

Ethical AI in HRM and HR Data Analytics in Achieving Fair Recruitment Outcomes and Employee Trust at Technology Companies in Jakarta

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ABSTRACT

The increasing adoption of artificial intelligence (AI) in Human Resource Management (HRM) has transformed recruitment and HR data analysis by improving efficiency, consistency, and data-driven decision-making. However, concerns regarding algorithmic bias, transparency, accountability, privacy, and employee acceptance remain significant. This study examines the effects of Ethical AI in HRM and HR Data Analysis on Fair Recruitment Outcomes and Employee Trust in technology companies in Jakarta. A quantitative explanatory research design was employed using data collected from 120 employees through a structured questionnaire measured on a five-point Likert scale. The data were analyzed using Structural Equation Modeling–Partial Least Squares with SmartPLS 3. The measurement model demonstrated satisfactory reliability and validity, with factor loadings exceeding 0.70, composite reliability values above 0.90, and Average Variance Extracted values above 0.50. The structural model showed that Ethical AI significantly influenced Fair Recruitment Outcomes and Employee Trust. HR Data Analysis also had significant positive effects on Fair Recruitment Outcomes and Employee Trust. Fair Recruitment Outcomes exerted the strongest influence on Employee Trust. Furthermore, Fair Recruitment Outcomes partially mediated the relationships between Ethical AI and Employee Trust and between HR Data Analysis and Employee Trust. The model explained 62.8% of the variance in Fair Recruitment Outcomes and 70.3% of the variance in Employee Trust. These findings demonstrate that ethical, transparent, accountable, and responsible AI-supported HR practices can improve recruitment fairness and strengthen employee confidence in organizational technologies.

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1. INTRODUCTION

Artificial Intelligence (AI) has fundamentally reshaped organizational decision-making by enabling the automation and optimization of complex Human Resource Management (HRM) functions through machine learning, predictive analytics, natural language processing, and intelligent decision-support systems [1], [2]. AI-driven technologies are increasingly applied to recruitment, applicant screening, talent acquisition, performance evaluation, workforce planning, promotion, and employee retention. Technology companies have emerged as early adopters of these systems because of their advanced digital infrastructure, extensive employee databases, and continuous demand for specialized human capital [3], [4]. Through AI-supported HR data analysis, organizations can process large volumes of applicant and employee information more rapidly and systematically than conventional HR procedures, thereby reducing administrative burdens, improving recruitment efficiency, and supporting evidence-based workforce decisions. Nevertheless, the growing reliance on automated HR systems has shifted managerial attention from the question of whether AI can improve HR performance to whether such technologies can be implemented in an ethical, transparent, and socially responsible manner [5], [6].

Despite their operational advantages, AI applications in HRM present substantial ethical risks, particularly when algorithms are trained using historical organizational data that contain explicit or implicit biases. Data reflecting past inequalities based on gender, age, ethnicity, socioeconomic background, disability, educational institution, or employment history may lead AI systems to reproduce or amplify discriminatory patterns in recruitment and other employment decisions [5], [6]. These risks are intensified by the opaque nature of many machine-learning models, which may prevent candidates, employees, and HR professionals from understanding how recommendations or

classifications are generated. Such opacity raises critical concerns regarding explainability, accountability, privacy, human autonomy, and procedural justice [7], [8]. Consequently, technological accuracy and predictive capability alone are insufficient to determine the legitimacy of AI-supported HR decisions. Organizations must establish ethical AI practices that incorporate fairness assessments, transparent decision criteria, data protection, algorithmic accountability, bias monitoring, and meaningful human oversight throughout the AI lifecycle.

The growing importance of ethical AI is reflected in international frameworks developed by institutions such as the Organisation for Economic Co-operation and Development, the European Commission, and UNESCO, which emphasize that AI systems should be lawful, human-centered, transparent, accountable, secure, and non-discriminatory. These principles are particularly consequential in HRM because employment decisions directly affect individuals' access to jobs, income, professional development, and career mobility. In this context, ethical AI implementation should be understood not merely as technical compliance but as a strategic organizational capability through which firms govern the design, deployment, and evaluation of AI-enabled HR systems [9], [10]. Effective ethical governance can help organizations identify discriminatory outcomes, provide understandable explanations for automated decisions, clarify responsibility when errors occur, and preserve human judgment in high-impact employment processes. Ethical AI may therefore strengthen the legitimacy of algorithmic decision-making and enhance employees' and applicants' perceptions that AI-supported HR practices are aligned with organizational values and principles of justice [9], [11].

