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# AI Assistance in Human Resource Application Processing: Revolutionizing Recruitment and Hiring – Applicants Perspective

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### **Abstract**

The study has captured that the AI technology is very much helpful in introducing the organization's history to the new entrants, to speed up the selection process, to conduct background checks, to assess the success of the onboarding process, to provide personalized training and development, to evaluate candidates, to filter and sift/examine resumes and applications, to reduce human bias and increase diversity hiring, for Onboarding/process and it is concluded that AI technology is very much helpful in minimizing the human efforts through enhanced efficiency. Artificial intelligence is set to greatly improve the processing of HR applications, providing advantages like greater efficiency, better candidate alignment, and minimized bias. However, thorough implementation, ongoing monitoring, and ethical considerations are crucial for ensuring that AI's impact on recruitment is advantageous, fair, and transparent. Applicants are aware of AI technology implementation in recruitment process. As AI progresses, it is crucial for HR professionals to leverage its possibilities while staying aware of its challenges and constraints. The integration of Artificial Intelligence (AI) into Human Resources (HR) operations is significantly altering recruitment procedures, particularly in how applications are processed. Artificial intelligence technologies such as machine learning, natural language processing (NLP), and predictive analytics have the potential to completely change how companies manage candidate applications. The Cronbach alpha (a) worked to be 0.699. Work experienced respondents have concluded that AI is used in evaluating candidates and also AI is used to assess the success of the onboarding process.

**Keywords:** Artificial Intelligence (AI), Screening, Machine learning, Natural language processing (NLP).

#### Introduction

A business entity consists of human resources, products, and infrastructure. Human behavior is a standard element that needs to be monitored, guided, managed, and trained to align resources with the organization's objectives. Human Resources departments encounter the essential challenge of handling a large number of job applications, a process that can be very labor-intensive and traditionally depends on manual review, candidate selection, and coordinating interviews. As companies look for ways to improve efficiency, lower costs, and make decisions based on data, Artificial Intelligence (AI) has surfaced as a potent resource. AI technologies facilitate the automation of different phases of the recruitment process, especially in application management, which is vital for achieving quicker and more successful hiring results. This paper aims to provide an overview of AI's role in HR application processing, emphasizing its effects, advantages, challenges, and ethical issues. This paper illustrates how AI enhances the efficiency of recruitment processes, improves candidate matching, lessens biases, and ultimately transforms the HR field.

# Literature review:

The responsibilities of the human resources department involve assessing the current personnel requirements, effectively communicating these needs through appropriate channels, collecting applications, conducting interviews, and selecting qualified candidates [8]. Human resources management aims to harmonize the company's operational and human aspects while developing the latter to enhance productivity, efficiency, and the overall value of the business [9]. With the "artificial intelligence" (AI) technology, machines are now capable of executing tasks with intelligence and ingenuity. The rise of artificial intelligence (AI) has major implications, especially in fields like business, engineering, and human resource management [1]. Human resource management (HRM) relies on artificial intelligence (AI). Responsibilities in this field include developing a strategic approach to human resources, selecting and recruiting personnel, offering training and development opportunities, evaluating employee performance, overseeing compensation, and managing relationships with employees [2]. AI is utilized in Human Resource Management to streamline various HR functions, such as performance evaluation, onboarding processes, and recruitment [3&4]. In the process of

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hiring within organizations that have embraced AI, the connection between the behavioral challenges imposed and the supporting elements of these companies was examined. To gain a deeper insight into the various limitations and potential opportunities, the research suggested combining transaction cost theory with the TOE model. Data for this research was collected from HR managers and senior executives experienced in HR from 297 companies in China through both digital and paper surveys. The findings indicate that companies' views on the complexity of artificial intelligence serve as a barrier to its adoption, while technological skills and regulatory support function as enablers of such adoption. The study revealed how transaction costs influence the relationship between technical complexity and corporate decisions [5]. The staff did not respond positively to the AI system's perspective on AI technologies. They outlined the obstacles that hindered the implementation of the AI system in HRM procedures. The research has helped organizations understand the significance of incorporating AI technology into various HRM functions, such as planning and decision-making, recruitment, employee training and development, performance assessment, and maintaining work-life balance [6]. The research analyzed 23 pertinent publications published from 1991 to 2020 that were found in the Scopus online database. The findings of the study indicate that incorporating AI technology could enhance nine specific HRM functions, allowing organizations to increase their productivity and efficiency to better meet the needs of their clients [7].

