
The Role of AI in Talent Acquisition Enhancing Recruitment Efficiency

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Abstract

This research examines the revolutionizing effect of Artificial Intelligence (AI) on talent management, with emphasis on AI-driven recruitment and its effect on talent acquisition. AI-driven recruitment applies predictive analytics and automated resume screening to improve talent acquisition and match job requirements with candidate abilities. AI is also used in employee retention, where predictive modeling detects risk of turnover and customized development plans. The study employed a qualitative exploratory approach, where semi-structured interviews were administered to 10 respondents with direct exposure to AI-enabled hiring tools. Thematic analysis was employed to examine data via interviews, centered on the role of AI in recruitment efficiency, AI implementation in recruitment, constraints, and implications in the future. The study seeks to shed light on major insights into AI's function in talent management. Findings investigated that AI has hugely impacted the candidate screening and shortlisting process, minimizing the workload and enabling strategic hiring decisions. AI-driven ATS screens resumes, ranks candidates against job-fit scores, and pushes top talent forward within minutes. This has reduced the workload and enabled HR to concentrate on strategic hiring decisions. AI has also enhanced the accuracy of recruitment by assessing the thinking ability, personality, and cultural alignment of candidates. AI-based recruitment eliminates prejudice, automates routine tasks, and enhances diversity and inclusion by minimizing unconscious bias. Nevertheless, AI suffers from algorithmic bias, fairness and inclusion challenges, and a lack of capability to properly assess soft skills. These shortcomings render HR highly reliant on human judgment for recruitment decisions.

Keywords: Artificial Intelligence (AI); Human Resource Management (HRM); Human Resources Information Systems (HRIS); e-Human Resource Management (e-HRM); Talent Acquisition

Introduction

Different industries use artificial intelligence (AI) as their strategic innovation framework which includes Human resource management (HRM). The traditional methods of HRM work through manual means at a slow pace while showing potential discrimination in the process. The adoption of Artificial Intelligence technology has revolutionized the process of recruitment and performance evaluations and new employee development across organizations (Samarasinghe & Medis, 2020). The combination of AI technology with Machine Learning (ML) and Natural Language Processing (NLP) and predictive analytics enables automatic resume screening and candidate evaluation and chatbot-based candidate interviews. AI application in recruitment shortens selection time while

identifying suitable job candidates among many possible candidates thus reducing bias (Pandit et al., 2024). Using its data-driven analysis AI systems effectively monitor employee performance at an objective level. Through AI technology managers obtain performance measurements and real-time performance assessments and performance pattern forecasts which help them make strategic decisions about their workforce (Chukwuka & Dibie, 2024). Employees can develop their skills through AI-based tendering services and suitable development plans. The system examines portfolio capabilities and educational backgrounds with career advancement data to generate training recommendations leading to profitable company growth opportunities for staff members (Ghedabna et al., 2024).

The discipline of HRM brought essential value to organizational success ever since its historical initiation. The HRM function underwent major IT development through early Human Resources Information Systems (HRIS) that automated basic processes before Electronic Human Resource Management (e-HRM) emerged as a stakeholder platform for strategic HR implementation between organizational entities (Bhattacharyya, 2021). The Talent Acquisition procedure represents a fundamental HRM competency that includes manpower planning execution stages which cover sourcing candidates followed by candidate assessment and contracting and employee onboarding functions. Organizations now acquire HR talent through improved methods enabled by IT which delivers higher efficiency combined with accuracy and quality improvements (Hmoud & Várallyai, 2021).

AI-powered eHRM systems boost recruitment performance while decreasing employee replacement requirements which thus reduces time and workload spend on regular employee replacements (Bondarouk et al., 2017). Organizational leaders need to assess potential risks when implementing AI-based eHRM solutions in recruitment procedures. Organizations that target job and organizational fit in hiring processes enable them to bring aboard skilled employees while keeping their workforce stable and reducing employee replacement intervals (Adawiah & Putra, 2024; Johnson et al., 2021).

