

Role of Artificial Intelligence in effective Talent Acquisition and Management in IT Organizations in India: An Empirical Study

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How to cite this article: Sunil R Hegde , Sweetly Thakkar, .Dudgal Shrinivas Narsappa , Krishna Kumar Verma (2024) Role of Artificial Intelligence in effective Talent Acquisition and Management in IT Organizations in India: An Empirical Study. *Library Progress International*, 44(3), 26456-26464

Abstract

Artificial intelligence (AI) is one of the most innovative technologies available today, already transforming various aspects of our lives. In organizations, talent acquisition is crucial, as hiring skilled individuals in substantial numbers is essential to supporting the nation's economy. Given the business organization's role as a foundational pillar, recruiting top talent is a continuous and fast-paced process. To enhance human capital management and ensure the selection of the best candidates for each role, recruitment and talent acquisition teams have been incorporating advanced AI and machine learning (ML) tools, autonomous testing, and self-learning algorithms. These cutting-edge technologies are refining traditional hiring systems, optimizing the process to better identify, evaluate, and retain the most qualified professionals. Today, businesses across industries strive to hire the most qualified candidates, with major IT companies leading the way. A sample of 223 is collected from HR department of IT sector. The factors that identify the role of Artificial Intelligence in effective Talent Acquisition and Management in IT Organizations are Enhanced Recruitment Processes, Chatbots and Virtual Assistants, Talent Management and Employee Experience, and Enhanced Candidate Sourcing.

Keywords: Artificial Intelligence, Talent acquisition, Recruitment process, Talent management,

Introduction

Human resource managers are increasingly adopting AI technology to streamline a wide range of HR functions, from manpower planning to employee offboarding. AI's impact is particularly evident in talent acquisition, where it is revolutionizing how organizations identify and engage top candidates. By enabling automation in staffing, AI allows agencies to adopt both high-volume and high-touch recruitment strategies, facilitating deeper and more meaningful connections with candidates and clients alike. AI-driven automation is not only accelerating the candidate-matching process but also improving its accuracy. Intelligent algorithms analyse resumes, qualifications, and experience to efficiently align candidates with roles that best suit their skills and aspirations. AI assistants also play a proactive role in guiding the recruitment journey, recommending the next steps based on a candidate's profile and previous interactions. This may include scheduling interviews, suggesting personalized communication strategies, or even predicting a candidate's fit based on data analytics. As a result, recruiters can focus on building relationships and providing a more personalized experience, while AI manages repetitive tasks, enabling a smoother and more strategic hiring process. As a result, companies and HR managers must adapt their

recruitment strategies to fully leverage AI's capabilities (Mittal et al, 2024). AI holds the potential to significantly impact income, profitability, and talent acquisition across industries, which could reshape the recruiting sector and alter competitive standards (Meshram, 2023). Today, AI is redefining how businesses manage their workforce and develop HR strategies, ultimately enhancing employee performance and boosting productivity. At the same time, it is crucial for employers to ensure alignment not only with employees' skills but also with their interests and openness to integrating new team members and roles. AI integration into a company's HR system has facilitated the creation of a dynamic, automatically updated big data repository of candidate profiles. In addition, advanced tools like psychometric assessments can assist HR professionals in identifying ideal candidates for internal recruitment opportunities. By analysing traits such as cognitive ability, personality, and cultural fit, these tools offer a deeper understanding of each employee's strengths and potential growth areas (Ghosh, 2022). Human resource managers are increasingly utilizing AI technology to streamline multiple HR functions, from manpower planning to employee exit processes. AI is especially prevalent in talent acquisition within organizations. However, concerns around security and privacy can hinder AI adoption. Research shows that both task and technology characteristics impact the task-technology fit for AI in talent acquisition (Pillai & Sivathanu, 2020). Integrating AI-powered human resources solutions into candidate management can greatly enhance a company's overall effectiveness. These advanced, AI-driven HR applications offer a range of capabilities, including predictive analytics, diagnostic insights, and deep candidate understanding. By analysing data patterns, these tools can forecast hiring needs, assess candidate fit more accurately, and even identify potential retention risks. These tools not only streamline recruitment and onboarding but also support data-driven decision-making, ultimately contributing to a more agile and competitive workforce (Rajni et al., 2023; Mittal et al., 2023). Recruitment is a core function within every organization, essential for building the right talent pool to drive success. Today, the recruitment industry is experiencing substantial growth by adopting AI-powered solutions, transforming hiring processes into smarter, more streamlined operations. AI is revolutionizing recruitment by automating numerous steps that were previously manual and time-consuming. One of its key advantages lies in its ability to handle unstructured candidate information—like resumes and application forms—and standardize it into organized profiles. This not only ensures consistency but also enables recruiters to more effectively identify, assess, and match candidates' skills with specific job requirements. Additionally, AI-driven tools can analyse vast volumes of candidate data to pinpoint the best potential matches for open roles, reducing bias and enhancing the quality of hires (Geetha & BhanuSree, 2018).

