Chapter 1

Who Selects the Best? Artificial Intelligence Era in Human Resources

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Abstract

This chapter aims to discuss and introduce the role of artificial intelligence (AI) in the recruitment process from both conceptual and practical perspectives, with examples from different applications. Every segment of the organization seeks to adopt and use the technology that AI can provide. Human resource management (HRM) is one of the departments of the organization that has been affected by the constant digital transformation. HRM uses the implementation of AI during the recruitment process. Most of the organizations are open to change and adopt AI-driven recruitment systems. Along with multiple stages of the hiring process, the organizations require major applications, including intelligent candidate sourcing, automated resume screening, algorithmic matching, and AI-conducted first interviews using chatbots, providing a comprehensive explanation of the operational mechanisms of these technologies and their integration into contemporary recruitment workflows. Recruitment carried out by AI, in terms of its efficiency, consistency, and data support, is assessed in comparison to significant limitations and risks, among them transparency and data privacy problems. Emphasis is given to candidate experience, fairness in AI-based evaluation, and the reliability of AI-based interviews in the early stages of the recruitment process. The role, competencies, and accountability in decision-making in organizations, related to AI adoption, are addressed in the chapter. Moreover, the present chapter also attempts to sketch an outline

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of various issues to be considered in terms of the practical implementation of AI-conducted interviews. Thus, by discussing the present practices and trends, this chapter attempts to provide a balanced framework for understanding AI-supported recruitment, along with providing necessary guidance to various organizations for the effective implementation of AI in the recruitment process.

1. Introduction

Some of the initial conflicts and concerns between humans and machines have significantly contributed to the debate on the place of technology in the workplace, especially concerning trust, control, and the possibility of replacing human judgment in decision-making within organizations (Küçükeşmen et al. 2023; Işıldak & Tunca, 2018). AI is increasingly used for recruitment purposes, although there is limited research of its effect on hiring speed and candidate selection (Aka et al., 2025). In the field of HRM, AI-driven tools have become one of the key transformative factors, significantly changing the manner in which organizations attract, evaluate, or select their workforce. Organizations increasingly utilize AI-based technology to activate their recruitment process, including sourcing applicants, resume screening, scheduling interviews, and initial evaluation, to improve efficiency while facilitating the decision-making processes, which have been the most labor-intensive and time-consuming stages for the organizations (Dadaboyev et al., 2025).

Studies on the integration of AI tools in talent recruitment processes have proven to be beneficial to organizations, such as faster processing of candidate data, cost-effectiveness, candidate experience, and elimination of human bias. AI tools apply machine learning algorithms, natural language processing, and predictive analytics to identify patterns in candidate qualifications and behaviors that may not be apparent to recruiters, thus enhancing the quality and consistency of talent acquisition processes (Swain and Malik, 2025). Organizations can realize the advantages of AI by considering its facilitating role in different capacities (Vijayasree, 2025). This chapter seeks to conduct an extensive research of the transformative role of AI in modern recruitment processes.

Despite these promising advantages, the employment of AI systems in recruitment has also been related to a range of critical ethical, legal, and practical concerns. For example, concerns over algorithmic bias, data privacy, and transparency of AI decision-making processes are still receiving attention from both scholars and practitioners. Algorithmic systems may learn from existing hiring practices and thus perpetuate existing inequalities in society. Such systems may thus discriminate against different demographic groups in society (Dadaboyev et al., 2025). Additionally, candidates' experiences in

AI-mediated recruitment tools may differ from one candidate to another. Such experiences can affect perceptions of fairness and legitimacy in organizational practices (Horodyski, 2023). In light of these developments and debates, this chapter is designed to examine AI in recruitment practices by analyzing its applications, advantages, and associated challenges. Additionally, the chapter explores how digital transformation is impacting recruitment practices and organizational decision-making in human resource management. In doing so, the chapter critically examines how AI influences recruitment practices in terms of efficiency, quality of candidate selection, and perceptions of fairness in organizational practices.

2. Digital Transformation in Human Resource Management

Digital transformation in HRM can be defined as the integration of digital technology into every aspect of the HRM department, which has a fundamental impact on how organizations acquire, develop, and retain their human resources. Digital transformation is not simply a matter of digitalizing documents or processes, but rather the integration of digital technologies into all aspects of organizational functions, which changes the essence of how work is carried out (Vial, 2021).

In the context of HRM, digital transformation has become a strategic necessity, facilitated by technological advancements such as AI, big data, human resource HR information systems, and cloud-based technology, which can aid decision-making and improve operational efficiencies. Digital transformation in HRM is defined as follows: "the use of digital technology to improve the way HRM operations are performed, making them more agile, responsive, and able to adapt to the changing business environment" (Asike et al., 2025).

One of the key aspects of this change is the transition from labor-intensive conventional HR practices to digital-based practices that not only speed up the process but also provide real-time access to data, thereby improving the overall employee experience. For instance, it has been identified that not only can the adoption of digital technology speed up the hiring process, but also improve the overall talent management, engagement, performance, and learning (Milhem et al., 2024). Research suggests that the adoption of digital technology in the HR function can improve organizational effectiveness, agility, and competitive advantage as the HR function evolves toward an analytical role (Asike et al., 2025). Moreover, digital transformation repositions HRM as a key facilitator of organizational strategic changes. This is achieved through ensuring that investments in HR technology are aligned with overall business strategies. Such strategies include leveraging AI and analytics to enable objective decision-making and a deeper understanding of workforce dynamics.