Changes persist as a permanent feature in a setting defined by volatility alongside uncertainty and complexity plus ambiguity. The field of HRM has developed from being an operational system for hiring and firing into becoming a strategic organizational partner. Forest AI started as an interrogative research capacity but has turned into robotic intelligence that modernizes numerous work functions including human resources management. AI applications in HRM represent an optimistic opportunity when they deliver maximum value to organizations at minimal implementation expenses. AI focuses on building tools with human-level intelligence and decision-making discernment (Budhwar et al., 2022; Kalia & Mishra, 2023). Today's HR managers pursue efficiency advancement along with effectiveness improvement through automation of repetitive process tasks while helping decision-making processes. AI represents the most effective solution for these types of tasks because it optimizes extensive job processes and speeds operations while improving hiring candidate matching and inclusion diversity and selection

quality. An artificial intelligence system can operate resume screening and initial candidate assessment functions which reduces both time and financial expenses associated with repetitive HR tasks. The intelligent nature of this methodology makes organizations choose AI tools based on achieving greater perceived value than expenditure costs. The implementation of AI necessitates considerable financial investment yet managers must explain the advantages of AI by providing training and support to their staff. Additionally, effective compensation and selection systems can enhance employee retention. This study aims to explore the role of AI adopting AI in talent acquisition and efficiency.

Literature Review

AI-driven solutions are emerging at a fast pace, presenting another significant IT intervention to talent acquisition practices. These solutions utilize sophisticated IT methods like data mining, ML, artificial neural network (ANN), and augmented reality. The unique contribution of AI-driven talent acquisition solutions from conventional e-HR and HRIS is that they facilitate augmented intelligence in which humans and AI collaborate to make decisions. AI-based solutions can automatically execute lengthy tasks like candidate sourcing, screening, and communication. Professional Networking Sites (PNPs) like LinkedIn are the most popular talent acquisition method with more than 722 million users. AI drives all that happens at LinkedIn, making connections between job profiles and recording users' preferences and coming up with personalized results. Applicant Tracking Systems (ATS) are another AI-based tool used in talent acquisition with growing popularity. Researchers propose that AI has the ability to enhance the hiring process and employee retention in different industries (Hmoud & Várallyai, 2021).

Based on the Task-Technology-Fit (TTF) and Technology-Organization-Environment (TOE) framework, the study established that relative advantage, competitive pressure, HR readiness, top management support, cost-effectiveness, and AI vendor support have a positive impact on AI technology adoption. In contrast, concerns linked with security and privacy have a negative impact on adoption. Task and technology attributes also affect AI technology fit. Traditional method stickiness moderates the relationship between adoption and use. The research offers insights to human resource managers, marketers, and designers to plan AI technology algorithms and applications for talent

recruitment (Pillai & Sivathanu, 2020).

Talent acquisition is a continuous HR process for procuring skilled labor in accordance with a firm's overall business objectives. AI technology has revolutionized conventional processes by simplifying recruitment, making it more precise, and cost-effective. AI is used in the most important areas of screening, candidate sourcing, job posting, data gathering, hiring remote employees, diversity hiring, and onboarding. AI has been playing a very significant role in human resource management, and exists at three levels: "Assisted Intelligence, Augmented Intelligence, and Autonomous Intelligence". Assisted Intelligence normalizes time spent on routine tasks in the workplace, whereas augmented intelligence enables recruiters to be more active in recruitment and evaluate a candidate's cultural adaptability. AI can also provide time savings in routine operations such as scanning resumes, automatically invoking evaluations, and scheduling candidate interviews (Vedapradha et al., 2023).

AI-powered tools automate resume screening, customize learning experiences, enable advanced candidate engagement strategies, and maximize performance management. Talent retention through AI is emphasized using predictive turnover models and employee engagement platforms, lowering turnover rates and creating a dedicated workforce. Nevertheless, challenges include algorithmic bias and privacy issues. This research offers a holistic picture of present trends and future directions in AI-powered HRM, providing insights for practitioners and policymakers to deal with the intricacies of technology-based HR strategies (Kadirov et al., 2024).

More than 30% of company's employ AI to reduce costs, save time, and place the right individuals in the right jobs. Through automation of as much of the recruitment process as possible, a faster and smoother applicant tracking system can be implemented, making processes communicative at both ends. Candidate matching, resume screening, and predictive analytics make significant use of AI. For the Indian subcontinent, the recruitment system has challenges because it has a high population, there is a talent pool diversity, and there is limited infrastructure. AI employs large data to assist in the selection of candidates for particular jobs, and machine learning and AI algorithms are extensively applied to enhance firm profits (Tay et al., 2024).

