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Artificial Intelligence (AI) Tools in Talent Acquisition and Its Impact on Hr Effectiveness

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Abstract

Purpose
The purpose of this paper is to present a preliminary study of (1) The various Artificial Intelligence tools used for Talent Acquisition (2) Impact of AI based Talent Acquisition tools on the workplace effectiveness of HR employees.

Design/methodology/approach
This research employs both qualitative and quantitative methodologies, with data analysis conducted utilizing SPSS software. The study encompasses a sample of 60 participants, of which 47 met the eligibility criteria. The participants are drawn from the workforce of four organizations utilizing AI tools within their talent acquisition procedures.

Findings
The findings indicate a notable and favorable impact of AI-driven talent acquisition tools on the performance of human resource department staff. The results also showed that there exists a proportional relationship between HR effectiveness and variables including skills and saving cost and time.

Originality / Value
This research makes the unique contribution of identifying AI tools used for talent acquisition processes by different organizations. The research also finds the attitudes of HR employees towards the use of AI-enabled talent acquisition processes.

Keywords: Artificial Intelligence, Recruitment, E-recruitment, Technology, HR effectiveness, Talent Acquisition

I. Introduction

In this competitive era where new technologies are being introduced and used in a rapid way it is important to understand the role and impact of these technologies on the various HR functions. One of the important functions of HR is Talent Acquisition. As we all know that traditionally the organizations used non-technology methods for the process, including advertisements in the newspaper, employee referrals, consultancies, etc. he 1980s marked a turning point with the advent of the internet, which revolutionized recruitment practices, leading to the emergence of e-recruitment. This new approach involved companies utilizing their websites and online job platforms like naukri.com, monster.com, and careerBuilder.com for hiring.
As the global landscape continues to evolve, digital transformation is becoming more pervasive, progressing from machine learning to the realm of artificial intelligence (AI). AI refers to a series of

activities performed by computer which is close to what a human body can do like, decision-making, visual & speech recognition, language translation. Its intelligence rivals that of a human being, and its potential remains vast and largely unexplored. This paper focuses on exploring the role of AI specifically in the recruitment process, particularly in Talent Acquisition, and its consequential impact on the overall effectiveness of HR practices.

II. LITERATURE REVIEW

Artificial Intelligence (AI) has revolutionized the recruitment process, facilitated various stages and enhanced outcomes. This paper discusses the significance of AI in recruitment (Talent Acquisition), including its positive implications and ethical concerns, as identified by researchers.

Chen (2023) highlights the crucial role AI plays in each step of the recruitment process. The interface between human and AI streamlines operations and improves efficiency. By using AI, recruiters can eliminate bias and discrimination, offering equal opportunities to all candidates (Abdelhay et al., 2023). However, Gupta and Mishra (2022) emphasised on the ethical concerns, such as data privacy and bias, arising from AI adoption in recruitment. They confirmed that biases may be unintentionally introduced through algorithmic inputs and programmer but addressing these issues are vital to ensure fair candidate selection.

Nikitha's research in Bangalore emphasized the growing popularity of E-recruitment methods. According to her research HR employees finds the usage of e-recruitment methods as time-saving and efficient, as it filters out unqualified applicants, leading to better candidate matches (Nikitha, 2022).

AI adoption in the job application process is positively perceived by applicants, enhancing their overall experience (van Esch et al., 2021) but at the same time Laurim et al. (2021) explored the stakeholders' concerns during the evaluation and selection phase when AI tools are utilized and found that the transparency in AI algorithms becomes crucial in establishing trust between recruiters and management.

Rezzani et al. (2020) also discussed the complexity of AI research, involving multiple disciplines and theories and according to him integrating these perspectives can be challenging but is essential for enhancing AI's application in candidate selection. Further the study of Van Esch et al indicated that positive feedback from job applicants regarding AI implementation in recruitment can lead to higher acceptance rates and better responses compared to traditional methods (van Esch et al., 2019).