Recruitment Process: The recruitment phase encompasses the complete hiring journey, starting from its initiation to the successful assimilation of each new employee into the organization. The effectiveness of human resources productivity depends on the ability to choose the appropriate candidate. Organizations must be prepared to manage the recruitment and selection of the personnel needed both currently and, in the future [10]. Companies need to project the impression that they maintain a positive employee policy for both existing and prospective staff. When the recruitment process is grounded in solid principles and foundations, it becomes easier for the organization to select the most suitable candidate [11]. The employee selection process is illustrated in Fig. 1. The recruitment function aims to populate the necessary positions with individuals who possess the required qualifications and numbers essential for the organization's operations, as well as those specified in guidelines and strategic planning [12]. By setting various criteria, the company seeks to hire the candidate it deems most qualified. The selection process is also one-sided if the candidate is a skilled or specialized manager. This occurs due to the candidate's alignment with the demands of multiple companies [13].

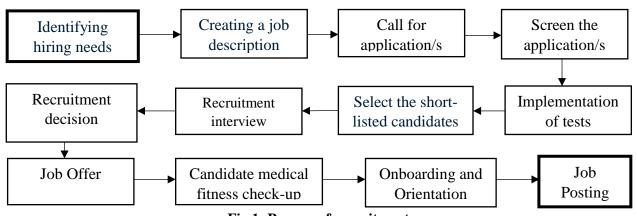


Fig.1: Process of recruitment

The personnel procurement process involves defining the personnel needs according to job titles and organizational levels for both the short and long-term through effective personnel planning and collaboration with other department leaders. It includes collecting data on the job market, creating effective tools for recruiting staff, pinpointing and recording suitable candidates for employment, maintaining communication with those individuals even after they have been eliminated during the selection process, and evaluating the effectiveness of the recruitment process [14]. The authority to make decisions in a traditional selection process is closely linked to candidates' educational and professional qualifications, as decision-makers evaluate degrees and certifications while primarily focusing on technical abilities. This is why candidates undergo testing and trial periods. However, during these trial phases, it is often observed that candidates misuse tools and are involved in workplace accidents. The selection process is regarded as a self-contained, outdated model