Methodology

Research Design

The present research employed a qualitative exploratory research design in order to understand how AI contributes to recruitment effectiveness and its implications for talent recruitment. A qualitative research approach is appropriate because it enables a rigorous investigation of the experiences, perceptions, and dilemmas of HR professionals in the utilization of AI-based recruitment technology. Semi-structured interviews were selected as the main research instrument due to the dynamic role of AI in HR. These interviews are flexible and allow participants to give rich responses while permitting the researcher to probe further into areas that are newly emerging.

Participant Selection

The research focuses on HR professionals, recruiters, and hiring managers who have hands-on experience with AI-powered hiring tools like automated candidate evaluation, resume screening, and interview scheduling. A purposive sampling approach was used to obtain participants who are currently engaged in AI-powered talent acquisition. 10 respondents were sampled, a number that will enable data saturation without compromising on diversity of views from various organizations and sectors. Respondents were invited through professional HR networks, referrals from industry experts, and direct contact with organizations using AI-based hiring solutions.

Data Collection Method

Semi-structured interviews were used for data collection conducted via Microsoft teams and Zoom based on the preference of the participants. For a comprehensive discussion, each interview lasted for 30 minutes without burdening the respondents. A structured guide covering four key themes was followed including AI's impact on recruitment efficiency, AI adoption in recruitment, limitations of AI and future implications of AI in HRM.

Data Analysis

Thematic analysis was used for analyzing data using interviews following the approach of Braun and Clarke (2006). The six step approach was followed by transcribing the audio interviews to written transcripts. Next, the initial coding was performed assigning specific labels to key statements, then these codes were categorized into broader themes like Bias and Fairness, Efficient Gains and AI-Human Collaborations. The themes were refined

accurately to ensure data interpretation and report findings providing key insights.

Results

Thematic Analysis

Theme Keywords Summary of Findings

Table 1: Themes and Keywords of Thematic Analysis

Themes	Keywords
Theme 1: AI Adoption in Talent Acquisition	AI automation, resume screening, interview scheduling, predictive hiring, psychometric testing, ATS, chatbots
Theme 2: AI's Impact on Recruitment Efficiency	Faster screening, job-fit ranking, background checks, reduced time-to-hire, AI assessments, diversity and inclusion, scalability
Theme 3: Challenges & Limitations of AI in Hiring	Algorithmic bias, fairness, keyword dependency, lack of soft skill evaluation, rigid criteria, human oversight
Theme 4: Ethical Considerations & Future Trends	Bias mitigation, data privacy, transparency, explainable AI (XAI), fairness, GDPR compliance

Theme 1: AI Adoption in Talent Acquisition

- *Mention your any experience with AI in recruitment?*

Interviewee 2:

"AI solutions are revolutionizing talent acquisition in human resources, speeding up and simplifying recruitment. AI software helps employers speed up the hiring process by choosing better candidates and simplifying interview scheduling. This automation reduces time and increases responsiveness, releasing recruiters and hiring managers to focus on high-value activities."

Interviewee 4:

"Our company started using AI for hiring three years ago, primarily to automate candidate screening at an early stage. We used to manually sift through hundreds of resumes before, and it was both time-consuming and biased. Today, we have AI-driven software like HireVue and Pymetrics that helps us automate screening resumes and conduct initial video interviews with AI-enabled analysis. It has reduced our hiring process significantly

and improved job-candidate matching."

Interviewee 7

"AI tools automate processes such as resume screening, candidate sourcing, and first-round vetting, liberating recruiters and hiring managers from a great deal of time. AI also sends back feedback on candidates automatically, providing a more efficient end-to-end experience for all parties in the hiring process. This collaborative collaboration between human recruiters and AI allows recruitment teams to move faster and enhance employee experience, which influences business results."

- *What are the suitable AI platforms or tools you use for talent sourcing?*

Interviewee 1:

"I've plenty of experience using AI in hiring, particularly for sourcing and pre-screening. We leverage LinkedIn Talent Insights for market insights and Eightfold AI for predictive hiring. These tools help us scan large talent pools and choose the most appropriate candidates

by skill, experience, and career path. We also use chatbots like Olivia by Paradox to handle candidate queries and schedule interviews, making our process more efficient.”