Since AI provides benefits in various areas Jarrahi (2018) recognized AI's value in decision-making and managing uncertainty as well. However, he emphasized that human involvement remains crucial for essential decision-making processes.

Agarwal (2017) highlights several features of AI that improve recruiter usability, such as automating and streamlining workflows, saving time, and aiding in candidate assessment through aptitude and analytical tests. Way back in 2015 Dirican discussed the negative implications of AI and robotics in various business aspects. Through his research Dirican implicated that while AI has transformative potential, it also poses challenges that need to be addressed for optimal implementation (Dirican, 2015).

III. RESEARCH GAP

Artificial Intelligence (AI) has gained significant attention in the context of Talent Acquisition. However, while numerous studies have explored the conceptual framework of AI in talent acquisition, there remains a gap in understanding its practical application in real-time scenarios. The existing literature also not explored how AI tools impact recruiters' effectiveness in various stages of the talent acquisition process. Key areas of interest include time savings, reduction in manual tasks, improved candidate matching, and enhancing the overall candidate experience. This research paper seeks to close this gap by investigating the wide spectrum of AI tools integrated into real-time talent acquisition procedures within organizations. The study also involves an in-depth analysis of how these tools influence and enhance the efficiency of recruiters.This study will further contribute valuable insights to guide organizations in making informed decisions about AI integration in their talent acquisition processes.

IV. OBJECTIVES OF THE STUDY

Considering the previously highlighted research gap, the following research objectives have been developed:

1. To determine the diverse range of AI tools utilized in the talent acquisition process..
2. To delve into the real-world implementation of these tools throughout employee recruitment and selection within organizational contexts.
3. To identify and assess the advantages that AI-based talent acquisition tools offer to HR employees.

V. HYPOTHESIS DEVELOPMENT

The hypothesis tested through this research includes:
H_0: There is no significant relationship between AI based talent acquisition tools and HR Effectiveness
H_1: There is a significant relationship between AI based talent acquisition tools and HR Effectiveness.

VI. RESEARCH METHODOLOGY

VI.I. Research Design: The study employs a mixed research approach for its research design. This approach involves both qualitative and quantitative data collection methods. In Qualitative methods, data collection tool i.e. interview was used to provide a deeper understanding of the practical implementation of AI tools and the perspectives of HR professionals. Furthermore, quantitative data is collected through surveys to quantitatively evaluate the efficacy and benefits of AI-driven talent acquisition tools.

VI.II. Sampling Method and Population: The random sampling method was utilized to ensure a representative sample of HR employees from the target organizations. This approach reduces bias and enhances the generalizability of the study's findings. The study targeted HR employees from four prominent companies: Deloitte, HCL, TCS, and Tech Mahindra. These organizations were selected due to their significant presence in the industry and their potential use of AI in talent acquisition

processes. Questionnaires were distributed to all 60 targeted respondents. Out of the 60 approached respondents, only 47 responses were considered complete and valid for use in the study. The researcher ensured that the collected data met the necessary criteria for analysis. Interviews were conducted personally with some of the employees involved directly in the talent acquisitionprocess to understand the various tools used by the organization for talent acquisition.

VI.III. Research Instrument: The data collection for this study employed both a questionnaire and personal interviews as instruments. The questionnaire was structured into three sections. The initial section focused on gathering the demographic profiles of the respondents. The subsequent section inquired about the utilization of AI tools for talent acquisition within their respective organizations. Finally, the third section consisted of a set of questions aimed at assessing HR effectiveness. This evaluation was carried out through an 8-item questionnaire, wherein respondents were prompted to express their level of agreement or disagreement with each item.

