

A Study on the Application of Artificial Intelligence in E-Recruitment in the IT Sector: Evidence from Chennai

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Abstract

Artificial Intelligence (AI) has emerged as a key driver of digital transformation in Human Resource Management (HRM), particularly in recruitment. IT companies in Chennai, a major technology hub of India, are increasingly leveraging AI-based tools such as resume screening software, chatbots, predictive analytics, and video interview analysis. This study aims to explore the extent of AI adoption in recruitment, its benefits, and challenges as experienced by HR professionals in Chennai's IT sector. Using a descriptive research design, primary data were collected through a structured questionnaire from 120 HR professionals across startups, mid-sized firms, and multinational corporations (MNCs). Statistical techniques including descriptive analysis, chi-square test, ANOVA, and regression analysis were employed. Findings reveal that 78% of firms employ AI for resume screening, 65% use chatbots, and 52% adopt predictive analytics. Regression analysis showed that AI explains 62% variance in reducing hiring time. Larger firms are more satisfied with AI usage than smaller firms. While AI improves efficiency and cost-effectiveness, challenges such as data privacy, high implementation costs, and candidate resistance persist. The study concludes that AI should complement rather than replace human recruiters.

Keywords: Artificial Intelligence, E-Recruitment, Human Resources, IT Sector, Chennai

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1. Introduction

Recruitment is one of the most crucial processes in Human Resource Management (HRM). Traditionally, it involves job postings, resume screening, interviews, and selection. However, these processes are often time-consuming, expensive, and subject to human error and bias. The increasing demand for skilled professionals in the IT sector has made it necessary to explore technology-driven recruitment methods.

Artificial Intelligence (AI) is transforming the recruitment landscape by automating repetitive tasks, analyzing candidate data, and predicting candidate-job fit. Globally, organizations are investing heavily in AI recruitment technologies. In India, where IT is one of the largest employment-generating sectors, cities like Chennai have become hotspots for AI-driven hiring practices.

Despite the growing adoption of AI in recruitment, many organizations in India still face challenges such as lack of technical expertise, high investment costs, and concerns regarding fairness and transparency. Additionally, there is limited empirical research specifically focusing on Chennai's IT sector. This creates a need for city-specific insights.

2. Literature Review

AI in recruitment has been widely studied in global contexts. Bogen and Rieke (2018) examined algorithmic fairness in hiring, highlighting risks of bias. Upadhyay and Khandelwal (2019) explored the efficiency gains from AI in recruitment. LinkedIn's Future of Talent Report (2021) emphasized the growing use of AI-driven chatbots and analytics in talent acquisition.

Indian studies (Gupta & Mishra, 2020) suggest that organizations are adopting AI for resume parsing, video interviews, and predictive analysis of candidate performance. However, concerns persist about transparency, candidate acceptance, and ethical implications (Meijerink et al., 2021).

Research Gap: While global and national studies provide valuable insights, there is limited empirical research focusing specifically on Chennai's IT sector, despite it being a leading technology hub. This study addresses this gap.

3. Research Methodology

The study adopts a descriptive and analytical research design to capture both quantitative adoption levels and qualitative perceptions of HR professionals.

Population: HR professionals in Chennai IT companies.

Sample Size: 120 respondents.

Sampling Method: Stratified random sampling to ensure representation across startups, mid-sized companies, and MNCs.

Primary Data: Structured questionnaire with both closed-ended and Likert scale items.

Secondary Data: Academic journals, industry reports (NASSCOM, Deloitte), and HR case studies.

Statistical Tools: Descriptive statistics (mean, percentage), Chi-Square test, Regression analysis, and ANOVA.

4. Data Analysis and Interpretation

Adoption of AI Tools in Recruitment: Resume Screening (78%), Chatbots (65%), Predictive Analytics (52%), Video Interview Analysis (41%).

Perceived Benefits (Mean scores on 5-point scale): Time Saving (4.6), Cost Reduction (4.2), Better Candidate Quality (4.1), Reduced Bias (3.9), Candidate Experience (3.8).

Chi-Square test results showed a significant association between company size and AI adoption ($p = 0.002$).

Regression analysis showed AI explains 62% of variance in reducing hiring time, with Resume Screening and Predictive Analytics being the strongest predictors.

ANOVA results indicated that MNCs report significantly higher satisfaction with AI tools than startups ($p = 0.004$).

5. Findings

Resume screening and chatbots are the most widely adopted AI tools.

AI significantly reduces time-to-hire and recruitment costs.

Larger firms are more satisfied with AI compared to startups.

Data privacy concerns, cost of implementation, and lack of expertise are major barriers.

6. Discussion

The results align with global studies indicating that AI improves efficiency but cannot replace human judgment. In Chennai, MNCs have greater resources to invest in advanced tools, while startups face cost barriers. The perception of AI as unbiased is moderate, reflecting ongoing concerns about algorithmic fairness.

7. Conclusion

AI is reshaping recruitment in Chennai's IT sector by automating repetitive tasks, improving efficiency, and enhancing decision-making. However, AI should be seen as a complementary tool rather than a substitute for human recruiters. A balanced approach ensures efficiency without compromising fairness and candidate experience.

8. Recommendations

For Startups: Adopt affordable cloud-based AI tools.

For HR Managers: Provide training in AI and data analytics.

For Policymakers: Create AI ethics guidelines for recruitment.

For Future Researchers: Explore the impact of AI on employee retention and workplace diversity.

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