AI DRIVEN TALENT MATCHING ENHANCING RECRUITMENT EFFICIENCY AND ACCURACY

by

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Dedication

Dedicated to my beloved parents, Mrs. Saroj Varshney and Late Shri Naresh Chandra Varshney, and my beloved grandparents, Late Mrs. Sukh Devi and Late Shri Ram Bahori Lal Bhagat Ji.

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ABSTRACT

AI DRIVEN TALENT MATCHING ENHANCING RECRUITMENT EFFICIENCY AND ACCURACY

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This study discovers the role of "Artificial Intelligence (AI)" in transforming recruitment by enhancing efficiency, improving talent–job alignment, promoting diversity, and addressing implementation challenges. The main goal was to learn how AI-powered solutions may make hiring processes faster, more accurate, and fairer and more open, as well as to find ways for organisations to get beyond their own problems. A "quantitative research design" was employed, and data was gathered from 100 specialists across various organisational settings. The study utilised a structured questionnaire consisting of 26 items, with reliability confirmed by a high "Cronbach's Alpha (0.941)", representing excellent "internal consistency". The statistical analytics software "SPSS (Statistical Package for the Social Sciences)" has been used, applying Spearman's rho correlation, model fitting tests, and the one-sample chi-square test to analyse relationships between AI usage, process efficiency, hiring accuracy, fairness perception, and implementation

barriers. The outcomes show that AI technologies significantly improve the quality of applicants chosen, decrease time-to-hire, and increase the accuracy of talent matching. Additionally, respondents acknowledged AI's role in promoting “diversity and inclusion” in hiring practices and lessening unconscious bias. However, obstacles to complete adoption were found to include issues including organisational preparedness, system complexity, and a lack of experience with AI tools. The study concludes that, with the aid of effective organisational methods, AI-driven hiring systems can have a revolutionary impact. To ensure the seamless integration of AI technologies and optimise their potential to maximise recruiting efficiency and inclusivity, practical consequences include the need to invest in training, technological infrastructure, and change management activities.

Keywords: Artificial Intelligence (AI), Recruitment, Talent Matching, Hiring Efficiency, Candidate Quality, HR Technology Adoption, Training and Change Management, Technological Infrastructure, AI-Driven Hiring Systems

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LIST OF ABBREVIATIONS

Abbreviations	Full Form
AI	Artificial Intelligence
AIT	Artificial Intelligence Technologies
ATS	Applicant Tracking Systems
DEI	Diversity, Equity, and Inclusion
EE	Employee Engagement
EX	Employee Experience
GDPRs	General Data Protection Regulations
HR	Human Resources
HRIS	Human Resource Information System
HRM	Human Resources Management
IoT	Internet of Things
IT	Information Technology
ML	Machine Learning
MNE	Multinational Enterprise
NLG	Natural Language Generation
NLP	Natural Language Processing
NLU	Natural Language Understanding
SEO	Search Engine Optimization
SMEs	Small Medium Enterprises
SPSS	Statistical Package for the Social Sciences
TA	Talent Acquisition
TAM	Technology Acceptance Model
WEF	World Economic Forum

CHAPTER I:

INTRODUCTION

Background

The modern "Human Resources" (HR) world has turned into the era of precision and foresight, with the use of such concepts as "Artificial Intelligence" and talent analytics (Pandya, 2020). Being one of the global leaders in innovation and industry, the United States is on the forefront to adopt the AI-driven approaches to address the issues of talent management (Yang and Gu, 2021). This review aims at de-stress the scenario of the AI-based talent analytics in the U.S. and its important role in advancing and steering the strategic HR decision-making processes.

In the current environment of the dynamic workforce, where organisations are struggling to understand the patterns, forecast the trends, and maximise their human capital, AI-driven talent analytics has become a central element in understanding the patterns, predicting the trends, and organising human capital (Newman and Ford, 2021). Whether in terms of "Talent acquisition"(TA), workforce planning, or "Employee engagement"(EE), AI technologies can deliver unseen possibilities to decipher the insights in huge volumes of data, allowing HR practitioners to have the tools to make informed and future-oriented decisions (Gurusinghe, Arachchige and Dayarathna, 2021).

The "Digital Era 4.0" results in the essential shift towards their data-based decision-making in any industry (Xu, David and Kim, 2018). With the ability to use analytics to achieve a competitive advantage, it has become a priority to hire people with advanced analytical abilities, particularly in those industries where business intelligence systems play an important role (Nasir *et al.*, 2020).

The key to utilising analytical capabilities is adapting and recruiting the best talent efficiently. The conventional recruiting practices, which tend to be tedious and

subjective, are also becoming insufficient as the amount of data grows rapidly and because of the dynamics of international talent markets (Ozdemir *et al.*, 2020). Advancements in predictive modelling and big data analytics have opened up new avenues for improving the hiring procedure (Zhang *et al.*, 2021). The future trend in prediction of the results based on past experience, known as predictive analytics, is a major point of interest in organisations with the intent of streamlining the recruitment process and selecting the best candidates with maximum efficiency. Nevertheless, even the adoption of predictive analytics in recruitment may be problematic due to the data privacy issues, the difficulty of implementing the model, and the problem of the algorithm-based decision-making bias, (Pessach *et al.*, 2020).

Evolution of Recruitment Practices

Innovative and flexible business models are being spearheaded by digital technologies, which primarily focus on expanding and establishing markets. The trajectory of market development and the competitive standing of an organisation are both affected by these shifts. This can be associated with the fact that the implementation of IT in the workforce recruitment process is one of the great examples of digital transformation. HR (IT) technology does not just make the recruiting process simple and automated; it makes hiring more efficient and competitive by providing more access to talented candidates. IT in the recruiting process, thus, is a vital and indispensable strategy of contemporary, online enterprises, which are to become flexible and competitive (Ahmed, Ibrahim and Saeed, 2023).

Recently, the implementation of "AI in the hiring process" has been on the increase, with the majority of companies now using AI-based recruiting solutions to advance their processes of hiring. All parts of the employment process, from advertising open positions to reviewing resumes and conducting assessments, are increasingly using

AI (Budhwar *et al.*, 2022). The possible advantages of the "application of AI in the recruiting process" include competence and minimized bias, better candidate experience, and successful hiring among many others. However, it may also have some negative sides as human control is required, the issue of ethics, and the issue of algorithmic bias.

Despite the growing popularity of the use of AI in recruitment, researchers have yet to find methods to understand how efficient its use can be and what the shortcomings are. Even though only a few studies are carried out regarding the theme, most of them were focused on specific AI-oriented recruitment tools or approaches, but not on reviewing the state of the art in the sphere. Thus, a critical analysis of the existing AI-based recruitment plans is necessary, which will allow gaining an idea of their advantages and disadvantages and defining the directions of research and improvement.

Although some studies have been led in regard to the application of AI in recruitment strategies, limited reviews have been made that could offer insight into their applicability and drawbacks. Additional research has focused on creating and evaluating specific AI-powered HR solutions, such as chatbots for candidate engagement or "Machine learning" (ML) for resume screening (Chen, 2023).

Role of Technology in Modern Recruitment

"Recruitment, selection, and evaluation of employees" has been, and continues to be, a major focus of HRM and work/organisational psychology(Ryan and Ployhart, 2014; Markoulli *et al.*, 2017). Successfully attracting, evaluating, selecting, and onboarding new personnel has long been a vital and expensive process for any enterprise.

Nonetheless, emerging technologies have made a significant impression in different aspects of the "hiring process", such as the choice of entrants and their eventual decision (Woods *et al.*, 2020). An abundance of new technical developments, such as but not confined to the spread of social media and the internet, have developed over the last

few years significantly transforming the roles of the recruiter and the job seeker. Interest in this developing area has been shown by the researchers in computer science, engineering, organisational psychology, and "Human resource management" (HRM) because technological developments have brought changes in this field (Montuschi *et al.*, 2014).

Technology and Recruitment/Selection

The selecting and recruiting procedures have benefited greatly from technological advancements in the last several decades. Early in the 2000s, scholars began to examine the function of e-HR Karakanian (2000) in an attempt to foretell how technology could enhance HR procedures. Topics covered included "HR information systems, virtual teams, electronic learning, and intranet usage". Early initiatives to estimate how technology will move the landscape of research and practice in selection and recruitment included "online psychological testing, employment/career websites, and online recruitment" (Bartram, 2000; Lievens and Harris, 2005).

Many things have changed in the twenty years since these stories were written. People's personal and professional lives have been greatly impacted by the enormous advancements in technology. Technology has crept into every step of the employment process. Following this, they will go over some of the ways in which technology has changed the four primary steps of hiring: attraction, screening, selection, and onboarding.

Technology in Attraction

The recruiting process begins with attraction, and according to Hewage (2023), It encompasses "series of systems, processes and strategies designed to maximise the size and quality of the applicant pool." This phase is vital, but sometimes overlooked, because it's the first stage of the process. Even more so in the modern digital age, attraction and recruiting are distinct processes. A more comprehensive definition of recruitment would

include all the various steps an organisation takes to find qualified individuals, entice them to work for them, and keep them on board for the time being (Guchait *et al.*, 2014). Even more so in the modern day, recruitment should encompass all technological endeavours that impact the selection and recruiting process, including "employer branding, applicant experience", etc., to ensure that it is synchronised with the strategic goals of organisation.

Researchers and practitioners alike have taken a keener interest in online recruitment strategies since their inception (Bartram, 2000). Job boards and other job search websites were the first places to leverage the internet for hiring, letting companies reach a lot of people with their job openings. Recruiters and job seekers alike continue to rely on these types of sites due to their perceived effectiveness (Nikolaou, 2014). Companies are also considering launching specialised employment forums to advertise open opportunities. Lievens and Slaughter (2016) found that firm career portals, made possible by technology, are an influential tool for enticing and recalling people. In addition, the policies and employer branding efforts that the business may launch receive strong backing from them. Videos of present employees discussing the company's culture or recruiters walking prospective employees through the steps of the hiring process are two examples of what businesses might use on their employment sites. Businesses may also take extra measures, including "monitoring and following candidates" across different platforms, upgrading the features of their websites, and quantifying site visits. Advertising positions like" search engine optimization (SEO) career analyst and hiring coordinator" are becoming commonplace in digital marketing but are still novel in HR.

Most significantly, the dominion of digital appeal has seen the rise of social media and networking websites. A field that has lately seen a surge in study interest, despite the topic's long history of attracting practitioners' attention around the world. An early study

on the topic examined the ways in which recruiters and job-seekers organise social networking websites (Nikolaou, 2014). They stated that recruiters may reach passive applicants, and that candidates can use social media as a cheap and effective tool to network more. Recent studies, however, have called into question the "efficacy of social media in the recruitment process" and have put doubt on its broad use (L. Zhang et al., 2020). Since the popularity of social media platforms like LinkedIn shows no signs of going away anytime soon, additional research in this area is critically needed. According to recent media reports, the emergence of COVID-19 appears to have altered how individuals utilise social media for recruiting and job searches (Nikolaou, 2021).

Technology in Screening

Step two involves checking the publicly accessible information about the applicants to determine their appropriateness for the post. "Background checks, particularly for high-stakes jobs in the military, security services, and financial institutions", have historically been the purview of organisation firms. The proliferation of social media has altered the landscape even in that regard. According to "Berkelaar and Buzzanell (2014)" "Cybervetting" is when employers gather informal, frequently intimate information about present or potential employees through non-institutional, online tools and sites. In an effort to bolster scholars conducting study on this subject, Cook et al. (2020) detailed the creation of a new cybervetting measurement scale. A key problem that will be covered later on is the harmful influence of cybervetting on candidate reactions. According to Georgiou and Nikolaou (2020), candidates have a different attitude towards social media platforms that focus on personal life, such as Facebook or Instagram, compared to more professional ones, like LinkedIn. Resumes and application forms are common places for candidates to include links to their LinkedIn profiles, which candidates hope will attract the attention of future employers.