2.1. Conceptual Foundations of AI in Recruitment

The conceptual bases of AI in the field of recruitment are rooted in the inter-disciplinary amalgamation of the disciplines of management strategy, behavioral science, socio-technical theory, and ethics (Singh et al., 2025). These conceptual bases not only account for the adoption of AI for the purpose of increasing efficiency but also account for the cognitive, organizational, and societal interfaces of AI. The integration of AI in the field of recruitment has resulted in an impactful influence on the process of attracting, selecting, and recruiting individuals. Besides, AI-based tools have become integral components of the different stages of the recruitment process. This part of the current chapter utilizes highly cited and foundational research to discuss the major applications, theoretical underpinnings, and debates surrounding AI in recruitment. AI in HRM has been expounded through numerous theoretical lenses that seek to clarify its strategic, social, and ethical aspects. The key conceptual frameworks for AI in recruitment are as follows:

- **The Resource-Based View (RBV):** The resource-based view (RBV), which views human capital as an important driver of competitive advantage (Barney, 1991). AI-based HR systems support this view by facilitating the identification, development, and utilization of talent. In relation to AI-based recruitment, this framework argues that for an organization to thrive, its resources should align to adopt AI-based recruitment technologies (Willie, 2025).
- **Socio-Technical Systems Perspective**: From a socio-technical perspective, AI interacts with organizational structures and cultures, and with human actors in an organization. The success of AI in HRM would depend upon how well technology has been integrated with social processes like communication, trust, and employee participation (Sandeep et al.,2025).
- **Algorithmic Decision-Making:** Algorithmic decision-making has emerged as a key concept in AI-based HR practices. The algorithms process data to aid decisions in employee selection, promotion, and appraisal. Although it ensures objective and consistent decisions, it may perpetuate existing biases in the data used to develop algorithms, thereby undermining the concept of fairness and meritocracy in HRM (Rodgers et al., 2023).
- **Ethical and Governance Frameworks**: One of the foundational components of AI in HRM is ethical considerations. Concerns over data privacy, consent, and transparency require proper governance to guide the application of AI in managing people (Kumar, 2025). The

principles of responsible AI highlight the importance of explainability, fairness, and human oversight in ethical HRM practices.

2.2. Advantages & Disadvantages of AI in Recruitment

In the usual way of hiring people, time and location are often important issues. Hiring someone can be a long and complicated process. It can include lots of job advertisements, several interviews, and difficult decisions that are often made in a particular place. Using AI tools can help organizations get around geographical limitations and access a global talent pool, no matter where in the world they are. After looking at how people feel about using AI to recruit, there are a few important points that stand out. One major advantage is that AI enables faster and more precise outcomes compared to traditional methods. By leveraging AI, the selection process becomes both more efficient and reliable (Horodyski, 2023).

AI tools are becoming common in recruitment, from screening resumes to assessments, due to their efficiency and ability to automate various aspects of hiring. They can swiftly process large amounts of data to identify patterns, reducing bias by executing tasks objectively. This makes AI appealing for recruitment efficiency, cost reduction, and quality of hire. But the deployment of AI in recruitment has challenges. Lack of human intuition and potential ethical concerns raise questions about the ability of AI to make hiring decisions (Yanamala, 2021).

The use of AI recruitment tools raises significant concerns that demand careful attention and proactive solutions through both technical and managerial measures (Raub, 2018). While growing evidence suggests that AI systems may be more impartial than often assumed, algorithms can still produce biased outcomes, leading to unfair employment opportunities and discrimination without accountability. To fully harness the benefits of AI in recruitment, organizations must carefully evaluate the tools they adopt, ensure the implementation of transparent and accountable algorithms, and actively promote racial and gender diversity within the technology sector (Chen, 2023).

It is evident that organizations may encounter challenges in identifying and recruiting a diverse range of candidates due to the inherent bias of AI-based recruitment engines. These biases can be influenced by factors such as region, gender, and ethnicity, potentially leading to a gradual homogenization of team composition. This phenomenon can result in the diminution of the benefits that diversity can offer, including the enhancement of creativity, innovation, and inclusivity (Kodiyan, 2019). Hiring is one of the most significant decisions for HR professionals, employers, or entrepreneurs, as

these potential decisions have short and long-term outcomes that directly affect the organization's income, sustainability, and overall performance and productivity. These decisions also have inevitable impacts on employers. Thus, HR professionals and employers are expected to find the best people for the job quickly and efficiently when they don't have enough time and money to do it (Raghavan et al., 2020).

3. AI-Based Assessment Tools

3.1. Strategies of AI in Recruitment

In the modern business environment, it has been observed that organizations are extending their scope of recruitment to the global market, seeking individuals with both experience and growth potential. In today's business environment, it has been observed that organizations are using AI tools to find the most appropriate candidate for a vacant position. Therefore, it can be said that conventional methods of recruitment are not found appropriate by organizations, and AI tools are used extensively. Indeed, on algorithmic recruitment platforms, it has been found that the organization involved in placing a job advertisement has the authority to determine the target audience pool during the production of a job advertisement, depending on certain criteria (Langer & König, 2023).

Davenport and Ronanki (2018) posit that AI provides capabilities that support three areas of business operations. Firstly, the potential of AI to enhance business process automation is evident in its provision of cognitive capabilities within software. For instance, organizations employ AI to facilitate tasks requiring automated decision-making, such as credit processing and supply chain management, and to furnish cognitive insights into customer purchasing behavior. Besides, in order to support HRM, the National Aeronautics and Space Administration (NASA) found that AI-enhanced HR processes enabled 86% of HR tasks to be completed without human intervention (Davenport & Ronanki, 2018).

