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# ARTIFICIAL INTELLIGENCE IN RECRUITMENT: EXAMINING THE INFLUENCE OF ATS AND AUTOMATED RESUME SCREENING ON HIRING QUALITY

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**ABSTRACT**
*The adoption of Artificial Intelligence (AI) in organizational activities has significantly changed modern recruitment practices. Technologies such as Applicant Tracking Systems (ATS) and automated resume screening tools are widely used by organizations to improve the efficiency and effectiveness of hiring processes. These systems help recruiters manage large volumes of applications, reduce manual workload, and enhance candidate selection. Despite the advantages, concerns remain regarding transparency, fairness, and the reduction of human involvement in hiring decisions.*

*This study reviews existing research on AI-based recruitment technologies and evaluates their influence on hiring quality. The study focuses on factors such as AI implementation, ATS utilization, automated resume screening, transparency of AI algorithms, and the moderating role of human intervention. A conceptual framework is proposed to understand how these variables interact in improving recruitment outcomes. The study suggests that AI can significantly enhance hiring quality when supported by ethical guidelines and active human supervision.*

**KEYWORDS:** *Artificial Intelligence, Recruitment Analytics, Applicant Tracking System, Resume Screening, Hiring Quality, Human Intervention, Talent Acquisition.*

## INTRODUCTION

Recruitment is one of the most important functions in human resource management because it determines the quality of employees entering an organization. The success and long-term performance of a company largely depend on its ability to attract and select the right talent. Traditionally, recruitment processes involved manual activities such as reviewing resumes, conducting interviews, and evaluating candidates based on recruiter judgment. Although these methods allowed human interpretation and flexibility, they were often time-consuming, inconsistent, and influenced by unconscious bias. As organizations began receiving a large number of job applications, managing the recruitment process through manual methods became increasingly difficult.

With the advancement of digital technologies, recruitment practices have evolved significantly. The emergence of electronic recruitment (e-recruitment) allowed organizations to post job openings online and receive applications through digital platforms. This development expanded the reach of recruitment activities and enabled organizations to access a wider pool of candidates. However, the increase in online applications also created new challenges for recruiters, particularly in terms of efficiently screening and evaluating large volumes of resumes.

In recent years, Artificial Intelligence (AI) has emerged as a transformative technology in recruitment and talent acquisition. AI refers to computer systems that are capable of performing tasks that normally require human intelligence, such as data analysis, pattern recognition, and decision support. In recruitment, AI technologies are used to automate several stages of the hiring process, including resume screening, candidate matching, interview scheduling, and recruitment analytics. By analyzing large datasets, AI systems can identify patterns in candidate profiles and predict the likelihood of job success.

One of the most widely used AI-based tools in recruitment is the Applicant Tracking System (ATS). An ATS is a software application that helps organizations manage and streamline the recruitment process. It allows recruiters to collect, store, and organize candidate applications in a centralized database. Modern ATS platforms incorporate AI capabilities such as resume parsing, keyword analysis, and automated candidate ranking. These features enable organizations to quickly identify candidates who meet job requirements and reduce the time spent on manual screening.

Another important AI application in recruitment is automated resume screening. Automated screening systems use machine learning algorithms and natural language processing techniques to analyse candidate resumes and evaluate their suitability for a particular role. These systems assess multiple factors such as skills, work experience, educational qualifications, and the presence of relevant keywords. As a result, recruiters can focus their attention on a smaller group of highly qualified candidates, thereby improving recruitment efficiency.

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The use of AI technologies in recruitment offers several advantages for organizations. First, it significantly reduces the time required to screen applications and shortlist candidates. Second, AI can help improve consistency in candidate evaluation by applying standardized criteria during the screening process. Third, data-driven recruitment decisions may reduce the impact of human bias and improve fairness in hiring. Additionally, AI systems can provide valuable insights through recruitment analytics, helping organizations optimize their talent acquisition strategies.

Despite these benefits, the integration of AI in recruitment also raises several concerns and challenges. One major concern is algorithmic bias, where AI systems may unintentionally replicate historical biases present in the data used to train them. For example, if past hiring decisions favoured certain demographic groups, AI systems may learn and repeat similar patterns. Another issue is the lack of transparency in some AI systems, often referred to as the "black box" problem, where recruiters may not fully understand how the system arrives at certain decisions. These concerns highlight the importance of responsible and ethical AI implementation in recruitment processes.

