals, and limited compensation benefits (Guha & Chakrabarti, 2014). Such conditions highlight the risks organizations face when employee expectations remain unaddressed.

Recent evidence suggests that Indian employees are increasingly experiencing burnout due to heavy workloads and insufficient mental health support (Wulantika et al., 2023). While training, performance reviews, and remuneration practices have advanced over time, they often lack personalization and fail to engage employees effectively (Nyamubarwa & Chipunza, 2019). The impact of AI-enabled HR practices on employees is not thoroughly understood, despite their expanding prevalence. Although AI-driven training, performance evaluations, compensation and benefits, and reducing employee workload are meant to increase productivity, it is still unknown how these measures will influence the well-being of employees. It is also unclear how these practices influence employee engagement due to variations in technological readiness among the workforce. This disparity emphasizes the necessity of investigating how AI-enabled HR practices impact employee engagement and well-being in the digital workspace.

1. LITERATURE REVIEW AND HYPOTHESES

By integrating artificial intelligence (AI) in human resource management (HRM), organizations can now adopt data-driven, transparent, and adaptive approaches to motivate employees, strengthen commitment, and improve retention (Qamar et al., 2021). AI-enabled systems can link rewards to performance, ensure fairness, reduce biases, and provide timely feedback, thereby enhancing employee trust and satisfaction. By combining AI-driven compensation, training, workload, and performance appraisal with personalized development opportunities, organizations are better equipped to foster a highly motivated, loyal, and engaged workforce.

Employee training and development have long been essential components of organizational growth, but the rapid pace of digital transformation and evolving skill requirements necessitate more adaptive and technology-driven approaches. Artificial intelligence (AI) has emerged as a significant facilitator in this area, fundamentally transforming how training is designed, delivered, and personalized. As organizations quickly digitalize their HR processes, it becomes necessary to estimate the implications of AI on employee training, well-being, health, and safety standards, and the delivery of timely, data-driven feedback (Urba et al., 2022). AI systems can analyze employee profiles to identify skill gaps and provide targeted interventions, such as customized workshops and learning modules (Mena-Guacas et al., 2023). Furthermore, AI-powered training dynamically adjusts learning paths based on real-time feedback, enhancing knowledge retention, engagement, and alignment with organizational objectives (Maity, 2019; Chen, 2024; Rukadikar & Khandelwal, 2023). Additionally, beyond personalization, AI also contributes to automation, efficiency, and knowledge generation, collectively improving employee well-being and supporting long-term sustainability (Jarrahi et al., 2023). Moreover, AI-powered training enhances learning effectiveness, increases participation, reduces stress, and improves skill relevance, making it a critical tool for fostering employee engagement (Oladele et al., 2025).

Performance evaluation has traditionally been subjective and prone to managerial bias, often limiting its effectiveness in fostering employee development. However, the advent of artificial intelligence (AI) has revolutionized this process by introducing data-driven, personalized, and adaptive evaluation systems. Through advanced analytics, AI can assess individual performance data to identify specific skill gaps and design customized improvement plans that align with both employee and organizational goals (Brougham & Haar, 2018). Furthermore, studies have demonstrated that AI-powered appraisals provide real-time feedback, promote fairness and transparency, boost employee motivation and engagement, and enable HR professionals to implement targeted development initiatives that drive overall organizational performance (Gupta et al., 2024; Glikson & Woolley, 2020). Additionally, by replacing traditional subjective assessments with evidence-based and dynamic evaluation methods, AI facilitates a culture of continuous learning, improvement, and sustainable employee growth (Jia & Hou, 2024).

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Employee motivation, commitment, and retention have traditionally been influenced by compensation; however, conventional remuneration methods are often subjective, inefficient, and inequitable, thereby limiting employee engagement. With the advent of artificial intelligence, compensation management has undergone a significant transformation, becoming more data-driven, transparent, and adaptive. AI-enabled compensation now operates as an integral part of a broader HR strategy seamlessly connected with training, career development, performance appraisal, and diversity management (Gupta et al., 2019). Furthermore, AI-driven systems link rewards directly to performance, ensure fairness, and strengthen employee trust by providing performance-based evaluations and benchmarking against industry standards (Samarathunga, 2019; Mugizi et al., 2021). Additionally, such approaches enhance employee commitment and engagement by assuring that exceptional performance is recognized and rewarded equitably (Korrapati, 2023). Beyond motivation, AI fosters workplace equity by analyzing extensive datasets to detect wage disparities and eliminate biases, thereby cultivating fairness and trust among employees. Moreover, automated payroll systems further contribute to organizational efficiency by ensuring accuracy, timeliness, and consistency in payments, ultimately enhancing overall employee satisfaction and retention (Khan et al., 2024).

