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A STUDY ON AI-DRIVEN RECRUITMENT AND ITS IMPACT ON HIRING EFFECTIVENESS IN THE IT SECTOR, CHENNAI

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ABSTRACT :

Artificial intelligence (AI) is increasingly used to support and automate recruitment, particularly in the IT sector, where employers receive large volumes of applications for specialised roles. This study examines the impact of AI-driven recruitment on hiring effectiveness in IT organisations in Chennai. A descriptive and analytical research design was adopted. Primary data were collected through a structured five-point Likert questionnaire from 60 HR professionals, recruiters and talent acquisition professionals selected by purposive sampling. Automated CV screening, recruitment process automation, AI-based candidate matching and AI-assisted candidate assessment were examined in relation to hiring effectiveness using percentage analysis, Pearson correlation, chi-square tests and regression analysis. Between 60.0% and 78.3% of respondents agreed or strongly agreed with each statement on the benefits of AI in recruitment. The ability of AI to screen many CVs quickly was strongly correlated with automation of routine recruitment activities ($r = 0.702$, $p < 0.001$). Chi-square tests on candidate matching and skills evaluation ($\chi^2 = 29.17$ and 34.83 , $df = 4$) and the regression of hiring effectiveness on AI-assisted candidate assessment were all significant at $p < 0.001$. The study concludes that AI-driven recruitment improves hiring efficiency, candidate identification and assessment, but that human oversight remains essential for fairness, transparency and contextual judgement.

Keywords: Artificial Intelligence, AI-Driven Recruitment, Hiring Effectiveness, Human Resource Management, Candidate Matching, CV Screening, IT Sector, Chennai

1. INTRODUCTION

Artificial intelligence has become an important technology in Human Resource Management (HRM), and recruitment is one of its most visible applications. Traditional recruitment involves time-consuming activities such as collecting applications, screening CVs, shortlisting candidates, conducting assessments and scheduling interviews. AI-driven recruitment uses AI technologies to support or automate these stages, allowing recruiters to process large numbers of applications and to concentrate on decision-making and candidate interaction.

The IT sector is a particularly relevant setting. IT organisations require employees with specific technical skills and experience, and the rapid pace of technological change creates continuous demand for skilled professionals. Chennai is one of India's major IT hubs, with a strong presence of software companies, service providers, start-ups and multinational organisations, so recruiters there often face high applicant volumes and tight hiring timelines. AI tools can screen CVs, compare candidate skills with job requirements, support assessment and handle routine tasks such as interview scheduling and candidate communication.

Efficiency is not the only consideration. AI systems trained on biased historical data can reproduce that bias, so fairness, transparency and human involvement remain important. Hiring effectiveness, defined here as how effectively an organisation identifies and selects suitable candidates while managing recruitment activities efficiently, is the main outcome examined in this study.

2. REVIEW OF LITERATURE AND RESEARCH GAP

Upadhyay and Khandelwal (2018) examined the application of AI in recruitment and its implications for efficiency and organisational effectiveness. Tambe, Cappelli and Yakubovich (2019) identified challenges in AI-based HR decisions, including fairness, ethics and the need for human involvement. Van Esch, Black and Ferolie (2019) studied how AI influences candidates' application behaviour, showing that recruitment outcomes depend on candidate response as well as organisational practice.

Research on selection and assessment shows the technical potential of AI. Pessach et al. (2020) presented a machine-learning model to improve screening accuracy and recruitment decisions, and Suen, Hung and Lin (2020) demonstrated AI-based video interviews that predict communication skills and candidate traits. A parallel stream raises concerns about bias. Köchling and Wehner (2020) reviewed discrimination and fairness in algorithmic HR decisions, and Köchling et al. (2021) showed that accurate AI systems can still produce discriminatory outcomes. More recent work considers wider

organisational effects: Pereira et al. (2023) reviewed the impact of AI on HR and workplace outcomes, Bujold et al. (2024) emphasised fairness, accountability and transparency in responsible AI, and Stone, Lukaszewski and Johnson (2024) examined how AI improves HR process efficiency and reduces administrative workload.