The utilization of AI technology, such as machine learning algorithms, natural language processing, and predictive analysis, has the potential to be of significant benefit within the domain of recruitment systems. Industries always remain in constant need of recruiting competent and efficient individuals in order to fulfill their requirements and attain corporate objectives. The utilization of AI technology has the potential of minimizing human interventions while increasing processing speeds. The process of categorizing job postings on dedicated recruitment websites has the potential of allowing new job applicants access to such job postings with ease and efficiency. The

utilization of AI technology is an ongoing process, which has the potential of allowing recruitment operations to be conducted at any time and any location (Johnson et al., 2021).

Machine learning algorithms are created with the sole intention of scanning the resume and selecting the best candidate according to specific parameters. Machine learning algorithms can be used to train a large dataset consisting of resumes and make predictions regarding the suitability of a candidate for a specific role. Machine learning algorithms are also being used to eliminate potential biases in the hiring process (Roy et al., 2020). When compared to traditional hiring strategies, such as resume screening or employee referrals, AI and machine learning algorithms have the potential to identify patterns that are normally overlooked. This approach is used to select the best candidate for a specific role in a company with greater ease and effectiveness (Faugoo, 2024).

In order to mitigate the risk of algorithmic bias, the algorithm must be designed and trained using unbiased data and criteria. Nevertheless, the efficacy of AI-based hiring strategies is contingent on numerous factors. For instance, the effectiveness of predictive analytics may be contingent on the quality of the data utilized to train the algorithms. Predictive analytics is the process of utilizing algorithms for the analysis of data to predict outcomes. Within the context of the hiring process, the utilization of predictive analytics has been shown to facilitate the identification of candidates who demonstrate a high probability of demonstrating effective performance within a particular role (Bakal et al. 2026). The quality of the data utilized in training algorithms is of paramount importance for the efficacy of predictive analytics. In the event of substandard data quality, the employment of algorithms may result in the generation of erroneous predictions, which can consequently precipitate unfavorable hiring decisions. Conversely, the efficacy of data training can be enhanced by the elimination of biased language and criteria from job descriptions and the utilization of data sets that reflect diverse experiences. Moreover, human supervision is essential to maintain fairness and impartiality in decision-making processes. Experts need to periodically monitor and assess the algorithm's performance to detect and mitigate potential biases (Albassam, 2023). Several strategies have been formulated concerning the methods employed in AI-supported recruitment processes (Albassam, 2023). The strategies have been identified as follows:

A. Resume Scanning

Resume screening constitutes a pivotal component within the broader hiring process, encompassing the meticulous evaluation of resumes to discern prospective candidates who are deemed to possess the requisite qualifications

and proficiencies for a specific position. However, this process can be both time-consuming and challenging, particularly for large organizations that receive a high volume of applications for a single position (Derous & Ryan, 2018). In order to address this challenge, a significant number of companies are adopting AI-powered resume screening tools to automate the process and reduce time expenditure (Vedapradha et al., 2019). The employment of AI algorithms for the purpose of resume screening is predicated on the analysis of resumes in accordance with a predetermined set of criteria, including, but not limited to, job requirements, qualifications and skills (Hunkenschroer & Luetge, 2022). These algorithms have been shown to facilitate the rapid and accurate identification of candidates who meet the required criteria (Smith, 2023). This, in turn, enables hiring specialists to focus on the most suitable candidates for the role, thereby reducing the time and effort required for manual screening.

In this domain, keyword scanning is one of the most frequently used techniques. The keywords used in job postings are matched with phrases in the resumes with the objective of evaluating the suitability of applicants to jobs. To exemplify this assertion, let us take a situation in which a job posting indicates that proficiency in Java is necessary for applicants. In such a case, it would be expeditiously possible for the system to identify applicants with knowledge in Java. However, in modern advanced systems, it has been observed that the application of job posting phrases is not limited to the presence of keywords alone. Moreover, it has been noted that the application of keywords depends upon the context in which it has been used in job postings, professional growth trajectory, and correlation between knowledge and experience (Chen, 2023).

B. Candidate Matching

Candidate matching is defined as the analysis of extensive data sets employing machine learning algorithms to ascertain the most appropriate candidates for a position based on their qualifications, skills, and experience (Cardoso et al., 2021). The objective of this approach is to optimize the hiring process and enhance the precision of the selection process by minimizing the time and effort expended on identifying suitable candidates. A plenty of candidate matching algorithms exhibit distinct strengths and weaknesses. For instance, while certain algorithms employ natural language processing techniques to extract pertinent information from CVs or job descriptions, others utilize predictive analytics to identify high-potential candidates based on past performance or other relevant data points (Soni et al., 2020).

C. Video Interviewing

Video interview analysis is an AI-based recruitment technique that has gained increasing attention in recent years. This method involves the analysis

of job candidates' video interviews using natural language processing and facial recognition algorithms to assess their suitability for the position (Dunlop et al., 2022). Video interview analysis offers several advantages over traditional interview methods. It provides valuable insights into candidates' communication skills, personality, and cultural fit, which are difficult to assess in other formats. For instance, facial recognition algorithms have been shown to detect a candidate's emotional expressions, eye contact, and body language, thereby providing non-verbal cues that can assist hiring managers in evaluating the candidate's communication skills (Hemamou et al., 2019). In a similar manner, natural language processing algorithms have the capacity to evaluate the candidate's verbal responses, thereby providing information regarding language proficiency, grammar, and vocabulary usage (Kadyan et al., 2021).