Artificial intelligence is increasingly recognized as a powerful tool for addressing organizational challenges by streamlining processes and enhancing productivity. According to Ribeiro et al. (2021), by automating repetitive and time-consuming tasks, AI reduces employee workload and job-related stress, allowing individuals to concentrate on more meaningful and value-added activities that enhance well-being and job satisfaction. According to Paschen et al. (2019) and Wijayati et al. (2022), AI applications are being deployed across various sectors, including sales, marketing, human resource management, and finance, to enhance operational efficiency and employee engagement. For instance, technologies such as speech recognition and voice-based search provide instant access to information, while automated transcription of meetings relieves employees from routine note-taking, enabling them to actively participate in higher-level discussions and decision-making. Additionally, these intelligent tools reduce cognitive overload and foster collaboration, creativity, and strategic thinking within teams. According to Meduri et al. (2024), beyond routine task automation, AI enables employees to devote more time to critical thinking, innovation, and strategic initiatives, thereby enhancing individual engagement, organizational adaptability, and long-term growth.

Employee engagement is widely recognized as a critical driver of both organizational performance and individual well-being, reflecting employees' positive emotional and cognitive connection to their work and organization, characterized by dedication, confidence, and active involvement (Schaufeli & Bakker, 2004). According to Schaufeli (2017) and Jaya and Ariyanto (2021), engagement is often conceptualized through the dimensions of vigor, dedication, and absorption, which directly contribute to employees' psychological and emotional well-being. Individuals who demonstrate sustained effort, active participation, and deep immersion in their job tasks exhibit higher levels of engagement, leading to increased workplace satisfaction, motivation, and resilience. Moreover, when personal aspirations, flexibility, and commitment align closely with organizational goals, engagement strengthens, fostering greater loyalty and reducing turnover intentions (Margaretha et al., 2021). According to Kong et al. (2021) and Lee et al. (2022), the integration of artificial intelligence in HR practices has further elevated engagement levels by automating routine tasks, alleviating workload pressures, and enabling employees to focus on more creative, meaningful, and strategic aspects of their roles. Additionally, AI-driven personalization in HR processes such as customized incentives, bias-free recruitment, and improved networking opportunities enhances the employee experience and promotes sustained engagement (Liu et al., 2024). Chheda et al. (2025) also reveal a reciprocal relationship between career engagement and employee well-being, demonstrating that higher engagement consistently correlates with improved psychological welfare, job satisfaction, and overall organizational commitment.

Employee well-being is a multidimensional construct intricately connected to engagement, job satisfaction, and overall organizational performance. Employees who are highly engaged in their work often report greater well-being as a result of increased job satisfaction, stronger social support, and a deeper sense of purpose. According to Van Horn et al. (2004), psychological well-being in the workplace encompasses job fulfillment, emotional commitment, reduced burnout, and sustained engagement, all of which contribute to a positive work experience. Furthermore, organizational support, effective supervision, and positive collegial relationships significantly enhance employee well-being by nurturing creativity, curiosity, and innovation (Park et al., 2017; Damianus et al., 2020). Well-being is commonly evaluated through indicators such as job satisfaction, work-life balance, managerial support, and the fulfillment of interpersonal needs, each of which plays a vital role in influencing engagement and productivity (Jamali et al., 2022). Additionally, higher levels of well-being are consistently associated with stronger engagement, greater positive affect, and improved individual and organizational performance outcomes (Sadeghi, 2024). However, while artificial intelligence technologies enhance productivity, personalization, and fairness in HR practices, they may simultaneously raise concerns regarding job security, equity, and transparency, which, if not managed responsibly, can adversely impact employee well-being (Dagher et al., 2025).

Technology readiness reflects the extent to which individuals and organizations are willing and prepared to adopt and utilize technology. According to Parasuraman (2000), the Technology Readiness Index (TRI) assesses optimism, innovativeness, discomfort, and insecurity, focusing on psychological and behavioral factors rather than technical proficiency. TRI provides insights into users' propensity to embrace technology, making it a critical predictor of engagement with digital tools. In the context of human resource management, technology readiness assumes particular significance as AI-driven tools and digital infrastructures increasingly transform organizational practices. Digital HR systems facilitate the automation of routine tasks, predictive monitoring, and AI-based policy enforcement, thereby enhancing operational efficiency and aligning HR processes with employee needs (David et al., 2023). Furthermore, organizations with higher levels of technology readiness are better positioned to implement AI in HR practices effectively, resulting in improved employee performance, enhanced talent retention, and stronger compliance with both organizational and regulatory standards (Thakur et al., 2025).

The present analysis is based on the social exchange theory (SET) (Blau, 1964; Cropanzano & Mitchell, 2005) and the job demands-resources (JD-R) model (Bakker & Demerouti, 2007), which, combined, give an extensive understanding of AI-enabled HR practices' impact on employee engagement and well-being. Complementing these, the task-technology fit theory emphasizes that technology adoption is most effective when the capabilities of the technology align well with the specific tasks employees perform (Goodhue & Thompson, 1995). When AI-enabled HR technologies fit the needs of HR tasks such as recruitment, performance management, and training, they improve task performance, which in turn boosts employee satisfaction and engagement.

Although this paper demonstrates the benefits of AI-enabled HR practices for training, performance appraisal, compensation, workload reduction, engagement, and well-being, most studies focus on individual HR practices in isolation (Wijayati et al., 2022), with limited exploration of their combined impact on employee well-being. Additionally, the roles of mediators, such as engagement, and moderators, like technology readiness, are limited. Context-specific evidence, particularly in the Indian IT sector, is scarce, and potential negative effects of AI on job security, equity, and transparency have not been fully addressed (Moon, 2025). This study aims to address these gaps by investigating the integrated effects of AI-enabled HR practices on employee engagement and well-being, with technology readiness as a moderating factor.