Additionally, technological improvements have simplified the administration and execution of multiple laborious screening procedures. The broad usage of "Applicant tracking systems" (ATS) is one such example; these systems can improve efficiency in the screening process by organising and processing resumes, as well as by scanning through massive amounts of applications for certain keywords. Possible opportunities to integrate applicants' self-reported data with publicly available social media data can also be offered. Perhaps because there are so many opportunities to collaborate, HR tech firms' organisations in data mining, machine translation, and AI have recently proliferated, working hand in hand with data scientists and computer programmers on various projects.

Technology in Selection

According to Ryan and Ployhart (2014)When studying the function of technology in the hiring process, work and organisational psychologists have mostly focused on online testing for quite some time. Two new selection strategies, however, have lately gained more and more attention. These include gamification-based assessments and asynchronous interviewing, particularly as they pertain in response to respondent responses and prior work.

When doing an interview in an asynchronous format, such as a video or online interview, applicants are asked to videotape themselves answering a predetermined series of questions and then upload the recordings online. It is usual practice to use digital interviews early in the selection process to screen applicants and see if they fulfil the minimum requirements for the job. " Managers may conduct simultaneous, remote interviews with numerous candidates, with multiple raters seeing the interviews afterwards to establish a consensus" (Brenner, Ortner and Fay, 2016). Data analytics in selection companies like HireVue organises digital interviews to track candidates' every

move, anything from blinking to response latency, temperature swings, word speed, and more. They go so far as to automate the full interview procedure by using "sensor devices, automated data extraction and evaluation, and organization" (Langer, König and Papathanasiou, 2019). To the contrary, applicants can save both time and money by applying to jobs all around the world (Guchait *et al.*, 2014). On the contrary, preliminary research on the digital interview's effectiveness compared to more conventional methods of gathering information did not provide encouraging results. "Participants reported more privacy worries and thought internet interviews were creepier and less personal; however, Langer et al. (2017) found no difference in organisational attractiveness levels".

The incorporation of game mechanics into evaluation tools, known as game-based assessment (GBA), is another new approach to hiring. The term "gamification" describes the practice of using game mechanics in non-game settings, such the hiring process (Georgiou, Gouras and Nikolaou, 2019). The term "gamifying a selection method" refers to the practice of adding a gaming element to an already established selection tool, such as an existing personality or situational judgment exam. Candidates are asked to complete a series of questions in a gamifie" setting or virtual word using their mobile or computer devices. Fun, openness, challenge, and engagement could result from incorporating game mechanics into the selecting process. In contrast, GBA and serious games make use of real online or traditional games, occasionally tailored for selection purposes but not always. Because they appear to provide a variety of benefits over conventional selection approaches, gamification and GBA have lately garnered a great deal of interest, particularly from practitioners. Younger applicants, rather than those with extensive gaming experience, seem to be their target demographic. A number of studies have established that organisation can be an operative selection tool, with favourable effects on candidates and a rise in organisational attractiveness (Georgiou and Nikolaou, 2020;

Georgiou, Gouras and Nikolaou, 2019). Nevertheless, additional research is necessary to validate the method's practical and theoretical utility and application, as is typical with new selection methods.

Technology & On-Boarding

Finally, the candidate will be hired and their first day on the work will mark the end of the selection process. Many studies have looked at how important onboarding and organisation are for employees' adjustment (Bauer *et al.*, 2007). "Formal and informal training, on-the-job training, coaching and mentoring, and other organisational strategies" have been useful in facilitating newcomers' rapid adaptation to their new positions. A social media-style intranet, online training, and e-mentoring to help employees advance in their careers (like Microsoft's Yammer), etc., are just a few examples of how technology is helping many companies make these techniques more useful (Sharma and Bhatnagar, 2016). However, when firms can efficiently use data mining and other computer science methods with both external by integrating external (before entry) and internal (after entry) data, they can usher in the big data era of recruiting and selection, unlocking the power of technology to enhance every step of the process, from screening to onboarding.

Emergence of AI in Talent Matching

Finding and hiring top talent has become more challenging and time-consuming due to the development of online recruiting platforms and candidates. It is not a simple effort to manually choose resumes from large number of candidates, extract key information, and match them with the abilities needed for the job, particularly due to the fact that acquiring talent is critical to a business's success. Thus, the modern recruiting industry can automate the application filtering and organisational process with the help of new text mining advancements applied to the unstructured content of a specific resume.

"Text mining", also known as text analytics, is a collection of computer tools that can be used to process and understand free-text or unstructured text present in documents. These technologies make use of methods for ML and "Natural language processing" (NLP). Algorithms like these can process massive volumes of this data and carry out tasks like text classification, sentiment analysis, entity extraction, idea identification, and classification or organisation (Gupta and Lehal, 2009). Because of these reasons, text mining is rapidly becoming an essential technique for creating valuable tools within the framework of resume-to-job matching systems.

Consequently, this study set out to trace the historical development of computer-assisted job resume matching research, focusing on the role that text mining techniques have played. This is going to be done through carrying out bibliometric research of scientific literature published on this issue during the last 20 years. Finding out how relevant trends work, how much research is being produced, when it is published, how studies and authors are cited, how themes evolve, and what patterns of organisation and authorship are evolving are the main objectives. The research landscape in this discipline is being shaped by all of these forces. By doing so, they intend to record a comprehensive outline of ways ranging from the most basic to the most sophisticated, as well as new and forthcoming paths.

According to Xia and Gong (2014), AI's meteoric rise in the last decade has placed it in a prime position to propel companies into their next digital transformation phase. The increased capabilities of AI are causing HRM to evolve (Dhamija and Bag, 2020). The worldwide expenditure on cognitive and AI solutions is estimated to exceed "USD 57.6 billion by 2021" with a yearly increase rate "(CAGR) of 50.1%", (Faraboschi *et al.*, 2023). According to research conducted by Faraboschi *et al.* (2023), the adoption

of AI in India is progressing at a snail's pace, with only 22% of Indian organisations now organising AI for any business purpose.

"Achieving the kind of behaviour in a computer that would be considered intelligent in a human being" (McCarthy *et al.*, 2006) is the definition of AI. The worldwide technology revolution has brought AI into the spotlight, despite the fact that it was first defined in 1955. According to Alalwan, Dwivedi and Rana (2017), AI is defined as machines that can learn and perform specific jobs. There are now three tiers of AI that have been developed specifically for HR management: "assisted intelligence, augmented intelligence, and autonomous intelligence" (Kharbanda and Mukherjee, 2023). AI that helps workers complete mundane, repetitive jobs more quickly is known as assisted intelligence. There are a lot of jobs around the office that chatbots and AI-based programs can help with. For instance, in the workplace, chatbots are replacing human interviewers in primary interviews. A form of AI, augmented intelligence, allows machines and humans to collaborate and make decisions in the workplace. By automating tasks like interview scheduling, question answering, and referral generation, bots powered by conversational AI make it easier to provide candidates with individualised, interactive, and real-time experiences across all channels. The advent of fully autonomous machines Is having a profound effect on business as usual. The outcomes are produced by AI technology that operates independently. It does the data collection and analysis invisibly. According to Kharbanda and Mukherjee (2023), Using AI, we may generate results for candidate selection according to specific criteria.

Human resource managers are facing new challenges as a result of advancements in AI, such as "Virtual reality" (VR), chatbots, cognitive conversation, deep learning, the "Internet of things" (IoT), and "Augmented reality" (AR). The three aforementioned facets of HR are being transformed by AI. Assisting HR managers in making decisions

and predicting employee behaviour on the job, it helps to alleviate the monotony of administrative duties. In order to save time, cut costs, and improve the accuracy of HR tasks, AIT is primarily employed in the following areas: "recruitment, training, EE, and retention" (McDonald, Fisher and Connelly, 2017; Kumar, 2019; Tavana and Hajipour, 2020). According to a study by Alexander Mann Solutions, nearly all HR professionals (96%) think that AI could improve TA. To better address the ever-changing demands of a company, TA is all about taking a strategic approach to finding, recruiting, and integrating top talent.

Several multinational corporations are using AIT to handle their TA operations, even though some are still in the implementation phase. Since HR managers are already making use of AI for TA, studies on their acceptance of AIT for TA are vital. Research has looked at both the organisational level (Tong, 2009; Moghaddam, Rezaei and Amin, 2015; van Esch, Black and Ferolie, 2019; Muduli and Trivedi, 2020) and the individual level (van Esch, Black and Ferolie, 2019) of AI in recruitment. There is a shortage of academic work that takes into account the viewpoints of businesses and HR directors when discussing the topic of AIT for TA, which is puzzling given the clear advantages of the programme. The current research on how companies use HR technology and new technologies is "ERP-based Awa and Ojiabo (2016), big data solutions, digital innovation adoption (El-Haddadeh, 2020), green IT adoption (Thomas, Costa and Oliveira, 2016), business analytics and intelligence, "Human resource information system" (HRIS) (Alam, Ali and Jani, 2011; Phahlane, 2017; Virdyananto *et al.*, 2017), E-HRM (McDonald, Fisher and Connelly, 2017; Rahman, Mordi and Nwagbara, 2018), social recruiting (Kashi, Zheng and Molineux, 2016), SaaS (Yang *et al.*, 2015), e-HRM (Strohmeier, 2007) and business intelligence system (Puklavec, Oliveira and Popovič, 2018)".

But studies looking at how businesses are making the use of AIT for the TA role in HR are few and far between. Upadhyay and Khandelwal (2018) found that when HR managers implement AIT for TA, it boosts the effectiveness of the HR department as a whole and its TA role in particular. Benefits of AIT for TA include an enhanced candidate experience, increased interest from BIJ candidates, less time spent processing resumes, and better performance from recruiters (McDonald, Fisher and Connelly, 2017; van Esch, Black and Ferolie, 2019). Human resource managers in organisations still don't use AI much for TA , even though AIT has a lot of advantages (Albert, 2019).

Challenges in Traditional Talent Management

Conventional talent management has a number of challenges. To begin with, manual-based work, including resume screening and performance evaluation, is slow and has a high chance of error (Cascio and Boudreau, 2016). This may result in slow hiring and discriminating decision-making that prevents the identification of most applicable candidates. Secondly, any number of talent management processes is affected by biases, such as recruitment and (Avery, McKay and Wilson, 2008; Castilla and Benard, 2010). Aspects such as gender, ethnicity, or education level may lead to inequality, which damages the attempts to increase diversity and inclusion. In addition, traditional talent management fails to make full use of the available information in order to make decisions (Boudreau and Ramstad, 2005). This restricts the means to discover the trends of talents, predict the workforce requirements, and even determines the "success of the talent management programs".

The other challenge is inflexibility. Conventional procedures are not likely to be flexible to workforce trends or organisational priorities. This can come in the way of reacting to new talent requirements or changes in business strategy. In the absence of individual development plans, the employees can feel disengaged, which will affect

motivation and retention. These issues show that organisations should modernise their talent management processes and employ innovative solutions to get rid of constraints in the classical approaches.

The Role of Artificial Intelligence (AI) in Talent Management

AI is playing a game-changing role in personnel management by giving businesses fresh perspectives on old challenges and innovative answers. AI has the capabilities to revolutionise people management across all four processes: "acquisition, development, performance evaluation, and retention".

- **AI-driven Recruitment**

The "recruitment process" using AI enables the process of "candidate screening" to become more effective since the resumes can be analysed, the qualifications can be assessed, and the best candidates can be selected. NLP algorithms can read thousands of resumes and align the candidate with the job requirements, which saves time to hire and makes a hire of high quality.

- **Predictive Analytics for Talent Acquisition**

The predictive analytics may be conducted with the assistance of AI that forecasts the future talent needs by using the experience of the past, the trends of the market, and the business predictions. To address the gaps in talent within their organisations, organisations can also be proactive in determining the trends in "employee turnover and performance" to come up with a strategy to attract and retain key talent.