D. Chatbots

AI-based chatbots are extensively utilized in the recruitment process to automate various stages of hiring. The utilization of chatbots in the context of recruitment can facilitate the provision of real-time responses to candidates' queries, the dissemination of information pertaining to job postings, and the facilitation of a streamlined application process. The integration of chatbots with a variety of communication channels, including messaging applications, electronic mail, and social media platforms, facilitate enhanced interaction between candidates and recruitment specialists (Suen & Hung, 2023). AI-powered dialogue systems are being utilized with increasing frequency, particularly in the context of HRM, in the initial communication processes established with candidates. These systems employ natural language processing and machine learning techniques to interact with candidates in the early stages of the recruitment cycle. These chatbots function as virtual assistants within the recruitment process, contributing substantially to both candidate sourcing and selection by answering candidates' queries, gathering essential preliminary information, and providing guidance. These technologies have been shown to accelerate the process, enhance candidate experience, and reduce the workload for HR professionals (Nawaz & Gomes, 2019). Furthermore, the utilization of chatbots has the potential to facilitate the preliminary screening of candidates. By posing predetermined questions, chatbots can identify the most suitable candidates for a position and rank them accordingly. This approach has the potential to significantly reduce the time and effort required for hiring specialists in the initial stages of the recruitment process (Swapna & Arpana, 2021).

E. Gamification

Gamification, a prevalent AI-based recruitment strategy, employs game elements to enhance the hiring process. As demonstrated in the research

undertaken by Tansley et al. (2016), gamification has been shown to be a potent instrument for enhancing candidate engagement and offering insight into the skills and abilities of the candidates. The utilization of points, badges, and leaderboards within the recruitment process has been demonstrated to engender a sense of competition among candidates, thereby motivating them to enhance their performance. Furthermore, gamification can assist organizations in attracting and retaining the most talented candidates. It has the capacity to increase user engagement and motivation, thereby providing a more positive user experience. In the context of recruitment, this can assist organizations in cultivating a favorable brand image and attracting a greater number of candidates (Ergle & Ludviga, 2018).

F. Virtual Reality Assessments

Virtual reality (VR) assessments have emerged as a new tool in AI-based recruitment strategies, offering recruitment specialists an innovative and immersive way to evaluate job candidates' technical and practical skills. The utilization of simulated environments in VR assessments facilitates the evaluation of candidates' performance in various job-related tasks, thereby enabling hiring professionals to assess candidates' abilities and aptitudes in real-world scenarios. Guichet et al. (2022) posit that a significant proportion of the surveyed companies have indicated their interest in exploring the potential of VR assessments for the enhancement of their hiring processes. A notable benefit of VR assessments is their capacity to curtail the time and financial outlay typically devoted to conventional face-to-face evaluations. To illustrate this point, it is notable that VR assessments have the potential to obviate the necessity for costly equipment, travel expenses, and on-site testing facilities. Furthermore, VR assessments can be accessed remotely, enabling hiring professionals to more easily evaluate candidates in different locations.

G. Social Media Screening

The process of social media screening entails the systematic analysis of candidates' online presence, with the objective of ascertaining their interests, personality traits, and values. The utilization of social media screening has been demonstrated to yield valuable insights into candidates' suitability for a position and their cultural congruence with the organizational ethos (Jeske & Shultz, 2015). AI-powered recruitment systems conduct a comprehensive data collection process at this stage by scanning candidate profiles via social media and online career platforms. The data obtained is then analyzed using natural language processing techniques, with a focus on the digital posts, language use, and content of the candidates. Furthermore, a process of semantic matching is undertaken between job descriptions and candidate profiles, with the objective

of determining the degree of suitability for the position. The collected data is then analyzed, and the most suitable candidates are evaluated using automated scoring algorithms. This process guides the recruitment process.

H. Predictive Analytics

Predictive analytics constitutes an AI-based recruitment technique that is especially well-suited to large organizations with substantial recruitment data. The analysis of past recruitment data by recruitment specialists enables the identification of sources that have historically provided the most qualified candidates, the prediction of future recruitment needs, and the planning of recruitment activities accordingly. This technique is particularly useful for organizations in rapidly growing sectors such as technology or healthcare (Albassam, 2023).

3.2. Risks and Ethical Considerations

AI-based recruitment strategies offer significant advantages, but they also have various limitations. Among these limitations is the inability of AI to comprehensively evaluate all factors that affect a candidate's job performance. Qualities such as cultural fit, teamwork aptitude, communication skills, and situational flexibility can be decisive for job success. However, because these types of characteristics are difficult to measure and quantify, they may not be adequately represented in algorithmic evaluation processes (Albassam, 2023).

Another significant issue is the risk that AI systems may reproduce existing biases present in the data on which they are trained. In the event that the system has been trained on data that has historically contained discriminatory or imbalanced patterns, this has the potential to result in the perpetuation of such inequalities within the hiring process. Consequently, reliance on AI-based hiring tools alone may result in the exclusion of candidates who, despite not fully meeting predefined criteria, may in fact possess significant potential (Yarger et al. 2019). For instance, if the algorithm is trained on biased data or criteria, it may erroneously exclude qualified candidates from the selection pool. One of the most significant sources of bias in machine learning algorithms is the labels used as "real data" during the training process. When such labels are found to be biased, it is reasonable to expect that the underlying algorithms will reproduce these biases. The presence of bias in labels can be attributed to a variety of factors. This is particularly pertinent if the labels are based on past human decisions, in which case the bias can be directly transferred from the decision-makers to the system. To illustrate this point, consider the context of credit assessment. If an algorithm is trained exclusively on past approval decisions rather than on the outcomes of past credit assessments, the system

may learn and reproduce biases inherent in these decision-making processes (Fu et al., 2020). Although AI-based hiring strategies offer many advantages, organizations should be aware of the ethical issues surrounding their use. Taking proactive steps to ensure privacy and fairness can help organizations minimize potential risks and ethical concerns while leveraging AI technology to improve their hiring processes (Hunkenschrieder & Luetge, 2022).

