

A study of effectiveness of Artificial Intelligence on Recruitment and Selection Process in IT Firms



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Abstract: This study examines the effectiveness of Artificial Intelligence (AI) in the recruitment and selection process in IT firms, focusing on key dimensions such as recruitment time-to-hire, cost-per-hire, and recruiter effectiveness. The study is based on primary data collected from a sample of 175 respondents, using a structured questionnaire measured on a five-point Likert scale. AI has been increasingly adopted in HR practices to enhance efficiency, improve decision-making, and reduce manual intervention. The study aims to evaluate how AI-driven recruitment tools contribute to operational efficiency and overall hiring performance in IT organizations. The findings reveal that AI significantly improves recruitment outcomes, particularly in reducing time-to-hire and enhancing recruiter effectiveness. Statistical tools such as descriptive analysis, Friedman test, and Pearson correlation were used to analyze the data. The results indicate a significant difference in AI's effectiveness in reducing recruitment time and a strong positive relationship between cost efficiency and recruiter satisfaction. The study concludes that AI is a powerful tool in modern recruitment systems, though organizations must balance its use with ethical considerations such as bias and transparency.

Keywords: Artificial Intelligence, Recruitment Efficiency, Time-to-Hire, Cost-per-Hire

Introduction:

Artificial Intelligence (AI) has emerged as a transformative force across various industries, significantly influencing organizational processes and decision-making systems. In the field of Human Resource Management (HRM), AI has particularly revolutionized recruitment and selection processes by introducing automation, data-driven decision-making, and predictive analytics. Traditional recruitment methods, which were often time-consuming and dependent on manual screening, are gradually being replaced by AI-enabled systems that enhance efficiency and accuracy in hiring practices. The recruitment and selection process plays a crucial role in organizational success, as it directly impacts the quality of human capital. With the integration of AI technologies such as machine learning, natural language processing, and predictive algorithms, organizations can now analyze large volumes of candidate data, identify suitable talent, and reduce biases in hiring decisions. AI-driven tools assist in resume screening, candidate sourcing, interview scheduling, and even behavioral assessments, thereby streamlining the overall hiring process and improving decision quality.

Moreover, AI has significantly improved the efficiency of recruitment by reducing time-to-hire and cost-per-hire. Studies indicate that AI adoption in recruitment can lead to faster hiring cycles and enhanced operational efficiency, allowing HR professionals to focus on strategic tasks rather than administrative functions. Additionally, AI helps organizations identify the best-fit candidates by analyzing patterns and competencies, which

contributes to improved employee performance and organizational productivity.

However, despite its numerous advantages, the implementation of AI in recruitment also presents certain challenges. Issues related to algorithmic bias, lack of transparency, and ethical concerns have been widely discussed in recent research. While AI has the potential to reduce human bias, it may also replicate or amplify existing biases if not properly designed and monitored. Therefore, organizations must ensure responsible AI adoption by incorporating ethical guidelines and human oversight in recruitment practices.

In the context of IT firms, where the demand for skilled professionals is high and competition for talent is intense, the use of AI in recruitment becomes even more critical. IT companies rely heavily on efficient and accurate hiring processes to maintain innovation and competitiveness. This study aims to examine the effectiveness of Artificial Intelligence in recruitment and selection processes within IT firms, focusing on key aspects such as time efficiency, cost effectiveness, recruitment quality, and recruiter satisfaction.

Review of Literature:

1. **Dadaboyev, S. M. U. (2025)**, In the research titled "Role of artificial intelligence in employee recruitment" The study concludes that artificial intelligence plays a transformative role in employee recruitment by enhancing efficiency, reducing manual effort, and enabling data-driven decision-making. AI tools significantly improve candidate screening and matching processes, allowing organizations to identify suitable talent more effectively. However, the study also highlights the

need for human oversight to ensure ethical use and avoid potential biases in automated systems.