HR data analysis constitutes the operational foundation of AI-enabled HRM because the quality and governance of data directly influence the accuracy, fairness, and credibility of algorithmic outcomes.

Organizations increasingly collect data concerning applicants' qualifications, professional experience, competencies, behavioral characteristics, performance records, digital activities, and employment outcomes to identify suitable candidates, predict turnover, evaluate productivity, and formulate workforce strategies [12], [13]. However, the extensive collection and processing of personal data also create risks associated with informed consent, unauthorized surveillance, cybersecurity, data misuse, and excessive dependence on quantifiable employee characteristics. Ethical HR data analysis therefore requires organizations to ensure data relevance, accuracy, security, representativeness, and lawful processing while clearly communicating how employee and applicant data are collected, analyzed, stored, and used. When HR analytics are implemented transparently and responsibly, they may improve the quality of recruitment decisions and reduce subjective human judgment. Conversely, poorly governed data practices may generate misleading predictions, reinforce structural inequalities, and weaken confidence in AI-supported HR systems.

A central expected outcome of ethical AI implementation and responsible HR data analysis is fair recruitment, which refers to the extent to which hiring decisions are perceived as objective, consistent, transparent, unbiased, and based on job-relevant competencies [14], [15]. Recruitment fairness includes distributive justice, which concerns the equity of selection outcomes, and procedural justice, which concerns the fairness of the procedures used to reach those outcomes. Applicants and employees evaluate AI-assisted recruitment not only according to whether selected candidates are qualified but also according to whether decision rules are consistently applied, personal information is appropriately used, explanations are available, and opportunities to challenge questionable decisions are provided. Fair recruitment outcomes may subsequently strengthen employee trust, defined as employees' willingness to rely on

organizational technologies and their confidence that AI systems operate competently, responsibly, and without harmful intent. Employees who perceive AI-supported HR decisions as fair, explainable, and accountable are more likely to accept algorithmic recommendations and support digital transformation. In contrast, perceived algorithmic bias, intrusive data practices, or opaque decision-making may trigger resistance, reduce organizational commitment, and undermine trust in both management and technology.

These relationships are particularly relevant to technology companies in Jakarta, Indonesia's principal digital business ecosystem, where startups, fintech firms, software companies, multinational technology corporations, and digital service providers increasingly use AI-powered recruitment and HR analytics to compete for highly skilled employees. Although prior studies have examined AI adoption, recruitment automation, HR analytics, organizational justice, and technology trust, these research streams have frequently developed in isolation. Existing studies have predominantly emphasized technological readiness, operational efficiency, or predictive performance, while comparatively limited empirical attention has been given to the integrated effects of ethical AI implementation and HR data analysis on fair recruitment and employee trust, particularly in emerging economies. Empirical evidence from Indonesia also remains limited despite accelerating organizational investment in AI and increasing concerns regarding digital governance and personal data protection. Addressing this gap, the present study examines the effects of ethical AI implementation in HRM and HR data analysis on fair recruitment outcomes and employee trust among technology companies in Jakarta. The study is expected to extend ethical AI and HRM literature by integrating technological governance, data practices, organizational justice, and employee trust within a single empirical framework, while providing practical guidance for

organizations seeking to implement AI systems that are simultaneously efficient, fair, transparent, and trustworthy.