The aim of this study is to examine the influence of AI-enabled HR practices on training and development, performance appraisal, compensation and benefits, and workload reduction on employee engagement and well-being in the Chennai-based Indian IT sector. Consequently, the following hypotheses are proposed:

H1: AI training and development practice has a positive relationship with employee engagement.

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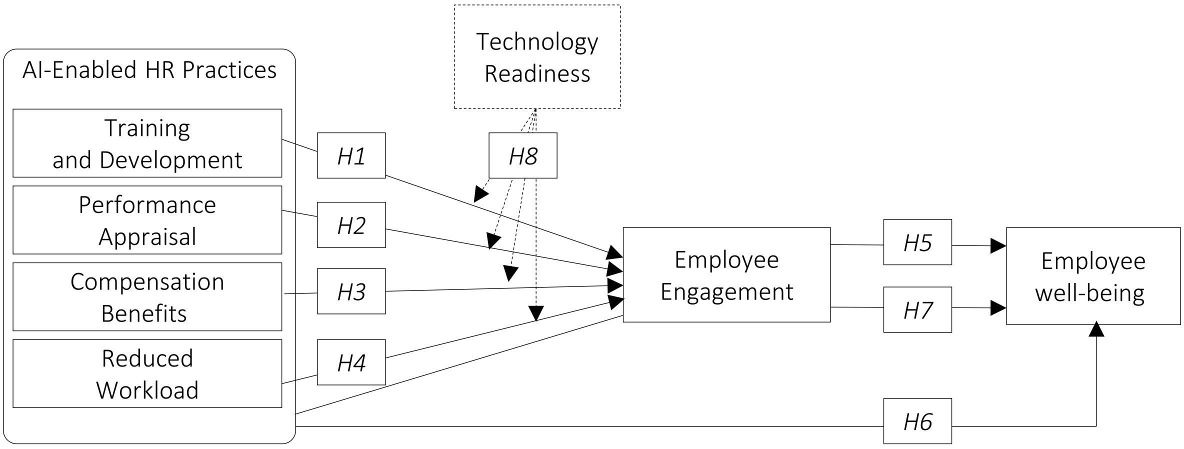

Figure 1. Conceptual framework

H2: *Performance appraisal has a favorable relationship with employee engagement.*

H3: *A favorable relationship exists between compensation benefits and employee engagement.*

H4: *A beneficial relationship exists between reduced workload of employees and employee engagement.*

H5: *A beneficial relationship exists between engagement and well-being of employees.*

H6: *AI-driven HR practices (training and development, performance appraisal, compensation benefits, reduced workload) has a positive relation with employee well-being.*

H7: *Employee engagement mediates the relationship between AI-driven HR practices (training and development, performance appraisal, compensation benefits, reduced workload) and employee well-being.*

H8: *Technology readiness moderates the relationship between AI-enabled HR practices and employee engagement.*

Figure 1 presents a conceptual framework that illustrates the hypotheses tested.

2. METHODS

This study employs a structured survey-based quantitative research design using a cross-sectional survey method to examine the impact of AI-enabled HR practices on employee engagement and well-being among IT sector employees in Chennai, India. Quantitative research is particularly well-suited for studies that aim to quantify the perceptions, behaviors, or attitudes of populations, as it enables the testing of hypotheses and the analysis of statistical data. The approach allowed us to collect numerical data in a methodical manner and use strong analytical tools to make significant findings about the relationships between artificial intelligence-enabled HR analytics, employee engagement, and employee well-being.

The survey focused on employees from Chennai-based IT companies, including HR specialists, software developers, project managers, data analysts, and other technical and non-technical staff. Therefore, Chennai is a major IT hub where the workforce is highly familiar with AI-enabled HR practices. These categories were selected to capture varying levels of interaction with AI-enabled HR systems and provide a comprehensive view of AI's impact on employee engagement and well-being. The involvement of participants from several functional domains is required for an in-depth understanding of the divergent experiences and perspectives related to AI in HR, at both strategic and operational levels. A stratified random sampling technique was used, dividing participants into entry-level, mid-level, and senior-level employees to reflect differences in organizational responsibility, exposure to HR processes, and familiarity with AI tools. This systematic approach, aligned with prior research (Nguyen et al., 2021), enhanced the contextual relevance and analytical depth of the study's findings.

Data for this study were collected using Google Forms, enabling rapid dissemination and retrieval of responses. The survey was conducted over five months, from October 2024 to February 2025, to ensure sufficient time for reaching employees across multiple IT companies in Chennai, accommodate varying work schedules, and maximize response rates. This extended period also allowed for follow-ups and reminders, reducing non-response bias and improving data reliability. Before analysis, the dataset underwent a thorough data cleaning process to ensure accuracy and consistency. Using Cochran's formula (Cochran, 1977) for sample size determination, a minimum sample of 384 was calculated based on a 95% confidence level, 5% margin of error, and maximum variability ($p = 0.5$). Due to practical constraints and the specific scope of the study, 350 responses were initially gathered. After data screening, including addressing missing values, identifying outliers, and checking consistency, 27 responses (7.71%) were removed, leaving 323 valid replies for analysis. The collected data are original and have not been published elsewhere.