Literature Review

Raji et al., (2024) stated that integrating Artificial Intelligence (AI) into recruitment and talent acquisition has transformed hiring practices, enabling organizations to approach the process with unprecedented efficiency and precision. AI algorithms, by leveraging historical hiring data, can forecast future talent needs, pinpoint potential bottlenecks in the hiring process, and predict candidate success by analysing past performance indicators. This predictive power equips recruiters and HR professionals with insights to proactively address talent gaps, enhancing the organization's capacity for strategic workforce planning. The fusion of AI technology with human expertise reveals new possibilities for recruitment and talent acquisition. AI's predictive capabilities enable HR teams to align recruitment efforts with organizational growth goals, ensuring that the right talent is brought on board at the right time. As organizations continue to integrate AI into their recruitment processes, it becomes clear that AI-driven insights, when combined with human judgment, can unlock unprecedented efficiencies and strategic advantages.

Faqihi & Miah (2022) revealed that by leveraging AI, organizations can transform their talent management practices, making them more efficient, data-driven, and responsive to the dynamic needs of the workforce. One significant development in this area is the creation of intelligent Human Resource Management (HRM) automation solutions specifically designed for talent career management. Central to this innovation is a talent intelligence module that utilizes AI functionalities to empower HR professionals. This module can identify emerging trends in talent management and performance, forecast future talent needs, and analyse data related to employee performance and career development. By automating repetitive tasks and providing actionable insights, AI enables HR managers to focus on strategic initiatives rather than administrative duties. Customised trainings and vocational trainings and education is required for preparing better employees (Gupta et al., 2024).

Jose & Asha (2019) highlighted that talent acquisition and recruitment are critical processes for organizations, but they also present challenges, particularly in leveraging social networks, effectively marketing their employment brand, and consistently attracting new talent. Talent acquisition is often viewed as a long-term strategic initiative that involves identifying qualified candidates and building effective relationships to persuade them to bring their unique skills to the organization. In the IT sector, and among technology development companies, there is a strong emphasis on collecting and utilizing data to inform talent-related decisions. This approach not only helps in sourcing the right talent but also supports long-term organizational growth by fostering a workforce that is engaged, skilled, and aligned with the company's vision.

Murugesan, et al., (2023) revealed that the adoption of Artificial Intelligence (AI) has surged across various sectors, including Human Resource Management (HRM). By doing so, HR professionals can focus more on strategic initiatives, such as enhancing candidate engagement and developing employer branding. AI can significantly improve the quality of hire through enhanced data analytics. This data-driven approach minimizes bias and promotes a more objective selection process. Moreover, AI-powered tools can provide predictive insights that help organizations anticipate future talent needs, identify potential skill gaps, and forecast turnover risks. This capability allows HR departments to proactively strategize workforce planning and talent development, ensuring that organizations are well-prepared to meet changing demands.