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that prioritizes internal resources and has lost its relevance since it emphasizes technical specifications. It seeks to match technical skills to job requirements, but a comprehensive understanding is not always achieved due to the job's technical demands. Companies that have adopted a modern management approach have now shifted to a more objective and scientific method of employee selection. Although the steps involved in developing and implementing the contemporary selection process may differ by organization, it is possible to generalize about its structure and function [15]. The human resources department is responsible for identifying the number and type of workers required by the company, as well as deciding where and how to source potential job candidates during the recruitment process and how the collected information will be evaluated and utilized [16]. The use of artificial intelligence in human resources has become one of the leading trends among those in charge of hiring [17]. The primary goal of artificial intelligence is to create smart machines that mimic human behavior and actions. Some AI systems are designed to understand spoken language, acquire knowledge, formulate plans, and tackle challenges. The area of artificial intelligence explores advancements in software development, deep learning, machine learning, and healthcare [18]. Machine learning involves analyzing data through algorithms, gaining insights from it, and subsequently predicting future occurrences [19,20,21]. In Turkey, AI has been recognized as a supportive tool in the recruitment process [23]. Job candidates viewed AI technology favorably in the hiring process, seeing it as beneficial and user-friendly, with reduced response times being identified as the greatest advantage [24]. The implementation of AI-driven processing has lessened the workload for the HR department by handling routine tasks on a daily basis, allowing HR teams to concentrate more on performance enhancement and development [25]. Recruitment processes have become more efficient thanks to AI-enabled tools, making them essential for modern recruitment [26]. The use of AI in the recruitment process raises issues and debates, such as algorithmic bias, since the data used for training can impact its effectiveness [27]. AI algorithms are not widely available to the public due to proprietary rights, raising concerns about the ethical implications of AI in hiring processes and its impact on trust in organizations [28]. Automation poses concerns about job displacement and legal issues regarding applicant selection and hiring decisions, which still require human involvement in some jurisdictions [29]. Employers have to address the privacy of the applicant's data as well as benefits and drawbacks of AI in recruitment like ensuring fairness and unbiasedness of AI tools [30]. The integration of Artificial Intelligence in Wildcraft's HR practices is expected to enhance recruitment and competency mapping performance, thereby positively impacting the company's HR department [31]. Significant structural and technical advancements in the recruiting process allow HR teams to maximize the effectiveness of talent acquisition, necessitating a transformation from a trial-and-error methodology to a "test for success" paradigm [32]. An increase in AIrelated ethical problems is also a result of the growing usage of AI-enabled products [33, 34].

**Technologies engaged in HR application Processing:** AI is engaged in HR application processing to ease the tedious work and technologies engaged is as follows:

- Natural Language Processing (NLP) aids AI systems in analyzing resumes and cover letters, automating resume screening by identifying relevant keywords, qualifications, and experiences.
- Machine Learning (ML) algorithms, derived from historical hiring data, enhance candidate screening criteria and predict candidate success by learning patterns and trends, making them powerful tools for candidate selection.
- AI-driven predictive models use historical hiring data and employee performance metrics to predict candidate success, aiding HR professionals in making informed, data-driven decisions.
- AI chatbots streamline candidate communication, application process, and interview scheduling, reducing administrative burden on HR professionals and enhancing the candidate experience.
- AI systems can conduct preliminary video interviews using facial recognition and speech analysis to assess candidates' communication skills, body language, and emotional intelligence, providing valuable data for further evaluation.

## AI influence over HR Application Processing

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- Increased Efficiency and Time Savings: AI in HR automates repetitive tasks by quickly filtering resumes and applications, identifying candidates who meet criteria, reducing manual screening time and allowing HR professionals to focus on high-value tasks like in-depth interviews and strategic decision-making.
- Improved Candidate Matching: AI tools analyze resumes, social media profiles, and past employment history to recommend suitable candidates. They cross-reference this information with job descriptions, enhancing the hiring pool's quality.
- Reduction of Unconscious Bias: AI can mitigate unconscious bias in recruitment by evaluating candidates based on objective factors like skills, qualifications, and experience, thereby minimizing human biases and promoting diversity and inclusion in the workplace, when designed appropriately.
- Enhanced Candidate Experience: AI-powered chatbots and virtual assistants improve candidate satisfaction and engagement by providing real-time updates, real-time application status updates, and interview scheduling, thereby enhancing an organization's employer brand and enhancing the hiring process.
- Data-Driven Decision Making: AI aids HR professionals in making informed decisions by providing datadriven insights into candidates' qualifications, experiences, and potential role fit, and forecasting long-term success based on past hire patterns.
- Data Cleaning: The process entails eliminating any discrepancies or inaccuracies in the data.

## Research gap:

The human resource department is troubled in shortlisting of the candidate's application/s with respect of quantity, as well as quality.

Universe: The study universe is considered as employees working with an engineering discipline degree.

**Sample**: The civil engineers with specialization in different domains from universe is considered for the study.

Sampling technique: Convenient sampling is considered

**Data collection**: Snow ball technique is practiced.

## **Research Question:**

- 1. What is the HR department's experience like while processing applications?
- 2. What impressions do people have of the HR division during the hiring process?