The study comprised 323 respondents, with the majority being male (65.8%) and the minority female (34.2%). Most participants were aged between 25 and 34 years (36.3%), while the fewest were 55 years or older (7.7%). In terms of education, the largest group held a Bachelor's degree (41.7%), and the smallest group had other qualifications (9.9%).

Table 1. Demographic characteristics

Demographic variable	Frequency	Percentage, %
Gender		
Male	212	65.8
Female	111	34.2
Age		
Under 25 years old	76	23.5
25 to 34 years old	117	36.3
35 to 44 years old	69	21.2
45 to 54 years old	36	11.3
55 years old and above	25	7.7
Education		
Diploma/ITI	50	15.6
Bachelor's degree	135	41.7
Master's degree	106	32.8
Others	32	9.9
Marital status		
Married	138	42.7
Unmarried	185	57.3
Length of work		
Below 5 years	64	19.9
Between 5 and 10 years	175	54.0
Between 11 and 15 years	46	14.2
Above 15 years	38	11.7
Level of employees		
Entry Level	69	21.4
Mid-level	201	62.3
Senior Level	53	16.3
Job Role		
HR Professional	88	27.2
Software Developer	96	29.7
Project Manager/Team leader	72	22.2
Data Analyst/AI Specialist	41	12.6
Others (Support, Admin, etc.)	26	8.3

Regarding work experience, most had between five and ten years (54.0%), whereas the fewest had less than five years (19.9%). At the organizational level, the majority were mid-level employees (62.3%), and the fewest were at the senior level (16.3%). Among job roles, the largest groups were software developers (29.7%) and the smallest were in support or administrative roles (8.3%). These demographic details are summarized in Table 1.

Primary data were collected through a structured questionnaire administered online. The questionnaire included measures of AI-driven HR practices (training and development, performance appraisal, compensation benefits, workload reduction), employee engagement, employee well-being, and technology readiness. Established scales adapted from prior studies were used to ensure reliability and validity. A closed-ended questionnaire was used to collect primary data, with questions assessed on a 5-point Likert scale. Respondents were asked to rate their level of agreement with several assertions (5 "strongly agree" and 1 "strongly disagree"). Appendix A provides a detailed description of the methods used to evaluate the questionnaire constructs, including the items adapted from validated instruments reported in previous empirical studies. The questionnaire was designed to guarantee clarity, logical flow, and compatibility with the study's constructs, which included AI practices, engagement, and employee well-

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being. Questions were limited to these themes to maintain focus on the relationships between AI-enabled HR practices, employee engagement, and employee well-being, while keeping the survey concise and avoiding respondent fatigue. Table 2 presents the measurement details, and the use of previously validated scales strengthens the study's credibility while enabling meaningful comparison with prior research.

Table 2. Measurement scales

Construct	Sources
AI training and development	Pillai and Sivathanu (2020)
AI performance appraisal	Wijayati et al. (2022)
AI compensation benefits	Kambur and Akar (2022)
AI-driven reduced workload	Qiu et al. (2022)
Technology readiness	Parasuraman (2000)
Employee engagement	Wijayati et al. (2022)
Employee well-being	Radic et al. (2020)

IBM SPSS 27 was used to conduct preliminary analyses, including descriptive statistics, reliability tests, and correlation analyses. The study further employed the partial least squares structural equation modeling (PLS-SEM) technique using Smart PLS version 4.0, which is well-suited for complex models with multiple constructs (Hair et al., 2019), to test hypotheses and assess the structural model. This combined analytical approach ensured comprehensive data analysis at both the basic and advanced levels.

The study adhered to strict ethical standards for accuracy and confidentiality. Participants were informed about the purpose of the research, their voluntary participation, and their right to withdraw at any time. Informed consent was obtained, and all responses were anonymized and securely stored. The study was conducted in compliance with ethical guidelines and approved by the institutional review board.

3. RESULTS AND DISCUSSION

The results, analyzed using SmartPLS advanced software for examining complex structural models through partial least squares structural equation modeling (PLS-SEM), reveal the relationships between AI-enabled HR practices, employee engagement, and employee well-being among IT employees in Chennai, India.

Table 3. Reliability

Reliability Statistics	
Cronbach's Alpha	No. of Items
.980	44

Cronbach's alpha indicated that the measuring instrument exhibited an overall reliability of 0.980 for the 36 items included in the questionnaire (see Table 3). This score indicates strong internal consistency, exceeding the widely recognized threshold of 0.70 (Nunnally et al., 1997).

Table 4. Correlation analysis

Correlations						
	AITD	AIPA	AICB	AIRWL	EE	EWB
AITD	1	.957**	.913**	.903**	.821**	.585**
AIPA		1	.898**	.911**	.831**	.599**
AICB			1	.901**	.830**	.610**
AIRWL				1	.861**	.612**
EE					1	.904**
EWB						1

Note: **. Correlation is significant at the (0.01) level (2-tailed). AITD – AI Training and Development, AIPA – AI Performance Appraisal, AICB – AI Compensation Benefits, AIRWL – AI Reduced workload of employees, EE – Employee Engagement, EWB – Employee Well-being.

