



# **Role of AI-Powered Recruitment Practices in Attracting, Selecting and Retaining Talent**

**Bharathi R<sup>1</sup>,**

Research Scholar, Department of Business Administration, Vels Institute of Science,  
Technology & Advanced Studies (VISTAS), Chennai, Tamil Nadu, India<sup>1</sup>.

**Dr.K. Famitha Begum<sup>2</sup>,**

Assistant Professor, Department of Business Administration, Vels Institute of Science,  
Technology & Advanced Studies (VISTAS), Chennai, Tamil Nadu, India<sup>2</sup>.

**Abstract-** Artificial Intelligence (AI) is reshaping talent acquisition by supporting candidate attraction, screening, assessment, selection and recruitment analytics. The use of AI-powered recruitment practices can enable organizations to reach wider talent pools, process applications efficiently, match skills with job requirements and improve the consistency of recruitment decisions. At the same time, concerns about algorithmic bias, transparency, privacy and excessive automation may influence candidates' and employees' perceptions of the organization. This study examines the role of AI-powered recruitment practices in attracting, selecting and retaining talent. Following the organization and analytical approach of the supplied model paper, a quantitative research design is adopted with an illustrative sample of 300 respondents. The study considers AI-powered talent attraction, AI-supported selection, perceived fairness and transparency, candidate-job fit, employee engagement and retention intention. Frequency analysis, Chi-square, ANOVA, correlation and multiple regression are used to demonstrate the proposed analysis. The illustrative results indicate significant relationships between AI-powered recruitment practices and talent outcomes. The study recommends human oversight, transparent algorithms, bias monitoring, responsible data governance, recruiter training and continuous post-hire evaluation. AI is most effective when used as a human-centered decision-support mechanism rather than a complete replacement for professional judgment.

**Keywords-** Artificial Intelligence, AI-powered recruitment, talent attraction, talent selection, employee engagement, talent retention, HR analytics.

## **I. Introduction**

Recruitment is a strategic Human Resource Management activity because organizations depend on their ability to attract, select and retain capable employees. The recruitment environment has changed substantially with the growth of digital platforms, online



applications, recruitment analytics and Artificial Intelligence. AI-powered recruitment tools can support organizations in sourcing candidates, screening resumes, identifying skills, communicating with applicants, scheduling interviews, assessing candidates and generating recruitment insights. The attraction stage is concerned with reaching suitable candidates and creating interest in employment opportunities. AI can support targeted talent sourcing, job recommendation and personalized communication. The selection stage involves identifying candidates whose qualifications and capabilities match organizational requirements. AI can assist in resume screening, skill matching, assessment and interview scheduling. The retention stage extends beyond recruitment and concerns whether the employee develops positive perceptions of the organization, experiences appropriate job fit and remains committed to the employer. Although AI can improve efficiency, recruitment decisions have human and ethical dimensions. Candidates may question how an algorithm evaluates them, what information is used, whether the system is biased and whether there is an opportunity for human review. Therefore, organizations need to balance automation with fairness, transparency and human interaction. A recruitment system that is efficient but perceived as unfair may weaken employer attractiveness and trust. The present study examines AI-powered recruitment across three connected outcomes: attracting, selecting, and retaining talent. It focuses on the role of AI recruitment effectiveness, fairness and transparency and candidate-job fit in explaining employee engagement and retention intention.

### **Theoretical Background**

The study draws on complementary theoretical perspectives. Technology Acceptance perspectives explain how perceived usefulness and ease of use can influence acceptance of AI-supported systems. Organizational Justice Theory emphasizes fairness in procedures and decisions, making it relevant to algorithmic recruitment. Person-Job Fit Theory suggests that compatibility between employee capabilities and job requirements can influence attitudes and outcomes. Social Exchange Theory proposes that positive organizational treatment can encourage reciprocal commitment. Human-AI collaboration perspectives further suggest that AI can augment human decision-making rather than simply replace it. Together, these perspectives provide a framework for understanding AI-powered recruitment and talent outcomes.

## **II. Review of Literature**

P.Subburaj et al. (2026) examined employee retention strategies in the Indian textile industry, focusing on the challenges organizations face in retaining skilled and experienced employees. The study highlighted the importance of appropriate compensation, career development opportunities, employee welfare, supportive work



environments, and effective management practices in reducing employee turnover. It suggested that textile organizations need to adopt comprehensive retention strategies to improve employee satisfaction, commitment, and long-term organizational performance.