## **Research Objective/s**:

The objective of the study is

- 1) To identify the use of AI to evaluate candidates (e.g., via their voice quality, micro expressions, etc.)  $(DV_1)$  in respect of Work experience (IV).
- 2) To identify the use of AI to assess the success of the onboarding process ( $DV_2$ ) in respect of Work experience (IV).

**Hypotheses**: To test the influence of IV over DV is as follows:

Hypothesis -1

H<sub>10</sub>: Work experience (IV) does not influence AI in evaluating candidates (DV1).

H1<sub>1</sub>: Work experience (IV) does influence AI in evaluating candidates (DV1).

Hypothesis -2

H2<sub>0</sub>: Work experience (IV) does not influence AI to assess the success of the onboarding process (DV2).

H2<sub>1</sub>: Work experience (IV) does influence AI to assess the success of the onboarding process (DV2).

**Responses**: The questionnaire circulated among civil engineers. The total number of responses received is 150. During the evaluation of responses 30 responses are not considered due to incomplete questionnaire or missing responses for couple of questions. Hence, 120 responses are considered for evaluation/s purpose.

**Analysis of the demographics:** The respondents are 75% are of male and remaining 25% are of female (Table 1 & Fig 1) in nature. The respondents are 23.3% are in the age range of 18 years to 25 years; 43.3% are in the age range of 25 years to 35 years; 26.7% are in the age range of 35 years to 45 years and 6.7% are above 45 years age group (Table 2 & Fig 2). The 33.33% are specialized in site engineering works (i.e. all are of male), 15% male and 1% female are specialized in cost engineering domain, 6.67% male and 7.5% female are specialized in planning and engineering domain, 3.33% male and 1.67% female are specialized in structural engineering domain, 1.67% male and 4.17% female are specialized in architectural engineering domain, 5.83%

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male are specialized in project engineering domain, 3.33% male are specialized in project management domain, 5% male are specialized in quality control/quality assurance domain, 2.5% male are specialized in tendering domain (Table 3 & Fig 3). The 16.67% of candidates are holding diploma level certificate, 30% of candidates are holding degree level certificate, 33.33% of candidates are holding PG Dip. level certificate, 20% of candidates are holding master's degree level certificate (Table 4 & Fig 4). The 13.33% are of 0 years to 3 years' experience, 45% are of 3 years to 6 years' experience, 20.83% are of 6 years to 10 years and 6.67% are having more than 10 years (Table 5 & Fig 5). The 61.67% are working in Hyderabad, 17.50% are working in Bangalore, 20.83% are working in Chennai (Table 6 & Fig 6).

**Reliability**: Cronbach alpha ( $\alpha$ ) worked to be 0.699, which is in the range of acceptability, hence the data considered for further analysis.

**Hypotheses**: The data is tested using Anova test, the same is administered over SPSS software. It is to confirm the hypotheses.

# **Hypothesis -1**

The significant value (p) is less than 0.05 for AI in evaluating candidates (DV1) vs work experience (IV). I am unable to accept the null hypothesis; hence, alternate hypothesis is accepted.

# Hypothesis -2

The significant value (p) is less than 0.05 for AI to assess the success of the onboarding process (DV2) vs work experience (IV). I am unable to accept the null hypothesis; hence alternate hypothesis is accepted.

**Inference**: From the study results, it is inferred that experienced candidates are experienced that a) AI is used in evaluating candidates as well as b) AI is used to assess the success of the onboarding process. It is in line the conclusion made by Dr. Srinivas Bandi & Richa Verma; Khan Ilyas & Abdul Qadir; Punamkumar Hinge & Harshal Salunkhe & Mohit Boralkar.