Another critical issue related to AI-driven recruitment is the reduced role of human judgment. While AI systems are highly efficient in processing data, they may lack the ability to evaluate certain qualitative aspects of candidates, such as communication skills, emotional intelligence, creativity, and cultural fit. These factors often require human interpretation and contextual understanding. Therefore, relying solely on automated systems may lead to incomplete or inaccurate hiring decisions.

For this reason, many organizations are adopting hybrid recruitment models that combine the strengths of AI technologies with human expertise. In such models, AI tools are used to assist recruiters by performing tasks such as resume screening and candidate ranking, while final hiring decisions are made by human professionals. This approach allows organizations to benefit from the efficiency and analytical capabilities of AI while maintaining the ethical judgment and contextual understanding provided by human recruiters.

An important outcome of the recruitment process is hiring quality. Hiring quality refers to the ability of an organization to select candidates who perform well in their roles, contribute positively to organizational goals, and remain with the company for a longer period. High-quality hiring improves productivity, reduces employee turnover, and strengthens organizational performance. As organizations increasingly rely on AI-based recruitment technologies, it becomes essential to understand whether these systems truly improve hiring quality.

Although many studies have examined the efficiency benefits of AI in recruitment, relatively limited research has focused on its direct impact on hiring quality. Additionally, the role of human intervention in moderating the relationship between AI tools and recruitment outcomes has not been sufficiently explored. Understanding how AI technologies and human decision-making interact is crucial for designing effective recruitment systems.

Therefore, this study aims to examine the influence of AI-driven recruitment technologies, particularly Applicant Tracking Systems and automated resume screening tools, on hiring quality. The research also investigates the moderating role of human intervention in ensuring fair, reliable, and effective hiring decisions. By exploring these relationships, the study seeks to contribute to both academic research and practical HR management by providing insights into the effective integration of AI in recruitment processes.

## 2. EVOLUTION OF RECRUITMENT PRACTICES

### 2.1 Traditional Recruitment

Traditional recruitment relied heavily on manual resume evaluation, recruiter intuition, and face-to-face interviews. Although human judgment allowed contextual interpretation, it often resulted in inconsistencies and bias.

### 2.2 E-Recruitment and Digital Transformation

The early 2000s saw the emergence of online job portals and digital application systems. E-recruitment reduced geographic limitations and expanded candidate reach. However, the volume of applications increased significantly, creating new challenges in screening efficiency.

### 2.3 AI-Driven Recruitment

AI-driven recruitment represents the next stage in digital transformation. It incorporates machine learning (ML), natural language processing (NLP), predictive analytics, and big data analysis to streamline talent acquisition. AI systems now assist in:

- Resume parsing and ranking
- Skill-job matching
- Candidate shortlisting
- Chat bot communication
- Predictive performance forecasting

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This transformation has shifted recruitment from intuition-based to data-driven decision-making.

## 3. ARTIFICIAL INTELLIGENCE IN RECRUITMENT

AI in recruitment refers to the application of computational algorithms capable of learning from data to support hiring decisions. These systems analyze historical hiring patterns, candidate data, and performance outcomes to improve predictive accuracy.

### 3.1 Machine Learning and Predictive Analytics

Machine learning models analyze large datasets to identify patterns that predict candidate success. Predictive hiring analytics estimate job performance probability, retention likelihood, and competency alignment.

### 3.2 Natural Language Processing (NLP)

NLP enables AI systems to interpret resume content, extract skills, and match them with job requirements. Resume parsing converts unstructured text into structured data for automated analysis.

### 3.3 Chat bots and AI Assistants

AI-powered chat bots enhance candidate engagement by answering queries, scheduling interviews, and providing application updates.