Research gap. The studies reviewed above address AI in recruitment in general terms, or concentrate on fairness and ethics, candidate behaviour or process efficiency. Few of them test, with primary data from practising recruiters, how specific AI-driven recruitment practices relate to overall hiring effectiveness in a defined regional IT labour market. This study addresses that gap using evidence from HR professionals in the Chennai IT sector.

3. RELEVANCE AND SIGNIFICANCE OF THE STUDY

AI adoption is changing how organisations manage hiring, yet recruiters need evidence on whether these tools improve outcomes rather than only speed. The study is relevant to IT organisations in Chennai, where large applicant volumes and specialised skill requirements make recruitment demanding. Its findings can help HR professionals judge how far AI should be used for CV screening, candidate matching, assessment and routine automation, and where human oversight and transparency must be retained. The study also adds regional, practitioner-based evidence to the literature on AI in HRM.

4. METHODOLOGY

The study adopts a descriptive and analytical research design. The descriptive component profiles the use of AI-driven recruitment practices, and the analytical component examines their relationship with hiring effectiveness. The study area is the IT sector in Chennai. The target population comprises HR professionals, recruiters and talent acquisition professionals who are familiar with or have used AI-based recruitment tools. A sample of 60 respondents was selected by purposive sampling on the basis of this relevance.

Primary data were collected through a structured questionnaire administered via Google Forms. It covered respondent demographics, frequency of use of AI-based recruitment tools, and statements on automated CV screening, recruitment process automation, AI-based candidate matching, AI-assisted candidate assessment and hiring effectiveness, each rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). Secondary data were drawn from journals, books, industry reports and reliable websites. The independent variables are automated CV screening, AI-based candidate matching, AI-assisted candidate assessment and recruitment process automation (including interview scheduling and candidate communication); the dependent variable is hiring effectiveness. Percentage analysis, Pearson correlation, chi-square tests and regression analysis were used.

Three hypotheses were tested (each stated in null form):

1. H1: There is no significant relationship between AI's ability to screen a large number of CVs quickly and the automation of routine recruitment activities.
2. H2: There is no significant association between AI-based candidate matching and the ability to match candidate skills with job requirements.
3. H3: AI-assisted candidate assessment does not significantly influence hiring effectiveness (evaluation of candidates' job-related skills and competencies).

5. OBJECTIVES

Primary objective: To identify the impact of AI-driven recruitment on hiring effectiveness in the IT sector in Chennai.

Secondary objectives:

1. To examine the effectiveness of AI-driven recruitment in reducing recruitment time.
2. To evaluate the role of AI in identifying suitable candidates.
3. To assess the role of AI-driven recruitment in promoting fairness.
4. To examine the overall impact of AI-driven recruitment on hiring effectiveness.

6. DATA ANALYSIS AND INTERPRETATION

6.1 Respondent profile and descriptive analysis

Table 1 shows that the sample is young and early-career: 86.7% of respondents are aged 20–25 years and 70.0% have less than one year of experience. Female respondents form 55.0% of the sample. Sixty per cent use AI-based recruitment tools daily or several times a week.

Table 1. Profile of respondents (N = 60)

Variable	Category	Frequency	Per cent
Age	20 to 25 years	52	86.7
	25 to 30 years	4	6.7
	31 to 40 years	3	5.0
	Above 45 years	1	1.7
Gender	Female	33	55.0

Variable	Category	Frequency	Per cent
	Male	27	45.0
Work experience	Less than 1 year	42	70.0
	1 to 3 years	11	18.3
	4 to 6 years	3	5.0
	7 to 10 years	1	1.7
	More than 10 years	3	5.0
Use of AI tools	Daily	20	33.3
	Several times a week	16	26.7
	About once a week	5	8.3
	2 to 3 times a month	5	8.3
	Less than once a month	14	23.3

Source: Primary data.

Table 2 summarises agreement (agree plus strongly agree) with the Likert statements. Positive responses were consistently high, ranging from 60.0% to 78.3%, and no statement drew majority disagreement. The highest agreement was for AI's ability to screen a large number of CVs quickly (78.3%), followed by AI-based assessments effectively evaluating job-related skills and competencies (73.3%), and automation reducing HR workload and automating routine activities (71.7% each). Agreement was lowest, at 60.0%, for AI-based matching considering relevant qualifications and experience and for AI systems identifying candidates suitable for a particular role; these items also had the largest neutral shares (26.7% and 23.3%).