Interviewee 3:

“AI has transformed the way we do talent acquisition in the healthcare sector. We use IBM Watson Recruitment for bias detection and AI-driven candidate ranking. One of the most useful applications is AI-driven psychometric testing, which allows us to evaluate candidates beyond their CVs. The insights allow us to identify cultural fit and chances of long-term success in our organization.”

Interviewee 4:

“As a recruitment consultant, I have found AI software like Textio to be extremely useful in optimizing job adverts to get a diverse pool of candidates. We also use Applicant Tracking Systems (ATS) platforms like Greenhouse and Workday that have AI integrated for resume parsing and candidate ranking. These tools help us ensure that we’re not merely hiring based on keywords but evaluating candidates on the basis of skill and experience relevance.”

Theme 2: AI’s Impact on Recruitment Efficiency

- In what ways AI changed the processes of screening and shortlisting candidates?

Interviewee 7:

“AIs have transformed how we shortlist and screen candidates. Earlier, our HR manually sifted through every resume, which consumed days. Now, AI-powered ATS automatically scan resumes, rank candidates by job-fit scores, and bring top talent to the forefront within minutes. This has immensely minimized our workload and enabled us to concentrate on strategic hiring decisions.”

Interviewee 6:

“Our recruitment process has been revolutionized with the use of AI through automatic background checks and initial skills reviews. We implement IBM Watson candidate evaluation, where it identifies our top talent to fit into technical healthcare positions. This has made our screening free of errors as well as brought better quality applicants for shortlisting.”

- In your opinion, has AI improved hiring accuracy and

reduced the time-to-hire?

Interviewee 2:

“Yes, AI has definitely enhanced the accuracy of hiring. Through AI-driven assessments and predictive analytics, we make sure that candidates are matched on the basis of their skills and potential and not on the basis of keywords on their resumes. Our time-to-hire has decreased by almost 40%, as AI bypasses unnecessary manual screening processes.”

Interviewee 4:

“Personally, I believe AI has greatly increased the precision of hiring. Our AI tests evaluate candidates’ thinking skills, personality, and cultural fit. This helps ensure we’re hiring individuals with not only the right skills but also our company’s values. AI has reduced time-to-hire by at least 30% because we’re able to move qualified candidates through the pipeline much faster.”

- What benefits have been associated with AI-powered recruitment?

Interviewee 5:

“Among the best benefits of AI hiring is that it eliminates bias. Our AI technology screens candidates based on objective factors, reducing human biases in screening to a great extent. AI chatbots also automate mundane tasks like interview scheduling and answering candidate questions, thus leaving our HR team for more critical work.”

Interviewee 9:

“A major benefit is scalability. AI allows us to handle high volumes of applications without compromising quality. Also, AI-driven recruitment improves diversity and inclusion since all applicants are judged on an equal basis, reducing unconscious bias.”

Interviewee 10:

“We use AI for nearly all stages of the hiring process. Our AI ATS screens and culls through

applicants, and our chatbot Mya converses with candidates to schedule interviews and respond to questions asked most. We also recently started experimenting with AI-powered behavior analysis tools such as HireVue's video interview tool that can measure facial reactions, tone of voice, and wording to discern fit."

Theme 3: Challenges & Limitations of AI in Hiring

- Have you faced any challenges and biases in in AI-driven hiring processes?

Interviewee 1:

"One of the largest issues we've encountered with AI in recruitment is algorithmic bias. Although AI is supposed to be objective, it still mirrors biases in past recruitment data. For instance, we realized that our AI-based ATS was biased toward candidates from some universities, most probably because past recruitment patterns strengthened these inclinations. We needed to retrain the model and broaden the data sources to mitigate this bias."

Interviewee 4:

"AI has made efficiency better, but with challenges regarding fairness and inclusion. Some AI applications are biased towards candidates who have certain keywords on their resume, inadvertently keeping out well-qualified candidates who might explain their experience differently."

Interviewee 8:

"One of the biggest limitations is AI's inability to evaluate soft skills accurately. While AI can score candidates on qualifications and experience, it cannot accurately rate emotional intelligence, teamwork, or potential leadership. That leaves us still heavily dependent on human judgment for ultimate hiring decisions."