## 4. APPLICANT TRACKING SYSTEMS (ATS)

Applicant Tracking Systems (ATS) are software applications designed to streamline and manage the recruitment process within organizations. These systems help HR professionals handle large volumes of job applications efficiently by organizing and automating various stages of recruitment. Modern ATS platforms have evolved to integrate **Artificial Intelligence (AI)** features that enhance the recruitment process through automated resume parsing, candidate ranking, and intelligent filtering mechanisms. By using AI-driven algorithms, ATS can identify suitable candidates by analyzing keywords, skills, and qualifications mentioned in resumes. As a result, organizations can significantly reduce manual screening efforts and improve the overall efficiency of hiring processes.

### 4.1Functions of ATS

Applicant Tracking Systems perform several important functions that support recruitment activities. One of the primary functions is **resume collection and storage**, where all candidate applications are stored in a centralized database for easy access and management. Another key function is **keyword-based filtering**, which enables the system to scan resumes for specific keywords related to job requirements and shortlist the most relevant candidates. ATS also supports **candidate tracking**, allowing recruiters to monitor applicants throughout different stages of the hiring process. Additionally, the system facilitates **automated communication**, such as sending interview invitations or rejection notifications to candidates. Furthermore, ATS provides **recruitment analytics**, which helps organizations analyze hiring trends, recruitment efficiency, and candidate sources.

### 4.2 Advantages of ATS

The implementation of ATS offers several advantages to organizations. Firstly, it improves **process efficiency** by automating repetitive recruitment tasks and reducing the time required for candidate screening. Secondly, ATS helps in **reducing administrative burden** for HR professionals by managing large volumes of applications systematically. Another significant advantage is **standardized candidate evaluation**, where all applicants are assessed based on consistent criteria, reducing inconsistencies in recruitment decisions. Moreover, ATS enables **data centralization**, allowing organizations to store recruitment-related data in one platform for easier analysis and reporting.

### 4.3 Limitations of ATS

Despite its advantages, ATS also has certain limitations. One of the major limitations is the **over-reliance on keyword matching**, where qualified candidates may be overlooked if their resumes do not contain specific keywords expected by the system. Another issue is the **potential exclusion of capable candidates** whose qualifications may not align perfectly with automated filters. Additionally, ATS often lacks **contextual interpretation**, meaning it may not fully understand the relevance of certain experiences or skills described in a resume. Therefore, the effectiveness of ATS largely depends on proper system configuration and the expertise of recruiters who manage the system.

## 5. AUTOMATED RESUME SCREENING

Automated resume screening refers to the use of Artificial Intelligence algorithms and machine learning techniques to evaluate job applicants and determine their suitability for a particular role. These systems analyze resumes automatically and rank candidates based on predefined criteria set by organizations. Automated screening tools reduce the manual workload of recruiters by quickly identifying candidates who match the job requirements. By leveraging AI technologies, organizations can process a large number of applications within a short time and focus their attention on the most qualified candidates.

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## 6. SCREENING CRITERIA

Automated resume screening tools evaluate candidates based on multiple criteria. One of the key factors is **skill alignment**, where the system checks whether the candidate's skills match the job requirements. Another important criterion is **experience relevance**, which examines whether the applicant has relevant work experience in a similar role or industry. The system also considers **educational background**, ensuring that candidates meet the minimum academic qualifications required for the job. Additionally, **keyword frequency** plays a significant role, as the presence of specific keywords in resumes indicates alignment with job descriptions. Some advanced systems also analyze **behavioral indicators**, such as leadership experience or teamwork abilities, based on information provided in the resume.

## 7. IMPACT ON RECRUITMENT EFFICIENCY

Automated resume screening has a significant impact on recruitment efficiency. Research studies indicate that AI-based screening tools help organizations **reduce the time required to hire suitable candidates**, often referred to as "time-to-hire." These systems enable recruiters to review large volumes of applications quickly and focus only on shortlisted candidates. As a result, recruiters experience **improved productivity**, and organizations benefit from faster recruitment cycles and better utilization of HR resources.

## 8. ETHICAL CONCERNS

While automated screening offers several advantages, it also raises important ethical concerns. One major concern is **algorithmic bias**, where AI systems may unintentionally favor or discriminate against certain groups based on biased training data. There is also a risk of **discrimination**, especially if the system replicates historical hiring patterns that may contain biases. Another issue is the **lack of explainability**, where AI decisions are not always transparent or easily understandable by recruiters or candidates. Furthermore, **data privacy concerns** arise because candidate information is stored and processed by digital systems. These concerns highlight the importance of implementing transparent AI governance frameworks in recruitment practices.