- **Personalised Learning and Development**

"AI-powered learning platforms" will be able to offer individual learning content depending on the individual abilities, interests, and learning preferences of the workers. The learning paths will be adapted with the aid of adaptive learning algorithms based on

performance and feedback of employees, which will ensure the best possible development of skills and retention of knowledge.

- **Enhanced Performance Management with AI**

The procedure of performance management can be facilitated by AI technologies by giving “real-time feedback, performance analytics, and insights, and predictive analytics”. Using “NLP algorithms”, the feedback and sentiment of employees can be used to determine what areas need improvement and as a way to inform coaching interventions.

- **Retention Strategies and Succession Planning**

AI -based “predictive analytics” will be able to identify flight hazards and staff attrition reasons. Organizations can use employee data and engagement metrics to come up with specific retention plans, including individualized “career development plans” and incentives to retain the best talents. Also, AI may help in “succession planning”, which is the recognition of highly capable employees and building talent pipelines in key positions.

- **Diversity and Inclusion Initiatives**

When it comes to talent management, AI can help organisations combat bias and promote “diversity and inclusion”. “Machine learning algorithms” (MLA)can analyse promotion and hiring choices for prejudice and provide solutions to eliminate them. Also, language analysis based on AI can be used to make “job descriptions” and other forms of communication inclusive and biased language-free.

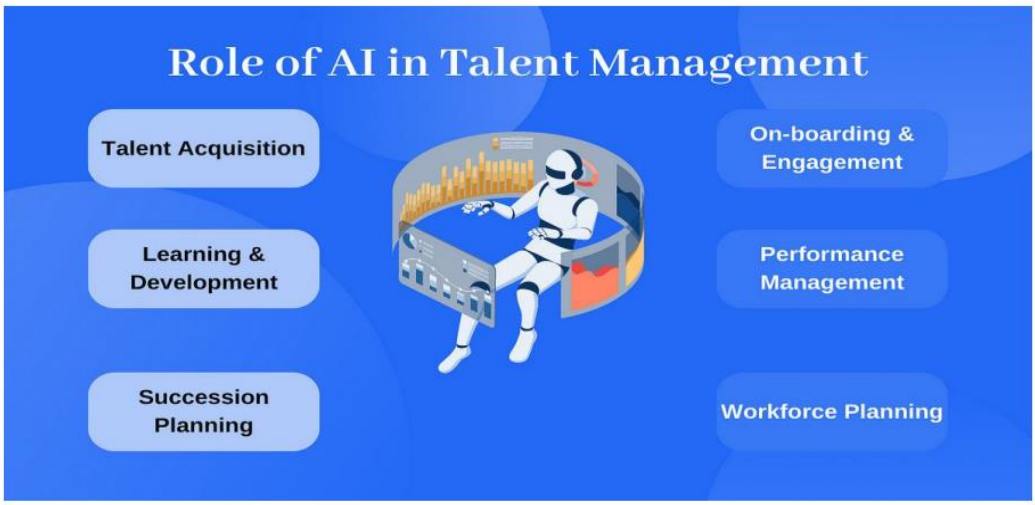

Figure 1.1: Role of AI in Talent Management

Source: (Subbaiah *et al.*, 2024)

In general, AI can transform the talent management process by "automating routine work", offering data-driven analytics, and facilitating a customized experience among employees. Nowadays, firms can gain an edge by organizing their "talent management processes" with the help of AI technology. These technologies also boost EE and productivity.

AI-Driven Recruitment Optimization

Optimization of recruiting with the help of "AI technologies" allow optimizing the procedure of finding, screening, and selecting candidates, which are highly beneficial as compared to the traditional approach. Recruitment tools based on AI are ML programs that process enormous data about candidates that help to identify the patterns and predict their suitability (MESHRAM, 2023). Automated resume screening, candidate qualification evaluation, and candidate-job specification matching are all tasks that these systems can do more efficiently than human reviewers. The use of NLP algorithms would allow parsing resumes and job descriptions to get relevant information and match candidates with jobs. Besides, "AI-enabled chatbots and virtual assistants" have the

potential to connect with applicants, reply to their investigations, and perform early candidate screening, improving their experience and relieving recruiters of time-consuming efforts (Koivunen *et al.*, 2022). Through recruitment optimization powered by AI, organizations have the opportunity to rationalize the acquisition process, attract top talent.

Predictive Analytics for Talent Acquisition

The concept of "predictive analytics" in TA transforms the conventional recruitment process, utilizing the power of data-based insights to predict the future talent requirement and improve the results of the "hiring process". Through "historical data, market trends, and business projections, predictive analytics algorithms" are able to forecast future changes in workforce demand, and proactively determine possible talent gaps (Kumar and L., 2018). These algorithms use statistical modelling and ML to analyze many data sources, like ATS, employee performance data and outside labour market data, to forecast candidate suitability and fit with the job. Moreover, predictive analytics could improve the candidate sourcing plans by detecting high potentials candidates that have higher chances of performing well in particular roles in the company depending on their skill, experience, and behavioral characteristics (Albassam, 2023). Adoption of predictive analytics in TA will help businesses to maximize the "recruitment process, reduce time-to-hire and improve quality of hire".

Personalized Learning and Development Initiatives

To address the individual needs and demands of every employee, organization learning and development programs use AI to create individualised training plans. Personalised learning routes and content are suggested by AI-powered learning systems after analysing employees' abilities, competences, learning styles, and career ambitions (Jian, 2023). Based on "real-time feedback and performance data", ML algorithms adapt

course materials, delivery methods, and assessment criteria (Ersozlu, Taheri and Koch, 2024). Furthermore, adaptive learning systems powered by AI may assess each employee's strengths and possibilities for growth, then offer specific suggestions for skill development (Samuel Omokhafe Yusuf *et al.*, 2024). Organisations may boost performance and productivity by providing individualised learning experiences that boost engagement, motivation, and knowledge retention.

Enhanced Performance Management with AI

AI -enhanced performance management brings new ways to organize employee performance through the "provision of real-time feedback", insights into performance, and predictive analytics. According to Taherdoost and Madanchian (2023), performance management systems that are powered by AI use NLP algorithms to sift through performance reviews, customer comments, project outcomes, and employee sentiment and feedback. The ability to pinpoint specific coaching and development needs is a direct result of these systems' ability to spot trends, patterns, and improvement opportunities (Oladele, 2024). Also, by analysing past data, AI systems may foretell how well something will do in the future and spot problems or ways to enhance it.

Retention Strategies and Succession Planning

The elements of talent management are retention strategies and succession planning, and AI is becoming more and more significant in the optimization of these processes. The predictive analytics based on AI allows organizations to recognize the flight risks among the employees by considering diverse sources of data, such as EE surveys, performance reviews, and demographics (Pessach *et al.*, 2020). Organizations can also develop retention strategies by identifying the causes of turnover which may be job dissatisfaction, lack of career growth opportunities among others. Moreover, Algorithms for AI can also be organize in succession planning to pinpoint personnel with

exceptional potential, taking into account their performance, abilities, and potential for leadership. (Kumar and Yanamala, 2024). The AI in retention practices and succession plans will help an organization to have continuity of talent and save on recruitment expenses and continue having a "competitive edge" in the market.

Diversity and Inclusion Initiatives

AI can be a major contributor to the rather promising diversity and inclusion initiatives that are central to the development of a culture of belonging and equity in organizations. AI applications are capable of assisting organizations in recognizing and reducing bias in talent management practices, including their recruitment, performance assessment, and promotion choices, by examining huge amounts of data and discerning trends of discrimination (Oman, Siddiqua and Noorain, 2024). To become more inclusive, organizations can use ML algorithms to train them to identify and mark biased discourse or practice in job ads, interview questions, and performance assessments (Frissen, Adebayo and Nanda, 2023). Moreover, diversity analytics tools based on AI can also reveal workforce demographics, representation, and inclusion indicators as well as allow organizations to monitor improvements, narrow gaps, and offer specific interventions to promote diversity and inclusivity (Angela and Odewuyi, 2024). With the help of AI in "diversity and inclusion" efforts, companies will be able to achieve more inclusive working environments, improve participation and motivation of employees, as well as foster performance and innovation.

Implications of AI Adoption in Talent Management

The results of the transformation of AI in talent management are fanciful and present opportunities and risks to the organization. On the one hand, AI technologies offer a chance to revolutionize the current talent management practice through providing data-based insights, automation of repetitive tasks, and decision-making (Murugesan *et*

al., 2023). AI in the procedure of "recruitment" can assist companies to boost their hiring, making the process of filling the vacancies take less time and the degree of success in the process to be higher (Hewage, 2023). In addition, AI-based learning and development initiatives can also offer personal learning programs, depending on the skills, interests, and career objectives of the respective workers, which will improve the EE and performance (Tusquellas, Palau and Santiago, 2024). The extensive use of AI in managing talents, however, has also created some ethical issues and privacy concerns, including algorithmic discrimination, privacy and safety of data, and threat to loss of jobs (Roppelt *et al.*, 2025). These implications are significant and thus organizations should ponder over them and come up with modalities to reduce the risks and optimize the benefits of using AI for personnel management.

Key Concepts and Technologies

Artificial Intelligence and Machine Learning Basics

The employment process has long made use of AI. In the late 20th century, AI was first used to automate mundane tasks like sorting resumes and applications. This was the first "use of AI in the recruitment process". The first systems were intended to make the work more efficient taking less time and effort to perform such tasks. Nonetheless, the early developments lacked such sophistication as the current AI hiring technologies. As an example, one of the first resume parsing programs was Resumix, which was acquired by Hot Jobs in 2000 after being established in 1988. The application used AI to sift through resumes in search of particular keywords, job histories, and academic credentials. To enhance the sourcing of applications, the development of the 1990s brought the consolidation of ATS with job advertising websites such as Career Build (Ajunwa, 2021). Talent evaluation programs that use AI to "automate reference checks" and "pre-employment testing" first appeared in the early 2000s, with names like eSkill

and Skill Survey. AI video interviewing tools first appeared in the 2010s. Take Hire Vue, for example. They sprang to fame in the middle of the 2010s when they started using "ML algorithms" to analyse candidates' "body language, facial expressions, and speech patterns" (Mansouri and Alameer, 1964). Amazon was a household name in 2018 for its efforts to automate its employment process with AI. The objective of the "algorithm" was to learn from a large database of resumes over several years in order to maximise the selection of the most qualified applicants. But there were a lot of problems with the tool, and it was eventually scrapped because of bias accusations. Training the algorithm on the resumes that were largely provided by male applicants during a decade displayed bias toward female-oriented candidates. It valued language patterns that were exclusive to men. Even with Amazon's loss, some of the most popular online hiring platforms include Talenture, fetcher, TurboHire, and Findem.

Data accessibility has facilitated the growth of AI-powered technology, which has subsequently enabled the computational analysis of fresh data and the extraction of new insights (Wang *et al.*, 2020). But there have been unforeseen effects from the change. As an apparent substitute for subjective human assessments, "evidence-based algorithmic screening methods" have recently surfaced (De Cremer and De Schutter, 2021). The impartiality of algorithmic methods for reducing biases is a matter of debate Some academics claim that algorithms, especially those based on "deep learning, are inherently bias-proof, providing businesses with an objective choice when selecting candidates" (Kordzadeh and Ghasemaghaei, 2022). However, counterarguments show that these kinds of tools might introduce bias into the datasets used to train them.

Many different kinds of algorithmic biases can arise. To begin, when particular characteristics are identified and then measured, measurement bias occurs (Kordzadeh and Ghasemaghaei, 2022). Inadequate representation of the target construct in training

data for “AI algorithms” may result to this form of bias (Shahbazi *et al.*, 2023). Since there is data available on the performance of white employees, A corporation that keeps hiring white people over Black people runs the danger of equating whiteness with superior performance. In order to avoid measurement bias, it is crucial to regularly assess and revise training records to correspond with employment duties that change over time. The second form, known as representation bias, occurs when researchers use non-representative sampling methods to gather data, which in turn does not reflect the true population (Shahbazi *et al.*, 2023). This bias is represented as under-or over-representation of certain demographics in the “recruiting process”. In order to demonstrate the issue, it was found that Amazon’s AI hiring system displayed a bias towards male-centric linguistic patterns, which were associated with female applications, because it had been used a larger sample of data consisting of white male candidates. Non-representation bias can be corrected by over-sampling or under-sampling.