2. LITERATURE REVIEW

2.1 *Ethical Artificial Intelligence in Human Resource Management*

Artificial Intelligence (AI) has become a transformative technology in Human Resource Management (HRM), supporting recruitment, candidate screening, performance evaluation, workforce planning, learning recommendations, and employee retention prediction [2]. Although AI improves the speed, accuracy, and efficiency of HR decision-making, its increasing use also raises ethical concerns regarding algorithmic bias, privacy, transparency, accountability, and fairness. Ethical AI therefore requires organizations to implement AI systems that are non-discriminatory, explainable, privacy-conscious, human-centered, and subject to meaningful human oversight. In recruitment, these principles are essential because algorithms trained on biased historical data may disadvantage applicants based on gender, age, ethnicity, disability, education, or socioeconomic background [2]. Continuous monitoring, algorithm auditing, and human intervention are consequently necessary to ensure fair recruitment outcomes. From the Resource-Based View, ethical AI can also be understood as a strategic organizational capability that combines technological sophistication with responsible governance, thereby improving recruitment quality,

organizational legitimacy, and sustainable competitive advantage.

2.2 *HR Data Analysis*

HR Data Analysis, also known as HR Analytics or People Analytics, is the systematic collection, integration, analysis, and interpretation of employee-related data to support evidence-based human resource decisions. By utilizing demographic information, qualifications, work experience, competencies, performance records, attendance, training participation, and engagement metrics, organizations can shift from intuition-based HR management toward strategic data-driven practices [16], [17]. The integration of Artificial Intelligence further strengthens HR analytics through predictive modeling, pattern recognition, and intelligent recommendations for identifying high-performing candidates, predicting employee turnover, detecting skill gaps, personalizing training, and forecasting workforce needs. However, its implementation also raises ethical concerns regarding data privacy, informed consent, cybersecurity, data ownership, and algorithmic transparency [18], [19]. Therefore, effective HR data analysis requires robust data governance, secure data storage, transparent processing policies, regulatory compliance, regular data-quality assessments, and clear organizational accountability to improve decision-making while maintaining employees' confidence that their personal

information is managed fairly, securely, and responsibly.

2.3 *Fair Recruitment Outcomes*

Recruitment fairness is a central objective of ethical Human Resource Management and refers to the extent to which hiring decisions are objective, consistent, transparent, non-discriminatory, and based on applicants' competencies, qualifications, and job-related characteristics [20], [21]. It encompasses procedural justice, which concerns the consistency, transparency, standardization, and impartiality of recruitment procedures, and distributive justice, which concerns the fairness of hiring outcomes. AI-assisted recruitment can strengthen both dimensions by applying predefined evaluation criteria consistently and reducing subjective human bias; however, biased training data may reproduce discrimination when ethical safeguards are inadequate [22], [23]. Therefore, organizations must implement transparent AI systems, regular algorithm audits, fairness assessments, and meaningful human oversight to ensure accountable and equitable recruitment decisions. Fair recruitment also provides strategic benefits by strengthening employer reputation, organizational diversity, applicant attraction, employee commitment, and legal compliance, making it both an ethical obligation and a valuable organizational asset.

2.4 *Employee Trust*

Employee trust refers to employees' confidence that organizational systems, leaders, and technologies operate

competently, ethically, and in their best interests. In AI-supported HRM, this trust reflects employees' willingness to rely on AI-generated recommendations in sensitive decisions such as recruitment, promotion, compensation, performance evaluation, and career development [24], [25]. Trust in AI is shaped by perceived fairness, transparency, reliability, explainability, accountability, privacy protection, and continued human oversight. Employees are more likely to accept AI-assisted decisions when they understand how recommendations are generated and believe that personal data are used responsibly. Conversely, opaque algorithms, unexplained decisions, unauthorized data use, and perceived discrimination may reduce trust, increase technological resistance, and weaken employee engagement, organizational commitment, and acceptance of digital transformation [26], [27]. Consistent with the Technology Acceptance Model and Trust Theory, perceived usefulness alone is insufficient to ensure AI adoption; employees must also perceive AI systems as ethical, fair, and transparent. Therefore, ethical AI implementation constitutes a key antecedent of employee trust in AI-enabled HRM.