The correlation analysis indicates that the AI-enabled HR practices presented in Table 4 indicate a positive and significant connection with employee well-being at the 0.01 level. AI training and development is positively correlated with employee well-being (r = 0.585), AI performance appraisal (r = 0.599), AI compensation benefits (r = 0.610), and AI reduced workload (r = 0.612). Employee engagement has the strongest association with employee well-being (r = 0.904), indicating that although AI techniques foster well-being, engagement acts as a vital intermediary that enhances this connection.

Following Nunnally et al. (1997), Cronbach's alpha values larger than 0.70 suggest adequate internal consistency. All constructs exceeded this threshold, with scores ranging from 0.829 to 0.949, indicating strong dependability. Composite reliability, which accounts for each item's actual contribution to the construct, again exceeds the suggested standards of 0.70 (Hair et al., 2019), with values ranging from 0.880 to 0.953, suggesting good construct reliability (Table 5).

Table 5. Factor loading, AVE, CR, and Cronbach's alpha

Construct	Item	Factor Loading	Cronbach's Alpha (α)	Composite Reliability	Average Variance extracted AVE
AI Training and development	AITD1 AITD2 AITD3 AITD4 AITD5 AITD6	0.828 0.866 0.905 0.883 0.893 0.857	0.949	0.950	0.675
KMO Value: 0.844; P Value (0.000)					
AI Performance appraisal	AIPA1 AIPA2 AIPA3 AIPA4 AIPA5	0.961 0.869 0.891 0.892 0.912	0.939	0.953	0.627
KMO Value: 0.856; P Value (0.000)					
AI Compensation Benefits	AICB1 AICB2 AICB3 AICB4 AICB5	0.911 0.921 0.922 0.858 0.713	0.925	0.947	0.617
KMO Value: 0.815; P Value (0.000)					
AI Reduced workload	AIRWL1 AIRWL2 AIRWL3 AIRWL4 AIRWL5	0.837 0.799 0.774 0.807 0.721	0.829	0.880	0.607
KMO Value: 0.781; P Value (0.000)					
Technology Readiness	TER1 TER2 TER3 TER4 TER5 TER6 TER7 TER8	0.703 0.893 0.708 0.851 0.765 0.747 0.763 0.700	0.813	0.854	0.512
KMO Value: 0.764; P Value (0.000)					
Employee Engagement	EMEG1 EMEG2 EMEG3 EMEG4 EMEG5 EMEG6 EMEG7 EMEG8 EMEG9	0.810 0.888 0.881 0.893 0.912 0.732 0.756 0.718 0.714	0.938	0.953	0.503
KMO Value: 0.863; P Value (0.000)					
Employee well-being	EWB1 EWB2 EWB3 EWB4 EWB5 EWB6	0.889 0.673 0.911 0.874 0.886 0.724	0.902	0.929	0.509
KMO value: 0.850; P Value (0.000)					

Note: AITD – AI Training and Development, AIPA – AI Performance Appraisal, AICB – AI Compensation Benefits, AIRWL – AI Reduced workload of employees, EE – Employee Engagement, EWB – Employee Well-being.

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Table 6. Discriminant validity (Fornell-Larcker)

	AITD	AIPA	AICB	AIRWL	TE_RE	EMP_ENG	EMP_WB
AITD	0.821						
AIPA	0.786	0.791					
AICB	0.708	0.756	0.785				
AIRWL	0.667	0.758	0.657	0.779			
TE_RE	0.641	0.725	0.628	0.636	0.715		
EMP_ENG	0.653	0.732	0.639	0.649	0.650	0.709	
EMP_WB	0.574	0.751	0.647	0.662	0.654	0.627	0.713

Note: AITD – AI Training and Development, AIPA – AI Performance Appraisal, AICB – AI Compensation Benefits, AIRWL – AI Reduced workload of employees, TE_RE – Technology Readiness, EMP_ENG – Employee Engagement, EMP_WB – Employee Well-being.

Table 5 demonstrates that the average variance extracted measures ranged from 0.559 to 0.695, over the minimal threshold of 0.50 (Fornell & Larcker, 1981). The AVE for AI training and development was 0.559; currently, it is over the permitted range, suggesting that the latent construct captures over 55% of indicator variation. Items were reliable since all factor loadings were over 0.67 and most were above 0.80. Validating sample adequacy, KMO values varied from 0.781 to 0.863, and Bartlett's Test value ($p < 0.000$) validated data factorability. The findings verify that the model possesses adequate reliability and validity, proving that the variables are both internally reliable and clearly defined.

Table 6 evaluates the discriminant validity of the model, and the Fornell-Larcker criteria are relied on. As indicated by Fornell and Larcker (1981), the square root of the average variance extracted for all variables is supposed to be larger than their correlations with every other variable in the model. These outcomes together demonstrate that discriminant validity has been proved for every construct in the research. Each construct is empirically separate and assesses a unique component of the conceptual framework, assuring the reliability and validity of the model.

