Role of Artificial Intelligence in the Recruitment Process of Information Technology Sector in Hyderabad City, India

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Abstract

This paper investigates the role of Artificial Intelligence (AI) in recruitment processes within Hyderabad's IT sector offering insights into adoption levels, perceived benefits (time savings, cost reduction, improved candidate matching), and HR perceptions based on data collected from 60 HR professionals across major IT firms (including TCS, Infosys, HCL, Tech Mahindra, and Wipro) with semi-structured interviews and supporting secondary sources. While advanced applications like predictive analytics, bias reduction, and AI-driven assessments remain underutilized, HR managers across different experience levels, designations, and companies consistently perceive AI as a valuable enabler of more efficient and effective recruitment. The main contribution of this study lies in providing empirical evidence from Hyderabad city — a major IT hub on how AI is practically embedded in recruitment workflows, clarifying HR professionals' perceptions of its benefits and limitations, and offering insights that can guide organizations in strategically integrating AI to improve hiring quality while addressing concerns related to transparency, privacy, and human judgment. The findings highlight significant use of AI in screening and matching while noting gaps in advanced applications, making the study relevant and practically useful.

Keywords Artificial Intelligence; Recruitment; AI-powered Recruitment Tools

1   Introduction

AI systems are machines meant to think and act like humans. AI has demonstrated its transformative impact, especially in hiring and selection. Organizations are increasingly using AI to optimize and improve traditional recruitment procedures, allowing them to efficiently and effectively identify and attract the most qualified candidates. Recruitment is an essential and pivotal aspect of the IT industry, known for its dynamic and high-speed nature and its continuous need for proficient experts. The success of IT organizations relies on their capacity to attract, discern, and keep exceptional personnel. Artificial intelligence technologies have become influential instruments in revolutionizing the recruitment industry. These technologies include various applications such as automated resume screening, predictive analytics, chatbots for engaging with candidates, and advanced data analytics for making decisions. The adoption of AI in recruiting processes seeks to optimize efficiency, mitigate biases, enhance candidate matching, and eventually yield superior hiring outcomes. This study investigates the utilization of AI tools and technologies in the recruiting processes of IT organizations in Hyderabad–a major IT hub and a growing tech sector. It provides valuable insights and methodological recommendations for integrating AI into recruitment processes in order to improve HR dynamics in hiring the right candidate for the right job. The data collected from IT companies in Hyderabad, both questionnaire survey and focus-group interview HR professional respondents enable deeper insights into the perceptual accuracy of the use of AI tools in recruitment including candidate screening, application analysis, candidate background-check and candidate suitability. Recruiters on the whole have significant concerns or reservations about the use of AI in recruitment including data privacy and lack of personal contact.

1.1   Problem Statement

Despite the potential benefits of AI in streamlining recruitment processes, several challenges and uncertainties are associated with its implementation and acceptance among HR managers. While AI tools have the potential to revolutionize the recruitment process in the IT sector by improving efficiency, reducing costs, and enhancing candidate matching, there are critical gaps in understanding how extensively these tools are being used, the benefits perceived by HR managers. Concerns about data privacy, transparency, and potential biases in AI-driven recruitment processes must be addressed. This study investigates the role of AI in the recruitment process within the IT sector in Hyderabad City, India.

1.2   Research Objectives

(1) To evaluate the use of AI tools in the recruitment process of IT companies in Hyderabad.
(2) To study the HR Managers' perception of AI tools in the recruitment process.

1.3   Research Questions

(1) To what extent are AI tools and technologies currently integrated into the recruitment processes of IT companies in Hyderabad City?
(2) What benefits do HR managers perceive from using AI tools in recruitment, including time savings, cost reduction, and improved candidate matching?
(3) How effectively do AI tools streamline recruitment by automating repetitive tasks such as resume screening, candidate sourcing, and interview scheduling?

1.4   Research Hypotheses

(1) AI tools are significantly used in the recruitment processes of IT companies in Hyderabad city.
(2) HR managers in IT companies in Hyderabad perceive significant benefits from using AI tools in recruitment, including time savings, cost reduction, and improved candidate matching.

2   Artificial Intelligence

AI is the simulation of human intelligence processes by machines, particularly computer systems. These processes include learning (acquiring information and rules for using it), reasoning (using rules to reach approximate or definite conclusions), and self-correction. AI applications include expert systems, natural language processing (NLP), speech recognition, and machine vision. AI can be categorized into narrow AI, designed for a specific task, and general AI, which can perform any intellectual task that a human can do. AI has the potential to revolutionize various industries by automating tasks, improving decision-making, and providing personalized experiences. However, it raises ethical and societal concerns like job displacement and privacy issues.

2.1   Artificial Intelligence in Recruitment

AI is one of the most innovative technologies to emerge in HR, and it can be convenient and helpful, especially in recruitment. It helps reduce or eliminate time-consuming activities, streamline and automate resume reviews, match job requirements and candidates' existing skills more efficiently and effectively, and enable timely decision-making [1]. AI is human intelligence exhibited by machines [2]. It means that AI tools are being developed to mimic intelligent human actions such as visual perception, speech recognition, or even phone conversations (such as AI driven chatbots), which can make it difficult for candidates to identify whether they have experienced a human or an AI action.

2.2   Application of AI in Information Technology Company Recruitment Processes

In IT companies, AI is applied at every stage of the recruitment process to optimize and enhance hiring outcomes:

Automated Resume Screening: AI-driven tools scan large volumes of resumes, extracting relevant information and identifying candidates with the necessary technical skills and experience. This reduces the time spent manually reviewing resumes and ensures that only qualified candidates are considered for the next stages of recruitment [3].