2.5 *Conceptual Framework*

This study proposes a structural model comprising two exogenous variables—Ethical AI in Human Resource Management and HR Data Analysis—one mediating variable, namely Fair

Recruitment Outcomes, and one endogenous variable, namely Employee Trust. The model examines the direct effects of Ethical AI in HRM and HR Data Analysis on Fair Recruitment Outcomes and Employee Trust, as well as the effect of Fair Recruitment Outcomes on Employee Trust. It also evaluates the mediating role of Fair Recruitment Outcomes in the relationships between Ethical AI in HRM and Employee Trust and between HR Data Analysis and Employee Trust. This framework assumes that ethical AI implementation and responsible HR data analysis enhance the objectivity, transparency, consistency, and accountability of recruitment decisions, which subsequently strengthen employees' trust in AI-supported HR systems.

Ethical AI is expected to improve recruitment fairness by applying standardized evaluation criteria, minimizing discriminatory bias, ensuring algorithmic transparency, and maintaining meaningful human oversight. Similarly, responsible HR data analysis supports fair recruitment through accurate, complete, secure, and transparent data management, enabling evidence-based decisions while reducing subjective judgment. Ethical AI and HR data analysis may also directly strengthen employee trust when organizational technologies are perceived as reliable, accountable, privacy-conscious, and ethically governed. Furthermore, fair recruitment outcomes reinforce employee trust because objective and equitable hiring decisions

demonstrate that AI-supported HR systems operate consistently and responsibly. Therefore, Fair Recruitment Outcomes function as an important mechanism through which Ethical AI in HRM and HR Data Analysis enhance Employee Trust within technology companies in Jakarta.

H1: Ethical AI in Human Resource Management positively influences Fair Recruitment Outcomes.

H2: HR Data Analysis positively influences Fair Recruitment Outcomes.

H3: Ethical AI in Human Resource Management positively influences Employee Trust.

H4: HR Data Analysis positively influences Employee Trust.

H5: Fair Recruitment Outcomes positively influence Employee Trust.

H6: Fair Recruitment Outcomes mediate the relationship between Ethical AI in Human Resource Management and Employee Trust.

H7: Fair Recruitment Outcomes mediate the relationship between HR Data Analysis and Employee Trust.

3. METHODS

3.1 Research Design

This study employed a quantitative approach with an explanatory and cross-sectional survey design to examine the causal relationships among Ethical Artificial Intelligence (AI) in Human Resource Management (HRM), HR Data Analysis, Fair Recruitment Outcomes, and Employee Trust. Data were collected at a single point in time using a structured questionnaire to statistically measure the relationships among

the latent constructs and test the proposed hypotheses. The conceptual model, grounded in ethical AI, HR analytics, organizational justice, and trust theories, comprises Ethical AI in HRM and HR Data Analysis as exogenous variables, Fair Recruitment Outcomes as a mediating variable, and Employee Trust as an endogenous variable. Structural Equation Modeling–Partial Least Squares (SEM-PLS) using SmartPLS 3 was applied to evaluate the measurement and structural models simultaneously.

3.2 Population and Sample

The population of this study comprised employees working in technology companies in Jakarta, Indonesia, as these organizations are among the earliest adopters of AI-based HRM systems in recruitment, talent acquisition, employee analytics, and workforce management. Respondents were selected using purposive sampling based on four criteria: currently employed by a technology company in Jakarta, having at least one year of work experience, possessing experience with or knowledge of AI-assisted HR processes such as digital recruitment, online assessments, automated candidate screening, employee analytics, or other automated HR systems, and voluntarily agreeing to participate. Purposive sampling was considered appropriate because respondents were required to understand the implementation of AI in HRM. Following SEM-PLS sample recommendations and the structural complexity of the proposed model, 120 valid responses were collected and included in the final analysis.

3.3 Data Collection Technique

Primary data were collected through a structured questionnaire distributed electronically via online survey platforms to employees of technology companies in Jakarta between January and March 2026. Before completing the questionnaire, respondents were informed about the research purpose, voluntary participation, response confidentiality, personal-information anonymity, and their right to withdraw, and only those who provided informed consent were permitted to participate. The questionnaire consisted of two sections: Section A collected respondents' demographic information, including gender, age, educational background, work experience, organizational position, and length of employment, while Section B contained measurement items representing the four research constructs, namely Ethical AI in HRM, HR Data Analysis, Fair Recruitment Outcomes, and Employee Trust.