Table 7. R-Squared

Variables	R^2	Adjusted R^2
Employee Engagement	0.887	0.886
Employee Well-being	0.885	0.885

Table 7 demonstrates AI-enabled HR practices (training and development, performance appraisal, compensation benefits, and reduced workload) affect employee well-being by 88.50%, while employee engagement exerts a very strong influence, contributing 88.70%.

Table 8 results expose that AI training and development have a significant impact on engagement (β val = 0.560, p val < 0.000); while the p-value is < 0.05, Hypothesis 1 is accepted. Similarly, AI performance appraisal also demonstrates a significant positive influence on engagement of employees (β val = 0.351, p val < 0.001), accepting Hypothesis 2. AI compensation benefits show an affirmative and significant relationship with engagement (β val = 0.366, p val = 0.000), thereby supporting Hypothesis 3. Additionally, AI-driven workload reduction exerts a significant affirmative effect on engagement (β val = 0.292, p val < 0.000), confirming Hypothesis 4. Finally, the structural path from engagement of employees to well-being of em-

Table 8. Statistical analysis (Direct effects)

Hypotheses	(β)Beta Value	STD DEV	T Value	P value	Decision
AI Training and development → Employee engagement (H1)	0.560	0.101	5.565	0.000	Supported
AI Performance appraisal → Employee engagement (H2)	0.351	0.096	3.641	0.001	Supported
AI Compensation benefits →Employee engagement (H3)	0.366	0.032	2.094	0.000	Supported
AI Reduced workload →Employee engagement (H4)	0.292	0.044	2.084	0.000	Supported
Employee engagement → Employee Well-being (H5)	0.451	0.091	4.962	0.001	Supported

Table 9. Statistical analysis (Direct effects)

Hypotheses (H6)	(β)Beta Value	STD DEV	T Value	P value	Decision
AI Training and development→ Employee Well-being	0.253	0.069	3.646	0.000	Supported
AI Performance appraisal → Employee Well-being	0.258	0.056	2.831	0.000	Supported
AI Compensation benefits →Employee Well-being	0.330	0.015	2.014	0.000	Supported
AI Reduced workload →Employee Well-being	0.241	0.020	2.061	0.000	Supported

Table 10. Mediation effects

Hypotheses (H7)	(β)Beta Value	STD DEV	T Value	P value	Decision
AI Training and development → Engagement → Well-being	0.194	0.092	3.129	0.000	Supported
AI Performance appraisal →Engagement → Well-being	0.149	0.059	2.614	0.003	Supported
AI Compensation benefits → Engagement → Well-being	0.121	0.052	2.327	0.000	Supported
AI Reduced workload → Engagement → Well-being	0.132	0.068	3.971	0.000	Supported

ployees shows a positive association (β val = 0.451, p val < 0.001), indicating that as employee engagement increases, employee well-being also improves, thus supporting Hypothesis 5.

Table 9 explains that AI-enabled HR practices significantly impact employee well-being, according to hypothesis testing. AI-driven training programs significantly improve employee well-being (β = 0.253, p = 0.000), indicating a favorable impact. AI performance appraisals had a considerable favorable influence (β = 0.258, p = 0.000), demonstrating that workers respect fair and transparent judgments. Although substantial, AI compensation and benefits have an affirmative effect (β = 0.330, p = 0.000), possibly indicating content with AI-managed compensation schemes. AI workload reduction has a small but substantial beneficial impact (β = 0.241, p = 0.000) on employee well-being, with AI systems reducing routine duties and operational burdens. All four expected associations are statistically significant, thus hypothesis 6 is supported, highlighting the effect of AI-driven HR policies on the well-being of employees.

Table 10 explains that the mediation study shows that AI-enabled HR practices indirectly improve employee well-being through engagement. AI training and development significantly influence well-being through engagement, with a significant indirect effect (β val = 0.194, p val < 0.000). Similarly, AI performance appraisal demonstrates a significant indirect impact on the well-being of employees through their engagement (β val = 0.149, p val < 0.003). AI compensation and benefits also show an affirmative effect on well-being through employee engagement (β val = 0.121, p val < 0.000). Furthermore, AI-driven workload reduction positively affects employee well-being indirectly through employee engagement (β val = 0.132, p val < 0.000). These outcomes collectively confirm hypothesis 6. Employee engagement serves as a crucial mediating mechanism linking AI-enabled HR practices with improved employee well-being.

Table 11 displays the moderation analysis, which found that technology readiness considerably improves the favorable association between AI-enabled HR practices and employee engagement. Employees with higher technology readiness demonstrated higher engagement when exposed to AI-driven training and development (β val = 0.252, p val < 0.002), performance appraisal (β val = 0.158, p val < 0.000), compensation benefits (β = 0.165, p val < 0.000), and workload reduction initiatives (β val = 0.212, p val < 0.000). These findings show that employees who are more comfortable and familiar with technology are more inclined to benefit from AI-integrated HR systems, resulting in higher levels of engagement.