Intelligent Candidate Matching: AI algorithms analyze both job descriptions and candidate profiles to make more accurate matches. These algorithms are trained to understand complex technical roles and can identify candidates with niche skills, even when those skills are not explicitly listed on resumes. AI systems can also rank candidates based on their qualifications and how well they match the job requirements, improving hiring decisions [4].

Interview Automation and Virtual Assistants: AI is used to automate interview scheduling and initial candidate assessments. AI-powered chatbots interact with candidates to provide information about the job, conduct pre-screening interviews, and schedule further interviews with human recruiters. This automation helps streamline communication and keeps candidates engaged throughout the hiring process [5].

3 Literature Review

3.1 Role of Artificial Intelligence in Recruitment

The study examines the perceived adoption of artificial intelligence in recruitment in the private sector of Morocco, focusing on five sectors: administration, human resources, production, manufacturing, finance, accounting, and education. The research found that despite the advantages of AI, such as rapid processing and task automation, companies in these sectors face challenges due to a lack of resources, highlighting the need for further research and adaptation strategies [6].

Rani et al. empirically investigated the benefits and effectiveness of using AI in recruitment and qualification processes. This study contributes to the existing knowledge by establishing itself as the pioneering explanation of the employer reputation phenomenon by utilizing an AI-powered HR function. The study's findings have practical implications for businesses enhancing their employer reputation through AI-driven HR functions [7].

The study explores the use of AI in recruitment and selection (RS) within the context of Human Resource Management (HRM). In contrast to past studies, this study makes a valuable theoretical contribution of a conceptual model to understand the effective use of AI in recruitment and selection processes by investigating the underexplored impact of the recruitment phase and the critical perspective of recruitment professionals. It builds on and extends technology adoption theory within the information systems by integrating HRM literature. The findings of this qualitative study indicate that AI is suitable for use in specific recruitment phases such as sourcing, pre-screening/pre-selection, and candidate engagement. However, there is a reluctance to use AI in the recruitment pre-planning and interview stages. It contributes valuable insights to inform HRM practitioners and organizations seeking to integrate AI into their recruitment processes [8].

Al-Alawi et al. explore use of AI in the hiring process, focusing on its advantages and challenges. They highlight the potential for AI vendors and companies to streamline the hiring process. However, the study suggests that AI usage is primarily in high-tech or large corporations, and potential human bias exists. Future research should integrate AI with the company mission and comply with local regulations [9].

AI transforms the HR department by optimizing human and automated work. AI has significantly improved recruitment, reducing errors and enhancing the quality of hire. It can streamline processes and enhance organizational performance. To compete with AI, HR departments must re transfer their workforce to understand AI and its collaboration. This study critically analyzes the impact of AI on recruitment in organizations and its benefits [10].

Karaboga, U., & Vardarlier, P. stated that the recruitment process is a significant challenge for businesses, often resulting in costly and time-consuming tasks. Companies utilize technology like the Internet and software to address these issues, acquire applications, and assess candidates. However, this requires time and human resources. Artificial intelligence is increasingly used in recruitment to reduce costs and improve decision-making. However, companies mainly rely on it as a supplement, with some utilizing it only partially [11].

Technological innovations in e-recruitment systems have expanded in the last decade. Organizations increasingly implement artificial intelligence tools in the recruitment and selection process. In this

research, we explore how the role of the HR professional in the recruitment and selection process transforms when organizations implement artificial intelligence. Therefore, this study aims to discover how the role of the HR professional will change in terms of tasks and responsibilities, competencies, and value creation. To do so, we adopted exploratory research and conducted a single case study within a prominent employment agency in the Netherlands. Based on 19 semi-structured interviews, documents, and observations, our findings show that artificial intelligence transforms the HR professional's role from sourcing and screening to a relationship builder and stakeholder manager in which the HR professional enables a positive candidate experience for new employees [12].

3.2   Role of Artificial Intelligence in Recruitment in Information Technology Companies

Purohit, R., & Banerjee, T. explore AI-based decision-making in recruitment and its adoption in HR practices. It proposes a model to enhance organizational effectiveness and uses an innovative PLS tool to test and validate it. A comprehensive literature review and a small-scale survey were conducted across diverse organizations in the IT and manufacturing industries. The findings showed a typical pattern of AI tools mainly used for routine tasks, but the need for automation intelligence for holistic end-to end recruitment decision-making is growing. The Smart-PLS tool was used to analyze data from the survey, ensuring the model's accuracy and reliability. The study advocates adopting AI-enabled data-driven approaches to optimize recruitment practices and strengthen organizational effectiveness [13].

Jafri et al. Integrating AI into the recruitment process represents a significant advancement in HRM, aiming to optimize the efficiency and effectiveness of hiring practices. This paper explores the effectiveness of AI in improving decision-making processes within HRM, focusing on machine learning's role in streamlining candidate sourcing, enhancing candidate experience, boosting screening efficiency, optimizing interview processes, and improving onboarding experiences. Through a comprehensive analysis, the paper advocates for the strategic implementation of AI in recruitment, emphasizing continuous monitoring, evaluation, and the necessary training for HR professionals to harness AI's full potential [14].

Albassam, W. A. indicates that AI-based recruitment strategies such as resume screening, candidate matching, video interviewing, chatbots, predictive analytics, gamification, virtual reality assessments, and social media screening, offer significant potential benefits for organizations, including improved efficiency, cost savings, and better quality hires. However, using AI in recruitment also raises ethical and legal concerns, including the potential for algorithmic bias and discrimination [15].