2. **Hukkeri, P., & Pol, S. (2025)**, In the research titled "The impact of artificial intelligence on recruitment efficiency and onboarding effectiveness" The study finds that AI has a positive impact on recruitment efficiency and onboarding effectiveness by streamlining processes and reducing hiring time. It emphasizes that AI-driven tools not only improve operational efficiency but also enhance candidate experience during recruitment and onboarding. The study concludes that organizations adopting AI gain a competitive advantage, though proper implementation strategies are essential for maximizing benefits.

3. **Madanchian, M. (2024)**, In the research titled "From recruitment to retention: AI tools for human resource management" The study concludes that AI tools are increasingly integral to modern human resource management, covering the entire employee lifecycle from recruitment to retention. AI enhances decision-making accuracy, improves workforce planning, and supports personalized employee experiences. However, the study suggests that organizations must balance technological adoption with human interaction to maintain employee trust and organizational culture.

4. **Marinakou, E. (2025)**, In the research titled "The use of artificial intelligence in talent acquisition" The study highlights that AI significantly improves talent acquisition by enabling faster, more efficient, and data-driven hiring processes. It concludes that AI tools enhance the quality of candidate selection and reduce recruitment costs. Nevertheless, the study stresses the importance of transparency and fairness in AI systems to ensure ethical recruitment practices and maintain candidate trust.

5. **Mori, M. (2025)**, In the research titled "A systematic literature review on artificial intelligence in recruitment and selection" The systematic literature review concludes that AI adoption in recruitment and selection has consistently shown positive outcomes in terms of efficiency, accuracy, and cost-effectiveness. The study identifies key trends such as automation, predictive analytics, and bias reduction as major benefits. However, it also points out research gaps related to ethical concerns, transparency, and the long-term impact of AI on human resource roles.

6. **Nishanthi, B. (2025)**, In the research titled "Unveiling the future of artificial intelligence in talent acquisition" The study concludes that AI is shaping the future of talent acquisition by transforming traditional hiring methods into more intelligent and automated systems. It emphasizes that AI improves candidate sourcing, engagement, and selection accuracy. The study also highlights that continuous technological advancements will further enhance recruitment practices, but

organizations must address challenges related to data privacy and system reliability.

7. **Ouakili, O. (2025)**, In the research titled "The impact of artificial intelligence on recruitment process" The study finds that AI has a significant impact on the recruitment process by improving efficiency, reducing hiring time, and enhancing decision-making quality. It concludes that AI-driven recruitment systems enable organizations to handle large volumes of applications effectively while ensuring better candidate-job fit. However, the study recommends careful monitoring of AI tools to avoid potential bias and ensure fair recruitment practices.

Research Gap:

The review of existing literature indicates that while numerous studies have established the positive impact of Artificial Intelligence on recruitment and selection, particularly in improving efficiency, reducing time-to-hire, enhancing candidate matching, and lowering costs, there remains a significant research gap in terms of empirical, organization-specific analysis, especially within the IT sector. Most studies are conceptual or generalized and do not provide detailed insights into how AI influences key measurable outcomes such as recruiter satisfaction, cost-per-hire, and time-to-hire simultaneously. Additionally, limited attention has been given to balancing technological efficiency with ethical concerns like bias, transparency, and data privacy in real organizational settings. There is also a lack of integrated models that examine multiple dimensions of recruitment effectiveness together. Therefore, this study attempts to bridge these gaps by providing a comprehensive, data-driven analysis of AI effectiveness in recruitment and selection processes within IT firms, focusing on both operational efficiency and qualitative outcomes.

Research Methodology: The study adopts a descriptive and analytical research design to examine the effectiveness of Artificial Intelligence in recruitment and selection processes within IT firms. Primary data was collected from 175 respondents using a structured questionnaire based on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The sampling technique used was simple random sampling to ensure unbiased representation of respondents. The study focuses on key variables such as recruitment time-to-hire, cost-per-hire, and effectiveness of recruiter. Data analysis was carried out using statistical tools such as descriptive statistics, Friedman test, and Pearson correlation through SPSS software to test the hypotheses and examine relationships among variables.

