

# A Comparative Analysis of Traditional vs AI Drive Recruitment Methods

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## Abstract

This study presents a comparative analysis between traditional vs AI-driven recruitment methods. It focuses on key areas such as efficiency, benefits, cost-effectiveness and candidate experience. Further, the research will investigate how each method impacts recruitment outcomes. The research methodology implemented in this study involves online surveys, interviews, and analysis of recruitment data from different industries to provide a comprehensive understanding of the topics. The result shows how companies, which also includes start-ups and innovative companies are using both AI-based and traditional methods to make the recruitment process easy and to attract, assess and acquire talent effectively. Further, the report discusses the future recruitment processes, glancing at the possibility of hybrid approaches that merge the advantages of both AI-based and traditional recruitment methods. Altogether this paper provides the perspective of the efficiency, advantages, and candidate experience on the traditional and AI-driven recruitment methods.

**Keywords:** AI-Driven Recruitment, Artificial Intelligence, Comparative Analysis, Interview, Recruitment

**JEL Classification Code:** Z19

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## 1. Introduction

In the modern business world, recruitment plays a role in the success of organizations attracting, evaluating, and securing talent. Over time, the methods used in recruitment have evolved significantly due to technological advancements and changes in talent acquisition strategies. The traditional approaches to recruitment, deeply rooted in old practices, now face the transformative impact of AI-driven techniques, signalling a new era of innovation.

This study aims to compare traditional recruitment methods with AI-driven approaches, focusing on their effectiveness, advantages, cost-efficiency, and impact on the candidate experience. By investigating key aspects of both methods, the research seeks to provide insights into how they influence recruitment outcomes and organizational dynamics. The motivation behind this research stems from recognizing recruitment's critical

role in organizational success. As businesses strive for a competitive edge in a tough market, the ability to attract and retain top talent becomes crucial.

By examining the effectiveness of traditional and AI-driven recruitment methods, this study aims to offer actionable insights to organizations to optimize their talent acquisition strategies and strengthen their workforce.

Traditional recruitment methods are entrenched in familiar practices like job postings, resume evaluations, interviews, and reference checks. In contrast, AI-driven methods leverage artificial intelligence and machine learning algorithms to streamline processes, improve decision-making, and extract valuable insights from extensive data. This study seeks to analyse the pros and cons of both approaches, shedding light on their impacts on recruitment results.

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Using a comprehensive research methodology that includes online surveys, interviews, and data analysis from various industries, this study strives to provide a thorough examination of the subject matter. By integrating findings from diverse sources, the goal is to extract key insights and identify patterns that illuminate the recruitment landscape. Ultimately, this research aims to present stakeholders with a comprehensive view of the efficiency, benefits, and candidate experience associated with traditional and AI-driven recruitment methods. By examining the past, present, and future of recruitment practices, this paper intends to equip organizations with the knowledge and foresight needed to navigate the complexities of talent acquisition in an ever-changing environment.

### 1.1 Efficiency in Recruitment

Efficiency in recruitment refers to the ability to simplify procedures, lessen time-to-fill positions, and enhance resource application. Custom methods might contain manual activities such as examining CVs and organizing interviews, whereas AI-guided techniques capitalize on automated systems to hasten these endeavours. Assessing proficiency encompasses the time and workload demanded to detect, filter, and retain candidates, coupled with the ultimate productivity of these courses in attending to organizational specifications.

### 1.2 Cost Efficient Recruitment

Cost-efficient recruitment Connote the financial investment allocated to sourcing, procuring, and boarding fresh team members. Familiar procedures may necessitate expenditures related to employment ads, recruiter fees, and administrative tasks, in contrast to AI- AI-prioritised techniques necessitating expenditures on system setup and tutelage.

Analysing cost efficiency comprises pondering on the parcelled cost of engagement activities about the excellence and quantity of recruits elicited, as well as its extended impact on organizational performance and prosperity.

### 1.3 Perks of Personnel Acquisition

Perks in recruitment Processes comprise the laudable product achieved through successful personnel

acquisition strategies. Old-fashioned approaches thrust on linking personal networks, professional connections, and subject intimate candidate evaluations, whereas AI-fuelled procedures patron algorithmic consideration, forecasting, and data analytics. Evaluating merits covers assessing factors such as hire calibre, diversity initiatives, emblematic impression, and adjustability to fluctuating marketplace conditions and labour trends.

### 1.4 Employment Seeker Experience

Employment seeker experience in recruitment circumscribes the understanding, interrelations, and gratification grades of candidates throughout the selection process. Practices anchored on live face-to-face dialogues, individualized communications, and human contact points, defer to AI directive approaches emphasizing dispatch, commodity, and expandability. Measuring employment seeker experience includes surveying aspects like interaction effectiveness, disclosure, equity, and prevailing judgment.