Gupta, A., & Mishra, M. find that although many companies have started using AI tools for recruitment, they have not explored all the algorithms that can be used to complete the recruitment and selection process. Companies like Loreal use AI for candidate applications and recruiter screening, but human recruiters stand firm for assessments and interviews. The widespread use of AI presents HRM practitioners with opportunities and challenges [16].

Despite the relevance of the artificial intelligence recruitment process, only limited research has been conducted on this topic. Using and replicating data from the Boston Consulting Group, CV Library, LinkedIn, MIT Sloan Management Review, Software Advice, Statista, and Tractica, we performed analyses and made estimates regarding the utilization of artificial intelligence and automation in interviewing and assessment of candidates, approaches to building artificial intelligence-related skills, the effect of artificial intelligence on the workforce, top-requested human resources software functionality, and expectations for artificial intelligence adoption across industries (impact on processes). The study results based on data collected from 3,700 respondents support our research model. Using the structural equation modeling and the probability sampling technique, we gathered and analyzed data through a self-administered questionnaire [17].

Over the past few years, machine learning and AI have become increasingly common in HR applications, such as candidate screening, resume parsing, and employee attrition and turnover prediction. Though AI assists in making these tasks more efficient and seemingly less biased through automation, it relies heavily on data created by humans. Consequently, it can have human biases carry over to decisions made by a model. Several studies have shown biases in machine learning applications such as facial recognition and candidate ranking. Over the last five years, this has spurred active research on fairness in machine learning. Several toolkits have been developed to mitigate biases and interpret black box models to promote fair algorithms. This paper presents an overview of fairness definitions, methods, and tools related to recruitment and establish ethical considerations in using machine learning in the hiring space [18].

4 Research Methodology

4.1 Nature of Study & Data Source

The research is a descriptive study which aims to provide a holistic view of the role of AI in the recruitment process within the IT sector in Hyderabad. The data sources for this study include primary and secondary data. The primary data sourced through structured surveys and questionnaires have been designed and administered to HR managers within IT companies in Hyderabad. These instruments collect quantitative data on the extent of AI usage, perceived benefits, levels of awareness, confidence, concerns, and satisfaction with AI-driven recruitment processes. In addition, the study uses semi-structured interviews conducted with HR managers to gain deeper insights into their experiences, perceptions, and challenges related to implementing and using AI tools in recruitment. These interviews provide qualitative data that complement the survey findings. The secondary data comprises the Annual reports, whitepapers, and publications from IT companies in Hyderabad that highlight their recruitment strategies, the role of AI, and outcomes achieved through AI integration is reviewed. Peer-reviewed academic journals and articles focusing on AI in HR, recruitment processes, and technology adoption in the IT sector have been reviewed to support the literature survey and contextualize the study's findings. Combining primary and secondary data ensures a well-rounded understanding of the current landscape, benefits, challenges, and stakeholder perceptions related to AI-driven recruitment.

4.2 Sample Design and Techniques

The sample frame for this research comprises HR managers in IT companies in Hyderabad. The study uses a stratified random sampling technique to ensure a representative sample from the different strata within the IT sector. The strata are based on the size of the company (small, medium, large) for HR managers. Responses are obtained from 60 HR managers (Asst. Manager, Deputy Manager, HR Admin, and HR Head) responsible for the recruitment process in IT companies in Hyderabad.

4.3 Statistical Tools Used

Descriptive Analysis: Simple frequency distribution, Mean, Standard Deviation.
Inferential Analysis: t-test (One-sample & Independent t-test), F-test, Chi-square test, ANOVA.

5 Data Analysis

5.1 Gender Classification of HR Managers in Select Information Technology Companies

This section presents the gender distribution of HR managers in selected IT companies. The following data illustrates the percentage of male and female HR managers working in the selected IT companies based on the collected responses.

Table 1. Gender classification of HR managers

Gender	Frequency	%
Female	25	42
Male	35	58
Total	**60**	**100**

Table 1 presents the gender classification of HR managers in select Information Technology (IT) companies. Of the 60 respondents, 35 (58%) are male HR managers, while 25 (42%) are female. This indicates a higher representation of male HR managers compared to their female counterparts within the IT sector. Understanding the underlying factors contributing to this gender distribution can help promote more gender-diverse leadership within the HR departments of IT companies, ensuring more inclusive and equitable work environments.
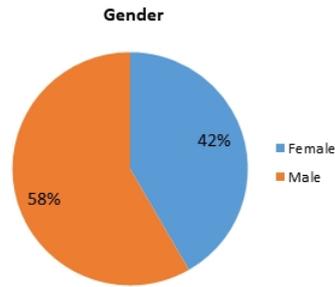
Fig. 1. Gender classification of HR managers

5.2   Experience of HR Managers in Select Information Technology Companies

Table 2 provides an overview of the experience levels of HR managers in select Information Technology (IT) companies. Among the 60 HR managers surveyed, the largest group, comprising 18 individuals (30%) have up to 3 years of experience, indicating that a notable portion of HR leaders are in the early stages of their careers. The smallest group, consisting of 12 HR managers (20%), has more than nine years of experience, reflecting the presence of highly seasoned professionals with extensive expertise in managing HR functions within the IT sector.