3.3. Automated Resume Evaluation

To provide a thorough understanding of automation in contemporary recruitment, this section examines several essential technological integrations by evaluating AI-driven recruitment and job-search infrastructure, automated application protocols, and the shifting dynamics of preliminary interviews by contrasting AI-conducted sessions using realistic visual synthesis with human-led processes supported by AI. Through a comprehensive review of these domains, the following section elucidates the transformative impact of AI on each stage of the recruitment continuum.

3.3.1. AI-Driven Recruitment Process with Human-Led First Interview

This recruitment model represents a hybrid human–AI decision-making framework in which AI is used to optimize early-stage processes, while critical qualitative evaluations remain under human control (Kayalvizhiroja & Krishnan, 2025). The process begins with the definition of job requirements, where organizational needs, required competencies, and role-specific expectations are formally specified. Based on these inputs, an AI-generated job description is produced. This step ensures linguistic clarity, consistency, and alignment with market standards while reducing manual drafting effort. Once the job description is finalized, the system publishes the listing across multiple recruitment channels, including websites, mobile applications, and third-party platforms. As a result, candidate applications are collected through a centralized system. AI then performs candidate scoring, analyzing uploaded CVs in terms of skills, professional experience, educational background, and overall role fit. Using these metrics, the system identifies high-potential candidates who demonstrate the strongest alignment with the job requirements. For shortlisted candidates, the system initiates automated interview scheduling. Candidates receive email invitations that direct them to a self-service interface, allowing them to select an available interview time slot. This automation minimizes administrative overhead and improves candidate experience. The first interview is conducted by a human recruiter, who evaluates candidates through structured or semi-structured interviews and records qualitative notes.

These notes, together with candidate CVs and original job requirements, are subsequently analyzed through AI-based crossmatching. Based on this combined evaluation, a final shortlist of suitable candidates is generated. Candidates who do not progress further in the process receive automated feedback, ensuring transparency and timely communication (See in Figure 1).

Within contemporary recruitment landscapes, organizations are increasingly adopting AI-driven tools that align closely with this hybrid model. For example, platforms such as AgentHR use machine learning and intelligent automation to screen resumes, prioritize candidate pipelines, and reduce manual screening workload, allowing recruiters to focus on high-value interactions. In practice, organizations are adopting AI-driven recruitment tools that reflect this hybrid Human-AI model. Instead of replacing recruiters, these systems are aiming to automate early-stage tasks to reduce human decision-makers' workload (https://agenthr.ai/). Moreover, AgentHR applies machine learning and intelligent automation to CV screening and candidate prioritization. By reducing the time for these activities, recruiters are able to focus more on candidate interaction, evaluation, and strategic hiring decisions. Similarly, LinkedIn's Hiring Assistant shows how AI agents are being integrated into a large-scale recruitment environment. The system uses a global talent database, recommending qualified profiles, etc. to support recruiters. This allows for improving shortlist quality, final decisions, and hiring decisions remain under control.

Industry analysts also show that AI-powered candidate sources and engagement are transforming HR operations globally. Tools now integrate natural language processing (NLP) and predictive analytics to identify candidates who might be overlooked by traditional search methods, recommend the best channels to advertise roles, and maintain candidate communication with automated chatbots to keep applicants informed and engaged. HR operations worldwide are being reshaped by AI-powered sourcing and engagement technologies. NLP and predictive analytics help organizations to identify/find suitable candidates who may be overlooked by traditional keyword-based searches, optimize job advertising channels, and maintain consistent communication with automated messaging by chatbots. Across a wide range of sectors, from tech companies to larger enterprises, AI is now regularly used for the early stages, such as CV parsing, shortlist generation, and automated candidate engagement, etc. As a summary, the real-world applications show that hybrid recruitment models are not only feasible but also scalable and sustainable in modern talent acquisition practices (https://business.linkedin.com/in/en/hire/resources/hr-glossary/ai-in-hr-hiring)