Interviewee 9:

"AI has no ability to make subtle hiring judgments. It may eliminate a candidate on strict criteria, even though the candidate possesses

distinctive talents that would be beneficial for the position. This inflexibility compels recruiters to always get the last word."

Theme 4: Ethical Considerations & Future Trends

- What are the specific ethical considerations which should be kept in mind in AI-driven hiring?

Interviewee 1:

"AI models learn from past data, which might include biases towards some genders, ethnicities, or socioeconomic backgrounds. If they are not consciously addressed, AI can perpetuate discriminatory hiring trends instead of rooting them out. We continuously keep an eye on and fine-tune our AI tools to ensure that they don't inadvertently hold back any group."

Interviewee 6:

"AI-based recruitment tools gather enormous amounts of candidate information, such as personal information, video interview responses, and even psychometric tests. Having this information safeguarded and responsibly used is important to ensure trust. Organizations have to adhere to data protection legislation like GDPR and not misuse candidate information."

Interviewee 10:

"AI hiring fairness is another significant ethical concern. Certain AI models inadvertently discriminate in favor of certain groups, resulting in unfair hiring decisions. Companies must regularly check their AI systems for detecting and fixing biases. Using diversity-oriented AI training data can help avoid this problem."

Interviewee 3:

"Going forward, one of the hiring trends we expect is the creation of explainable AI (XAI) for hiring. AI algorithms will have to be more transparent so that employers and applicants can see why certain hiring choices were made. This will contribute to building confidence in AI-powered recruitment."

Discussion

The findings from the current study explored that talent acquisition is a strategic solution for early stages of managing talent such as hiring, training, deploying, and scrutinizing employee performance and compensation. Successful talent acquisition minimizes risk across the business, conserving time and capital in training unsuccessful hires and maximizing productivity. Similarly, past study considered effectiveness and efficiency in recruitment strategy within the healthcare sector, where considerations include complexity, organization size, and AI-driven systems (Vedapradha et al., 2023).

The combination of e-HRM and AI provides solutions to this problem through better employee recruitment and motivation and retention of talented staff. Organizations use e-recruitment and e-selection to find talented applicants who both enter and continue employment within their organizations (Koman et al., 2024). Nevertheless, the current study findings revealed that despite its challenges in implementation, AI has the capability to revolutionize talent acquisition into efficient hiring processes. A similar study proposed that technological innovation, striking a balance between automation and human touch, technical skills and tailoring, and privacy and security concerns should be areas of consideration when implementing AI in talent acquisition and retention. This is because AI technologies are being used extensively across industries. This study examines the adoption of AI technology for talent recruitment in organizations (Selamat et al., 2024).

The research was intended to quantify the effect of these variables on recruitment practices and the mediating effect of candidate-job fit quality. The results emphasize the significance of organization size and sophistication in talent recruitment and add to the body of research on AI in the health care sector. The research intends to offer actionable insights for healthcare organizations that aim to enhance their recruitment strategies using AI-based systems and examine the mediating effect of match quality of candidate-job. AI is transforming talent development,

acquisition, and retention strategies HRM. AI technologies such as Robotics Process Automation, ML, NLP, and Predictive Analytics are automating HR processes, improving decision-making, and enhancing administrative effectiveness (Hamadneh et al., 2024).

Conclusion

This research examines the role of AI in shaping an organization's focus on recruitment effectiveness in talent hiring. AI is effective and productive at the screening phase gaining competitive advantage through operations, redefining customer focus in recruitment from HR and operations management, and optimizing process performance through human-AI collaboration. It is possible to gain competitive advantage and process improvement through collaboration by understanding the orientation of firms in talent hiring through operations, technology management, and people. The implementation of AI in recruitment has many advantages, including automated screening, cost savings, recruiting systems, and efficient hiring. AI software has been extensively used to automate the resume screening process. AI assistants can create engagement with job applicants using mobile, web platforms, and social media as front-end communication channels. AI use in hiring leads to efficiency and qualitative improvements for employers and applicants alike. It helps HR managers to effectively attract, retain, taking over mundane tasks once carried out by human recruiters and motivate skilled manpower. Automated screening and recruiting yield companies' savings due of lower staffing expenditure, low employee turnover, and effective recruitment processes.

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