Table 2. Experience of HR managers

Experience	Frequency	%
Up to 3 years	18	30
3 - 6 years	14	23
6 - 9 years	16	27
> 9 years	12	20
Total	**60**	**100**

Figure 2 shows the representation of experience of HR managers, which contributes to a dynamic range of perspectives and skills within HR departments in the IT sector.
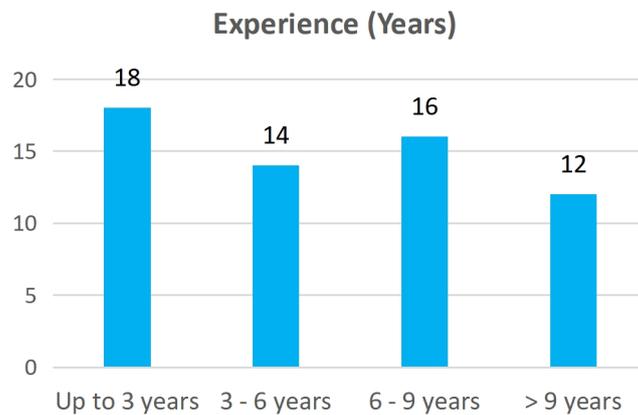

Fig. 2. Experience of HR managers

5.3   Place of Working of HR Managers in Select Information Technology Companies

This section examines the distribution of HR managers in some leading IT companies, including Tata Consultancy Services (TCS), Infosys, HCL, Tech Mahindra, and Wipro. These companies are renowned in the IT industry for their large-scale operations and robust human resource practices. Understanding where HR managers are employed can provide insights into how each company's unique environment shapes HR leadership and management practices.

Table 3. Place of working of HR managers

Place of Working	Frequency	%
Wipro	12	20
HCL	11	18.3
Tech Mahindra	15	25
Infosys	12	20
TCS	10	16.7
Total	**60**	**100**

Table 3 presents the distribution of HR managers based on their place of work in select Information Technology (IT) companies. Among the 60 HR managers surveyed, the highest number, 15 individuals (25%), are employed at Tech Mahindra. Infosys and Wipro employ 12 HR managers each, accounting for 20% of the total sample, showcasing a significant presence of HR professionals in these companies. Similarly, TCS and HCL employ 10 and 11 HR managers respectively, reflecting a relatively balanced distribution of HR managers across these two IT giants.
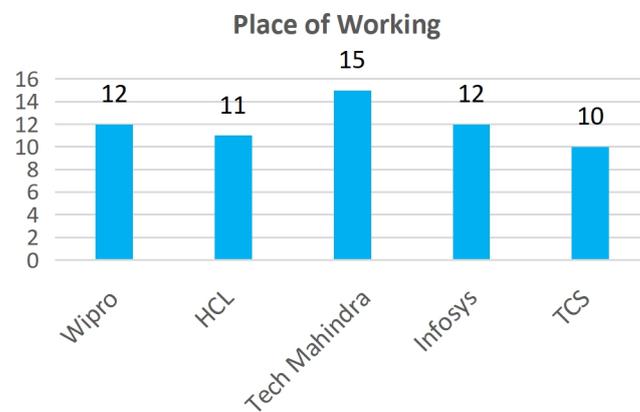

Fig. 3. Place of work of HR managers

Overall, the data suggests that the HR managers in this study are reasonably evenly distributed across five major IT companies, with Tech Mahindra having the most significant representation.

5.4 Designation of HR Managers in Select Information Technology Companies

This section focuses on the designations held by HR managers in select IT companies, categorized into four levels: Assistant Manager, Deputy Manager, HR Admin, and HR Head.

Table 4. Designation of HR managers

Designation	Frequency	%
Asst. Manager	23	38.3
Deputy Manager	15	25
HR Admin	17	28.3
HR Head	5	8.3
Total	**60**	**100**

Table 4 presents the distribution of HR managers across various designations in select Information Technology (IT) companies. Among the 60 respondents, the largest group, comprising 23 individuals (38.3%), holds the position of Assistant Manager. This indicates that many HR professionals in IT companies are at the mid-level management stage, involved in operational and tactical HR activities and 5 HR managers (8.3%) are designated as HR Heads, indicating that a smaller proportion of the sample occupies top leadership positions, overseeing HR strategies and policies at the organizational level. This

distribution suggests that HR leadership in the IT sector is concentrated mainly in operational and mid-management roles, with a more minor but essential presence of top-level decision-makers.
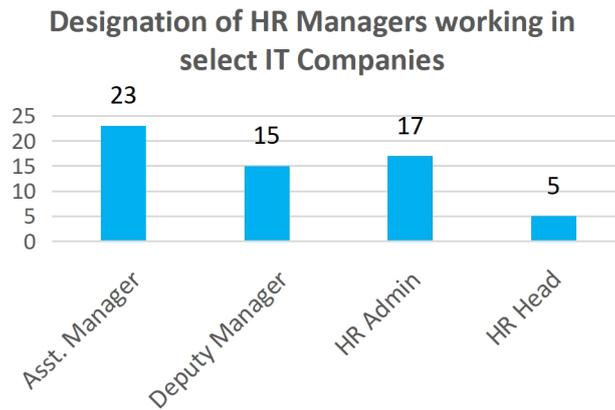

Fig. 4. Designation of HR managers

5.5 AI Tools Used for the Recruitment Process Across Various Designations of HR Managers

Table 5 "AI Tools Used for Recruitment Process in IT Companies" provides an overview of how different AI tools are utilized across various designations in the HR hierarchy: Assistant Manager, Deputy Manager, HR Admin, and HR Head.