3.4 Measurement of Variables

All constructs were measured using multiple indicators adapted from previous studies on AI ethics, HR analytics, organizational justice, and employee trust, with adjustments made to reflect the context of AI implementation in Human Resource Management within technology companies. Respondents evaluated each indicator using a five-point Likert scale ranging from 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, to 5 = strongly agree.

Table 1. Operational Definition of Variables

Variable	Indicator	Question
Ethical AI in HRM	EAI1	AI recruitment decisions are transparent.
	EAI2	AI recruitment processes are free from discrimination.
	EAI3	AI systems protect applicants' personal data.
	EAI4	Human oversight is maintained during AI-supported decisions.
	EAI5	AI systems operate according to organizational ethical standards.
HR Data Analysis	HRDA1	HR decisions are supported by accurate employee data.
	HRDA2	HR data are analyzed objectively.
	HRDA3	Employee information is securely managed.

	HRDA4	HR analytics improve recruitment quality.
	HRDA5	HR data are utilized responsibly.
Fair Recruitment Outcomes	FRO1	Recruitment decisions are objective.
	FRO2	Recruitment procedures are transparent.
	FRO3	Candidates are evaluated consistently.
	FRO4	Recruitment decisions are free from bias.
	FRO5	Recruitment outcomes reflect applicants' competencies.
Employee Trust	ET1	I trust AI-assisted HR decisions.
	ET2	AI systems improve recruitment quality.
	ET3	AI decisions are reliable.
	ET4	AI systems are ethically managed.
	ET5	I am confident in using AI-supported HR services.

3.5 Data Analysis Technique

The collected data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS) with SmartPLS Version 3 because this method is appropriate for predictive models, complex structural relationships, relatively small samples, and data that do not meet multivariate normality assumptions. The analysis consisted of two stages. First, the measurement model was evaluated using indicator loadings of at least 0.70, Cronbach's alpha and composite reliability values of at least 0.70, and an Average Variance Extracted (AVE) value of at least 0.50, while discriminant validity was assessed using the Fornell–Larcker criterion, cross-loadings, and the Heterotrait–Monotrait Ratio below 0.90. Indicators that failed to meet the minimum loading threshold were considered for removal. Second, the structural model was evaluated using the coefficient of

determination (R^2), effect size (f^2), predictive relevance (Q^2), Standardized Root Mean Square Residual (SRMR), path coefficients, direct, indirect, and total effects, as well as bootstrapping with 5,000 resamples. Hypotheses were accepted when the t-statistic exceeded 1.96 and the p-value was below 0.05 at the 95% confidence level.

4. RESULTS AND DISCUSSION

4.1 Respondent Characteristics

A total of 120 valid questionnaires were collected from employees working in technology companies in Jakarta. All returned questionnaires were complete and suitable for statistical analysis. The respondents represented various technology sectors, including software development, fintech, e-commerce, digital services, artificial intelligence startups, and IT consulting firms.

Table 2. Respondent Demographic Profile

Characteristics	Category	Frequency	Percentage (%)
Gender	Male	67	55.8
	Female	53	44.2
Age	21–30 Years	56	46.7
	31–40 Years	45	37.5
	41–50 Years	15	12.5
	>50 Years	4	3.3
Education	Bachelor's Degree	78	65.0
	Master's Degree	36	30.0
	Doctorate	6	5.0
Working Experience	1–3 Years	39	32.5
	4–6 Years	44	36.7
	>6 Years	37	30.8

Table 2 shows that the 120 respondents were predominantly male, accounting for 67 individuals (55.8%), while female respondents totaled 53 individuals (44.2%). Most respondents were aged 21–30 years, with 56 individuals (46.7%), followed by those aged 31–40 years with 45 individuals (37.5%), 41–50 years with 15 individuals (12.5%), and over 50 years with 4 individuals (3.3%). In terms of educational background, the majority held a bachelor's degree, totaling 78 respondents (65.0%), while 36 respondents (30.0%) held a master's degree and 6 respondents (5.0%) held a doctorate.

Regarding working experience, 44 respondents (36.7%) had worked for 4–6 years, 39 respondents (32.5%) had 1–3 years of experience, and 37 respondents (30.8%) had more than six years of experience.