## 9. HIRING QUALITY

Hiring quality refers to the effectiveness of the recruitment process in selecting candidates who contribute positively to organizational performance and long-term success. High-quality hiring ensures that employees not only possess the required technical skills but also demonstrate strong performance, commitment, and cultural alignment with the organization. Measuring hiring quality is essential for evaluating the effectiveness of recruitment strategies and identifying areas for improvement in talent acquisition processes.

### 9.1 Dimensions of Hiring Quality

Hiring quality can be evaluated through several dimensions. The first dimension is **job performance**, which assesses how effectively employees perform their assigned tasks and responsibilities. Another dimension is **Key Performance Indicator (KPI) achievement**, where employees are evaluated based on their ability to meet performance targets. **Employee retention rate** is also an important factor, as high-quality hires tend to remain with the organization for longer periods. **Cultural fit** represents the alignment between an employee's values and the organizational culture. Lastly, **learning adaptability** reflects an employee's ability to acquire new skills and adapt to changing work environments.

### 9.2 Measurement Approaches

Organizations use several approaches to measure hiring quality. One common method is **supervisor evaluations**, where managers assess employee performance over time. Another approach involves analyzing **performance appraisal scores**, which provide structured feedback on employee achievements and areas for improvement. Organizations also examine **employee retention statistics** to determine whether hires remain with the company for a significant duration. Additionally, **productivity metrics** such as output levels, efficiency, and contribution to organizational goals are used to evaluate the effectiveness of recruitment decisions. AI-driven recruitment systems claim to enhance hiring quality by using predictive analytics and objective evaluation methods.

### 9.3 Influence of AI on Hiring Quality

Artificial Intelligence has a growing influence on hiring quality through various mechanisms. One of the key contributions of AI is **enhanced candidate-job matching**, where algorithms analyze candidate profiles and match them with job requirements more accurately. AI also helps in the **reduction of human bias** by applying standardized evaluation criteria during resume screening. Another advantage is **data-driven evaluation**, where recruitment decisions are supported by data analysis rather than subjective judgment. AI systems also improve **screening consistency**, ensuring that all applicants are assessed based on the same parameters. Furthermore, AI technologies enable **predictive performance forecasting**, which estimates a candidate's potential job performance based on historical data and behavioral patterns. However, despite these advantages, empirical research on the direct relationship between AI usage and improved hiring quality remains limited, indicating the need for further academic studies.

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## 10. MODERATING ROLE OF HUMAN INTERVENTION

Human intervention plays a critical role in ensuring that AI-based recruitment systems produce fair and effective outcomes. Although AI technologies can process large volumes of data efficiently, human recruiters provide essential judgment and contextual understanding that machines may lack. Human oversight helps organizations maintain ethical recruitment practices and avoid potential biases introduced by automated systems.

Human involvement in recruitment is important for several reasons. Firstly, recruiters provide **ethical judgment** when evaluating candidates and making final hiring decisions. Secondly, humans possess **contextual understanding**, which allows them to interpret candidate experiences and achievements more accurately than automated systems. Thirdly, recruiters can evaluate **soft skills**, such as communication, leadership, and emotional intelligence, which are difficult for AI systems to measure accurately. Lastly, human professionals play an important role in **monitoring and correcting biases** that may arise in AI-based screening processes.

## 11. HYBRID RECRUITMENT MODELS

Many organizations are adopting **hybrid recruitment models** that combine AI technologies with human decision-making. In such models, AI is used for tasks such as resume screening and candidate shortlisting, while final hiring decisions are made by human recruiters. This approach ensures that organizations benefit from the efficiency of AI while maintaining the human judgment necessary for fair and effective recruitment outcomes.

## 12. BENEFITS OF AI IN RECRUITMENT

The adoption of Artificial Intelligence in recruitment provides several benefits to organizations. One major benefit is **reduced time-to-hire**, as AI systems can quickly process and analyze large volumes of job applications. AI also helps organizations achieve **cost savings** by reducing the need for extensive manual screening processes. Another advantage is **increased scalability**, allowing companies to manage recruitment activities efficiently even when dealing with thousands of applicants. Additionally, AI improves **accuracy** in candidate evaluation by analyzing data objectively. Finally, AI contributes to **standardization**, ensuring consistent recruitment procedures across different departments and job roles.