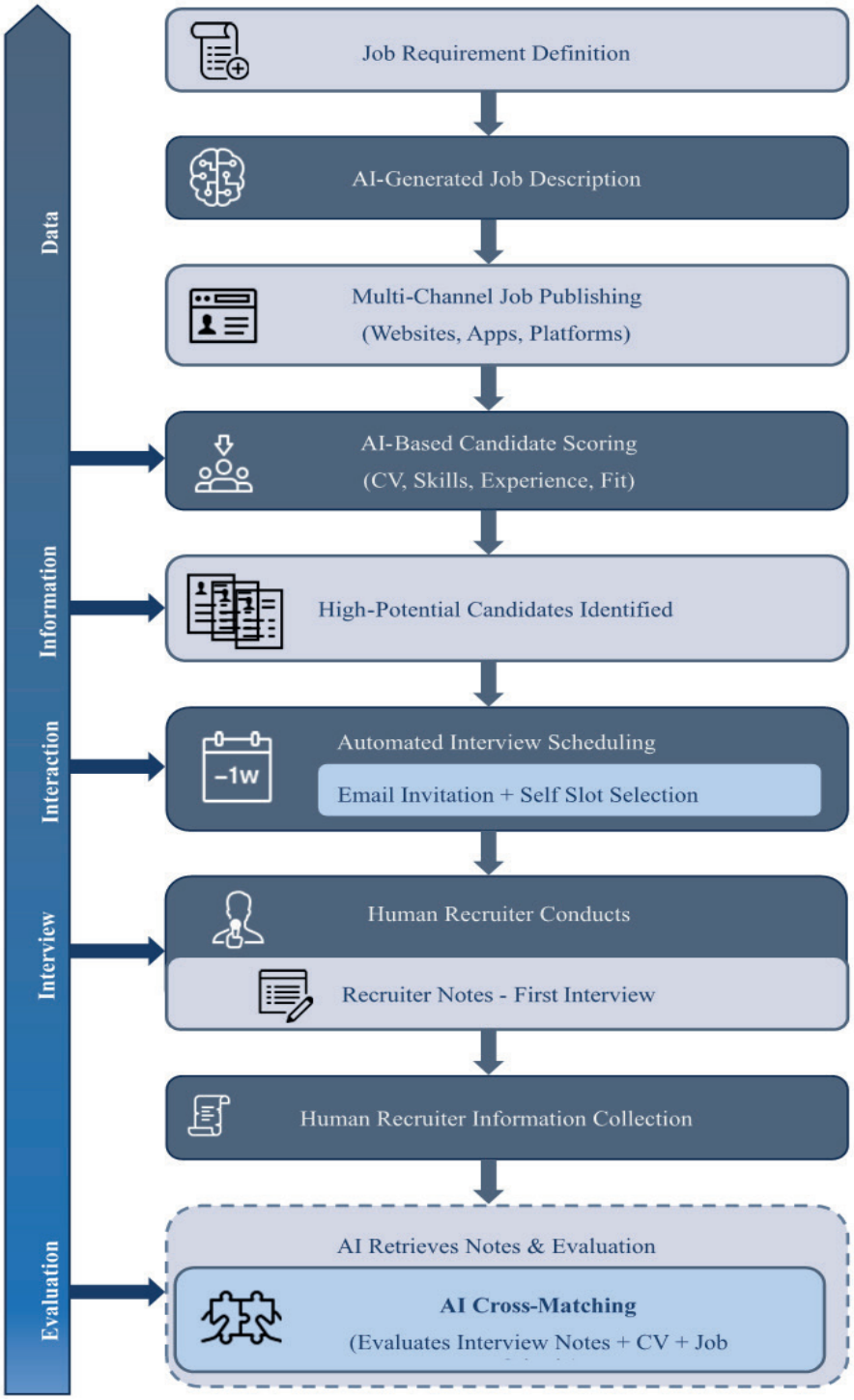

Figure 1- AI-Driven Recruitment Process with Human-Led First Interview

3.3.2. AI-Conducted First Interview Using Realistic Visual AI

This recruitment model represents a fully AI-driven early interview process, designed for scalability, standardization, and objective evaluation. Similar to the hybrid model, the process begins with job requirement definition, followed by the generation of a detailed AI-generated job description. The listing is then published across multiple platforms, and candidate applications are collected.

AI conducts candidate scoring by evaluating CV content against job-specific criteria. High-potential candidates are automatically identified and invited to participate in the next stage. The system manages automated interview scheduling, allowing candidates to select interview times via a self-service interface. Unlike traditional models, the first interview is conducted by a realistic visual AI interviewer. This AI system can conduct multiple interviews simultaneously, enabling significant scalability without proportional increases in cost or HRM. During interviews, the AI collects structured outputs, including competency-based scores, behavioral indicators, and interview transcripts. These outputs are systematically evaluated and cross-matched with job requirements on a criterion-by-criterion basis. Based on this evaluation, the system generates a new AI-driven shortlist. Candidates who do not meet the defined thresholds receive automated feedback, ensuring consistent communication and reducing bias introduced by human subjectivity (See in Figure 2).

In recent years, AI-conducted interviewing has progressed from a conceptual research topic to practical usage in real-world business environments. As a part of AI, conversational agents and virtual interview systems are now used to run structured interviews, generate transcripts/minutes, and produce evaluation metrics that support hiring decisions. (https://www.shortlistd.io/blog/ai-voice-interviews-outperform-human-recruiters-2025-research-analysis).

AI interview simulation shows how large language models can create personalized yet standardized interview experiences. By dynamically adapting interview questions to candidate responses over the job requirements, these systems balance realism and scalability, offering organizations a consistent and repeatable approach to early-stage candidate assessment (Nguyen et al., 2025).