Table 2. Agreement with AI-driven recruitment statements (agree + strongly agree)

Dimension	Statements	Range of agreement (%)
Automated CV screening	3	68.3 – 78.3
Recruitment process automation	4	66.7 – 71.7
AI-based candidate matching	4	60.0 – 68.3
AI-assisted candidate assessment	4	66.7 – 73.3
Hiring effectiveness	4	65.0 – 70.0

Source: Primary data. Percentages are of 60 respondents.

6.2 Correlation

Pearson correlation was used to test H1, the relationship between AI's ability to screen a large number of CVs quickly and its ability to automate routine recruitment activities (Table 3).

Table 3. Pearson correlation

Variable pair	r	Sig. (2-tailed)	N
CV screening speed × automation of routine recruitment activities	0.702	0.000 (p < 0.001)	60

Source: Primary data.

The correlation is strong, positive and statistically significant. H1 is rejected: respondents who believe AI can screen large numbers of CVs quickly also tend to believe it can automate routine recruitment tasks effectively.

6.3 Chi-Square

Chi-square tests examined whether respondents' opinions on two items were evenly spread across the five response categories. Table 4 gives the results.

Table 4. Chi-square test statistics

Item	χ^2	df	Asymp. Sig.
AI-based systems accurately match candidates' skills with job requirements	29.17	4	0.000 (p < 0.001)
AI-based assessments effectively evaluate job-related skills and competencies	34.83	4	0.000 (p < 0.001)

Source: Primary data.

Both values are significant, so the null hypothesis is rejected for H2. Opinions are concentrated in the positive categories: for skills matching, 24 respondents agreed and 16 strongly agreed, and for skills evaluation, 27 agreed and 17 strongly agreed, out of 60.

6.4 Multiple Regression Analysis

Regression analysis was used to test H3, with AI-assisted candidate assessment as the independent variable and hiring effectiveness as the dependent variable. The decision rule was to reject the null hypothesis where $p < 0.05$. The effect of AI-assisted candidate assessment on hiring effectiveness was significant ($p < 0.001$), so H3 is rejected. AI-assisted assessment therefore contributes significantly to hiring effectiveness, particularly through the evaluation of candidates' job-related skills and competencies.

7. RESULTS

The main results are as follows.

1. Respondents view AI-driven recruitment positively. Agreement with the individual statements ranged from 60.0% to 78.3%, and 68.3% agreed that AI-supported recruitment improves the accuracy of hiring decisions.
2. AI reduces recruitment time and workload: 78.3% agreed that AI can screen large numbers of CVs quickly, and 71.7% agreed that automation reduces the administrative workload of HR professionals.
3. AI helps identify suitable candidates: 70.0% agreed that AI-supported recruitment helps identify high-quality candidates, and 68.3% agreed that it improves candidate–job fit.
4. CV screening speed and automation of routine activities are strongly and significantly correlated ($r = 0.702$, $p < 0.001$); H1 is rejected.
5. Opinions on skills matching and skills evaluation are significantly skewed toward agreement ($\chi^2 = 29.17$ and 34.83 , $df = 4$, $p < 0.001$); H2 is rejected.
6. AI-assisted candidate assessment has a significant effect on hiring effectiveness ($p < 0.001$); H3 is rejected.

8. CONCLUSION

The study concludes that AI-driven recruitment improves recruitment effectiveness in the Chennai IT sector. It reduces recruitment time and administrative workload, supports candidate–job matching and helps recruiters identify suitable candidates more efficiently. Correlation, chi-square and regression results all support the proposed relationships. Respondents also recognise risks of algorithmic bias and limited transparency, so AI should support rather than replace HR professionals.

Organisations are advised to integrate AI gradually, train HR staff in using AI tools, monitor systems regularly for bias, explain how candidates are evaluated and shortlisted, protect candidate data, and keep human judgement in final hiring decisions. The findings should be read with caution because the sample is small, purposively selected, drawn from one city, and dominated by young respondents with less than one year of experience. Future research could use larger and more varied samples, include other cities and sectors, and measure hiring outcomes directly.

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