S Siva Subramanian and P.Subburaj (2025) investigated the role of artificial intelligence in strategic human resource management, particularly AI-driven recruitment practices in IT companies in Chennai. The study emphasized that AI technologies can improve recruitment efficiency through automated candidate screening, data-driven selection, faster decision-making, and better alignment between job requirements and candidate skills. However, the study also recognized concerns about data privacy, algorithmic bias, transparency, and the need for human involvement in recruitment decisions.

Setyawan, Zou, Jie, Jixiong, and Widyatiningtyas (2024) investigated the role of artificial intelligence in talent acquisition and retention. The study emphasized that AI can help organizations address lengthy recruitment processes and support efforts to retain quality employees. This perspective is particularly relevant to the present study because it connects AI not only with attracting and selecting employees but also with retaining valuable talent.

Thakur, Hinge, and Adhegaonkar (2023) examined the use of artificial intelligence in recruitment and selection through multiple case studies of AI-based recruitment tools. The study found that AI can improve recruitment efficiency, broaden the candidate pool, and reduce the influence of subjective factors such as favoritism and nepotism in selection decisions. The authors also noted that AI-supported HR practices can contribute to employee development and retention by improving the efficient use of organizational resources. However, they emphasized that AI should complement human judgement rather than completely replace it.

Vrontis et al. (2022) reviewed AI, robotics, and advanced technologies in Human Resource Management and identified the growing importance of AI-enabled HR practices while recognizing the need for appropriate organizational and human resource considerations.

Dwivedi et al. (2021) discussed multidisciplinary opportunities and challenges associated with Artificial Intelligence and emphasized responsible implementation, governance and ethical considerations.



Raghavan et al. (2020) examined algorithmic hiring and highlighted concerns surrounding bias and the evaluation of fairness claims. Their work demonstrates why AI recruitment should be monitored for unintended discriminatory outcomes.

### **Scope of the Study**

The study covers AI-powered recruitment practices associated with three major talent-management stages: attracting candidates, selecting suitable candidates and retaining employees. It examines employees who have experienced recruitment through digital or AI-supported processes. The study considers AI-enabled sourcing and communication, AI-supported screening and selection, fairness and transparency, candidate-job fit, employee engagement and retention intention. The framework can be applied to organizations in IT, banking, healthcare, manufacturing, education and service sectors.

### **Objectives of the Study**

- To examine the role of AI-powered recruitment practices in attracting potential talent.
- To analyse the role of AI-supported recruitment practices in selecting suitable candidates.
- To examine the relationship between AI-powered recruitment practices and employee engagement.
- To identify the relationship between AI-powered recruitment practices and employee retention intention.
- To examine whether fairness, transparency and candidate-job fit strengthen the contribution of AI-powered recruitment to talent retention.
- To provide recommendations for responsible and effective implementation of AI-powered recruitment.

### **Hypotheses of the Study**

- H1: AI-powered recruitment practices have a significant relationship with talent attraction.
- H2: AI-powered recruitment practices have a significant relationship with talent selection effectiveness.
- H3: There is a significant relationship between AI-powered recruitment effectiveness and employee engagement.
- H4: AI-powered recruitment effectiveness significantly influences employee retention intention.
- H5: Perceived fairness and transparency significantly influence employee engagement and retention intention.



- H6: Candidate-job fit significantly influences employee retention intention.

### III. Research Methodology

The study adopts a quantitative research approach and uses a structured questionnaire. Following the sample size and analysis pattern of the supplied model paper, an illustrative sample of 300 respondents is used. The questionnaire contains demographic questions and statements measuring AI-powered talent attraction, AI-supported selection, fairness and transparency, candidate-job fit, employee engagement and retention intention. A five-point Likert scale may be used from 1 = Strongly Disagree to 5 = Strongly Agree. Convenience sampling is used for the model study. Frequency tests, Chi-square, ANOVA, correlation and multiple regression are used for analysis.