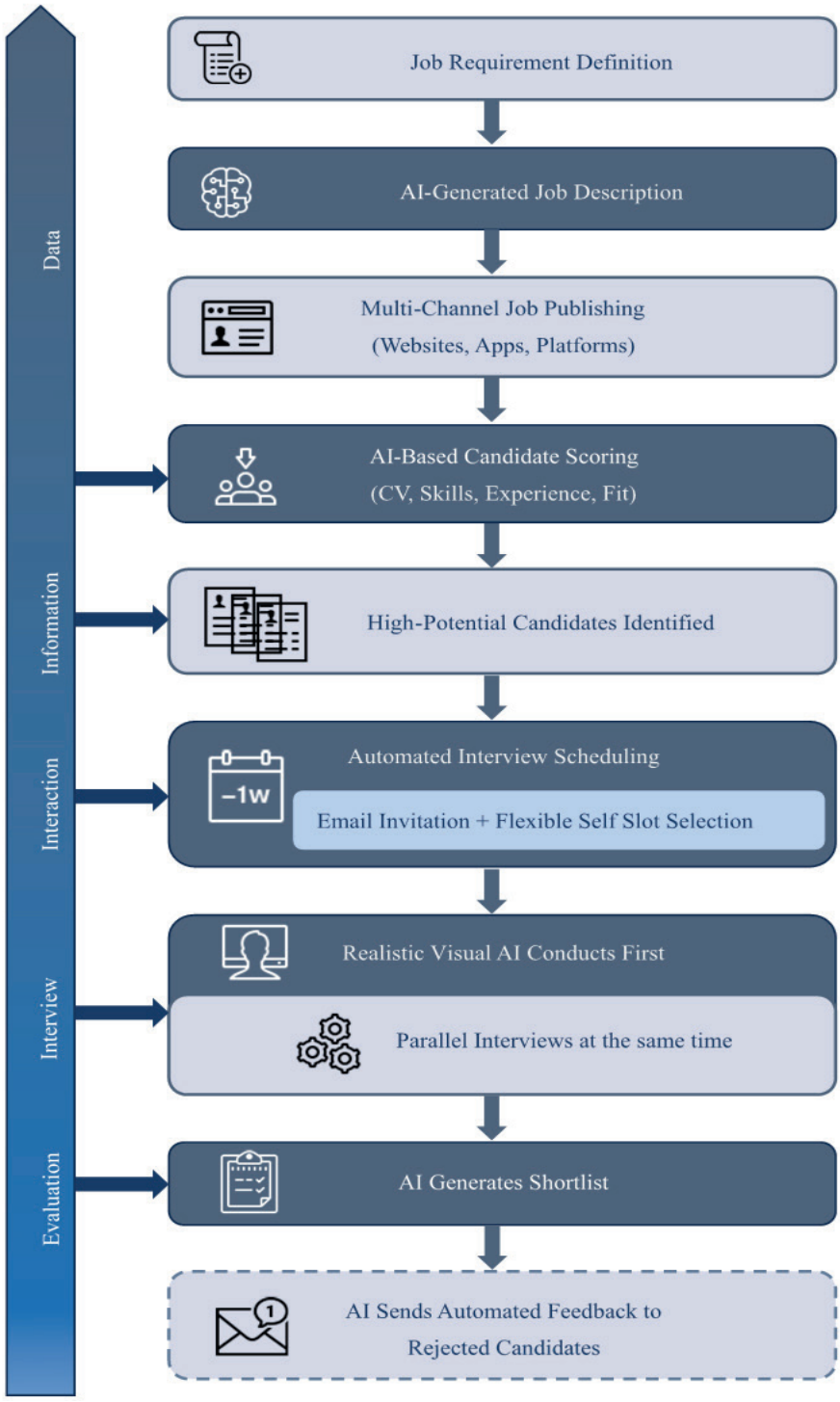

Figure 2- AI-Conducted First Interview Using Realistic Visual AI

3.3.3. AI-Supported Job Search and Automated Application System

This system focuses on supporting job seekers through an AI-assisted job search and application optimization process. The process begins when a user registers for the AI-powered job search platform. Upon registration, the user uploads their CV, which is then analyzed by AI. The AI identifies key skills, experience patterns, and role-relevant competencies. Following this analysis, the system scores the user's strengths and performs CV optimization, improving structure, clarity, and alignment with labor market expectations.

The AI then searches across multiple job listing platforms to identify positions for which the user has the highest probability of success. For each identified job listing, the system performs job-specific CV customization, tailoring content to match the required skills and qualifications.

After optimization, the AI automatically applies to the most suitable job listings on behalf of the user. Throughout this process, the system continuously collects application-level data. Finally, the platform generates and shares statistical insights with the user. These insights may include the number of applications submitted, match scores, response rates, and comparative performance metrics, enabling users to make informed career decisions (See in Figure 3).