VI.IV. Data Analysis Tools: The data was analysed using the following tools:
1. Analysis of Variance (ANOVA)
2. Pearsons Correlation Analysis
3. Regression Analysis

VII. RESULTS OF THE STUDY

VII.I. Demographic Profile of the Respondents

It is important to know the demographic profile of the respondents in any study as it has a strong impact on the result. The majority of respondents in the present study were female (65%) and 35% were males. Most of the respondents were found to be in the category of 26-30 years age group (53%) followed by 31-35 years age group (27%). Majority of the respondents were married (70%) and 30% respondents were unmarried. Amongst the respondent's majority held the post-graduation degree (76%) followed by respondents with graduation degree (24%). In terms of the total number of experiences in the present organization close to half of the respondents were found to be associated with the organization from more than 5 years (64%). Followed by those in the category of 5-10 years (31%) while 5% respondents were associated with the organization from more than 10 years.

VII.II. AI Based talent acquisition Tools

A total of six distinct categories of AI-driven talent acquisition tools were identified and observed to be in use within the organizations investigated.

1. **Chatbots:** Used Extensively by all the organizations

All the organizations agreed to the fact that most used AI tool in the talent acquisitionprocess is Chatbots. It helps in efficiently collecting the data and documents of candidates in the initial phase of talent acquisitionthrough a very simple process which is very user friendly.

2. **Applicant Tracking System:** Used by all the organizations under study

Another AI based tool used by all the organizations is applicant tracking system under which the AI system matches the profile of the candidate with the job opportunities available in the organization,

also the job opportunities are prioritized for the candidate based on his/ her profile. Finally, the system matches the job requirements with the applicant's profile and takes the decision for further process.

3. **Video Interview Analysis:** Used by some of the organizations under study

Some of the organizations use AI tool to interview candidates. However, all these organizations agreed that the AI alone cannot take interviews but can assist in decision making related to the selection of a candidate by giving feedback on the behaviour, body language, expressions, and voice modulations of the candidate to a certain extent.

4. **Candidate Engagement:** Used by most of the organizations under study

AI tools also help in the engagement of the candidates during the wait times. The Chatbots are fed with the enormous data related to general queries of the candidates which keeps them engaged and lucid about the organization.

5. **Automated Screening:** Used by most of the organizations under study

Once the interviews are taken based on the feedback the AI tool helps in ranking of the candidates according to their skills and once the decision is taken it prepares the offer letter and send it to the candidate.

6. **Assessment:** Used by some of the organizations under study:

Once the candidate sends the acceptance of the job offer AI helps in assessing the required training of the candidate and prepares the paperwork the candidate is required to process for his onboarding. It also takes the feedback about the progress of the training and helps further in assisting the newly joined candidate.

VII.III. Measuring HR Effectiveness

Once the diverse AI-based talent acquisition tools used in organizations were identified, a comprehensive analysis of their impact on HR effectiveness was conducted. This examination aimed to understand how the integration of these AI tools influenced HR practices and processes, and how they contributed to overall HR performance and efficiency. By studying their effects, this research aimed to uncover valuable insights into the extent to which AI tools are enhancing HR capabilities and contributing to organizational success in the talent acquisitiondomain.

According to the feedback received from the recruiters, the implementation of AI-based talent acquisitiontools has positively impacted the hiring process. Notably, the time taken to fill a position and complete the hiring process has improved significantly. This efficiency has been achieved through the automation of administrative high-volume tasks, which has saved valuable time for recruiters.

During the discussions, participants mentioned that the entire hiring process typically takes an average of 40-60 days. Moreover, the quality of hire has shown improvement.

The recruiters also mentioned that cost per hire has been reduced to some extent because of AI adoption. Moreover, the integration of AI into the talent acquisition process has resulted in an enhanced candidate experience, thereby fostering a favorable perception of the company among candidates. Table below shows the responses of the HR employees showing the positive impact of using AI based talent acquisition tools in their organizations.

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Table 1.1: HR Effectiveness

Measuring Effectiveness	**Organization 1**	**Organization 2**	**Organization 3**	**Organization 4**
Saves Time	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Saves Costs	Agree	Disagree	Agree	Strongly Agree
Quality hiring	Agree	Neutral	Agree	Agree
Delighted Employee	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree

VII.IV. AI based talent acquisition tools and HR effectiveness

To comprehend the correlation between AI-driven talent acquisition tools and HR effectiveness, descriptive statistics were acquired. Mean and standard deviations were calculated for both independent and dependent variables.