The absence of important variables from a model employed by recruiting algorithms can also lead to “omitted variable bias”, which disturbs the “accuracy of the predictions generated by the systems” (Wilms *et al.*, 2021). Moreover, there are the linking biases, which arise when the user connections biases and attributes distort the user behaviour (Sun, Nasraoui and Shafto, 2020). As an analysis of user connections is conducted, the algorithms employed in recruiting may infer information that is not in accordance with the real actions of the individuals. A system that ignores candidates’ interpersonal abilities in favour of their technical ones, for instance, might miss out on those who have excelled in crucial areas like communication. Resolving the missing variable bias requires thorough study in order to incorporate all the pertinent variables in a model. And the last but not the least aggregation bias which is caused by misconceptions of people when only an examination of the whole population is carried

out (Sun, Nasraoui and Shafto, 2020). Aggregation biases make hiring models forget individual differences and thus they are not appropriate where there is diversity (Kordzadeh and Ghasemaghaei, 2022). As an illustration, if an "algorithm" believes that youngsters are naturally more tech-savvy, it could discriminate against older candidates who are just as qualified for IT jobs in favour of youthful ones. In order to combat aggression bias, models can benefit from inclusive data training, which involves feeding them less exclusive datasets.

Online recruitment

In the mid to late 1990s, candidates were primarily found and attracted via traditional, non-digital recruiting methods rather than human agents (Black and van Esch, 2020). In the past, individuals looking for work would physically peruse newspapers and job boards. Applicants used to have to physically go to the recruiting office, get an application, fill it out, and then mail it in when they discovered a position they were interested in (Black and van Esch, 2020). Additional technical developments in the staffing business occurred throughout the first ten years of the new millennium. Technological advancements in the past ten years have altered the hiring process and the way potential employees think. Candidates now have significantly greater agency in the employment process thanks to instantaneous information, enhanced connectivity, and worker mobility (Gardner, 2020). "Social media" and "online job" boards have greatly simplified the process of locating and applying for suitable employment opportunities (Black and van Esch, 2020).

An alternative definition of web-based recruitment emerged due to the proliferation of new technologies that simplified and expedited corporate procedures and communication with both internal and external users. E- recruitment, or online recruitment, is a subset of HRM generally. Using digital tools to conduct recruitment

operations that eventually aim to achieve the same goals as traditional recruitment is what it is organizational as. One alternative definition is the use of the Internet and related technologies for the purpose of recruiting, screening, and selecting new employees (Dhamija, 2012). Organisations can gain from e-recruitment in several ways, such as a larger pool of qualified applicants and a more streamlined hiring process (Chapman and Gödöllei, 2017).

Applications of AI in Hiring

Due to the increased understanding of the necessity to exclude prejudice during the employment procedure, NLP practices have developed into an innovative approach. NLP is a subdivision of AI that permits computers to process "human language" and, therefore, derive meaning out of an abundant number of linguistic sources (De La Fuente Garcia, Ritchie and Luz, 2020). Companies had been using hand processing of data for a extensive duration.

However, using neural networks, and the advancement of NLP, businesses can now utilize data to create systems that resolve frequent issues.

Implementing NLP technology allows businesses to cut costs and increase efficiency. Candidates frequently express their frustration with the lengthy and laborious manual HR processes that are common in large organisations. Businesses are organization their operations in preparation for the post-COVID-19 era, which has led to a outpouring in the demand for additional labour. AI-powered recruiting software is quickly replacing human recruiters. Similarly, ML's subset known as deep learning is a powerful technique that could one day be used to quantify human behaviour (Devaraju and Labs, 2024). For instance, deep learning has automated mundane healthcare chores, and it has outperformed human doctors at identifying "breast cancer in mammograms" (McKinney *et al.*, 2020). A alike tendency has been detected in the legal domain, where

deep learning approaches have proven adept at spotting potential contract problems (Goodman, 2019).

Here is a table that outlines the ways "AI is being used in the hiring process": (Table 1.1).

Table 1.1: AI use in hiring.

No	Application	Description
1	CV screening	Streamlining the process of reviewing resumes so as to detect the most appropriate candidates.
2	Personality and Behaviour Assessment	Examination of information obtained from various online communities and social media accounts.
3	Overcoming language barriers	Capable of understanding a variety of languages, facilitating the evaluation of prospects from all over the globe by recruiting experts.

Source: (Albaroudi, Mansouri and Alameer, 2024)

Traditional methods based on psychometric criteria have fallen short in terms of finding people with the right set of talents (Javed and Brishti, 2020b). Concurrently, e-recruitment and other forms of online sourcing have largely replaced more conventional techniques, such as paper job applications. Innovation, growth, and competitive advantage are all boosted by HR functions. Attracting and retaining applicants with the necessary skill sets is a highly competitive market. In 2018, firms started leveraging data derived from "social media profiles" to source for applicants, which directed to an upsurge in use of AI and technologically driven processes in the "hiring process" (Javed and Brishti, 2020b). Social media data gave recruiters insight into candidates' opinions, attitudes, and values that was not available via resumes alone. Since then, there has been enormous support for using the use of AI in recruiting.

AI has meaningfully boosted the screening of the CVs procedure, particularly in determining which candidates are the best fits. First things first when hiring: review all of the resumes for open positions and mark those that seem most relevant according to the job description. Dealing with huge volumes of applications makes a manual technique particularly arduous and time-consuming. The recruiting stage of resume screening can be automated through AI. They are capable of independently extracting relevant data from resumes, such as educational background, employment history, job experience, and skill sets. Thanks to automation, recruiters may spend more time determining whether candidates are a good fit. A lot of time will be saved in the recruiting market with AI-enabled solutions, according to Bhalgat (Bhalgat, 2019). Worker efficiency is a key benefit of HR with the help of an AI-based CV screening solutions that quickly and thoroughly analyse large data sets (Bhalgat, 2019). G. M. and Suganthi (2022) found that AI-based hiring processes are quick, precise, and economical. According to Nawaz and Gomes (2019), HR professionals have a significant challenge when organisations receive huge applications for a single job opening. A strategic advantage in industries with significant turnover is the ability to hire efficiently (Black and van Esch, 2020). Streamlining the hiring process allows for faster decision-making. Quicker decision-making and fewer mistakes made by humans are two benefits that AI-powered technologies can offer, according to James Wright (Wright and Atkinson, 2019). From among thousands of applicants, algorithm-based hiring tools can help businesses choose the best individuals (G. M. and Suganthi, 2022). An “AI-powered CV-matching system” created with “Python 3.7” and modules such as “NumPy, Matplotlib, and Pandas” is examined by Sridevi and Suganthi using 14,906 CVs. The results demonstrate how easy it is to integrate the web server and deploy the CV-matching system that uses AI. HR experts may handle a large volume of applications with ease because to the

system's time-saving features. Ability evaluation is made easier with the help of automated hiring processes. An applicant's skill level and their overall appropriateness for a position can be determined by pre-trained hiring algorithms. A fairer recruitment process is made possible by this method. It permits a less biased evaluation of ability and experience levels.

AI methods can evaluate candidates' character and demeanour in addition to their resumes. "Deep learning models" can scour candidate cv and other online forums for data, thanks to the proliferation of people sharing personal information on social media (Adegboyega, 2020). Additional information about a candidate's character might be found in their social media platforms. By analysing the data, recruiters can learn which character attributes are most relevant to open positions and how well candidates mesh with company culture. By gauging a candidate's level of passion and worldview in their cover letter, companies can weed out unmotivated individuals or those whose beliefs clash with their own from the vast pool of applicants. In particular, AI may screen out applicants who have bigoted posts on ensuring that all applicants adhere to the organisation's values by preventing them from progressing in the hiring process through social media.

Hiring can be particularly difficult for global organisations due to language barriers. These types of organisations have language hurdles because they operate in diverse linguistic settings. A British multinational with operations in China and Germany, for example, would have no choice but to employ native speakers of those languages. It is not unusual to find these multinational companies obliged to employ locally to suit the demands of a particular country where they are established. Hiring HR experts fluent in the target language is a need for any company that regularly interviews candidates from diverse cultural backgrounds. On the other hand, it might get pricey to

hire so many HR experts. Despite language difficulties, AI makes it easier for companies with international operations to hire staff. HR workers may conduct interviews with candidates even if they don't speak the local dialect thanks to AI technology that can identify multiple languages. Advances in NLP are enhancing this capacity and holding out hope for a more diverse pool of candidates to be considered for AI-driven positions (Alzubaidi *et al.*, 2021). By making the utilisation of AI, companies, especially MNCs, may hire people from a variety of linguistic backgrounds without spending money on translators.

Nowadays, candidate engagement is key, and AI-powered solutions are the key to success. Because of time constraints, organisations can't keep in continual contact with candidates. The rise of AI-powered chatbots provides a potential answer to this problem by providing prospective employees with comprehensive data about the company's goals, principles, and more. In the process of recruiting new staff members, Nawaz and Gomes see AI chatbots as the way to go (Nawaz and Gomes, 2019). By simulating NLP discussions, these chatbots help candidates become more acquainted with an entity, which in turn helps them assess the eligibility of that entity for a job. Chatbots powered by AI make it possible for candidates to get information without having to interact with recruiters directly. AI technologies can automate the scheduling of calls, tests, and interviews, allowing recruiters to better organise their time (Chen, 2023). When companies deal with a huge number of applications, AI-powered chatbots help applicants feel less frustrated while they wait for responses.

All things considered, AI has many uses in HR. To begin, AI is a driving force behind the automated CV screening process, which eliminates the need for "time-consuming human intervention". Second, AI facilitates the process of choosing the most appropriate apps from a large amount. A lot of the work in filling open positions has gone

into developing AI's analytical abilities. Lastly, AI algorithms are quite helpful in determining how a candidate's personality and demeanour will measure up. Finding out if a candidate is eligible for a designation is made easier with their expertise in mining social media accounts for information. Last but not least, AI technologies make it easier for hiring professionals and applicants from other countries to communicate, which is great for global recruitment.

AI in Small and Medium-Sized Enterprises

For decades, HR departments have made use of AI. The targeted uses and variety of services are expanding in response to the rising demand for talent management automation. Higher education institutions, job marketplaces, and governmental and private organisations providing talent management systems are among the many areas that have embraced talent intelligence. They must utilise digital services to decrease resource costs and make a substantial contribution to workforce management as the demand for assistance increases (Wallenius and Varjo, 2024). "Information technology" (IT) has been increasingly used in integrated manufacturing operations and people management due to the fierce rivalry in today's corporate sector. It is still a struggle for strategic HR to manage people and make the most of their abilities and potential. The demand for individuals who can multitask and adapt quickly to new abilities is growing due to the increasing reliance on technology in corporate operations and the unpredictable nature of the market (Pauli and Pocztowski, 2019). Employee performance management has so taken a back seat to talent management. Planning, recruiting, selecting, and training the people needed to satisfy present and future demands for human capital is what talent management is all about (Pauli and Pocztowski, 2019).

The goals that upper management and shareholders have for the company serve as the inspiration in order to manage talent. An efficient talent management system will

first break down overall company objectives into more manageable departmental goals, which in turn must stress daily activities and operational goals, all while aligning with individual work performance standards work (Abid and Loufrani, 2024). It is unrealistic to expect an individual to flawlessly execute a new activity without providing them with appropriate training and a career-development program. An organisation's talent management system should also be a part of these training programs. A company's goals, HR procedures and policies, company operations, and vision and mission statements must all be interconnected for talent management to be effective (Kimanzi and Gamede, 2020). Without implementing enabling technology, such a multi-dimensional integration cannot be achieved. All throughout the globe, IT organisations provide solutions for "talent management software". This typically addresses the legal aspects of local labour regulations and adheres to particular standards in HRM. Solutions for talent management address four main areas: hiring, monitoring performance, providing opportunities for growth, and compensating and organization personnel.