Table 5. AI tools used for recruitment process in IT companies

AI Tools	Asst. Manager	Deputy Manager	HR Admin	HR Head	Total
Resume Screening Software	5	5	5	1	16
Chatbots for Initial Communication	5	4	4	1	14
Predictive Analytics for Candidate Matching	5	3	2	1	11
Video Interviewing Tools	4	2	3	1	10
AI-based Psychometric Testing	4	1	3	1	9
Total	23	15	17	5	60

Across all designations, the usage of AI tools is distributed relatively evenly, with some variation in preferences. Assistant Managers and HR Admins are the most frequent users of these tools, particularly for resume screening and chatbots. Deputy Managers lean more toward predictive analytics for candidate matching. This data indicates that AI tools are broadly adopted across different HR roles in the recruitment process, with some variation in the tools preferred based on designation.
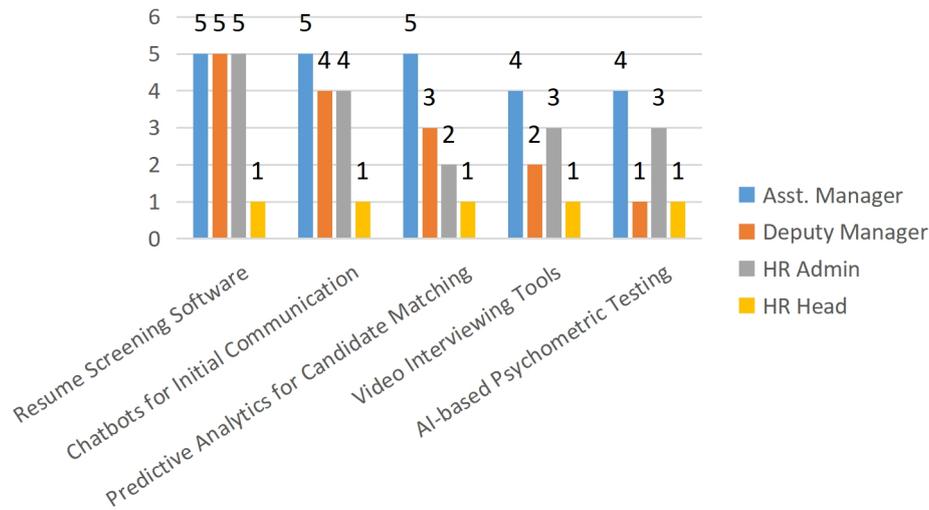
AI Tools Used for Recruitment by HR Managers

Fig. 5. AI tools used for recruitment process in IT companies

5.6 Hypothesis 1: AI Tools are Significantly Used in the Recruitment Processes of IT Companies in Hyderabad City

Table 6 provides the results of a one-sample t-test used to determine whether the mean values for using various AI tools and technologies in the recruitment process of IT companies in Hyderabad city significantly differ from the test value of 3. A value of 3 represents a neutral point on the scale (indicating moderate or average use of AI tools).

Table 6. Results of one-sample t-test of the usage of AI tools in recruitment process

	Test Value = 3				95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Resume Screening and Parsing	3.91	59	.000**	0.48170	0.2175	0.7459
Candidate Matching Algorithms	5.897	59	.000**	0.63590	0.4371	0.8347
Automated Interview Scheduling	5.201	59	.000**	0.60560	0.3239	0.8873
Chatbots for Initial Screening	4.598	59	.000**	0.54815	0.3195	0.7768
AI-driven Candidate Assessments	-3.11	59	.004**	-0.415	-0.65	-0.18
Predictive Analysis for Hiring Decisions	-3.229	59	.002**	-0.40715	-0.6649	-0.1494
Bias Reduction	-3.177	59	.002**	-0.396	-0.6431	-0.1498
Enhanced Candidate Experience	6.501	59	.000**	0.74820	0.5203	0.9761
Cost and Time Efficiency	4.567	59	.000**	0.53515	0.3121	0.7582
Data-Driven Decision Making	5.496	59	.000**	0.61475	0.3897	0.8398

Key Findings:

Significantly Higher Usage: The hypothesis that AI tools are significantly used in the recruitment processes is supported for several AI tools, including Resume Screening, Candidate Matching Algorithms, Automated Interview Scheduling, Chatbots for Initial Screening, Enhanced Candidate Experience, Cost and Time Efficiency, and Data-Driven Decision Making. The p values for these tools are less than 0.001, confirming their significant usage above the neutral level of 3.

Lower Usage: Conversely, AI-driven tools such as Candidate Assessments, Predictive Analytics for Hiring Decisions, and Bias Reduction are significantly underused, as indicated by negative mean differences and significant p-values (all less than 0.01).

Most AI tools used in the recruitment processes of IT companies in Hyderabad city significantly support the proposed hypothesis. However, specific tools, particularly those related to predictive analytics, candidate assessments, and bias reduction, are underutilized and may require further development or adoption to enhance their effectiveness.

Decision: The proposed hypothesis is significantly supported.

5.7 HR Managers' Perception of AI Tools in the Recruitment Process, Such as Time Saving, Cost Reduction, and Improved Candidate Matching

Table 7. Descriptive statistics of HR managers' perception of AI tools in recruitment process such as time saving in select IT companies

Time-Saving	N	Mean	SD
AI tools help reduce the time spent screening resumes	60	3.57	1.035
Using AI chatbots improves the efficiency of initial candidate communication	60	3.59	1.010
AI tools speed up the process of shortlisting candidates	60	3.81	0.985
Video interviewing tools powered by AI save time for both recruiters and candidates	60	3.46	1.024
AI tools reduce the overall time taken to fill vacant positions	60	3.89	0.915
Time Saving (Overall Average score)	60	3.664	0.817

Table 7 presents descriptive statistics on HR managers' perceptions of the time-saving benefits of AI tools in the recruitment process in select IT companies. The key findings are as follows:

The overall average score for time-saving perception is 3.664, suggesting that HR managers generally agree that AI tools provide moderate time-saving benefits in the recruitment process.