4.2 Measurement Model Evaluation (Outer Model)

4.2.1 Convergent Validity

Convergent validity was assessed using indicator loadings and Average Variance Extracted (AVE). All loading factors exceeded the recommended threshold of 0.70

Table 3. Outer Loadings

Construct	Indicator	Loading
Ethical AI	EAI1	0.845
	EAI2	0.871
	EAI3	0.829
	EAI4	0.853
	EAI5	0.876
HR Data Analysis	HRDA1	0.811
	HRDA2	0.847
	HRDA3	0.832
	HRDA4	0.861
	HRDA5	0.839
Fair Recruitment Outcomes	FRO1	0.878
	FRO2	0.852
	FRO3	0.884
	FRO4	0.831
	FRO5	0.864
Employee Trust	ET1	0.887
	ET2	0.846
	ET3	0.865
	ET4	0.879
	ET5	0.852

Table 3 shows that all indicators have outer loading values above 0.70, indicating that each indicator meets the criteria for convergent validity. The Ethical AI construct has loading values ranging from 0.829–0.876, HR Data Analysis from 0.811–0.861, Fair Recruitment Outcomes from 0.831–0.884, and

Employee Trust from 0.846–0.887. These results demonstrate that all indicators strongly represent their respective constructs and are reliable for further PLS-SEM analysis.

4.2.2 Reliability Analysis

Table 4. Reliability and AVE

Variable	Cronbach's Alpha	Composite Reliability	AVE
Ethical AI	0.904	0.928	0.721
HR Data Analysis	0.892	0.920	0.698
Fair Recruitment Outcomes	0.916	0.937	0.748

Employee Trust	0.921	0.941	0.762
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Table 4 presents the reliability and convergent validity results of the research constructs. All variables have Cronbach's Alpha and Composite Reliability values above the recommended threshold of 0.70, indicating strong internal consistency and reliability. The AVE values for Ethical AI (0.721), HR Data Analysis (0.698), Fair

Recruitment Outcomes (0.748), and Employee Trust (0.762) are close to or exceed the 0.50 criterion, confirming adequate convergent validity. These findings indicate that all constructs are reliable and valid for further structural model analysis.

4.2.3 Discriminant Validity

Table 5. Fornell–Larcker Criterion

Variable	EAI	HRDA	FRO	ET
Ethical AI (EAI)	0.849			
HR Data Analysis (HRDA)	0.631	0.836		
Fair Recruitment Outcomes (FRO)	0.702	0.675	0.865	
Employee Trust (ET)	0.661	0.648	0.747	0.873

Table 5 presents the results of the Fornell–Larcker criterion, which confirms the discriminant validity of the constructs. The square root of AVE for each construct is higher than its correlations with other variables, as indicated by the diagonal values of Ethical AI (0.849), HR Data Analysis (0.836), Fair Recruitment Outcomes (0.865), and Employee Trust (0.873). These results demonstrate that each construct has sufficient distinctiveness from other constructs, indicating that the measurement model satisfies the discriminant validity requirement.

R-Square values of the endogenous variables in the structural model. The results indicate that Ethical AI and HR Data Analysis explain 62.8% of the variance in Fair Recruitment Outcomes, demonstrating a moderate to strong explanatory power. Furthermore, Ethical AI, HR Data Analysis, and Fair Recruitment Outcomes collectively explain 70.3% of the variance in Employee Trust, indicating a strong predictive capability of the model. These findings confirm that the proposed model has substantial explanatory power in explaining recruitment fairness and employee trust within AI-based human resource practices.

4.3 Structural Model Evaluation (Inner Model)

4.3.1 Coefficient of Determination (R^2)

4.3.2 Effect Size (f^2)

Table 6. Effect Size

Relationship	f^2	Effect
EAI → FRO	0.276	Medium
HRDA → FRO	0.231	Medium
EAI → ET	0.118	Small
HRDA → ET	0.101	Small
FRO → ET	0.352	Large

Table 6 presents the effect size (f^2) analysis of the structural model relationships. The results show that Ethical AI and HR Data Analysis have a medium effect on Fair

Recruitment Outcomes, with f^2 values of 0.276 and 0.231, respectively. Meanwhile, their effects on Employee Trust are relatively small, with values of 0.118 and 0.101. Fair

Recruitment Outcomes demonstrates the strongest influence on Employee Trust with a large effect size ($f^2 = 0.352$). These findings indicate that recruitment fairness plays a key role in strengthening employee trust, while ethical AI and HR data analysis contribute through their direct influence on recruitment outcomes and trust formation.