## 2. Review of Literature

**Albaroudi et al. (2024).** This study comprehensively reviews Artificial Intelligence (AI) techniques designed to address algorithmic bias in job hiring. As more businesses adopt AI for Curriculum Vitae (CV) screening, efficiency in the recruitment process improves. However, this shift also exposes the process to potential biases, which can negatively impact organizations and society. This research aims to analyze case studies of AI in hiring to highlight both successful implementations and instances of bias. Additionally, it evaluates the impact of algorithmic bias and explores strategies to mitigate it. The study employs a systematic review of existing literature and research focused on AI techniques used to reduce bias in hiring. The findings indicate that correction of the vector space and data augmentation are effective Natural Language Processing (NLP) and deep learning techniques for mitigating algorithmic bias in hiring. These results highlight the potential of AI to promote fairness and diversity in the hiring process through the application of these techniques.

**Odili et al. (2024).** This paper reviews the use of AI in recruitment over the past 5 years, focusing on its role, adoption, and potential risks. It emphasizes the

importance of literature reviews for theory development and identifies areas for further research. The review also emphasizes the need for precise keywords in literature searches.

**Nyathani (2022).** The paper emphasises the importance of ethical practices in AI algorithms to prevent discrimination against candidates. It recommends regular audits, training for the HR Professionals, monitoring the key metrics, and transparency with candidates. The paper highlights the transformative potential of AI-powered recruitment and the evolving role of HR Professionals in an AI-driven future.

**Pooja and Sivakanni (2024).** AI is transforming recruitment, offering both opportunities and challenges for Human Resources (HR) professionals. This study examines AI's role in modern recruitment and its implications for HR. AI enhances recruitment efficiency, streamlines processes, and improves decision-making with automated resume screening, candidate sourcing, and predictive analytics. AI-driven chatbots and virtual assistants also improve candidate engagement with instant, personalized interactions. However, AI adoption poses challenges, including ethical concerns about data privacy, algorithmic bias, and fairness. HR professionals must develop skills in data analysis, algorithm management, and ethical AI usage. This study identifies the opportunities and challenges of AI in HR through surveys analyzed using chi-square, correlations, and ANOVA tools.

## 3. Research Design

### 3.1 Objectives of the Study

1. To compare the efficiency of AI-driven recruitment methods with manual methods.
2. To investigate the time savings, and benefits, which are achieved through automation.
3. To assess the transparency in recruitment methods.
4. To examine how AI can mitigate the bias.
5. To assess the cost-benefits while implementing the AI-driven methods, compared to the manual method.

### 3.2 Data Collection

With the growing trend of AI incorporation in recruitment procedures, this study aims to scrutinize the functionalities of these AI-driven techniques compared to conventional techniques. The researcher intends to evaluate these methods based on their productivity, advantages, affordability, candidate experience and outcomes on recruitment results.

### 3.3 Data Collection

Data was amassed from 75 assorted workers with ages ranging from 21 to 30 via a mixture of online surveys and a structured questionnaire. Out of which 68 responses were retained after cleaning the data, while seven outliers were cleared off.

Data was initially collated by identifying the intended workers and making contact through the conduction of internet surveys and architecting a structured questionnaire. The inquiries were predicated upon 4 focal points. The first focal point was on the productivity of recruitment, the second on candidate experience, the third on cost efficiency, and the fourth on a general aspect. The data assembly process ensued close to a week and was later analysed using an unspecified method.

### 3.4 Method for Analysis

The chi-square test is used to analyse the data. Chi-square is a statistical test used to compare the observed results with the expected results. This alternative method aids in ascertaining patterns, differences and associations between the variables.

### 3.5 Working Hypotheses

1.  $H_0$ : Perceived efficiency and the usage of AI recruitment tools are independent of each other.
2.  $H_0$ : Candidates' positive experiences and the usage of AI recruitment tools are independent of each other.
3.  $H_0$ : Perceived cost and the usage of AI recruitment tools are independent of each other.

### 3.6 Scope of the Study

1. **Efficiency Comparison:** It investigates the efficiency of traditional methods (manual screening, interviews) versus AI-driven methods (automated screening, data-driven insights). Consider time saved, accuracy, and resource allocation.
2. **Benefits Assessment:** It analyses the benefits of each approach. Traditional methods focus on personal interactions, relationship-building, and cultural fit assessment. For AI-driven methods, emphasize speed, objectivity, and scalability.
3. **Cost-Effectiveness:** It explores the cost implications between traditional and AI-driven methods. Traditional methods may involve more human resources, while AI platforms have initial setup costs but can save time in the long run.
4. **Candidate Experience:** It evaluates how each method impacts candidates.