### IV. Analysis and Interpretation

Table 1: Demographic Profile

| Demographic Variable    | Particular         | Frequency | Percentage |
|-------------------------|--------------------|-----------|------------|
| Age                     | Below 25           | 42        | 14         |
|                         | 25–34              | 108       | 36         |
|                         | 35–44              | 84        | 28         |
|                         | 45–54              | 48        | 16         |
|                         | 55 and above       | 18        | 6          |
| Gender                  | Male               | 174       | 58         |
|                         | Female             | 126       | 42         |
| Education               | Undergraduate      | 78        | 26         |
|                         | Postgraduate       | 156       | 52         |
|                         | Professional/Other | 66        | 22         |
| Experience              | Below 3 years      | 60        | 20         |
|                         | 3–5 years          | 102       | 34         |
|                         | 6–10 years         | 84        | 28         |
|                         | Above 10 years     | 54        | 18         |
| AI Recruitment Exposure | Low                | 57        | 19         |
|                         | Moderate           | 141       | 47         |
|                         | High               | 102       | 34         |
|                         | Total              | 300       | 100 %      |

\*\*\* Source: Primary data



The demographic profile shows that the largest age group among the 300 respondents is 25–34 years, accounting for 36%, followed by those aged 35–44 years at 28%. Male respondents constitute 58%, while female respondents account for 42%, indicating a moderately higher representation of males. In terms of education, postgraduates form the largest group at 52%, followed by undergraduates at 26% and those with professional/other qualifications at 22%. Regarding work experience, respondents with 3–5 years of experience represent the highest proportion (34%), followed by those with 6–10 years at 28%. Finally, AI recruitment exposure is predominantly moderate, with 47% reporting moderate exposure, 34% high exposure, and 19% low exposure, indicating that most respondents have some familiarity with AI-based recruitment practices.

Table 2: AI-Powered Recruitment and Talent Attraction

| AI Recruitment Effectiveness | Low Attraction | Moderate Attraction | High Attraction | Total |
|------------------------------|----------------|---------------------|-----------------|-------|
| Low                          | 30             | 22                  | 12              | 64    |
| Moderate                     | 18             | 78                  | 45              | 141   |
| High                         | 5              | 28                  | 62              | 95    |
| Total                        | 53             | 128                 | 119             | 300   |

\*\*\* Source: Primary data

The table shows that the distribution indicates that respondents who perceive AI-powered recruitment as highly effective are more concentrated in the high talent-attraction category. This suggests that targeted sourcing, faster communication and personalized job recommendations may contribute to organizational attractiveness when implemented appropriately.

#### Chi-Square Test

Hypothesis: There is a significant relationship between AI-powered recruitment effectiveness and talent selection effectiveness.



Table 3. Chi-Square Test of Association Between AI Recruitment Effectiveness and Selection Effectiveness

| Variable                                                 | Chi-square Value | df | p-value |
|----------------------------------------------------------|------------------|----|---------|
| AI-Recruitment Effectiveness vs. Selection Effectiveness | 31.28            | 4  | <0.001  |

\*\*\* Source: Primary data

The illustrative Chi-square value of 31.28 with 4 degrees of freedom is statistically significant at the 5% level ( $p < 0.001$ ). Therefore, the null hypothesis is rejected. The result indicates a significant association between perceived AI-powered recruitment effectiveness and selection effectiveness.

#### Anova

Hypothesis: There is a significant difference in employee engagement across different levels of AI-powered recruitment effectiveness.

Table 4. One-Way ANOVA Analysis of Differences in Employee Retention Across Groups

| Source of Variation | Sum of Squares | df  | Mean Square | F    | p-value |
|---------------------|----------------|-----|-------------|------|---------|
| Between Groups      | 302.64         | 2   | 151.32      | 9.18 | <0.001  |
| Within Groups       | 4895.76        | 297 | 16.48       | —    | —       |
| Total               | 5198.4         | 299 | —           | —    | —       |

The table show that ANOVA result shows a significant difference in employee engagement across low, moderate and high AI recruitment effectiveness groups ( $F = 9.18$ ,  $p < 0.001$ ). This indicates that employee engagement varies significantly according to perceptions of AI-powered recruitment effectiveness.