The overall SD of 0.817 indicates a relatively consistent perception of time saving benefits across the various aspects of AI tools evaluated.

HR managers in select IT companies perceive AI tools as moderately effective in saving time in the recruitment process, with the most robust agreement on AI tools reducing the overall time to fill vacant positions and speeding up the shortlisting process. Some perceptions vary, particularly regarding resume screening and video interviewing tools.
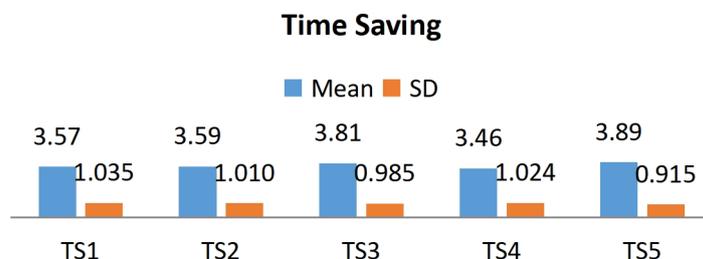

Fig. 6. Descriptive statistics of HR managers' perception of AI tools in recruitment process such as time saving in select IT companies

Table 8. Descriptive statistics of HR managers' perception of AI tools in recruitment process such as cost reduction in select IT companies

Cost Reduction	N	Mean	SD
AI tools reduce the costs associated with manual resume screening	60	3.89	0.689
The adoption of AI in recruitment leads to a decrease in hiring costs	60	3.94	0.812
AI-based recruitment tools reduce the need for external recruitment agencies, thus saving costs	60	3.78	0.912
AI tools help in optimizing recruitment budgets by reducing operational expenses	60	3.34	0.857
The long-term use of AI in recruitment will result in overall cost efficiency for the company	60	3.57	0.874
Cost Reduction (Overall Average score)	60	3.70	0.613

The overall average score for cost reduction across all items is 3.70, with a standard deviation of 0.613. This suggests that, on average, HR managers perceive AI tools as moderately effective in

reducing recruitment costs, with a generally consistent level of agreement across responses. The relatively low SD for the overall average indicates a fair consensus among HR managers on the cost-saving benefits of AI tools in recruitment.
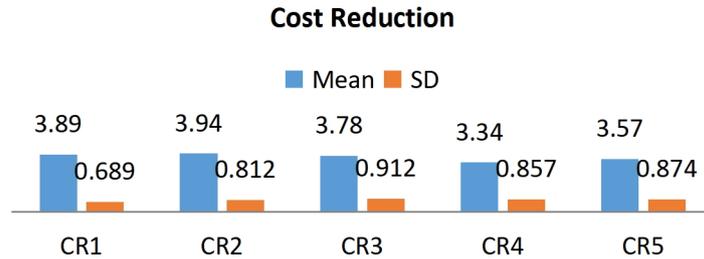
Cost Reduction

Mean ■ SD

3.89 3.94 3.78 3.34 3.57

0.689 0.812 0.912 0.857 0.874

CR1 CR2 CR3 CR4 CR5

Fig. 7. Descriptive statistics of HR managers' perception of AI tools in recruitment process such as cost reduction in select IT companies

Table 9. Descriptive statistics of HR managers' perception of AI tools in recruitment process such as candidate matching in select IT companies

Candidate Matching	N	Mean	SD
AI tools help find candidates who better fit the job role	60	3.74	0.812
Predictive analytics improve the accuracy of matching 60 candidates' skills to job requirements	60	3.89	0.865
AI-based recruitment tools ensure that a higher quality of candidates is selected	60	3.72	0.911
AI tools help reduce biases in candidate selection, leading to more objective hiring decisions	60	3.99	0.894
The use of AI in recruitment results in better long-term employee retention	60	4.12	0.698
Candidate Matching (Overall Average score)	60	3.89	0.624

The overall average score for improved candidate matching is 3.89, with a standard deviation of 0.624. This shows that HR managers generally perceive AI tools as positively impacting candidate-job matching, reducing biases, and contributing to better employee retention. The relatively low SD for the overall average score suggests a fair amount of consensus among HR managers regarding the benefits of AI in recruitment.
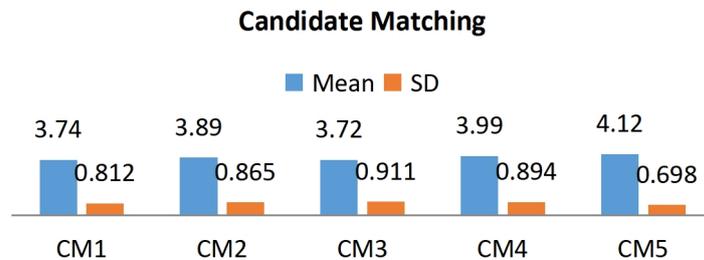
Candidate Matching

Mean ■ SD

3.74 3.89 3.72 3.99 4.12

0.812 0.865 0.911 0.894 0.698

CM1 CM2 CM3 CM4 CM5

Fig. 8. Descriptive statistics of HR managers' perception of AI tools in recruitment process such as cost reduction in select IT companies

5.8 Hypothesis 2: HR Managers in IT Companies in Hyderabad Perceive Significant Benefits from Using AI Tools in Recruitment, Including Time Savings, Cost Reduction, and Improved Candidate Matching

Perceptions of AI Tools in the Recruitment Process among Various Experience of HR Managers

The descriptive statistics in Table 10 provide an overview of the perceptions of HR managers regarding the use of AI tools in the recruitment process across different years of experience. The table highlights three key dimensions: Time-saving, Cost Reduction, and Candidate Matching.