### 3.7 Limitations of the Study and Scope for Further Research

1. **Sample Bias:** This study's findings may be influenced by the industries or companies surveyed.
2. **Generalizability:** Findings of this study may not be applied universally and may differ from organization to organization.

3. **Data Availability:** Access to recruitment data from various sources is essential. Limited data may affect the depth of analysis.
4. **Ethical Considerations:** Address potential biases in AI algorithms and their impact on fairness and diversity.
5. **Dynamic Landscape:** Recruitment practices evolve rapidly. Acknowledge that findings may change over time.

## 4. Data Analysis

Researchers have used the primary data to showcase the evidence to prove the working hypotheses of the study. In this study, results have been derived from the weighted average test and Chi-square test to prove the researchers' claim.

Table 1 showcases the responses of employers regarding the efficiency of AI recruitment methods. Respondents have shared their opinions towards AI recruitment methods in reducing time consumption and processing the candidate profile. It is observed that 58 respondents collectively provide a strong agreement on time-saving through AI recruitment while, they do agree that the screening made through AI is reliable and eligible for shortlisting potential candidates.

To understand the perspective, experience, and opinions of job seekers towards the AI method of finding and

**Table 1.** Responses towards perceived efficiency of AI recruitment tools

Perceived efficiency of AI recruitment tools								
Particulars	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)	Total	Weighted average	Result
AI's process saves time	2	1	0	29	26	58	4.31	Strongly agree
AI's automated screening process is reliable	3	4	24	26	1	58	3.31	Agree

Source: Primary data

**Table 2.** Responses of candidates towards AI recruitment tools

Candidate experience with the usage of AI recruitment tools								
Particulars	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Total	Weighted average	Result
AI can mitigate bias	2	5	18	26	7	58	3.53	Agree
AI's recruitment process is transparent	5	0	0	41	12	58	3.95	Agree
AI's interactions during the interview positively influence the candidate's perception	5	3	0	27	23	58	4.03	Agree

Source: Primary data

**Table 3.** Responses towards perceived cost of AI recruitment tools

Perceived cost of using AI recruitment tools								
Particulars	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Total	Weighted average	Result
AI reduced costs with manual screening	4	2	0	34	18	58	4.03	Agree
Investment in AI tools is justified by benefits gained in the recruitment efficiency	2	2	0	34	16	54	4.11	Agree

Source: Primary data

applying for a job, researchers have collected data from 58 job-seekers who are currently serving at various institutes and corporate bodies. Respondents were questioned on three important aspects of recruitment such as unbiased method of recruitment, transparency, and positivity. With the weighted average method of analysis, it was observed that the candidates who had applied to various designations using AI tools found them to be unbiased and transparent in the proceedings. The respondents also share positive feedback on the latest technology of smart recruitment processes using AI.

The cost perspective of AI recruitment tools suggests that AI has reduced the consumption of cost and time to a significant level. Introducing AI into recruitment

procedures such as background verification, CV scanning, profile screening, identifying matching skills, etc. has become much simpler. It has reduced the burden of a traditional HR team wherein, the HR team has to screen, verify, and approve the status of a bulk number of applications to any designation. AI, on the other hand, is equipped with a database to verify the details of a particular applicant. It is also equipped with psychometric analysis, wherein the algorithm detects the qualification, experience, key skills provided, etc. to conclude whether a candidate is eligible to apply for the given designation. The results showcased in Table 3 provide evidence for this claim by stating that AI implementation has cut down the cost of recruitment and has also improved the efficiency of the system.

**Table 4.** Chi-Square analysis for perceived efficiency of AI recruitment tools

Chi-Square Value					
Perceived efficiency of AI recruitment tools					
Particulars	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
AI's process saves time	0.1	0.9	12	0.08	11.57
AI's automated screening process is reliable	0.1	0.9	12	0.08	11.57
Chi-Square Value					<b>49.31</b>

Source: Primary data

Degree of Freedom (df)	4
Chi-square value	49.31
Significance level	0.05
Critical value	9.488

**Table 5.** Chi-Square analysis for candidates' positive experience with AI recruitment tools

Chi-Square Value					
Candidate experience with the usage of AI recruitment tools					
Particulars	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
AI can mitigate bias	1	2.04	24	0.91	3.5
AI's recruitment process is transparent	0.25	2.67	6	2.98	0.29
AI's interactions during the interview positively influence the candidate's perception	0.25	0.04	6	0.6	5.79
Chi-Square Value					<b>56.31</b>