The success and stability of a nation's economy and society depend on its SMEs. From what they can tell, this industry employs around 400 million people globally. To stay afloat in comparison to multinationals and huge organisations, these businesses must adapt their procedures to be more responsive to competition and market conditions that are unpredictable. For this level of responsiveness to be achieved, it is essential to have the "operational and human resource flexibility" that would help to improve the talent inventory and adopt technology at the operational level. Compared to mammoth organisations, "Small and medium-sized enterprises" (SMEs) do not have resources to make investments in capital and infrastructure. These strategies employed by the SMEs employ include rethinking organizational goals, reusing and recycling resources, and reinventing human capital. Operating and human resource flexibility are essential for all

of these solutions. Consequently, in order for SMEs to meet the demands of a market or industry, with people management needs always changing, a comprehensive foundation is needed to keep up.

AI technologies simplify the process of application and the filling of the forms by applying design principles that create more friendly options. Because of this, a lot fewer applications are left incomplete or never submitted by promising individuals. In candidate rediscovery, technology has played a crucial role by keeping track of previous candidates in a database. It is possible to choose eligible candidates from a pool of present applicants; then, when opportunities become available, they can be recruited. Instead of squandering resources on TA, HR departments may be able to find qualified candidates more quickly than ever before. Even in the field of TA, Al technology has become commonplace in HR operations.

Machine Learning Application in the Talent Acquisition Process

There has been a shift and a tendency towards using AI and ML together in the TA procedure. According to FraiJ and László (2021), "data-driven" and "automated procedures" are beginning to supplant manual processes in the recruitment industry. They are removing obstacles to hiring, improving the quality of applicants, and launching a new age of opportunities in TA.

"ML" is a branch of "AI" that permits the systems to work independently by locating patterns and drawing conclusions without human intervention. According to Pratap Singh Rathore (2023), a majority of staffing organisations are investing extensively in AI recruitment technologies to enhance candidate matching through advanced predictive analytics. This trend shows no signs of slowing down. Take IBM's deployment of Watson AI as an example; it has slashed hiring time by 23% and increased candidate conversion rates by 300% (Kapoor, 2024). It is estimated that AI will also save

recruiters up to 15 hours per week which will make them more productive and enable them to emphasis on more tactical tasks. The application of ML algorithms can lessen the human biasness as far as decision-making involving hiring is concerned. By listening to purely data-driven insights, they can guarantee diversity and inclusivity in workforce. The exploitation of these technologies will be very important in enhancing the data analysis potential of the HR managers and adopting evidence-based models of decision-making among the HR managers to predict the success of candidates in their organizations (Nawaz *et al.*, 2024). Additionally, ML models enable predictive analytics that assists organisations in predicting future recruitment requirements according to the growth of the business, market trends, and internal talent flows, and thus enhances workforce planning and retains strong talent pipelines (Jacob Fernandes França *et al.*, 2023).

This transformation of HRIS to HR analytics has had a huge impact on research and practice, especially as ML is more widely used in TA. Nonetheless, the adoption of ML and its involvement into AI-enabled TA practices still needs to be explored to the full extent. This involves knowing the issues and opportunities of this integration and how it may affect HR professionals and the entire recruitment process.

Natural Language Processing (NLP) in Resume Parsing

Resume screening is a crucial part of hiring to find potential interviewees with the right set of services and knowledge for open positions. The process could become tedious and time-consuming if large organisations are to be ranked Derous and Ryan (2019) and they receive hundreds or thousands of applicants for each available post. So, to save time and effort, more and more businesses are using resume screening technologies powered by AI (Vedapradha, Hariharan and Shivakami, 2019).

AI systems utilised for the screening of resumes by first scanning each document and then comparing it to a predetermined set of criteria, such as relevant work experience, education, and talents (Hunkenschroer and Luetge, 2022). Since these algorithms can detect candidates who match the criteria rapidly and correctly, the recruiter may spend more time focusing on the best candidates and less time manually screening.

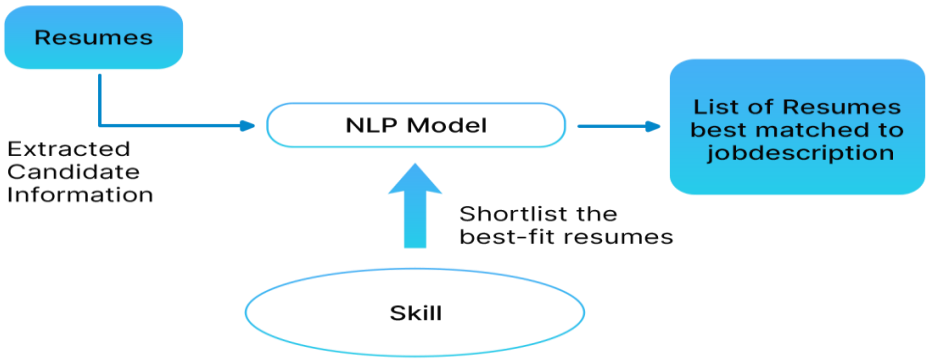

Figure 1.2: NLP Model

Source: (Solves, 2024)

Figure 1.2 above reveals that the system uses NLP processing to draw candidate information in resumes, and then it matches selected skills with the job requirement criteria in selecting resumes.

The AI Resume Analyser, based on the power of NLP, is a solid solution to this issue. The tool aims to automate the process of screening resumes, which will give applicants and administrators a variety of advantages (Albaroudi, Mansouri and Alameer, 2024). On the part of applicants, they can easily upload their resumes through the AI Resume Analyser, and the resumes will be analysed through advanced parsing methods. These methods take important data like basic personal information, expertise levels, skills among other important factors in determining the overall score of a resume. The tool then offers personalized recommendations, which suggest other skills, suitable job positions,

and courses or certifications that might be added to the applicant profile (Narula *et al.*, 2023). Moreover, the tool also suggests useful ideas and hints to work on the resume and also gives the links to the useful sources like YouTube tutorials on resume and interview preparation. In administrative terms, the AI Resume Analyser makes it easier to handle the information of applicants. The resumes and other information are in a database, hence easy to retrieve and analyse. The administrators are able to download the data in CSV format, have access to pie charts of the skill and level of experience distribution of the applicants, and monitor the trends in the application process. Activity maps are also a part of the tool that displays the busiest days and months, which gives good hints about the pattern of application.

The AI Resume Analyzer was developed on a robust technology base, as It is implemented with the Streamlit framework on the frontend and the backend and MySQL as a database management system (Kashif and R, 2022). Programming is mainly in Python, and some important packages like Pandas, Base64, NumPy, PyResparser, Pdf Miner, and Plotly assist in data processing and visualisation. Such a holistic focus makes the tool both effective and reliable as well as user-friendly. An improved, more objective, and quicker alternative to human resume screening is the AI Resume Analyser (Kashif and R, 2022). Streamlining the hiring process is a huge boon to organisations in this day and age when accuracy and efficiency are king. HR staff are free to concentrate on interviewing and final selection when they can efficiently review high numbers of applicants. In addition, data analytics offers valuable insights that may be used to better understand candidate trends and enhance recruitment efforts.

Language structures and relationships can be better known by making use of NLP algorithms. While sophisticated algorithms tailored to each language and discourse are necessary for robots, humans rely on context (Kinzler, Rayhan and Rayhan, 2023). Two

primary subfields of NLP are “Natural language understanding” (NLU) for comprehension and “Natural language generation” (NLG) for producing replies that mimic human speech. Therefore, this two-tiered framework is essential for recruitment apps, especially for individuals able to comprehend candidate profiles and job descriptions, and for interacting with candidates as much as possible through responsive chatbots and interview simulators.

The organising process then consists of multiple steps, including “reviewing resumes, shortlisting candidates, conducting interviews, and finally making a final decision”. Particularly when dealing with high volumes, human judgment using conventional methods is prone to being subjective and unreliable. Consequently, NLP has become an attractive option for powering AI-driven systems to efficiently and effectively handle and evaluate candidate data on a large scale. Nevertheless, advancements in NLP as shown by “transformer-based models” such as GPT and BERT have the potential to revolutionise the recruitment process through enhanced candidate-job matching, chatbot interactions, and data-driven decision-making.

Human Resources Applications of NLP

According to Leidner (2024), NLP has the capacity to greatly augment candidate screening, EE, and many internal support processes, including communication, issue tracking, and attendance. When compared to human evaluations, NLP algorithms are more effective at determining qualifications based on processing job descriptions and resumes, as well as relevant experience and skills. Another rationale for NLP is the possibility of chatbots driving the candidate experience, assisting candidates with tasks such as performing preliminary application screenings and providing answers to frequently requested questions, so reducing the workload of HR personnel (Horodyski, 2023a). This has greatly enhanced the efficiency of hiring as well as the scalability of the

volume of employment. Concerns about potential ethical implications and the possibility of unintended biases in developing NLP algorithms regarding candidate privacy have been raised by the "World Economic Forum"(WEF) (Devaraju and Labs, 2024).

Key NLP Models (BERT, GPT, etc.) and their Role in Recruitment

AI has enhanced the performance of numerous tasks, including recruitment (Zhang *et al.*, 2023). Two examples of these sophisticated "NLP models" are "Bidirectional Encoder Representations from Transformers" "BERT" and "Generative Pre-trained Transformer" GPT. Despite being probabilistic tools, BERT's bidirectional analysis assists in understanding the context of "resumes and matching them with job descriptions". To provide a more tailored experience for candidates, GPT enables chatbots to engage in more conversational exchanges with them (Kaur, 2023). Take BERT as an example. It can semantically match job criteria with candidate profiles. GPT, on the other hand, offers automated pre-screening interview simulation that follows hiring manager rules (IBM, AIHR). There are still issues with model fairness and relying too much on automated decision-making, but these models do improve candidate-job matching accuracy and enable for deeper analysis (Chen, Wu and Wang, 2023).

NLP Tools in Recruitment

The use of NLP-powered solutions is organizational the recruitment industry and the HR and TA processes. One such bot that helps interviewers avoid prejudice is Tengai Unbiased, which only shows recruiters the candidates' responses (Devaraju and Labs, 2024). From sourcing to onboarding, Mya handles it all as a conversational AI assistant. One firm that employs NLP to analyse video interviews is HireVue. They have helped Unilever improve diversity and efficiency. Moreover, Checkr includes NLP in their background checks to accelerate the recruiting procedure and make it more secure and compliant with privacy and data protection laws.

Predictive Analytics in Candidate Selection

Data mining and ML techniques are used in predictive analytics to find trends and forecast future results. Predictive analytics may evaluate a candidate's past performance and use that information to identify the most qualified individuals for a job promotion (Jayanti and Wasesa, 2022). It is also possible to grains predictive analytics to foretell if an applicant will accept a job offer or depart from the organisation within a given time frame.

Several studies have looked at how well predictive analytics work for hiring. As an example, a decision support system was proposed by Jayanti and Wasesa (2022) to help large organisations manage and organize their screening efforts during the hiring process. This strategy's official goal is to help HR managers zero in on the best candidates, the people that will be most inclined to take a job offer and stay on. They achieve this goal by organising a multi-dimensional ranking system that trains multiple bipartite ranking algorithms on historical data, organising univariate loss, as well as a keyword matching algorithm. The recruitment team is then provided with a single list based on the aggregated individual rankings through an interactive site that enables numerous filters to help them effectively identify candidates. Utilising data acquired from a large organisation over a span of several years, the authors prove the system's organisation. Business value measures reveal an increase in hiring yield while decreasing the number of interviews required. In addition, they make good use of past "pre-hire data" to pinpoint individuals who are likely to depart the company soon. A major, globally integrated corporation has successfully adopted the system.