Batra, Dwivedi & Bahl (2024) found that the exploration of Artificial Intelligence (AI) within Human Resources (HR) has unfolded in a rapidly evolving landscape characterized by significant technological advancements and transformative effects on organizational practices. At the same time, it emphasizes the need to address ethical considerations as a priority. In the area of talent acquisition, AI-powered chatbots and virtual assistants are becoming essential tools for automating candidate communication and enhancing the recruitment experience overall. This section examines the crucial role of AI-powered chatbots in streamlining candidate interactions. By ensuring timely responses and consistent communication, chatbots and virtual assistants not only improve efficiency but also foster a positive impression of the organization among potential hires. By leveraging AI, companies can ensure they have the right talent in place to meet both current and future business demands, ultimately strengthening their competitive edge in the market.

Satpathy & Samantaray (2024) studied that the human resources industry has made significant strides in adapting to the technological revolution driven by artificial intelligence (AI), yet there remains considerable room for improvement. To fully capitalize on each advancement, HR professionals must continually explore strategies to navigate the associated challenges. A critical takeaway from the various studies presented in this study is the necessity of reliable data when integrating AI into organizational operations. Consequently, HR professionals must exercise diligence in ensuring the accuracy and integrity of the data they utilize. AI has already made substantial contributions to human resource management by enhancing planning and decision-making processes. The implementation of AI applications has led to increased employee productivity, improved workplace efficiency, reduced operational costs, and the automation of repetitive tasks.

Pandey (2020) revealed that AI is often described as following a standard S-curve pattern, where its initial development is gradual, followed by a rapid surge in technological advancement as organizations learn to harness its capabilities. Integrating AI-based applications into HR functions significantly enhances overall organizational performance. While automated technologies like AI applications may lack the emotional and cognitive abilities inherent to humans, they possess their own unique strengths. By leveraging these capabilities, organizations can improve decision-making processes, streamline operations, and enhance workforce management, paving the way for more effective and efficient HR practices.

Moon & Parmar (2024) highlighted that incorporating artificial intelligence (AI) into the hiring and selection processes represents a significant advancement with the potential to profoundly impact HR procedures. This study highlights the numerous advantages that AI technologies offer, including enhanced objectivity, increased efficiency, and access to a broader pool of candidates. By leveraging these insights, organizations can make more informed decisions, ultimately raising the standard of their recruitment efforts. Issues such as algorithmic bias, transparency in decision-making, and data privacy must be actively managed to ensure that AI applications are used responsibly. This involves regularly auditing AI systems, incorporating diverse datasets to minimize bias,

and ensuring that human judgment remains integral to the hiring process. AI is one of the most important disruptive technologies along with the AR and VR (Yadav et al., 2024).

Pandita (2019) revealed that the global trend in talent acquisition has seen a transformative shift with the introduction of Artificial Intelligence (AI), marking a watershed moment in the staffing industry. The integration of AI into recruitment and hiring processes has opened new avenues for improvement and enhancement across nearly every aspect of talent acquisition. AI technologies can significantly assist HR professionals in various recruitment processes. For instance, talent mapping through data analysis enables organizations to identify and understand their current workforce capabilities and forecast future talent needs. Additionally, AI-driven behavioural assessments provide insights into potential candidates' personality traits, work styles, and cultural fit within the organization. Further communication plays an important role in smoothening the operations, whether B2B or B2C (Das & Mittal, 2023).

Agarwal & Srivastava (2024) highlighted that AI systems can analyse vast amounts of HR data to identify potential candidates and predict their likelihood of being shortlisted for specific job openings. By automating mundane tasks, AI significantly streamlines the recruitment process, allowing HR professionals to focus on more strategic activities. AI-driven platforms simplify the application process for job seekers, making it easier for them to apply for open positions and communicate directly with the company. This ease of access fosters a more positive interaction between candidates and employers.

Objective

To identify “Role of Artificial Intelligence in effective Talent Acquisition and Management in IT Organizations”

Study’s Methodology

223 respondents are considered for this study which was collected from HR department in IT sector in India. Random sampling method was used to collect data and examined by “Explanatory Factor Analysis” for results.