**Discussion:** According to the study's findings, seasoned applicants are better knowledgeable about how artificial intelligence (AI) is used in important HR tasks. In particular, the results show that:

- a) AI is actively utilized in the hiring process to assess applicants, and
- b) AI is used to evaluate how well onboarding initiatives are working.

The degree of work experience of the candidates seems to be closely related to this awareness, suggesting that individuals who have had more exposure to corporate settings are more knowledgeable about the real-world uses of AI in HR.

The study reveals that experienced professionals are more aware of Artificial Intelligence (AI)'s role in HR processes, such as recruitment and onboarding. This is due to their experience with AI-powered tools and systems, such as resume screening algorithms and predictive analytics. The study suggests that as AI becomes more integrated into organizational workflows, the perception and acceptance of these technologies improve with experience. This convergence suggests a need for organizations to focus on knowledge transfer and digital literacy among less experienced employees to ensure smoother technology adoption and maximize AI's potential in HR.

Work experience significantly influences individuals' perceptions of Artificial Intelligence (AI) in Human Resource (HR) functions. Professionals with more experience are more aware of AI applications and more likely to accept these technologies as integral parts of modern HR practices. This relationship is attributed to increased exposure to AI-driven tools in real-world workplace scenarios. Organizations should focus on building awareness and competence among less experienced staff through targeted training, mentoring, and exposure to maximize the adoption and impact of AI technologies.

#### Conclusion:

The study has captured that the AI technology is very much helpful in introducing to evaluate candidates and to assess the success of the onboarding process. It is concluded that AI technology is very much helpful in <a href="http://iier.org">http://iier.org</a>

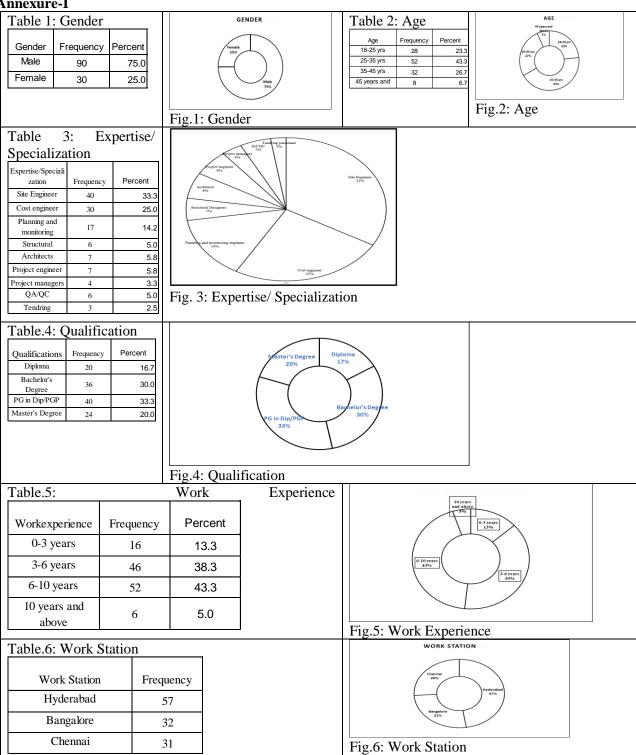
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minimizing the human efforts through enhanced efficiency. Artificial intelligence is set to greatly improve the processing of HR applications, providing advantages like greater efficiency, better candidate alignment, and minimized bias. However, thorough implementation, ongoing monitoring, and ethical considerations are crucial for ensuring that AI's impact on recruitment is advantageous, fair, and transparent. As AI progresses, it is crucial for HR professionals to leverage its possibilities while staying aware of its challenges and constraints.

**Limitations of the study**: The study has been carried over shorter period of time. The all enthusiastic respondents were not reachable easily, hence convenient sampling and snow ball technique engaged. The study shows that construction industry using the AI based recruitment tools. Because AI improves people's lives and ushers in a brighter future if used correctly, its adoption should be seen as a cause for optimism Vasantham, (2021).

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## Annexure-I



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