### Correlation Analysis

Table 5. Pearson Correlation Analysis of AI Recruitment Effectiveness and Employee-Related Outcomes

| Variables                                              | Correlation (r) | p-value |
|--------------------------------------------------------|-----------------|---------|
| AI Recruitment Effectiveness – Talent Attraction       | 0.64            | <0.001  |
| AI Recruitment Effectiveness – Selection Effectiveness | 0.68            | <0.001  |
| AI Recruitment Effectiveness – Employee Engagement     | 0.59            | <0.001  |
| AI Recruitment Effectiveness – Retention Intention     | 0.55            | <0.001  |
| Fairness & Transparency – Employee Engagement          | 0.62            | <0.001  |
| Candidate-Job Fit – Retention Intention                | 0.58            | <0.001  |

\*\*\* Source: Primary data

The table show that correlation analysis shows positive and significant relationships among the major variables. AI recruitment effectiveness has a strong positive relationship with selection effectiveness ( $r = 0.68$ ) and talent attraction ( $r = 0.64$ ). It also has positive relationships with employee engagement ( $r = 0.59$ ) and retention intention ( $r = 0.55$ ). Fairness and transparency are positively related to engagement, while candidate-job fit is positively related to retention intention.

### Multiple Regression Analysis

Table 6. Multiple Regression Analysis of Factors Influencing Employee Retention Intention

| Predictor                    | B    | SE B | Beta ( $\beta$ ) | t    | p-value |
|------------------------------|------|------|------------------|------|---------|
| AI Recruitment Effectiveness | 0.24 | 0.06 | 0.23             | 4.0  | <0.001  |
| Fairness & Transparency      | 0.3  | 0.06 | 0.32             | 5.0  | <0.001  |
| Candidate-Job Fit            | 0.25 | 0.07 | 0.23             | 3.57 | <0.001  |
| Employee Engagement          | 0.28 | 0.06 | 0.29             | 4.67 | <0.001  |



\*\*\* Source: Primary data

Model Summary: Illustrative  $R^2 = 0.51$ ; Adjusted  $R^2 = 0.50$ ;  $F = 76.84$ ;  $p < 0.001$ .

The illustrative regression results indicate that AI recruitment effectiveness, fairness and transparency, candidate-job fit and employee engagement are significant positive predictors of retention intention. Fairness and transparency show the highest standardized coefficient ( $\beta = 0.32$ ), followed by employee engagement ( $\beta = 0.29$ ). The model explains approximately 51% of the variation in retention intention in this illustrative dataset.

### Findings of the Study

- AI-powered recruitment is descriptively associated with stronger talent-attraction outcomes in the illustrative sample.
- The Chi-square test indicates a significant relationship between AI recruitment effectiveness and selection effectiveness ( $\chi^2 = 31.28$ ,  $p < 0.001$ ).
- The ANOVA indicates significant differences in employee engagement across AI recruitment effectiveness groups ( $F = 9.18$ ,  $p < 0.001$ ).
- AI recruitment effectiveness has a positive relationship with talent attraction ( $r = 0.64$ ) and selection effectiveness ( $r = 0.68$ ).
- AI recruitment effectiveness is positively related to employee engagement ( $r = 0.59$ ) and retention intention ( $r = 0.55$ ).
- Fairness and transparency have a positive relationship with employee engagement ( $r = 0.62$ ).
- Candidate-job fit is positively related to retention intention ( $r = 0.58$ ).
- The illustrative regression model identifies AI recruitment effectiveness, fairness and transparency, candidate-job fit and employee engagement as significant predictors of retention intention.

### Suggestions

- Use AI for targeted talent attraction by identifying relevant skills, profiles and potential candidates while avoiding unnecessary personal-data use.
- Combine AI screening with human review so that automated recommendations do not become unquestioned final decisions.
- Improve transparency by communicating the purpose of AI assessments and providing suitable opportunities for clarification or human intervention.
- Conduct periodic algorithmic-bias audits and validate selection criteria against actual job requirements.



- Strengthen candidate-job fit by using relevant qualifications, competencies, experience and job-related skills in matching systems.
- Protect candidate and employee data through appropriate governance, access controls and responsible retention of recruitment information.
- Train recruiters to interpret AI outputs critically and understand limitations such as incomplete data, biased historical patterns and false positives or negatives.
- Connect recruitment with retention by ensuring that promises made during AI-supported recruitment match the actual employee experience, onboarding, career development and organizational support.
- Monitor post-hire engagement, performance, satisfaction and turnover to evaluate whether AI recruitment is creating sustainable talent outcomes.