## 13. CHALLENGES AND RISKS

Despite its advantages, AI in recruitment also presents several challenges and risks. One significant challenge is **algorithmic bias**, where AI systems may unintentionally replicate existing biases present in historical hiring data. Another issue is **transparency**, as some AI systems operate as "black boxes," making it difficult to understand how decisions are made. Organizations must also address **legal and compliance risks**, particularly regarding equal employment opportunity laws. Additionally, **data security concerns** arise due to the storage and processing of sensitive candidate information. Finally, excessive reliance on automation may lead to **over-automation**, where human judgment is minimized in recruitment decisions. Therefore, organizations must establish proper governance frameworks to manage these risks effectively.

## 14. RESEARCH GAPS

Although the use of AI in recruitment has increased significantly in recent years, several research gaps still exist in this field. Firstly, there are **limited longitudinal studies** examining the long-term performance of employees selected through AI-based recruitment systems. Secondly, many studies focus on recruitment efficiency rather than **hiring quality metrics**, leaving a gap in understanding the true impact of AI on employee performance. Thirdly, there is a **lack of cross-cultural research**, as most studies have been conducted in specific geographic regions or industries. Lastly, there is **minimal exploration of human-AI interaction**, particularly regarding how recruiters collaborate with AI systems during decision-making processes. Future research should adopt **mixed-method and quantitative approaches** to better understand the effectiveness and implications of AI-driven recruitment technologies

## 15.LITERATURE REVIEW

The recruitment function has undergone a significant transformation over the last two decades due to rapid technological advancements. The integration of Artificial Intelligence (AI) into recruitment processes has reshaped how organizations attract, screen, and select candidates. This chapter reviews existing literature related to AI in recruitment, Applicant Tracking Systems (ATS), resume screening technologies, and their impact on hiring quality.
This review forms the theoretical and empirical foundation for the present study
Strategic recruitment practices are consistently linked to improved retention

### 15.1Almeida, Junça Silva & Lopes (2025)

Almeida, Junça Silva and Lopes (2025) examined the adoption of Artificial Intelligence in recruitment processes. Their study found that recruiters are more likely to adopt AI tools when they perceive them as reliable and easy to use. The researchers observed that AI significantly reduces manual resume screening time and improves operational efficiency. However, concerns were raised regarding trust in automated decision-making. Transparency and system accuracy were identified as essential for acceptance. The study concluded that AI positively influences hiring quality when supported by human oversight.

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Benhmama & Bennani (2024)
Benhmama and Bennani (2024) explored the organizational factors influencing the implementation of AI-based recruitment systems. Their findings revealed that cultural readiness and managerial support are crucial for successful adoption. AI tools improved candidate shortlisting speed and minimized administrative workload. The study highlighted that training HR professionals enhances system effectiveness. While efficiency improved, the authors stressed the need for monitoring to maintain hiring fairness. Overall, AI was found to enhance both recruitment efficiency and quality.

**15.3 Campion (2024)**
Campion and Campion (2024) investigated machine learning applications in large-scale hiring. Their research showed that AI systems increase objectivity in candidate screening by reducing subjective human bias. Organizations with high applicant volumes benefited significantly from automation. However, the study noted that AI lacks contextual judgment in complex decisionmaking. The authors recommended combining AI screening with human evaluation. They concluded that hybrid models yield better hiring quality outcomes.

**15.4 .Capasso et al. (2025)**
Capasso et al. (2025) focused on ethical considerations in AI-driven recruitment systems. Their study highlighted the risks of algorithmic bias in resume screening processes. The researchers emphasized the importance of transparent and explainable AI models. They suggested regular audits to prevent discrimination. Ethical governance frameworks were recommended for responsible AI implementation. The study concluded that fairness and transparency directly impact hiring quality and organizational reputation.