4.3.3 Predictive Relevance

The predictive relevance (Q^2) results of the structural model. The Q^2 values for Fair Recruitment Outcomes (0.432) and Employee Trust (0.516) are both greater than zero,

indicating that the model has satisfactory predictive relevance. These findings demonstrate that the proposed model is capable of predicting the endogenous constructs effectively, particularly in explaining variations in recruitment fairness and employee trust within AI-based human resource practices.

4.4 Hypothesis Testing

Bootstrapping with 5,000 resamples was conducted to evaluate the significance of the structural relationships.

Table 7. Direct Effects

	Relationship	β	t-value	p-value	Decision
H1	Ethical AI $\rightarrow$ Fair Recruitment Outcomes	0.462	6.911	<0.001	Supported
H2	HR Data Analysis $\rightarrow$ Fair Recruitment Outcomes	0.387	5.844	<0.001	Supported
H3	Ethical AI $\rightarrow$ Employee Trust	0.219	2.862	0.004	Supported
H4	HR Data Analysis $\rightarrow$ Employee Trust	0.181	2.413	0.016	Supported
H5	Fair Recruitment Outcomes $\rightarrow$ Employee Trust	0.481	7.635	<0.001	Supported

Table 7 presents the results of the direct effect analysis. All proposed hypotheses (H1–H5) are supported, as indicated by positive path coefficients and significant p-values below 0.05. Ethical AI has a significant positive effect on Fair Recruitment Outcomes ($\beta = 0.462$, $p < 0.001$), while HR Data Analysis also positively influences Fair Recruitment Outcomes ($\beta = 0.387$, $p < 0.001$). Furthermore, Ethical AI ($\beta = 0.219$, $p = 0.004$) and HR Data Analysis ($\beta =$

0.181, $p = 0.016$) significantly enhance Employee Trust. Fair Recruitment Outcomes has the strongest direct influence on Employee Trust ($\beta = 0.481$, $p < 0.001$), indicating that perceived fairness in recruitment is a critical factor in building employee confidence in AI-supported HR practices.

4.4.1 Mediation Analysis

Table 8. Indirect Effects

	Indirect Relationship	β	t-value	p-value	Result
H6	Ethical AI $\rightarrow$ Fair Recruitment $\rightarrow$ Employee Trust	0.222	4.862	<0.001	Supported
H7	HR Data Analysis $\rightarrow$ Fair Recruitment $\rightarrow$ Employee Trust	0.186	4.117	<0.001	Supported

Table 8 presents the results of the indirect effect analysis, showing that both mediation relationships are statistically significant. Ethical AI indirectly influences Employee Trust through Fair Recruitment Outcomes with a path coefficient of 0.222 ($t = 4.862$, $p < 0.001$), while HR Data Analysis also has a significant indirect effect on Employee Trust through Fair Recruitment Outcomes

with $\beta = 0.186$ ($t = 4.117$, $p < 0.001$). These findings support H6 and H7, indicating that Fair Recruitment Outcomes serves as an important mediating mechanism that strengthens the relationship between AI-based HR practices and employee trust.

4.5 Model Fit

Table 9. Model Fit Indices

Index	Value	Recommended	Interpretation
SRMR	0.058	<0.080	Good Fit
NFI	0.921	>0.900	Good Fit
RMS Theta	0.109	<0.120	Acceptable

Table 9 presents the model fit assessment results, indicating that the proposed structural model demonstrates an acceptable level of fit. The SRMR value of 0.058 is below the recommended threshold of 0.080, indicating a good model fit. The NFI value of 0.921 exceeds the minimum criterion of 0.900, further confirming adequate model fit. Additionally, the RMS Theta value of 0.109 is below the recommended limit of 0.120, indicating acceptable model quality.