Data Analysis:

Data analysis is a crucial part of the study as it helps in interpreting the collected information in a meaningful manner. The data collected from 175 respondents was systematically organized, coded, and analyzed using statistical techniques. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to understand respondent characteristics and variable

distributions. Further, inferential statistical tools like the Friedman test and Pearson correlation were applied to test hypotheses and examine relationships between recruitment variables. The analysis aims to provide clear insights into the effectiveness of AI in improving recruitment outcomes in IT firms.

The following table indicates the demographic factor of the study:

Sr.no	Demographic Factor	Category	Frequency	Percent
1	Gender	Male	111	63.4
		Female	64	36.6
2	Age Group	Up to 25 Years	63	36.0
		26 to 35 Years	52	29.7
		36 to 45 Years	45	25.7
		More than 45 Years	15	8.6
3	Qualification	Graduate	82	46.9
		Post Graduate	71	40.6
		Professional Degree	22	12.6

The following table indicates the Recruitment Time-to-Hire

Sr.no	Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
4.1	AI has been effective in reducing the time required to fill job vacancies.	20	43	30	31	51
4.2	AI integration has been effective in making the recruitment process faster.	25	23	43	31	53
4.3	AI tools are effective in streamlining candidate sourcing and minimizing recruitment delays.	20	23	46	22	64
4.4	AI has been effective in optimizing time-to-hire without compromising the quality of hiring.	22	27	22	42	62
4.5	AI-enabled recruitment is effective in achieving overall satisfaction with reduced time-to-hire.	11	18	28	45	73
4.6	AI tools are effective in accelerating screening and shortlisting processes, thereby reducing overall hiring time.	4	7	45	62	57

Above question is rated as follows:

- Strongly Disagree = 1
- Disagree = 2
- Neutral = 3
- Agree = 4
- Strongly Agree = 5

Using above responses, mean score of Recruitment Time-to-Hire is obtained using formula given below.

Mean score of Recruitment Time-to-Hire

$$= \frac{\text{Totalscore of rating of respondent (for 6 statements)} \times 100}{\text{Maximum rating (30)}}$$

Using above formula mean scores are obtained for each respondent and also for all 175 respondents. Descriptive statistics is as follows:

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Recruitment Time-to-Hire	175	30	100	71.58	16.314
Valid N (listwise)	175				

Above table indicate that mean score of Recruitment Time-to-Hire is 71.58 per cent with standard deviation 16.314, suggesting high variation in the responses.

The following table indicates the Recruitment Cost-per-Hire

Sr.no	Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
5.1	AI integration has been effective in reducing overall recruitment costs in the organization	20	15	32	34	74
5.2	AI tools are effective in justifying the cost-per-hire through improved efficiency in recruitment processes	10	18	37	33	77
5.3	The use of AI is effective in minimizing dependence on external hiring agencies, thereby reducing costs	11	25	9	29	101
5.4	AI-driven recruitment processes are effective in achieving cost efficiency compared to traditional recruitment methods	25	22	22	26	80
5.5	AI-enabled recruitment is effective in achieving overall satisfaction with cost savings	20	21	0	37	97
5.6	AI-enabled automation is effective in optimizing resource utilization, leading to lower recruitment costs.	20	23	46	22	64

Above question is rated as follows:

- Strongly Disagree = 1
- Disagree = 2
- Neutral = 3
- Agree = 4
- Strongly Agree = 5

Using above responses, mean score of Recruitment Cost-per-Hire is obtained using formula given below.

Mean score of Recruitment Cost-per-Hire

$$= \frac{\text{Totalscoreof rating of respondent (for 6 statements)} \times 100}{\text{Maximum rating (30)}}$$

Using above formula mean scores are obtained for each respondent and also for all 175 respondents. Descriptive statistics is as follows:

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Recruitment Cost-per-Hire	175	27	100	75.83	18.023
Valid N (listwise)	175				

Above table indicate that mean score of Recruitment Cost-per-Hire is 75.83 per cent with standard deviation 18.02, suggesting high variation in the responses.