Time-saving: All HR managers, regardless of their experience, recognize the time saving potential of AI tools, with those having 6 to 9 years of experience reporting the highest satisfaction.

Cost Reduction: Perceptions of cost reduction are consistent across experience groups, with early-career HR managers (up to 3 years of experience) perceiving the greatest benefit.

Candidate Matching: Early-career HR managers (up to 3 years) and those with 6 to 9 years of experience believe AI tools significantly improve candidate matching, while more experienced managers view this aspect slightly less favourably.

Table 10. Perceptions of AI tools in the recruitment process among HR managers with various experience (descriptive statistics)

HR Manager's Perceptions of AI Tools in the Recruitment	Experience (Years)	N	Mean	SD	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
Time Saving	Up to 3	18	3.54	0.833	0.2167	3.058	4.022
	3 - 6	14	3.44	0.925	0.2314	2.902	3.908
	6 - 9	16	3.68	0.699	0.1723	3.397	3.963
	> 9	12	3.46	0.798	0.2645	2.785	4.125
Cost Reduction	Up to 3	18	3.88	0.594	0.1510	3.591	4.167
	3 - 6	14	3.64	0.788	0.1891	3.235	4.040
	6 - 9	16	3.78	0.710	0.1527	3.455	4.103
	> 9	12	3.64	0.586	0.1778	3.230	4.043
Candidate Matching	Up to 3	18	4.00	0.514	0.1398	3.693	4.306
	3 - 6	14	3.67	0.639	0.1487	3.343	4.001
	6 - 9	16	3.84	0.757	0.1592	3.489	4.190
	> 9	12	3.56	0.701	0.2021	3.007	4.106

The overall positive perceptions across different experience levels suggest that AI tools are seen as beneficial in enhancing candidate alignment and improving recruitment efficiency, though the extent of these perceptions varies slightly depending on the HR manager's experience.

Table 11. Perceptions of AI tools in the recruitment process among HR managers with various experience (F-test)

		Sum of Squares	df	Mean Square	F	Sig.
Time Saving	Between Groups	0.835	3	0.347	0.397	0.746
	Within Groups	35.694	56	0.643		
	Total	36.529	59			
Cost Reduction	Between Groups	0.542	3	0.174	0.329	0.758
	Within Groups	25.738	56	0.497		
	Total	26.28	59			
Candidate Matching	Between Groups	1.567	3	0.546	1.048	0.385
	Within Groups	24.213	56	0.423		
	Total	25.78	59			

Table 11 presents the results of the F-test (ANOVA) to assess whether HR managers with various levels of experience perceive AI tools in the recruitment process differently. For all three aspects: time saving, cost reduction, and candidate matching, the F-test results show no statistically significant differences in HR managers' perceptions of AI tools based on their years of experience. This means that HR managers, regardless of their experience level, have similar views on how AI tools enhance candidate alignment in the recruitment process in specific IT companies. The lack of significant variation suggests that the benefits of AI tools are perceived uniformly across different experience groups.

Perceptions of AI Tools in the Recruitment Process among Various HR Managers at Select Information Technology Companies

Table 12 presents descriptive statistics on HR Managers' perceptions of AI tools in the recruitment process from different information technology companies.

Table 12. HR managers' perception of AI tools from different IT companies (descriptive statistics)

HR Manager's Perceptions of AI Tools in the Recruitment	IT Companies	N	Mean	SD	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
Time Saving	HCL	11	4.22	0.687	0.2101	3.764	4.666
	Infosys	12	3.42	0.794	0.2109	2.975	3.864
	TCS	10	3.39	0.879	0.2798	2.672	4.103
	Tech Mahindra	15	3.48	0.843	0.2321	2.976	3.983
	Wipro	12	3.62	0.776	0.2198	3.119	4.117
Cost Reduction	HCL	11	3.84	0.778	0.2478	3.278	4.404
	Infosys	12	3.55	0.762	0.2026	3.122	3.987
	TCS	10	3.91	0.712	0.1991	3.412	4.401
	Tech Mahindra	15	4.09	0.676	0.1754	3.755	4.432
	Wipro	12	3.91	0.567	0.1437	3.654	4.156
Candidate Matching	HCL	11	3.93	0.798	0.2756	3.381	4.471
	Infosys	12	3.63	0.779	0.1993	3.241	4.012
	TCS	10	3.91	0.634	0.1900	3.516	4.312
	Tech Mahindra	15	4.02	0.667	0.1678	3.657	4.381
	Wipro	12	4.05	0.534	0.1467	3.710	4.397

HCL managers stood out for their strong positive perceptions of time-saving.

Tech Mahindra managers rated cost reduction the highest.

Wipro and Tech Mahindra managers reported the most favourable perceptions regarding improved candidate matching.

These results indicate that perceptions of AI tools in recruitment are generally positive across all companies. However, some differences exist based on the company context and perhaps their specific usage of AI tools.