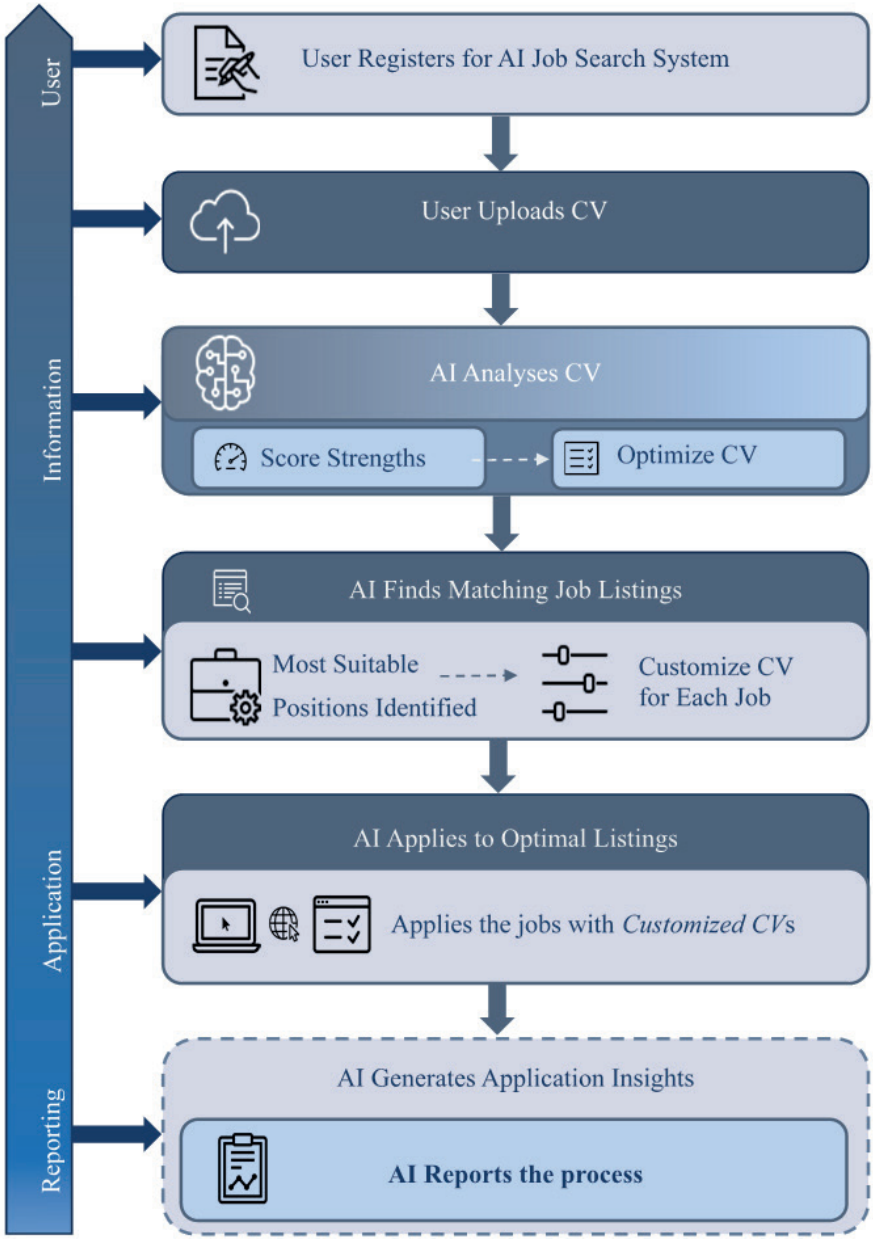

Figure 3 -AI-Supported Job Search and Automated Application System

With the rapid evolution of algorithmic processing, a growing number of AI-powered job search and matching platforms have emerged that align closely with the described system, using automated CV analysis to identify key competencies and improve job-market fit. For example, services like AIJobMatch (https://aijobmatch.io/) analyze uploaded resumes to extract skills and experience, then generate ranked job matches tailored to the candidate's profile, demonstrating the practical application of AI-driven profile interpretation and job recommendation.

Similarly, AI-based CV optimization tools such as MatchMe AI (https://www.matchme-ai.com/) provide automated suggestions for strengthening resume content and improving match scores against specific job requirements, helping job seekers present themselves more effectively to potential employers.

Platforms and tools in the broader ecosystem, such as AI-enhanced search features on LinkedIn that allow NLP job queries and more relevant job discovery, show how AI can complement traditional job boards by aligning candidate inputs with appropriate opportunities (Weatherbed, 2025). This has been driven by the rapid proliferation of algorithmic solutions in the job market, and consequently, a considerable array of AI-powered recruitment and matching platforms has been developed, which have been in close alignment with the proposed framework using CV analysis to optimize candidate-market matching.

4. Conclusion

The rapid development of technology in recent years has profoundly changed how HRM management operates. The accelerating pace of technological advancement in recent times has resulted in the increased accessibility of AI-based solutions and their concomitant strategic importance in the realm of HRM. The transition from conventional recruitment methodologies to data-driven and AI-supported approaches signifies a transformative shift that not only redefines the process design paradigm but also the decision-making logic, the distribution of responsibility, and the candidate experience. This transformation extends beyond mere operational gains, such as reduced costs and efficient time management, to enable recruitment decisions to be produced in a more consistent, traceable, and justifiable manner.

The primary objective of this chapter is to examine processes towards AI-supported implementations as a substitute for conventional recruitment interviews. Therefore, it is aimed to seek how elucidate the potential ramifications of AI-assisted processes on the employee selection landscape. In this section, the parties have used step by step diagram to show how

the AI-supported interview methodology works. This process is considered instrumental in ensuring a comprehensive understanding of the potential advantages and disadvantages.

The utilization of AI-based recruitment algorithms enables human resources professionals to allocate their time and efforts towards more strategic and value-added activities, as these algorithms assume responsibility for routine and repetitive tasks. In businesses experiencing high application volumes, the implementation of such systems has been shown to facilitate more efficient and accurate management of laborious processes, such as the screening and pre-screening of CVs. A more accurate assessment of candidates' qualifications and competencies facilitates the placement of the right people in suitable positions, thus minimizing errors stemming from subjective evaluations. This approach is conducive to businesses making more robust investments in talent management and gaining a competitive advantage. It is anticipated that, in the long term, the integration of AI will result in a reduction in employee turnover rates and a reduction in the time required for recruitment (Aguinis et al., 2024). Consequently, the utilization of AI-supported applications within the domain of HRM has emerged as a pivotal element, contributing not only to the enhancement of operational efficiency but also to the fortification of the strategic sustainability of organizations.

Overall, AI in recruitment has many benefits, but cannot replicate the understanding, empathy, and contextual awareness brought to the process by human recruiters. Human intuition is crucially important in assessing factors that are difficult to quantify, such as a candidate's cultural fit, motivation, and potential for growth within the organization. Therefore, further studies are suggested to evaluate perceptions and attitudes towards AI-conducted interviews.

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