The following table indicates the Effectiveness of recruiter:

Sr.no	Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
6.1	AI has been effective in improving the overall efficiency of the recruitment process	1	7	33	66	68
6.2	AI tools used in recruitment are effective in enhancing user experience and ease of hiring.	4	7	45	62	57
6.3	AI has been effective in ensuring fairness and objectivity in candidate selection.	17	17	30	29	82
6.4	AI integration is effective in accurately matching candidates with suitable job roles.	4	7	18	51	95
6.5	AI tools are effective enough to justify	7	12	14	64	78

	their continued use and expansion in recruitment processes					
6.6	AI tools are effective in supporting recruiters to make quicker and more informed hiring decisions.	10	18	37	33	77

Above question is rated as follows:

- Strongly Disagree = 1
- Disagree = 2
- Neutral = 3
- Agree = 4
- Strongly Agree = 5

Using above responses, mean score of Effectiveness of recruiter is obtained using formula given below.

Mean score of Effectiveness of recruiter

$$= \frac{\text{Totalscore of rating of respondent (for 6 statements)} \times 100}{\text{Maximum rating (30)}}$$

Using above formula mean scores are obtained for each respondent and also for all 175 respondents. Descriptive statistics is as follows:

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Effectiveness of recruiter	175	27	100	80.29	12.348
Valid N (listwise)	175				

Above table indicate that mean score of Effectiveness of recruiter is 80.29 per cent with standard deviation 12.34, suggesting moderate variation in the responses.

Objective-1 To study the effectiveness of AI in time reduction of recruitment process.

Null Hypothesis H₀₁: There is no significant difference ineffectiveness of AI in time reduction of recruitment process

Alternate Hypothesis H₁₁: There is a significant difference ineffectiveness of AI in time reduction of recruitment process.

To test the above null hypothesis, Friedman test is applied and results are as follows:

Test Statistics ^a	
N	175
Chi-Square	6.564
df	1
P-value	.010
a. Friedman Test	

Interpretation: The above results indicate that calculated p-value is 0.010. It is less than 0.05. Therefore, Friedman test is rejected. Hence Null hypothesis is rejected and Alternate hypothesis is accepted.

Conclusion: There is a significant difference ineffectiveness of AI in time reduction of recruitment process.

Findings: To understand the findings. Mean ranks are obtained and presented as follows:

Ranks	
	Mean Rank
Recruitment Time-to-Hire	1.41
Recruitment Cost-per-Hire	1.59

The findings indicate that there is a significant difference in the effectiveness of AI in reducing recruitment time and cost, as reflected in the mean rank values. Recruitment Time-to-Hire has a lower mean rank (1.41) compared to Recruitment Cost-per-Hire (1.59), suggesting that AI is relatively more effective in reducing the time required for hiring than in lowering recruitment costs. This implies that organizations experience quicker hiring processes as a primary benefit of AI integration, while cost reduction, although present, is comparatively less impactful. Therefore, it can be concluded that AI plays a more prominent role in enhancing speed and efficiency in recruitment rather than in achieving cost savings.

Objective-2 To study the impact of recruitment process using artificial intelligence on effectiveness of recruiter.

Null Hypothesis H₀₂: There is no impact of recruitment process using artificial intelligence on effectiveness of recruiter.

Alternate Hypothesis H₁₂: There is an impact of recruitment process using artificial intelligence on effectiveness of recruiter.

To test the above null hypothesis, Pearson Correlation Test is applied and results are as follows:

Correlations			
	Satisfaction of recruiter:	Time-to-Hire	Cost-per-Hire

Satisfaction of recruiter:	Pearson Correlation	1	.422**	.625**
	Sig. (2-tailed)		.000	.000
	N	175	175	175
Time-to-Hire	Pearson Correlation	.422**	1	.482**
	Sig. (2-tailed)	.000		.000
	N	175	175	175
Cost-per-Hire	Pearson Correlation	.625**	.482**	1
	Sig. (2-tailed)	.000	.000	
	N	175	175	175

** . Correlation is significant at the 0.01 level (2-tailed).

Interpretation: The above results indicate that calculated p-value is 0.000. It is less than 0.05. Therefore, Pearson Correlation test is rejected. Hence Null hypothesis is rejected and Alternate hypothesis is accepted.