Source: Primary data

Degree of Freedom (df)	8
Chi-square	56.31
Significance level	0.05
Critical value	15.507

**Table 6.** Chi-square analysis for perceived cost of AI recruitment tools

Chi-Square Value					
Perceived cost of using AI recruitment tools					
Particulars	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
AI reduced costs with manual screening	0.26	0	0	0.04	0.01
Investment in AI tools is justified by benefits gained in the recruitment efficiency	0.39	0	0	0.04	0.15
Chi-Square Value					0.9

Source: Primary data

Degree of Freedom (df)	4
Chi-square	0.9
Significance level	0.05
Critical value	9.488

$H_0$ : Perceived efficiency and the usage of AI recruitment tools are independent of each other.

From the details provided in Table 4, it is clear that the calculated chi-square value stands at 49.31. At a 5 % level of significance, the chi-square value for 4 degrees of freedom arrives at 9.488. From the given information, it is evident that the calculated chi-square value (49.31) > the critical value (9.488). Therefore, the null hypothesis is rejected and concluded that perceived efficiency and the usage of AI recruitment tools are dependent on each other. Since these attributes are dependent on each other, the results obtained in Table 1 support that the usage of AI recruitment tools exhibits efficiency in recruitment processes.

$H_0$ : Candidates' positive experience and the usage of AI recruitment tools are independent of each other.

According to Table 5, the total obtained chi-square value for two attributes namely the candidate's positive experience and the usage of AI recruitment tools, is 56.31. At a 5% level of significance, the chi-square value

for 8 degrees of freedom is 15.507. Since the obtained value of 56.31 is greater than the critical value, the null hypothesis is rejected and concluded that candidates' positive experience and the usage of AI recruitment tools are dependent on each other. Additionally, the weighted average results showcased in Table 2 prove that candidates possess positive feedback towards their experience with the usage of AI recruitment tools.

$H_0$ : Perceived cost and the usage of AI recruitment tools are independent of each other.

Table 6 reveals that the obtained chi-square value for the given case is 0.9. At a 5% level of significance, the chi-square table value for 4 degrees of freedom stands at 9.488. Since the obtained chi-square value is higher than the critical value, the null hypothesis is rejected and concluded that perceived cost and the usage of AI recruitment tools are dependent on each other. Additionally, the results of Table 3 conclude that the perceived cost of usage of AI recruitment tools is not higher than the traditional cost of recruitment.

## 5. Findings

The findings of this study are majorly discussed in terms of efficiency, candidate experience, and perceived cost. Based on these parameters, the findings of the study are as follows:

### 1. Efficiency

Based on the respondents' perception, AI-driven recruitment methods save time which ensures organisations benefit from streamlined hiring.

Automated screening process - From the surveys it is evident that the automated screening process is reliable. The performance and satisfaction levels of employees and employers support this claim.

### 2. Candidate experience

Bias - The study revealed that AI can help in mitigating bias, and the majority of the respondents agree with this fact.

Transparency - The majority of the respondents trust that the recruitment process through AI-driven methods is more transparent and less biased compared to the traditional tools of recruitment.

Positive interaction - The majority of the respondents agree that personal interaction during the interview shall enhance the candidate experience.

### 3. Perceived cost

Respondents collectively agree that investment in AI tools is justified by the recruitment benefits enjoyed by organisations. It highlights that AI can be a valuable tool in enhancing the efficiency of the recruitment process, especially for tasks like resume screening and initial candidate matching. However, manual enhancements are required wherever necessary for maintaining trust and ensuring the tailored needs of individual organizations.

## 6. Conclusion

The study highlights how important it is to combine conventional human-centred recruiting methods with

AI-driven solutions. Based on the empirical results obtained from online surveys and a comparison with existing research, we can conclude that AI offers significant benefits, including increased productivity, and impartiality in decision-making, through automation. It performs exceptionally well in jobs like data analysis, candidate variable evaluation, and first screening, which simplifies procedures and boosts transparency. Still, in all this technical progress, the human touch is priceless. Conventional approaches are excellent in building relationships, establishing trust, and giving prospects a tailored experience. To gain a better grasp of their abilities, backgrounds, and organisational culture, candidates frequently value their contacts with human recruiters. From the test results, it can be concluded that with AI-driven recruitment methods efficiency, positive candidate experience is achieved, and overall recruitment outcomes are enhanced. However human recruiters will continue to play a crucial role in the final stage of recruitment, where complex decision making and interpretation are required. The future lies in a collaborative approach where AI and human recruiters work together.

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