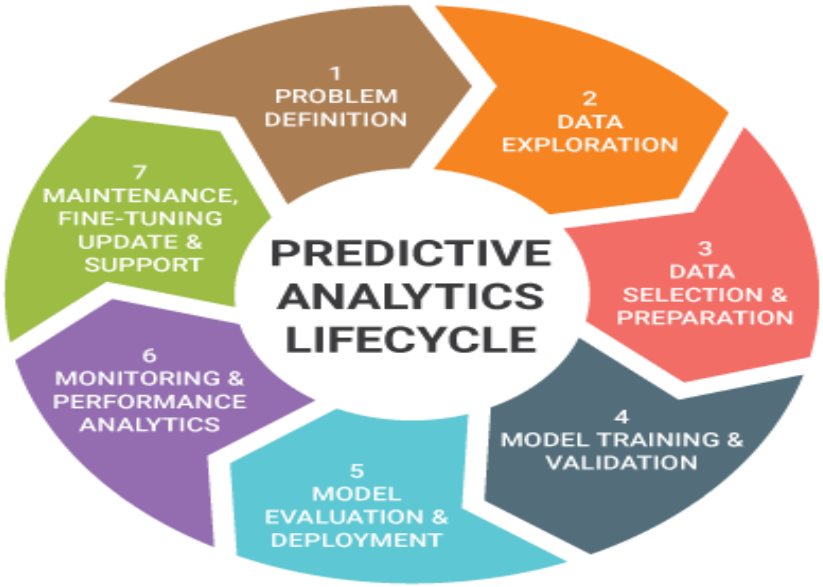

Figure 1.3: Predictive Analytics Lifecycle

Source: (Future, 2023)

The above Figure 1.3 shows Predictive Analytics Lifecycle functions as a never-ending circular sequence that covers problem definition followed by data exploration and data preparation before moving to model training and validation steps and finally to model evaluation and deployment alongside monitoring and performance analytics and maintenance, fine-tuning, and updates.

"Digital Era 4.0" refers to the current state of affairs in the industrial sector. "Business 4.0" is the "fourth industrial revolution", which defines the increasing organisational and data interchange in manufacturing processes and technologies. Manufacturers and enterprises will benefit from a variety of technologies, including "Cyber Physical Systems, Cloud Computing, AI Smart Factories (Big Data), and Industry 4.0". I think it's essential for everyone to be tech-savvy these days. Technology and new gadgets are changing the telecom industry. This sector of the economy is experiencing rapid expansion. The telecom industry needs to evolve and expand if it wants to keep up with the competition. Indonesia's telecommunications sector is critical. In Indonesia, the

ideas and strategies of the Telecommunications Company are still useful. Sustainability and universal accessibility in infrastructure development have also seen a boost in Indonesia. So, in order to improve the country's digital capabilities and encourage more digital usage, the company will prioritise hiring top digital personnel.

In order to select the most qualified candidate, telecom companies should also consider the "time and money needed" to complete the procedure efficiently. A third of respondents (19%) ranked the cost (budget) issue as the most important element impacting recruiting circumstances in (Wiroko, 2017). Respondents' accounts suggest that, as of the research's execution, the majority of Indonesian businesses are focusing on cutting expenses. (Rozario, Venkatraman and Abbas, 2019)states that lengthy recruiting cycles and unrealistic job analyses can occur when recruiters fail to pay sufficient attention to particular aspects. The difficulty in locating exceptional talent is accompanied by an increase in the associated costs of money, labour, and opportunities. When there are a lot of applications, it might be much more time-consuming and resource-intensive to screen them all (Irabor and Okolie, 2017).

Advanced algorithms can do more than just find potential employees and match them to job openings; they can also find "team players" based on shared characteristics and personality compatibility, saving time and money compared to traditional recruiting practices (Walford-Wright and Scott-Jackson, 2018). It is possible to use HR analytics for forecasting. Advanced techniques, such as ML, are employed in predictive analytics to foretell upcoming occurrences. Data mining is the process of looking into the past to make cultivated deductions regarding the future of recruiting, hiring, and workforce planning. Common predictive algorithms used today include decision trees, Bayesian statistics, random forests, and regression.

The hiring process using predictive analytics has been previous research. The study's authors Jagan Mohan Reddy, Regella and Seelam (2020) anticipate a time- and money-saving method of bringing together qualified applicants prior to resume screening. The next stage in determining or predicting employee placement based on their attributes is to apply Naïve Bayes, as demonstrated in (Bachtiar, Pradana and Yudiari, 2019). The developers of the suggested system in Gupta *et al.* (2021) intend to use the random forest method to assess performance and potential job prospects. The authors established a resume-based employment predictor (Chaudhari, Yadav and Shukla, 2018).

Research problem

AI and talent analytics prove popular across recruitment and talent management fields, yet organisations face substantial hurdles to determine their ultimate potential and boundary conditions. Research has primarily studied individual AI tools and applications while lacking extensive assessments of both the "strategic success and ethical dimensions" and "future implications" of AI-driven recruitment methods for talent management operations. Organisations must address multiple issues regarding algorithmic bias, along with growing data privacy risks, as well as human supervision requirements and differing rates of AI implementation across business sectors and geographic regions.

Application of the "modern AI technologies" like "ML, NLP and predictive analytics" changes the TA and management process, whereas practical implementation of these functions still needs to be discussed in different organisational environments, including SMEs. Researchers should conduct in-depth research on how AI revolutionises diversity enhancement and candidate experiences and manages employee attrition issues.

There exists a very large gap in performance evaluation of AI recruitment techniques based on gamification and automated tools and other conventional methods of

recruiting. The general effects of AI on global hiring strategies along with language barrier solutions combined with equal opportunity initiatives have not been examined.

Through case-by-case analysis of relevant issues, this research aims to deduce how AI can revolutionise talent management and recruitment. It will also look into ethical considerations and organise opportunities that could lead to more equitable and efficient innovative workforces.

Purpose of Research

The research examines AI talent matching solutions that enable the automation of hiring processes that would increase the precision and effectiveness of recruitment by mitigating bias when matching job and candidates to achieve better hire selection outcomes. This work inspects the way AI know-hows, such as ML and predictive analytics, enhance hiring effectiveness and address such problems as ethics and scaling in regard to various market segments.

Objectives:

- "To evaluate the effectiveness of AI-driven talent matching systems in enhancing recruitment efficiency and accuracy".
- "To identify the challenges and ethical considerations associated with implementing AI in Talent acquisition".
- "To analyse the impact of AI-driven talent matching on diversity, inclusivity, and candidate experience".
- "To propose actionable recommendations for optimising the integration and acceptance of AI technologies in recruitment practices".

Significance of the study

The outcomes will be significant in the practice of numerous stakeholders in the realisation of TA activities and the management of HR tasks. To be able to develop

knowledge on speed and accuracy of recruitment using technology, the discussion of AI-powered talent matching tools can be used to make more in-depth conclusions. The identified knowledge helps organisations to have quicker hiring procedures and, at the same time, they have improved candidates to fill their jobs.

The paper describes and evaluates the implementation challenges and ethical issues related to applying AI in the procedure of recruiting talent. The paper raises significant concerns about biases and data privacy risks and transparency concerns to define ethical principles that will protect the AI recruitment technology against unethical uses.

The discussion examines the way the AI-driven talent matching application influences the diversity representation of the workforce and the level of inclusion as well as the quality of candidate interactions. This priority remains of utmost significance in ensuring that fair hiring systems are established since it will positively change the dynamics of the organisational ensemble. The analysis of the interaction of AI systems with these fundamental functions clarifies the way investigators work to ensure effective diversity-centred workplace strategies with a higher level of candidate encounter quality.

The practice-oriented research guidance prescribed by the study acts as a step-by-step pattern within organisations which desire to enhance their AI technology realisation and practice of staffing practices. These are the recommendations that will assist organizations to use AI methods to address their fears of human control and ethical concerns and stakeholder trust problems.

The outcomes of the study will donate to an augmented debate regarding ethical AI applications in HRM and create better innovative recruitment systems with enhanced equity and efficiencies.

Research Purpose

The given research examines the effectiveness of AI-based talent matching technology in enabling organisations to recruit better and give more specific results. The paper discusses the challenges and ethical concerns and the knowledge of the AI technology on the implementation of TA. This paper measures the impact of AI talent matching on the diversity and inclusivity of applicants and the overall recruitment experience and gives some practical recommendations concerning the pertinence of AI in the process of recruitment.

Research Questions:

- "How do AI-driven talent matching systems enhance recruitment efficiency and accuracy?"
- "What are the main ethical challenges and considerations when implementing AI in talent acquisition?"
- "How does AI-driven talent match impact diversity and inclusivity in recruitment processes?"
- "What strategies can organisations adopt to optimise the integration and acceptance of AI technologies in recruitment practices?"

CHAPTER II:

REVIEW OF LITERATURE

Overview of AI in Recruitment

GIRSANG (2023) discusses the potential and challenges of AI in the employment process. Based on scholarly and commercial sources, it offers a critical analysis of the "current AI-based recruiting strategy." Assessing the benefits and drawbacks of "AI in the hiring process," which includes a vast array of tools and methods including "social media screening, video interviews, chatbots, predictive analytics, gamification, and resume screening," is a critical function of the research. Findings suggest AI holds great promise for streamlining and improving recruitment processes while cutting costs and increasing the number of high-quality hires. However, it does highlight several legal and ethical issues, most notably the issue of bias and discrimination in programming algorithms. In order to guarantee that AI-based recruiting methods are efficient, inclusive, and in line with the relevant legal and ethical requirements, the study's authors conclude that further research is necessary. Using a mix of academic and industrial expertise, this study evaluates the trade-offs between the benefits and ethical aspects, and conducts a thorough analysis of AI in recruiting.

According to Tsiskaridze, Reinhold and Jarvis (2023), in the recent past, digitalisation has seen the outline of AI in HRM, including using AI-based applications when hiring. Such technologies based on AI have gained popularity because of the synergetic collaboration they can help to establish between human intelligence and computer intelligence, which can help to achieve any desired purpose effectively. This research compiles the existing published papers on AI in HRM and how it applies to the hiring process. Part one of the study’s findings included AI in HRM; part two dealt with the ethical considerations raised by this technology; part three examined the benefits and

shortcomings of AI-powered selection tools; part four compared the applications of AI in HRM across nations; and part five concluded the research. Keeping human employees engaged in collaborative efforts when interacting with AI-enabled robots is one of HRM's most pressing concerns. Companies need to be conscious of the risks and opportunities that AI recruiting tools could bring. Research results show that most relevant research has been done in "Asian and African nations", suggesting a dearth of empirical investigations in the European area. It is reasonable to infer that regulations, more specifically the "General Data Protection Regulations" (GDPRs), are a big reason why tech-based recruiting tools aren't more widely used. All AI decision-making processes ought to be guided by fairness. While AI-powered hiring has its advantages, such streamlining HR procedures, it raises a plethora of legal and ethical questions that need answering or balancing to ensure that job candidates are not treated unjustly. It takes a huge effort for AI-based technological solutions to coexist happily in the employment market. HR managers shouldn't be worried that AI recruiting tools will one day oust them. There should never be a loss of focus on monitoring AI technology, but combining HR with AI is a good thing to go ahead. The paper elucidates the primary drivers and hurdles linked to the "adoption of AI-enabled recruiting tools", as well as important trends in the literature on the subject. This paper discusses the increasing academic interest in AI applications to HRM. Furthermore, suggestions for further research are made.