Conclusion: There is an impact of recruitment process using artificial intelligence on effectiveness of recruiter.

Findings: The correlation analysis reveals that there is a positive and statistically significant relationship between all three variables, Satisfaction of Recruiter, Time-to-Hire, and Cost-per-Hire, at the 0.01 significance level. The correlation between Satisfaction of Recruiter and Cost-per-Hire ($r = 0.625$) is strong, indicating that higher cost efficiency achieved through AI is closely associated with greater recruiter satisfaction. Similarly, the relationship between Satisfaction of Recruiter and Time-to-Hire ($r = 0.422$) is moderate, suggesting that reduction in hiring time also contributes to recruiter satisfaction, though to a lesser extent compared to cost savings. Additionally, Time-to-Hire and Cost-per-Hire ($r = 0.482$) show a moderate positive correlation, implying that improvements in hiring speed are also linked with cost efficiency. Overall, the findings indicate that AI-driven recruitment positively influences recruiter satisfaction, primarily through cost reduction and, to a moderate extent, through faster hiring processes.

Conclusion: The study concludes that Artificial Intelligence has a significant and positive impact on the recruitment and selection process in IT firms. AI has proven to be highly effective in reducing time-to-hire, improving cost efficiency, and enhancing the overall effectiveness of recruiters. The findings indicate that AI contributes more prominently to speeding up recruitment processes, while cost reduction also plays a crucial role in improving recruiter satisfaction. Additionally, the strong correlation between recruitment efficiency and recruiter effectiveness highlights the importance of AI-driven tools in modern HR practices. Overall, the study emphasizes that while AI enhances

recruitment performance, organizations must ensure ethical implementation and human oversight to maximize its benefits.

Bibliography:

- Dadaboyev, S. M. U. (2025). Role of artificial intelligence in employee recruitment. Springer.
- Hukkeri, P., & Pol, S. (2025). The impact of artificial intelligence on recruitment efficiency and onboarding effectiveness. *IOSR Journal of Multidisciplinary Research*, 2(3), 26–33.
- Madanchian, M. (2024). From recruitment to retention: AI tools for human resource management. *Applied Sciences*, 14(24), 11750.
- Marinakou, E. (2025). The use of artificial intelligence in talent acquisition. *Journal of Strategic Change*.
- Mori, M. (2025). A systematic literature review on artificial intelligence in recruitment and selection. *Personnel Review*.
- Nishanthi, B. (2025). Unveiling the future of artificial intelligence in talent acquisition. *ScienceDirect*.
- Ouakili, O. (2025). The impact of artificial intelligence on recruitment process. *Open Journal of Business and Management*, 13, 749–762.
- Roppelt, J. S. (2025). Towards effective adoption of artificial intelligence in talent acquisition. *Human Resource Management Review*.
- Rukadikar, A. (2025). Reimagining recruitment: Traditional methods meet AI. *Cogent Business & Management*.
- Safshekan, M. (2026). Artificial intelligence in human resource management. *PMC Journal*.
- Tursunbayeva, A. (2025). Artificial intelligence and digital data in recruitment. *Journal of Business Research*.
- Zhang, G. (2025). Explainable artificial intelligence in talent recruitment. Taylor & Francis.
- Raij, J. F., & László, V. (2021). Artificial intelligence impact on recruitment process. *International Journal of Business Informatics*.

14. Boyd, N. (2025). Interdisciplinary narratives on artificial intelligence in recruitment. *Human Resource Management Journal*.
15. Hukkeri, P., & Pol, S. (2025). AI-driven recruitment and selection practices. *IOSR Journal*.