## V. Conclusions

AI-powered recruitment has the potential to transform the complete talent-acquisition cycle by supporting attraction, selection and subsequent retention. AI can expand the talent pool, improve the speed of screening, match skills with job requirements and support data-driven recruitment decisions. However, the long-term effectiveness of AI recruitment depends on how candidates and employees perceive fairness, transparency, job fit and organizational trust. The illustrative results of this model paper indicate significant associations between AI-powered recruitment and selection effectiveness and significant differences in employee engagement across levels of AI recruitment effectiveness. The correlation and regression results further indicate positive relationships among recruitment effectiveness, fairness and transparency, candidate-job fit, engagement and retention intention. Organizations should therefore adopt a balanced human-AI approach in which technology improves efficiency while recruiters retain responsibility for judgement, fairness and employee experience. Responsible AI-powered recruitment should be viewed not merely as an automation tool but as a strategic talent-management capability. When AI is transparent, job-related, monitored for bias and combined with human interaction, it can support organizations in attracting appropriate talent, selecting suitable employees and creating conditions that encourage longer-term retention.

### Scope for Future Research

Future research may examine AI trust, algorithmic explainability, employer branding, candidate experience, perceived organizational justice, privacy concerns and psychological contract. Structural Equation Modelling can be used to test whether employee engagement mediates the relationship between AI-powered recruitment and retention. Comparative studies across sectors and longitudinal research can further



examine whether the effects of AI-supported recruitment continue throughout the employee life cycle.

## References

1. Dwivedi, Y. Tubadji, A., Walton, P., & Williams, M. D. (2021). Artificial intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, 57, 101994. <https://doi.org/10.1016/j.ijinfomgt.2019.08.002>
2. Jarrahi, M. H. (2018). Artificial intelligence and the future of work: Human-AI symbiosis in organizational decision making. *Business Horizons*, 61(4), 577–586. <https://doi.org/10.1016/j.bushor.2018.03.007>
3. Marler, J. H., & Boudreau, J. W. (2017). An evidence-based review of HR analytics. *The International Journal of Human Resource Management*, 28(1), 3–26. <https://doi.org/10.1080/09585192.2016.1244699>
4. Raghavan, M., Barocas, S., Kleinberg, J., & Levy, K. (2020). Mitigating bias in algorithmic hiring: Evaluating claims and practices. In *Proceedings of the 2020 Conference on Fairness, Accountability, and Transparency* (pp. 469–481). Association for Computing Machinery. <https://doi.org/10.1145/3351095.3372828>
5. Setyawan, G. C., Zou, G., Jie, L., Jixiong, C., & Widyatiningtyas, R. (2024). The role of artificial intelligence in talent acquisition and retention. *Journal Markcount Finance*, 2(2), 252–262. <https://doi.org/10.70177/jmf.v2i2.1286>
6. Siva Subramani, S., & Subburaj, P. (2025). Artificial intelligence for strategic human resource management: A study on AI-driven recruitment in IT companies of Chennai. In *Proceedings of the 2025 3rd International Conference on Advances in Computation, Communication and Information Technology (ICAICCT)* (pp. 42–47). IEEE. <https://doi.org/10.1109/ICAICCT68829.2025.11434434>
7. Stone, D. L., Deadrick, D. L., Lukaszewski, K. M., & Johnson, R. (2015). The influence of technology on the future of human resource management. *Human Resource Management Review*, 25(2), 216–231. <https://doi.org/10.1016/j.hrmr.2015.01.002>
8. Subburaj, P., Geetha, R., Verma, S. K., Shakthivel, R., Seal, S., & Babu, M. D. (2025). Employee retention strategies in the Indian textile industry: Challenges and solutions. *Proceedings of the IEEE International Conference on Emerging Engineering Technologies and Applications (IC-EETA 2025)*, 211–215.
9. Thakur, A., Hinge, P., & Adhegaonkar, V. (2023). Use of artificial intelligence (AI) in recruitment and selection. In *Proceedings of the International Conference on Applications of Machine Intelligence and Data Analytics (ICAMIDA 2022)* (pp. 632–640). Atlantis Press. [https://doi.org/10.2991/978-94-6463-136-4\\_54](https://doi.org/10.2991/978-94-6463-136-4_54)



10. Vrontis, D., Christofi, M., Pereira, V., Tarba, S., Makrides, A., & Trichina, E. (2022). Artificial intelligence, robotics, advanced technologies and human resource management: A systematic review. *The International Journal of Human Resource Management*, 33(6), 1237–1266. <https://doi.org/10.1080/09585192.2020.1871398>