According to Ashik (2023) The implementation of AI in hiring systems is an evolving field with the potential to eradicate bias and unfair treatment, especially during the preliminary assessment phases. This study set out to provide a good understanding of AI recruitment practices in Finland. The purpose of this study was to investigate how Finnish companies are using AI-driven recruitment and how candidates there feel about

the process. To do this, it used questionnaires to collect data from 109 participants representing various demographics. It also aims to assess how ethnicity, citizenship or historical background is perceived to affect job application and hiring and, in this way, the reputation of encouraging "diversity and inclusion" in the Finnish labour market with AI-driven recruitment. Based on the respondents' level of acquaintance with AI-powered recruiting, their attitude towards workplace diversity and bias, and their perception of the inspiration of their "ethnicity, citizenship, or history on their job applications in Finland", the answers were grouped. The results showed different levels of awareness of the AI recruitment tools and a significant percentage of respondents had some concerns about the possible biases in the employment procedure. In addition, over 70 per cent of the participants pointed out that how much "diversity and inclusion at work" is vital. Some of the non-Finnish respondents also said that they felt bias on the basis of various aspects such as the employment level in Finland, including language skills and citizenship. There is a pressing need to lessen prejudice and strengthen the "diversity in the workplace", and this study adds knowledge to the existing information about AI-driven recruitment techniques like "chatbots and resume screening". But there are some caveats to the study, such as problems with sample representation, the use of subjective self-reported metrics, and the fact that the effects of AI-based recruiting in Finland are quite context dependent. Which should not be generalized to other locations with different labor market conditions. Organizations in Finland should aim to refine AI-based recruitment tools to alleviate biases and promote diversity by seeking to ensure that recruiters undergo continuous training to help them understand nuances of these challenges. In addition, lawmakers should establish rules to ensure that AI is used responsibly and inclusively in hiring practices, with the goal of fostering an inclusive atmosphere that upholds diversity and non-discrimination.

According to Horodyski (2023), The expansion of AI technologies has reached the level of automating most characteristics of the "hiring process" and subsequently, changing the role of a recruiter or a HR specialist. It is unclear, however, what drives or factors impact the usage of AI in recruiters' workplaces, and there is scant study on recruiters' perceptions of AI. The motive of this work was to inspect recruiters' plans to implement AI by expanding the UTAUT theory to incorporate AI education and usage frequency. A "web-based survey" was conducted with 238 respondents, all of whom were carefully selected to ensure a balanced demography. For the purpose of data analysis and hypothesis testing, hierarchical regression analysis was used. Results demonstrated that "performance expectancy" and the regulating effects of frequency of AI use significantly and favourably impacted "behavioral intention", but "gender, age, experience, and education" did not exhibit any significant impact. The lack of human judgement was the primary drawback, whereas proficiency increases, time savings, and automation emerged as the most important advantages.

According to Suwandi (2022), AI has the capabilities to significantly recover the company's employment procedure. Included in the report is an analysis of the pros and cons of incorporating AI into the hiring process. The use of AI in the recruiting process has various benefits, such as finding AI providers and companies that have already implemented it, studying the present level of AI to help with hiring, and gauging the results of doing so. By reviewing researches published between 1988 and 2020, this research compiles a variety of perspectives on how to regulate AI's role in HRM. The findings indicate that IT businesses and large organisations are the primary users of AI. The reports provided by these firms about their use of AI do not provide an exact image of the implementation and evaluation process due to the fact that interviews are still a component of the hiring process, which opens the door for prejudice.

AI is shaping our world in exciting ways, with applications in fields as diverse as healthcare, transportation, and entertainment. The use of this method to search for candidates in massive amounts of data, sort their profiles, interview them, and then select the best ones has grown increasingly prevalent in the recruiting market in recent years. Hence, it may change the way HR works, how candidates feel, or even the rules and regulations of a company. Problems below are based on actual facts, since either recruiters don't know this technology exists or companies using it are only now beginning to include it. AI function in recruiting can be better understood by one should look no farther than the comprehensive literature analysis of the last five years conducted by (Javed and Brishti, 2020a). Furthermore, it investigates potential benefits for both candidates and recruiters, as well as identifies the most pressing problems and suggests solutions. The aids and downsides of AI in recruiting and its influence on the hiring process have been illustrated by recent discoveries. The research also gives readers the chance to evaluate the realism and feasibility of AI in HR.

Wright and Atkinson (2019) intend to think about AI and how it's changing the recruiting industry. This study aimed to identify the impact of AI on firms and candidates throughout the initial stages of the hiring process. Practical recruiting experts have come to embrace AI as "game-changing for HR" despite the paucity of academic studies on the topic (May, 2016, p.6). Finding methods in which AI could improve the "hiring process" was the major motivation for this research. The recruitment landscape has long been impacted by technology, which has reduced expenses and improved the effectiveness of candidate recruitment. Nevertheless, according to the US Department of Labour, recruitment currently only yields a 16% success rate. This being the case, there is a great chance for substantial advancements to be made with the advent of AI. These preliminary enhancements will most certainly have an effect on the initial stages of the

"hiring process", which include sourcing and screening applicants. To bridge the knowledge gap about the effects of AI on the recruitment industry, they conducted an integrated literature study. Because of this, they drew from scholarly and professional sources. A framework for evaluating different sources was created using thematic analysis. The research that informed the progress of these themes relied on the possible implications and impacts of AI on recruitment. "Risks and limitations," "bias and inclusion," and "technicalities and opportunities" were the three main themes that guided the survey's approach. To determine the potential consequence of AI on the procedure of recruiting, three different kinds of studies were carried out. Nine specialists in different domains related to AI and recruitment participated in semi-structured interviews. Insight into candidates' pre-existing impressions of recruiting processes was gained using an online survey with 132 responses. In order to assess the important issues, opinions, and worries of specialists in the field of AI'in HR, a round-table event was observed. The proposal of a recently established recruitment procedure serves as the paper's last recommendation. Incorporating major structural and technical changes into the recruiting process, this method allows HR teams to acquire talent as efficiently and effectively as possible. Consequently, a "test for success" model must replace the current standard procedure for job recruitment, which is "based on trial and error".

Overview of AI Technologies in Talent Acquisition

Abraham (2025) is thankful to AI, which has organized TA and recruiting, The recruiting procedure has been greatly improved and is now much more efficient. AI solutions speed up the candidate sourcing process by scouring massive databases for capable applicants whom suits the criteria for job. Automated resume parsing is one way these tools enhance candidate screening, which in turn helps recruiters focus on the best prospects. Additionally, AI helps organisations endorse "diversity and inclusion" by

making recruiting more unbiased by to reduce the bearing of inherent prejudices in the screening procedure. To streamline the application procedure, chatbots and AI helpers are being used by providing candidates with timely responses and information. Predictive analytics is another use of AI; it looks at historical data to see if a candidate will be successful or not. They may also organize AI to find passive individuals, who fit the profile but aren't necessarily looking for new possibilities. In addition, systems driven by AI can manage mundane tasks like interview scheduling, allowing recruiters to emphasis more on strategic decision-making. Members of the HR department make up a sample size of 287. AI is revolutionising the recruitment and TA industries. It helps with everything from screening and matching resumes to reducing bias and enhancing the candidate experience through chatbots for initial interaction.

Marinakou, Giousmpasoglou and Papavasileiou (2025) presents a framework for high-end hotels to organize AI-driven technology in their TA procedures. In order to get a feel for how professionals working in Greece's high-end hotels feel about AI, this qualitative study used 23 semi-structured interviews. While human engagement is still crucial at important phases of the TA process, the results show that AI-enabled tools are beneficial in many ways, such as speed, reliability, and improved applicant communication. To help both researchers and practitioners, the suggested model lays out the six steps of AI, TA. By providing both theoretical and practical insights, this study adds to the subject of AI-HRM strategic change. It offers important implications for future study and applications in the field of AI, TA, and as far as the authors are aware, it is one of the first empirical efforts to create such a framework.

Paramita, Okwir and Nuur (2024) investigates the ways in which the development and spread of AI are altering the structural components of organisations and the operational steps taken to lure new talent. The authors conducted "semi-structured

interviews" with "HR experts, recruiters, and suppliers of AI hiring platforms in Sweden". Using grounded theory, they identified four important characteristics to comprehend the utilisation of AI in recruitment. "Algorithmic management" and "ambidexterity theory" provide the groundwork for a complete paradigm that describes the radical effects of "AI on the recruiting process". It offers a warning method as well. Cautioning that there should not be too much of an emphasis on operational performance based purely on algorithms.

AI has transformed the way organisations recruit employees by revolutionising the process of traditional recruitment, and it also poses opportunities and challenges to organisations seeking to establish a diverse and inclusive workforce. The research, carried out by Fatema (2024) aims to research and assess the techniques in which AI is transforming the recruiting process and the diversity of the workforce. The study has been carried out in the form of mixed methods, evaluating both quantitative data concerning the recruitment results and qualitative opinions on organisational practices. The important research questions relate to the efficiency and effectiveness of AI algorithms in selecting the candidates, possible biases and discrimination, and the overall impact on the workforce composition. The research evaluated the attitudes of both job applicants and staffing experts on the applicability of AI to hiring, with a view to identifying views, issues and ethical issues that surround such technological innovations.

Al-Sartawi, Aydiner and Kanan (2024) explores the consequences of AI on the methods used by Jordanian IT firms to find and hire new employees. Relevant "primary data" was congregated by "quantitative technique" with a "cross-sectional design". Researchers utilised structural equation modelling to analyse the link between organisations with the help of a convenience sample of 361 managers from digital start-ups in Jordan. The outcomes recommend that AI's magnitude has a substantial impact on

TA techniques, ’with expert systems being ’the most consequential. Thus, AI solutions are successful and helpful in the active Jordanian talent market since they are constantly monitored and adapted to the local context.

Prasad and Vishwavidyalaya (2024) AI has changed the recruitment and TA environment greatly, and it allows businesses to automate the process, make better decisions, and enrich the complete experience of applicant. AI-based techniques like MLA and NLP are organised at several stages of the recruiting process, including “resume screening, candidate sourcing, and interview scheduling”. A lot of data can be analysed by these technologies, determining best talent and lowering human biases, which makes the process of recruitment more productive and objective. Moreover, AI improves the interaction of candidates with chatbots and individual communication. Nevertheless, its benefits notwithstanding, ethical issues and data privacy are some of its challenges. This paper examines the changing nature of AI in recruiting, its opportunities, threats and future implication to talent recruitment.

Effectiveness of AI in Enhancing Recruitment Efficiency and Accuracy

There has been a high pace of technological change and advancement in recent years with many new state-of-the-art information system technologies being developed. AI has been a hot subject in business administration due to its abilities, through which the AI and the organisation staff are able to communicate in an effort to enhance decisions. The technology has made businesses apply AI in making more decisions, since it is good at data analysis and problem-solving. The reason is that, right calling is a key determinant in the victory of an organisation and its goal attainment. According to the information given, the group has resolved to come up with an academic paper that would compare and contrast how various businesses have applied AI in enhancing the quality of their decisions. A study was conducted by Goyal *et al.* (2023) to highlight the most effective

AI-based hiring technique. The study also reveals how AI is used in recruitment tactics. Rather than HR, the results demonstrate that respondents are in favour of AI doing some mundane HR tasks.

According to Cavaliere *et al.* (2021) HRM covers a lot of ground, which comprises planning, hiring, workforce relations, and company development. Any company's employees are a treasure trove of knowledge and insight. Recruiting plays a significant function in acquiring specific professionals in today's world. The success of the performance of the organisation is due to the way e-recruitment strategies are implemented. The process of hiring used to be more time-consuming and paper-intensive, but it started to change gradually when internet recruiting became commonplace. Due to technological advancements, recently studies have focused on finding ways to combine HRM with technology, two essential components of HRM. An association between e-recruitment's introduction to the school and improved productivity was demonstrated by the findings.

The purpose of the research, which was conducted by Moon (2024) is to determine whether and how AI can enhance the selection and hiring processes. AI has changed various industries such as the hiring process by getting rid of the inefficiencies and biases of conventional hiring practices. The recruitment processes of the past used to be highly biased and labour-intensive. AI can help HR managers devote more of their mental resources to long-term strategic thinking and interacting with applicants instead of carrying out regular tasks including sorting through applications and conducting interviews. The overall quality of hiring can be improved by utilising algorithms powered by AI to look through large number of datasets for trends and improve the forecasting of applicant performance.