Table 13. HR managers' perception of AI tools from different IT companies (F-test)

		Sum of Squares	df	Mean Square	F	Sig.
Time Saving	Between Groups	4.675	4	0.978	1.597	0.195
	Within Groups	36.983	55	0.601		
	Total	41.658	59			
Cost Reduction	Between Groups	1.876	4	0.508	1.01	0.398
	Within Groups	26.761	55	0.401		
	Total	28.637	59			
Candidate Matching	Between Groups	1.358	4	0.497	0.864	0.462
	Within Groups	26.843	55	0.516		
	Total	28.201	59			

The F-test results in Table 13 show that for all three dimensions: Time-saving, Cost Reduction, and Candidate Matching, there are no statistically significant differences in the perceptions of HR managers from different IT companies. This indicates that HR managers across the selected IT companies (TCS, Infosys, HCL, Tech Mahindra, and Wipro) perceive the benefits of AI tools in the recruitment process in a broadly similar manner, with no significant variations in their views across these companies.

Perceptions of AI Tools in the Recruitment Process among Various Designations of HR Managers

Table 14 provides descriptive statistics for the perceptions of AI tools in the recruitment process among HR managers with various designations across three aspects: Time Saving, Cost Reduction, and Candidate Matching. HR Heads consistently reported the most positive perceptions across all three dimensions, suggesting that senior HR professionals see the greatest value in AI tools in the recruitment

process. Assistant Managers, Deputy Managers, and HR Admins had relatively similar perceptions across all dimensions, generally viewing AI tools positively, but with slightly lower means compared to HR Heads.

Table 14. HR managers' perception of AI tools from various departments (descriptive statistics)

HR Manager's Perceptions of AI Tools in the Recruitment	Designation	N	Mean	SD	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
Time Saving	Asst. Manager	23	3.51	0.778	0.1703	3.098	3.918
	Deputy Manager	15	3.57	0.874	0.2219	3.201	3.943
	HR Admin	17	3.53	0.818	0.1887	3.077	3.987
	HR Head	5	4.19	0.874	0.2988	3.398	4.977
Cost Reduction	Asst. Manager	23	3.53	0.678	0.1279	3.432	3.621
	Deputy Manager	15	3.90	0.712	0.1865	3.619	4.187
	HR Admin	17	3.95	0.765	0.1698	3.687	4.211
	HR Head	5	4.30	0.689	0.2567	3.675	4.921
Candidate Matching	Asst. Manager	23	3.88	0.732	0.1459	3.653	4.108
	Deputy Manager	15	3.84	0.778	0.2029	3.398	4.276
	HR Admin	17	3.87	0.601	0.1435	3.578	4.169
	HR Head	5	4.28	0.702	0.3010	3.567	4.998

The variability in responses (as indicated by the standard deviations) is generally moderate, suggesting that perceptions are fairly consistent within each designation group, with HR Heads showing the strongest positive perceptions across all three dimensions.

Table 15. HR managers' perception of AI tools from various departments (F-test)

		Sum of Squares	df	Mean Square	F	Sig.
Time Saving	Between Groups	1.456	3	0.496	0.594	0.563
	Within Groups	36.339	56	0.598		
	Total	37.795	59			
Cost Reduction	Between Groups	1.798	3	0.659	1.397	0.321
	Within Groups	24.178	56	0.486		
	Total	25.976	59			
Candidate Matching	Between Groups	0.897	3	0.419	0.698	0.458
	Within Groups	23.679	56	0.501		
	Total	24.576	59			

F-test results in Table 15 show no statistically significant differences in the perceptions of HR managers with different designations. This means that HR Managers, regardless of their role (Assistant Manager, Deputy Manager, HR Admin, or HR Head), perceive the benefits of AI tools in the recruitment process similarly. The lack of significant differences indicates a consistent perception of AI tools enhancing recruitment across various hierarchical levels within IT companies.

Decision: The proposed hypothesis is significantly supported.

6   Conclusion

The study focused on assessing the role of artificial intelligence in the employee recruitment process in the Information Technology (IT) sector in Hyderabad, India. The study confirmed that AI allows recruiters to use the power of data to make better decisions. AI for recruitment can assist in sourcing and screening candidates, analyzing resumes and job applications, conducting pre-employment assessments, and even predicting candidate success and cultural fit. The study found that AI tools and technologies are significantly used in the recruitment processes of IT companies in Hyderabad. In addition, the study

results reveal that the HR managers in IT companies in Hyderabad perceive significant benefits from using AI tools in recruitment, including time savings, cost reduction, and improved candidate matching.

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Conflicts of Interest

The authors declare no conflicts of interest.

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人工智能在海得拉巴市信息技術行業招聘流程中的作用

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摘要：本文探討了人工智能在海得拉巴信息技術行業招聘流程中的作用，基於對60名來自主要信息技術企業（包括塔塔諮詢服務公司、印孚瑟斯、印度斯坦計算機有限公司、馬恆達科技公司及威普羅公司）的人力資源專業人員的半結構化訪談及相關二手資料，揭示了人工智能在招聘中的應用水平、其帶來的可感知收益（如時間節省、成本降低、候選人匹配度提升）以及人力資源從業者的認知。研究發現，儘管預測性分析、減少偏見及人工智能驅動的評估等高級應用仍未被充分利用，但不同經驗年限、職位層級及所屬公司的人力資源管理者普遍認爲，人工智能是提升招聘效率與效能的重要工具。本研究的主要貢獻在於，以海得拉巴這一重要信息技術樞紐爲背景，提供了關於人工智能如何實際嵌入招聘流程的實證證據，闡明瞭人力資源專業人員對其收益與侷限性的認知，併爲組織在戰略上整合人工智能、在提升招聘質量的同時應對透明度、隱私及人爲判斷等關切提供了參考。研究結果表明，人工智能在簡歷篩選與匹配方面應用顯著，但在高級應用方面仍存在不足，使本研究兼具學術價值與實踐意義。

關鍵詞：人工智能；招聘；人工智能驅動的招聘工具

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