Discussion

The findings demonstrate that Ethical AI has a significant positive effect on Fair Recruitment Outcomes, indicating that the implementation of AI systems based on fairness, transparency, accountability, privacy protection, and human oversight can improve the objectivity and equity of recruitment processes. This result supports the ethical AI perspective, which emphasizes that technological advancement should be accompanied by responsible governance mechanisms to reduce algorithmic bias and discriminatory outcomes. When organizations apply ethical safeguards in AI-driven recruitment, employees are more likely to perceive the recruitment process as credible, transparent, and procedurally fair. Therefore, ethical AI serves not only as a technological capability but also as an organizational mechanism for ensuring responsible decision-making in human resource management [28], [29].

Furthermore, HR Data Analysis was found to significantly influence Fair Recruitment Outcomes, demonstrating that effective data collection, processing, and analytical practices contribute to more accurate and consistent recruitment decisions. The utilization of high-quality HR analytics allows organizations to evaluate candidates based on objective information rather than

subjective assessments, thereby strengthening both procedural and distributive fairness. This finding reinforces the importance of evidence-based HR decision-making, where reliable data management becomes a foundation for minimizing human bias and improving recruitment effectiveness. In the context of digital transformation, responsible HR data analysis enables organizations to balance analytical efficiency with fairness considerations [30], [31].

The results also indicate that Ethical AI and HR Data Analysis have significant positive effects on Employee Trust. Employees tend to develop greater confidence in AI-supported HR systems when these technologies operate transparently, protect personal information, and maintain appropriate levels of human control. These findings align with trust theory, which suggests that employee acceptance of organizational technology depends not only on technical performance but also on perceptions of ethical responsibility and governance. In addition, responsible HR data management strengthens employee trust by demonstrating that personal information is handled securely and used for legitimate organizational purposes. Thus, ethical technological practices and responsible data governance are essential factors in building trust toward AI-enabled HR systems [31], [32].

Among all structural relationships, Fair Recruitment Outcomes showed the strongest influence on Employee Trust, highlighting that employees primarily evaluate AI-based HR practices through the fairness of the decisions produced. Recruitment processes perceived as objective, unbiased, and transparent provide visible evidence that AI systems are being implemented responsibly. The mediation analysis further confirms that Fair

Recruitment Outcomes significantly mediates the relationship between Ethical AI and HR Data Analysis with Employee Trust, indicating that ethical governance and effective HR analytics enhance trust by creating fair recruitment experiences. Additionally, the model demonstrates substantial explanatory power, with R^2 values of 0.628 for Fair Recruitment Outcomes and 0.703 for Employee Trust, confirming that Ethical AI and HR Data Analysis explain a considerable proportion of employee perceptions. These findings emphasize that organizations pursuing AI-driven HR transformation should prioritize fairness, transparency, accountability, privacy protection, and responsible data governance to achieve sustainable adoption and employee acceptance.

5. CONCLUSION

This study concludes that Ethical Artificial Intelligence (AI) in Human Resource Management and HR Data Analysis play significant roles in improving Fair Recruitment Outcomes and strengthening Employee Trust. Ethical AI positively influences recruitment fairness by ensuring that AI-based recruitment systems operate

with fairness, transparency, accountability, privacy protection, and meaningful human oversight, resulting in more objective, consistent, and non-discriminatory decisions. Similarly, responsible HR Data Analysis enhances recruitment fairness by enabling organizations to evaluate candidates based on relevant competencies and job-related qualifications through accurate and objective data utilization. Furthermore, Ethical AI and HR Data Analysis directly contribute to increasing Employee Trust, as employees are more confident in AI-supported HR practices when organizations demonstrate transparent decision-making, secure data management, and proper accountability mechanisms. Fair Recruitment Outcomes represent the strongest determinant of Employee Trust, indicating that employees primarily build confidence when AI-driven recruitment processes are perceived as fair, explainable, and unbiased. The mediation analysis confirms that Fair Recruitment Outcomes partially mediate the relationship between Ethical AI and Employee Trust as well as between HR Data Analysis and Employee Trust, demonstrating that ethical technology governance and responsible analytics strengthen trust through the creation of fair recruitment experiences.

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