To find the relationship between quality of work life and employees job performance Pearson's Correlation Coefficient was used.

Table 1.2: Pearson's Correlation Coefficient Analysis for HR Effectiveness & AI based talent acquisition Tools

	HR Effectiveness	AI based talent acquisition Tools
HR Effectiveness	1.00	0.73*
AI based talent acquisition Tools	0.73*	1.00

*: Significant at 5% level

The table 1.2 reflects that HR effectiveness is positively and significantly related to AI based talent acquisition tools. The table shows that the 'r' value is 0.73 which means r>0.5.Hence, it is evident that a correlation exists between AI-based talent acquisition tools and the effectiveness of HR practices.

VII.V. Coefficients of AI based talent acquisition Tools and HR Effectiveness

Coefficient analysis reveals the influence of independent variables on dependent variables. In this context, the independent variables comprise AI-based talent acquisition tools, while the dependent variables encompass HR effectiveness.

Table 1.3: Coefficients - AI based talent acquisition Tools and HR Effectiveness

Model	**AI Based Talent Acquisition Tools**	**Unstandardised Coefficients**		**Standardised Coefficients**	**T**	**Sig (p)**
		B	**Std. Error**	**Beta**		
1	(Constant)	1.877	0.127		14.774	.000 *
	Chatbots	0.329	0.032	0.484	10.254	.000 *
	Applicant	0.219	0.032	0.347	6.855	.000 *

	Tracking System					
	Video Interview Analysis	0.190	0.033	0.300	5.834	.000 *
	Candidate Engagement	0.254	0.039	0.332	6.531	.000 *
	Automated Screening	0.414	0.036	0.426	8.733	.000 *
	Assessment	0.240	0.030	0.603	7.737	.000 *

*: Significant at 5% level

The table 1.3 clearly indicates that with all the analysed AI based talent acquisitiontools, HR Effectiveness has a linear relationship.
The table also indicates that all the AI based Talent Acquisition Tools have a positive and significant (value of p is 0.000 i.e., $p<0.05$) relationship with HR Effectiveness.

VII.VI. Regression Model

Table 1.3 reflects the Regression Model showing linear relationship existing between AI based talent acquisition Tools and HR Effectiveness.

Table 1.4: Regression Model – Linear Relationship between AI based Talent AcquisitionTools and HR Effectiveness

HR Effectiveness
R = 0.73
R Square = 0.637
Adjusted R square = 0.623
Std. Error = 0.32

Table 1.5: ANOVA – AI based Talent Acquisition Tools & HR Effectiveness

ANOVA						
Model		Sum of Squares	Df	Mean Square	F	Sig. (p)
HR Effectiveness	Regression	6.52	6	6.52	65.2	.000*
	Residual	3.41	40	0.101		
	Total	9.94	46			

*: Significant at 5% level

Table 1.4 illustrates a correlation coefficient (R) of 0.73 for the model, indicating a substantial degree of correlation between the independent variable, AI-based talent acquisition tools, and the dependent variable, HR effectiveness. This strong correlation is supported by an F ratio of 65.2 with a significance level of 0.000, which is below the 0.05 (as indicated in Table 1.5). This implies a significant distinction between AI-based talent acquisition tools and HR effectiveness. The R value serves as a measure of the regression model's goodness of fit, signifying that the chosen predictor factors within the model explain about 62.3% of the variance in the dependent variable, namely HR effectiveness.

VII.VII. Testing of Hypothesis

In Table 1.4, the p-value ($p < 0.05$) indicates that the null hypothesis (Ho), which states that there is no significant relationship between AI-based talent acquisition tools and HR effectiveness, is rejected. In turn, the alternative hypothesis (H1), positing a significant relationship between AI-based talent acquisition tools and HR effectiveness, is accepted. Consequently, it can be inferred that a noteworthy and statistically significant relationship exists between AI-based talent acquisition tools and HR effectiveness.