Table 11. Moderation effect of AI-enabled HR practices and employee engagement

Hypotheses (H8)	(β)Beta Value	STD DEV	T Value	P value	Decision
AI Training and development x Technology readiness →Engagement	0.252	0.069	3.695	0.002	Supported
AI Performance appraisal x Technology readiness →Engagement	0.158	0.056	2.942	0.000	Supported
AI Compensation benefits x Technology readiness → Engagement	0.165	0.045	4.547	0.000	Supported
AI Reduced workload x Technology readiness → Engagement	0.212	0.020	3.971	0.000	Supported

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The findings of this study revealed substantial positive correlations between employee well-being and AI-enabled HR practices, including training and development, performance appraisal, compensation and benefits, and workload reduction within IT firms in Chennai. These results demonstrate that AI-enabled HR practices are strongly associated with employee engagement, which in turn contributes to improved overall well-being.

The results revealed that AI training and development significantly impact employee engagement and the well-being of employees. The present study provides empirical evidence that AI-enabled training and development not only facilitates skill acquisition but also substantially enhances employee engagement and overall well-being. According to García-Madurga et al. (2024), AI-based training and development programs can improve employees' skills while also supporting mental health at work. Specifically, whereas previous research primarily highlighted AI's potential to support mental health, the results of this study demonstrate that AI-enabled learning environments and recognition systems actively foster positive workplace attitudes and engagement, thereby producing a more direct and measurable impact on employees' overall well-being.

Second, AI performance appraisal positively and significantly influences both the direct path of employee well-being and the indirect mediating path of employee engagement. In this context, the paper offers practical insights for promoting employee well-being. Organizations should adopt AI-enabled performance appraisal systems that motivate and support employees to enhance productivity and create a positive work environment. Providing employees with greater autonomy and adequate resources can further boost their engagement and innovative potential. Prior studies have shown that AI-enabled performance appraisal systems can enhance fairness, reduce bias, and provide timely feedback, positively influencing employee outcomes (Khandelwal et al., 2024). Notably, while previous research highlighted potential benefits in theory, the study findings demonstrate measurable effects in practice: AI-enabled appraisals not only reduce evaluation bias and improve fairness but also foster constructive feedback that actively enhances engagement and overall employee well-being, thereby extending earlier work by confirming these outcomes within an organizational context.

Third, AI-enabled compensation practices significantly enhance both employee engagement and employee well-being. The current study provides empirical evidence that AI-driven compensation, supported by transparent communication and equitable HR policies, enhances employee well-being by underscoring the crucial role of fair and supportive pay practices. When employees perceive compensation systems as fair and transparent, they feel more valued, motivated, and committed to achieving higher performance levels. Building on prior literature (Kheterpal et al., 2024), which provides a conceptual overview of how AI transforms compensation, this study goes beyond generalized statements on AI-enabled HR practices to offer a more nuanced understanding of how transparent, equitable, and AI-driven compensation systems can simultaneously enhance engagement and well-being. By ensuring accurate, timely, and unbiased compensation, AI-driven systems enhance perceptions of fairness and reduce financial stress, thereby strengthening employees' engagement and overall well-being. This underscores the need to integrate AI tools within a broader human-centric HR framework rather than treating them as stand-alone solutions.

Fourth, AI-driven workload reduction positively and significantly enhances employee engagement, thereby contributing to improved employee well-being. The present study provides empirical evidence that AI-enabled workload reduction alleviates operational demands by minimizing repetitive and time-consuming tasks, thereby effectively reducing overall work strain and enhancing employee well-being. Previous research has shown that artificial intelligence can help employees manage repetitive and time-consuming tasks, thereby reducing workload, increasing productivity, and lowering workplace stress (Dhamija & Bag, 2020). While earlier studies primarily emphasized the reduction of stress and increased productivity, we extend this understanding by demonstrating that workload reduction also allows employees to engage in more meaningful and creative activities, thereby improving mental health, work–life balance, and overall resilience.

Finally, the study provides empirical evidence that technology readiness significantly moderates the relationship between AI-enabled HR practices and employee engagement. It indicates that employees with higher technological readiness are more likely to engage positively with AI-driven HR initiatives. Prior research has highlighted that technology readiness, as an individual's propensity to embrace and use new technologies, can influence how effectively employees adopt AI-based HR systems, ultimately affecting engagement and performance (e.g., Parasuraman, 2000; Shahreki et al., 2023). Building on this, employees with higher technological competence perceive AI-driven systems as developmental opportunities, experience more transparent and equitable appraisals, and benefit more from workload reduction. This study's findings extend the literature by demonstrating that technology readiness not only facilitates system use but also strengthens the positive impact of AI-enabled HR practices on engagement, highlighting the importance of fostering technological competence to maximize AI's benefits in the workplace.

These findings not only demonstrate AI's positive impact on employee well-being but also extend prior research by providing actionable guidance for HR managers in Chennai's IT sector on leveraging AI technologies. By integrating AI within transparent, equitable, and human-centric HR practices, organizations can foster a healthier, more engaged, and productive workforce.

CONCLUSION

The aim of this paper was to explore the impact of AI-enabled HR practices on employee engagement and well-being, with technology readiness serving as a moderating factor. The results indicate that AI-enabled HR practices, including training and development, performance appraisal, compensation benefits, and workload reduction, have a significant positive impact on employee engagement and well-being. Furthermore, employee engagement acts as a significant mediator in the relationship between AI-enabled HR practices and employee well-being. In addition, technology readiness significantly moderates the relationship between AI-enabled HR practices and employee engagement, indicating that higher levels of technology readiness strengthen the positive influence of AI-driven HR practices on employee engagement.