**15.5 Clavel et al. (2025)**
Clavel et al. (2025) analyzed AI-powered virtual interview systems and their influence on recruitment decisions. The study found that AI interviews improved consistency and standardized candidate evaluation. Automation reduced interviewer bias and ensured structured assessment. However, candidates expressed mixed reactions regarding the absence of human interaction. The authors emphasized the importance of empathy and human connection. They concluded that AI enhances assessment quality when balanced with personal interaction.

Proposed Conceptual Framework


**15.7 Conceptual Framework of the Study**
The conceptual framework of this study focuses on examining the relationship between Artificial Intelligence technologies used in recruitment and the overall quality of hiring outcomes. In this framework, several **independent variables** are considered to influence the recruitment process. These include **Artificial Intelligence usage, Applicant Tracking System usage, resume screening automation, and the transparency of AI systems**. Artificial Intelligence usage refers to the adoption of intelligent technologies that assist recruiters in analyzing candidate data and improving decision-making. Applicant Tracking System (ATS) usage represents the use of digital recruitment platforms that manage job applications and streamline hiring workflows. Resume screening automation involves the use of algorithms to evaluate and shortlist candidates based on predefined criteria such as skills, qualifications, and experience. Additionally, transparency of AI refers to the extent to which recruitment algorithms and decision-making processes are understandable, explainable, and accountable to users.

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### 15.8 Dependent variable

The **dependent variable** in this study is **hiring quality**, which represents the effectiveness of recruitment decisions in selecting candidates who demonstrate strong job performance, organizational commitment, and long-term value to the organization. Hiring quality is an important outcome variable because it reflects how well the recruitment system identifies candidates who can contribute to organizational success.

In addition to the independent and dependent variables, the study introduces a **moderating variable**, which is **human intervention**. Human intervention refers to the involvement of recruiters and hiring managers in reviewing, interpreting, and validating AI-generated recruitment decisions. While AI technologies can analyze large volumes of data efficiently, human professionals provide contextual judgment, ethical considerations, and soft skill evaluation that automated systems may not fully capture. The framework therefore suggests that human involvement plays a significant role in ensuring the fairness, reliability, and effectiveness of AI-assisted recruitment decisions.

Overall, the conceptual framework proposes that the **adoption of AI-based recruitment technologies positively influences hiring quality** by improving candidate-job matching, enhancing screening accuracy, and reducing recruitment time. However, the framework also suggests that the presence of **human intervention strengthens decision reliability**, ensuring that automated recommendations are carefully evaluated before final hiring decisions are made.

### 15.9 Practical Implications

The findings of this study provide several practical implications for organizations seeking to implement AI technologies in recruitment. Firstly, organizations should prioritize the adoption of **explainable and transparent AI systems** that allow recruiters to understand how candidate evaluations are generated. Transparency in AI algorithms helps build trust among recruiters and job applicants while reducing concerns related to bias and discrimination. Secondly, companies must invest in **training recruiters and HR professionals in AI oversight**, enabling them to effectively interpret algorithmic recommendations and monitor system performance. Thirdly, organizations should conduct **regular ethical audits** of AI recruitment systems to ensure compliance with fairness, diversity, and equal employment opportunity standards. Finally, the adoption of **hybrid decision-making models**, where AI tools support recruitment processes but final decisions are made by human professionals, should be encouraged. Such models help organizations balance technological efficiency with human judgment and ethical responsibility.

### 15.10 Theoretical Contributions

From a theoretical perspective, this study contributes to the existing body of knowledge by integrating concepts from **technology adoption theory and human resource management literature**. By combining these perspectives, the research provides a multidimensional understanding of how emerging technologies influence recruitment practices and hiring outcomes. The study highlights the role of AI as a technological innovation that transforms traditional recruitment processes, while also emphasizing the continued importance of human involvement in decision-making. This integrated approach helps bridge the gap between technological advancements and human resource management practices, thereby offering a comprehensive framework for understanding AI-driven recruitment and its implications for hiring quality

### 15.11 Conclusion

AI technologies such as ATS and automated resume screening tools have significantly transformed recruitment processes. Evidence suggests a positive relationship between AI adoption and hiring quality, particularly in terms of efficiency and candidate-job matching. However, ethical concerns and algorithmic bias emphasize the necessity of human oversight. Sustainable recruitment practices require a balanced integration of AI capabilities and human expertise.

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