Findings of the Study

Below table shows demographic details of participants it shows that male participants are 52.46%, and female participants are 47.54%. Looking at the age of the participants, 32.74% were between 25 to 30 years of age, 39.91% were between 30 to 35, and 27.35% were above 35 years of age. With regards to Sector, 51.12% are from private sector and 48.88% are from public sector.

Details of Participants

Variable	Participants	% age
Gender of Participants		
Male	117	52.46%
Female	106	47.54%
Total	223	100
Age in years		
25 to 30	73	32.74%

30 to 35	89	39.91%
Above 35	61	27.35%
Total	223	100
Sector		
Private sector	114	51.12%
Public sector	109	48.88%
Total	223	100

“Factor Analysis”

“KMO and Bartlett's Test”

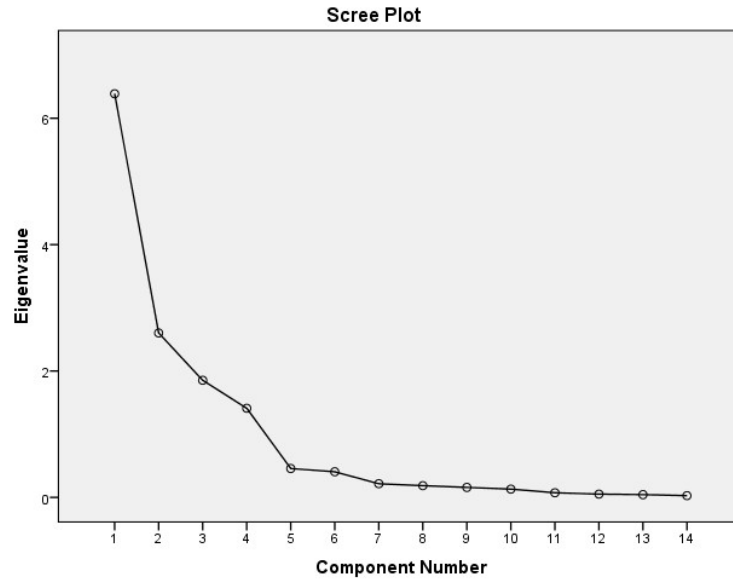
“Kaiser-Meyer-Olkin Measure of Sampling Adequacy”		.779
“Bartlett's Test of Sphericity”	“Approx. Chi-Square”	3750.391
	df	91
	Significance	.000

“KMO and Bartlett's Test”, value of KMO is .779

“Total Variance Explained”

“Component”	“Initial Eigenvalues”			“Rotation Sums of Squared Loadings”		
	“Total”	“% Of Variance”	“Cumulative %”	“Total”	“% Of Variance”	“Cumulative %”
1.	6.388	45.626	45.626	3.769	26.925	26.925
2.	2.602	18.584	64.210	3.652	26.088	53.013
3.	1.853	13.234	77.444	2.572	18.369	71.381
4.	1.410	10.073	87.517	2.259	16.136	87.517
5.	.457	3.263	90.780			
6.	.405	2.896	93.675			
7.	.216	1.543	95.218			
8.	.185	1.321	96.539			
9.	.158	1.126	97.665			
10.	.131	.934	98.599			
11.	.073	.524	99.123			
12.	.052	.372	99.496			
13.	.043	.309	99.804			
14.	.027	.196	100.000			

All the four factors are making contribution in explaining total 87.517% of variance. The variance explained by Enhanced Recruitment Processes is 26.925%, Chatbots and Virtual Assistants is 26.088%, Talent Management and Employee Experience is 18.369%, and Enhanced Candidate Sourcing is 16.136%.