The findings contribute to HRM and organizational behavior literature by integrating technological innovation with human-centric outcomes, offering a multidimensional perspective on how AI can enhance organizational effectiveness. Furthermore, the results emphasize that managers and HR professionals should perceive AI not merely as a technological advancement but as a strategic enabler that supports human potential and fosters a positive working environment. Actively engaging employees in AI-driven HR initiatives enhances their autonomy, involvement, and motivation, thereby strengthening engagement and improving overall well-being. Additionally, enhancing employees' technology readiness further facilitates the effective adoption of AI-based HR systems and amplifies their positive influence on engagement and well-being. Finally, the study highlights that the successful integration of AI into HR practices, when combined with the development of employees' technological competence, fosters a more engaged, resilient, and healthier workforce, thereby contributing to sustainable organizational growth.

Despite providing valuable insights, this study has certain limitations that should be considered when interpreting the findings. The paper focused exclusively on IT employees in Chennai, which limits the generalizability of the results to other industries and geographic regions. The relatively small and context-specific sample may not represent larger, global populations. Future research should employ larger and more diverse samples and adopt richer methodologies, such as mixed methods or longitudinal designs, to overcome the limitations of standardized surveys commonly used in this field.

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While this study examined the mediating role of employee engagement, other potential influencing factors were not explored. Future research should investigate additional mediating and moderating variables such as leadership styles, organizational culture, internal control mechanisms, and digital literacy to gain a deeper understanding of how AI-enabled HR practices affect employee engagement and well-being. Furthermore, employee well-being is shaped by multiple psychological, organizational, and contextual factors that were beyond the scope of this study. Incorporating these variables in future research would provide a more holistic understanding of employee well-being in AI-integrated workplaces. By addressing these limitations, future studies can build on the present findings to offer deeper insights and practical guidance for implementing AI-enabled HR practices. These practices foster fair, transparent, and employee-centric workplaces, ultimately enhancing employee engagement, well-being, and organizational sustainability.

AUTHOR CONTRIBUTIONS

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Investigation: Gayathiri G., Prabu G.
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Resources: Gayathiri G.
Software: Gayathiri G.
Supervision: Prabu G.
Validation: Prabu G.
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APPENDIX A

Table A1. Questionnaire

Construct Items	SA	A	N	DA	SDA
AI Training and Development					
AI technology minimizes the amount of time spent on workplace training.					
AI technology enhances the availability of workplace training.					
Artificial intelligence might help to reduce the concentration gap in the practices of corporate training.					
The company I work for provides incentives for employees that are based on performance					
Artificial intelligence technologies for company training courses provide results in a very effective training program.					
AI training programs are readily available for individuals interested in developing a career in AI development.					
AI Performance Appraisal					
Artificial intelligence technologies accurately determine the requirements for performance evaluation.					
Employee performance is monitored using artificial intelligence technology, which improves the culture of the organization.					
AI technologies make it easier to identify employees who deserve promotion in their careers.					
AI technologies to evaluate employees' work are expected to have an encouraging effect on the company's success.					
Employees do not lose motivation when their performance is assessed using artificial intelligence technologies.					
AI Compensation Benefits					
Adapting to possible modifications in the employee salary structure is easier with AI.					
AI technology may prevent the timely payment of salaries, premiums, prizes, bonuses, and similar compensations to employees.					
AI technology aids in the reliable and equitable estimation of employee salaries.					
AI technology automates pay increases based on employees' competence increases.					
AI Reduced Workload					
AI reduces the workload for the company's employees in performing their tasks.					
AI technology implemented in an organization can accept project instructions and execute tasks, therefore relieving the strain on humans.					
The AI system can instantly search and analyze employee data.					
Artificial intelligence may promote task completion, hence preserving employees' work time.					
Technology Readiness					
New technologies contribute to a better quality of life.					
Technology gives employees more freedom of mobility.					
I can usually figure out new high-tech products and services without help from others.					
I prefer to use the most advanced technology available.					
New technology is often too complicated to be useful.					
Learning about technology can be as rewarding as the technology itself.					
With new technology, one often risks paying much money for something that is not worth much.					
It can be risky to switch to a revolutionary new technology too quickly.					
Employee Engagement (Vigor)					
Upon rising in the morning, I feel a desire to attend work comfortably.					
At my workplace, I feel motivated.					
Employee Engagement (Dedication)					
My profession motivates me.					
I am extremely proud of the work I do.					
Employee Engagement (Absorption)					
When I am working, I neglect everything else.					
I become absorbed in my task.					
Employee Well-being					
Employees generally feel positive and cheerful at work.					
Employees are satisfied with my work–life balance.					
Employees manage work-related stress effectively.					
Employees are mentally alert and focused during my working hours.					
Employees have opportunities to contribute ideas and be heard at work.					

Note: SDA – Strongly Disagree, DA – Disagree, N – Neutral, A – Agree, SA – Strongly Agree.