VIII. FINDINGS AND RESULTS

The current research explored the correlation between AI-based talent acquisition tools and HR effectiveness.

According to the research outcomes, respondents' personal attributes, including gender, age, marital status, qualifications, and duration of service within the organization, did not seem to exert a notable impact on their perspectives regarding AI's role in talent acquisition. Regardless of their gender, age, marital status, qualification and year of service in the organization, all interviewees shared a common belief that AI would serve as a valuable tool to complement and enhance human capabilities in the talent acquisition process. This indicates a consensus among the participants that AI is seen as a supportive and empowering technology, rather than something that could replace or overshadow human involvement in the hiring process.

The study found that the following AI tools are being used in the organizations for the talent acquisition of employees:

1. Chatbots
2. Applicant Tracking System
3. Video Interview System
4. Candidate Engagement
5. Automated Screening
6. Assessment

Further it was found that the above-mentioned tools enable the recruiters to engage in higher-value activities, such as candidate assessment, building strong relationships with potential hires, and developing innovative talent acquisition strategies. Furthermore, the study established a strong relationship between the usage of AI-based talent acquisition tools and HR effectiveness. The adoption of these tools aids in time and cost savings through the streamlining and enhanced efficiency of the hiring process.. Moreover, the AI-driven candidate selection process contributes to better hiring decisions, leading to improved onboarding experiences for candidates who are better suited for the job. As a result, these selected candidates are more likely to be positive and satisfied with their new roles, which further benefits the organization. The results were similar to the research conducted by Rezzani et al., they studied the existing literature and confirmed the importance of AI in enabling organizations to cope with the digital transformation in the realm of talent acquisition. They further explained that by embracing AI in talent acquisition and personnel selection, companies can optimize their hiring practices, improve overall productivity, and remain competitive in a rapidly evolving job market (Rezzani et al., 2020).

Overall, the incorporation of AI-driven talent acquisition tools has showcased a positive influence on HR effectiveness. This adoption helps organizations to make well-informed hiring choices, elevate candidate experiences, and optimize the holistic talent acquisition procedure.

IX. SCOPE FOR FUTURE RESEARCH

There are several potential areas for future research:

Identifying Additional AI-based Talent Acquisition Tools: Future studies can focus on exploring and identifying new and emerging AI tools utilized in the talent acquisition process by organizations. As technology evolves, new AI applications might emerge that can further enhance the talent acquisition process.

Sector-specific Research: Conducting sector-specific research can provide deeper insights into how different industries are adopting and benefiting from AI in their talent acquisition practices. Different sectors may have unique hiring needs and challenges that AI can address in specific ways.

Expanding the Sample Size: To enhance the robustness and generalizability of the findings, future studies can consider a larger sample size of HR employees and recruiters. Expanding the sample size can yield a more comprehensive insight into the diverse ramifications of AI's influence on various facets within the talent acquisition process.

Studying Employee Experiences: Conducting research that involves employees who have directly experienced AI-based talent acquisition can shed light on their perceptions and attitudes towards the process. Understanding how candidates view AI-driven hiring can provide valuable insights into candidate experience and its impact on organizational reputation and talent acquisition.

Addressing Biased and Ethical Considerations: Algorithmic bias is a critical concern, and understanding how organizations implement safeguards and fairness measures within their AI systems is crucial for building trust and ensuring equitable hiring practices. Future research endeavours can consider delving into this area to gain a comprehensive understanding of how The strategic implementation of AI-based talent acquisition tools can ethically mitigate biases and foster diversity and inclusion within the hiring process.

By understanding and addressing the above areas through research, we can gain a deeper insight of the continuous evolution and potential benefits of AI in talent acquisition practices, further advancing the field of HR and talent acquisition.

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