Scree Plot

“Rotated Component Matrix”

S. No.	Statements	Factor Loading	Factor Reliability
	Enhanced Recruitment Processes		.955
1.	AI can quickly scan resumes, helping recruiters identify suitable candidates more efficiently	.946	
2.	Reduces time spent on initial screening and minimizes human bias	.898	
3.	AI can analyze historical data to predict which candidates are possible to succeed in specific roles	.861	
4.	Enables data-driven decisions in recruitment	.856	
	Chatbots and Virtual Assistants		.962
1.	AI-powered chatbots interact in real-time, answering queries of candidates	.956	
2.	Improves candidate engagement and provides immediate assistance	.912	
3.	Automate scheduling of interviews, coordinating between candidates and interviewers	.896	
4.	AI-powered tools have significantly reduced time-to-hire, improved accuracy of candidate assessments	.891	

	Talent Management and Employee Experience		.886
1.	Analyze employee performance data provide insights on strengths, weaknesses, and areas for development	.910	
2.	Supports personalized development plans and performance reviews	.853	
3.	Allows organizations to proactively address issues and improve retention rates	.826	
	Enhanced Candidate Sourcing		.828
1.	AI tools can mine various platforms, including social media and job boards, to identify potential candidates	.930	
2.	Help those who may not be able to actively apply but are fit for the desired profiles	.925	
3.	AI can predict which candidates are most likely to succeed in a specific role, for informed hiring decisions	.609	

Factors and the associated variables

The first factor that identify the Role of Artificial Intelligence in effective Talent Acquisition and Management in IT Organizations is Enhanced Recruitment Processes, the variables it include are AI can quickly scan resumes, helping recruiters identify suitable candidates more efficiently, Reduces time spent on initial screening and minimizes human bias, AI can analyse historical data to predict which candidates are possible to succeed in specific roles, and Enables data-driven decisions in recruitment. Chatbots and Virtual Assistants is the second factor, it includes variables like AI-powered chatbots interact in real-time, answering queries of candidates, improves candidate engagement and provides immediate assistance, automate scheduling of interviews, coordinating between candidates and interviewers, and AI-powered tools have significantly reduced time-to-hire, improved accuracy of candidate assessments. Third factor is Talent Management and Employee Experience, its variables are Analyse employee performance data provide insights on strengths, weaknesses, and areas for development, Supports personalized development plans and performance reviews, and Allows organizations to proactively address issues and improve retention rates. Last and fourth factor is Enhanced Candidate Sourcing, the variables it includes are AI tools can mine various platforms, including social media and job boards, to identify potential candidates, help those who may not be able to actively apply but are fit for the desired profiles, and AI can predict which candidates are most likely to succeed in a specific role, for informed hiring decisions.

“Reliability Statistics”

“Cronbach's Alpha”	“Number of Items”
.899	14

Total reliability of 14 items that includes variables for Role of Artificial Intelligence in effective Talent Acquisition and Management in IT Organizations is 0.899

Conclusion

The integration of AI in talent acquisition and management is transforming India’s IT industry by significantly improving the quality and speed of hiring, enabling more strategic workforce planning, and enhancing employee retention. AI-driven tools automate repetitive tasks like resume screening, freeing up recruiters to focus on high-value activities such as candidate engagement and cultural fit assessments. Furthermore, predictive analytics assists in identifying candidates who are not only technically skilled but also likely to thrive in the organization’s environment, thus improving retention rates and reducing turnover costs. In talent management, AI-driven insights

help personalize employee development programs, create proactive retention strategies, and align workforce capabilities with business goals. Tools like sentiment analysis, performance prediction, and skill gap analysis enable HR teams to make data-backed decisions, improving employee satisfaction and fostering a more agile workforce. Ultimately, AI offers IT organizations in India a competitive edge in a fast-evolving digital landscape by enabling more responsive, data-informed, and employee-centric talent strategies. As AI continues to evolve, its application in talent acquisition and management will further enhance the sector's ability to attract, develop, and retain top talent, positioning organizations to meet the future challenges of the global IT marketplace effectively. The factors that identify the role of Artificial Intelligence in effective Talent Acquisition and Management in IT Organizations are Enhanced Recruitment Processes, Chatbots and Virtual Assistants, Talent Management and Employee Experience, and Enhanced Candidate Sourcing.

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