Ouakili (2025) scrutinised the AI effect on the hiring procedure. Specifically, they want to know if it has improved efficiency, increased diversity in terms of demographics, backgrounds, and experiences, decreased hiring costs, and dealt with any ethical concerns or problems that may arise from using AI. The outcomes represents that the process has been boosted with the usage of "AI-powered recruitment tools".

The organisation's success is intimately tied to the recruitment process, an important HR function. Manual screening, which is common in traditional recruitment but can be costly, biased, and time-consuming, is another common practice. In the dynamic world of start-ups, where growth and competitiveness are driven by recruiting, it is crucial to execute recruitment swiftly. Furthermore, a game-changing trend in recruitment has emerged: the use of AI. Surbakti (2024) inspects the role of AI in determining the likelihood of successful recruiting in the startup environment. Results show that AI improves efficiency, cuts costs per hiring, and increases both the quality of hires and the satisfaction of candidates.

People used to think AI was something scientists made up; now, though, most workers are aware that smart technology is drastically altering their work. Technologies that can make decisions or provide recommendations using data that has already been acquired are known as AI.

Nowadays, businesses recognise the significance of AI; HR is no exception. HR managers nowadays are laser-focussed on finding the sweet spot where humans and machines can collaborate to create an automated system that streamlines processes and eliminates human error. AI provides significant assistance in the recruitment process, particularly when dealing with large-scale employment. They have seen an improvement in the hire and a lessening in recruiting error rates thanks to AI, and it's not only in recruitment that other departments are exploring how AI might bolster their own efforts.

In today's cutthroat business environment, businesses can greatly benefit from integrating HRM with AI to boost operational efficiency and overall performance. Preserving a leading position in the AI industry, HR should retrain its staff to work with AI. The proliferation of AI is affecting every market. Manthena (2021) looked at the "pros and cons of AI" in relation to company hiring processes. The HR department's approach to hiring will increasingly include more AI solutions due to the fast-growing trend of using AI technology in the workplace during the past 20 years. AI technology is as capable of resolving issues as a human brain is. Compared to other more traditional methods it is gaining prominence in automating the recruiting process. A company's communication with candidates, the size of their candidate pool, the rediscovery of forgotten skills, and the general success of their recruitment efforts could all be enhanced by incorporating AI software into the conventional recruiting process. Every company's primary focus should be on recruitment. One area that is supposed to be taking the administrative jobs in HRM is the "recruitment process", which includes the activities related to it, the variable which intervenes with the job candidate, and the recruitment outcomes.

Ethical Challenges in Implementing AI in Recruitment Process

Integrating generative AI in HR is a revolutionary change to talent management. This abstract explores the revolutionary possibility of the use of AI in the areas of recruitment, staff growth, and engagement in the HR system. Using highly sophisticated algorithms and data analytics, AI-based systems transform the process of TA to quickly find the best talent and create diversity and inclusion. Besides, individualized learning tracks and content distribution maximize employee training in improving training efficiency and interest. AI-powered performance management enables "real-time feedback" and "predictive analytics", encouraging accountability and continuous improvement. Also, AI-powered virtual assistants enhance the engagement of the staff by

providing individual assistance and making the employees feel welcome. Nonetheless, Jha (2024) states that organisations should consider ethical issues related to the "privacy of data and biases" in algorithms and remain transparent and human-focused in applying AI in HR practices. All in all, the potential of generative AI is enormous, and it is likely to transform the approaches to talent management and improve the operational efficiency of the organisation, as well as instil an innovation culture.

According to Olaniyan *et al.* (2023), AI is a growing discipline which involves various products in various sectors. The big multinational organisations and even the local medium-sized businesses are using AI to improve the administration of firms on the basis of "efficiency, productivity, decision-making, and overall performance". The organisation of AI and other AI-based solutions in HRM is inherent to the firms. Applying AI to Talent Management, It can be defined as applying AI methods and technologies to streamline different parts of the employee lifecycle, including recruiting and selecting employees, engaging and developing people. It can streamline HR and enhance the management of the workforce in an organisation. Although AI has the power to bring plentiful advantages to TM, it is important to consider certain concerns. These include data quality and security, the potential loss of human judgement when faced with complicated choices, ethical considerations surrounding prejudices in AI models, the level of trust and acceptance from users, and the need for a competent and versatile workforce.

AI is changing many spheres, and recruiting is not an exception to this movement. Suwandi (2022), investigates how the applications of AI can transform how organizations are attracting, selecting, and recruiting talent. The demand to have efficient data-driven hiring strategies is dire as the world competes over the best talents. Aspects of AI like as ML, NLP, and predictive analytics are now indispensable for "automating the screening

of resumes, matching of candidates, and scheduling of interviews"; The "time-to-hire" and candidate experience are both enhanced by this. Examining the pros, cons, and ethical considerations of AI, this research delves deeply into the topic of AI's use in TA. Among the major findings is the fact that AI saves time in hiring by up to 50 percent, automates the candidate experience, and enables more competent hiring decisions. Organizations have to be cautious about dealing with the ethical issues that AI will introduce to recruitment processes to guarantee the fairness and transparency of recruitment. To sum up, AI can transform the TA process but requires careful implementation and necessary assessment to avoid the risk of this technology and maximize their advantages.

Incorporation of AI into the procedure for attracting and maintaining top talent has been groundbreaking, with huge advantages to organizations seeking to capture and hold the best talent. Despite the fact that the benefits of AI to TA and retention are also significant, nevertheless, the technology of AI is not adopted widely across organizations. AI has real-world applications that can improve the match between jobs and companies, which in turn upsurges the likelihood that competent candidates will join and stay with the company. HR managers have an important role to play in attracting and retaining top people, but many companies are having trouble filling open position. Nonetheless, there are a number of obstacles to talent recruiting and retention that have been noted (Bris *et al.*, 2021). These include innovations in technology, concerns about security and privacy, the need to find an alignment between automation and human interaction, and the need for both technical knowledge and personalisation. This paper discusses the solutions being offered by the HR professionals in addressing the encounters and chances posed in identifying, attracting and retaining the best talent in line with the demands of guaranteeing labour requirements in the industry. It is believed that the suggested

theoretical framework can add to what is already known and serve as supplementary resources for businesses, especially HR managers.

Bris *et al.* (2021) enquires into the moral dilemmas and negative responses from workers caused AI is being used in HRM. The research looks at how ethical issues including data protection, accountability, prejudice, and transparency affect trust and work satisfaction in companies with varying degrees of AI integration. The study suggests that there is a strong linkage between the level of AI implementation and emergence of stress and anxiety among the workforce, and an elevated opposition to AI-assisted procedures. These results indicate that companies have to be very cautious in maximizing the advantages of AI based HR activities and the moral consequences as well as the employee interests so that their integration can be a success and can provide a favourable working atmosphere.

Munawir *et al.* (2022) explores the application of AI in HR and the difficulties associated with it. Given AI's potential to streamline repetitive tasks, boost decision-making, and enrich the “Employee experience” (EX), its use in HR is growing. AI is used extensively in HR for a variety of purposes, including but not limited to: "operations, learning and development, engagement, performance management, onboarding, and recruitment". There are a number of hurdles that stop AI from being widely used in HR, even if it has a lot of potential benefits. Issues with data privacy and prejudice, HR experts’ lack of competency, ethical concerns about employee surveillance and algorithm transparency, system compatibility, user trust and experience, and regulations are among these limitations. In order to overcome these challenges and successfully integrate AI into HR, firms must develop comprehensive plans to make sure that choices influenced by AI are fair, transparent, and responsible. Successful organisations have found ways

to overcome these obstacles and use AI to make their workplaces more inclusive and efficient.

Ethical Consideration Associated with Implementing AI in Recruitment Process

Tsiskaridze, Reinhold and Jarvis (2023) The use of AI in recruiting is on the rise, which has many people worried about the effects of algorithmic decision-making on the workplace, particularly for organization groups. Because AI has the propensity to perpetuate prejudice and discrimination, which can have a disproportionate impact on organization communities, issues of fairness have emerged as central to discussions about AI recruiting, alongside concepts like transparency and accountability. Nevertheless, different parties may ascribe different meanings to the concepts and objectives of justice. It is essential to conceptualise fairness since it can serve as a clear standard for assessing and reducing biases; this will guarantee that AI systems do not exacerbate current inequalities but rather promote, in this instance, equal employment prospects for all applicants.

Sakka, Maknouzi and Sadok (2022) explores the integration of AI with HRM on a three-pronged spectrum. HR professionals will soon be able to devote less time to mundane activities and more to high-level strategy thanks to AI-assisted decision-making, according to the first part of the report. In the second thread, they talk about how HR is changing its function within companies. AI will allow HR departments to become centres of strategic decision-making, shifting their focus from reactive to proactive problem-solving for organisations. The third strand explores the financial ramifications of AI adoption and gives a general explanation of the legal concerns around anti-discrimination and regulatory rules, which are becoming increasingly ubiquitous in decision-making due to the prevalence of cost-benefit analyses. Only by meticulously carrying out its deployment will the great potential of AI for organizational success be

sustained. This calls for a policy of internal transparency to prevent AI from becoming a tool of control but rather a facilitator of trust and commitment on the job, as well as for HR professionals to be reskilled so they can effectively mediate between AI-generated evaluations and human stakeholders.

Organisations are shifting their focus to staff selection tools that grains ML Alogrithms and AI technology. These tools aim to outperform traditional methods by accurately predicting employees' future success. Among these novel approaches to evaluation include video-based interviews, online games, and big data culled data collected from many different places, including applications, resumes, social media, test-taking patterns, and answers. Time savings, reduced costs, improved accessibility, and more applicant engagement are some of the commonly cited, and rightfully, practical advantages of using these selection procedures. On the other hand, there are valid concerns about these tools' validity in predicting employee-relevant outcomes, the appropriate updating of their evidence and normative information, the measurement characteristics (reliability and stability), the conceptual relevance to the job, in addition to the related moral dilemmas over the accuracy of the information conveyed to prospective employers and employees. Industrial and organizational psychologists are being strongly encouraged to apply the current criteria for employment testing to these new kinds of testing that are based on AI and ML (Alves, 2021). This includes establishing rules for the documentation of these tests.

According to Martínez and Fernández (2019), Applications of AI in certain domains may result to distinct sets of "moral and legal questions". The difficulties of analysing job video interviews is one of the present AI research topics. Recruiting information management and applicant-position matching could be enhanced in conjunction with semantic descriptions of open positions and applicant profiles. Among

the several controversial issues regarding AI in employment are the possible legal and ethical consequences for states, companies, and applicants. If eliminating racial and gender bias in the workplace is a priority for them, they must address the lack of oversight of these systems and institute impartial audits of the various interview matching techniques. First, the study suggests formally defining job and candidate criteria using an ontology for desired skills and emotions and an ontology for job offers. This will promote interoperability at the company level and ensure that AI is fair, inclusive, and accurate. Second, it proposes an architecture for impartial auditing using many agents.

There is a growing sense of unease regarding the prospect of balancing technical progress with responsible and ethical standards in its use, given the ongoing impact of AI and other forms of technological innovation on interpersonal dynamics. The concerns connected with these instruments' contextual aims and the overlapping layers of susceptibility with data subjects have prompted legislative attempts in Brazil and many other nations across the world. Rocha (2024) states that, there is a trend towards initiatives related to the subject. This is due to the following reasons: a) The utilisation of AI in employment associations should not worsen the data subject's already asymmetrical position; b) The majority of users whose data is processed by these tools are in an informational asymmetry with AI agents, which should lead to agents' duty to be transparent and provide information; and c) Workers, as data subjects, may face additional layers of vulnerability due to specific social markers; accordingly, they should also have mitigation strategies in place.

Impact of AI on Diversity and Inclusivity in Recruitment

A more inclusive, diverse, and efficient recruiting process is on the horizon thanks to advancements in AI. However, it does bring up some important ethical and practical questions that must be thoroughly examined. SCHIENDORFER (2024) aims to answer

three research questions about technology's impact on inclusive and diverse hiring practices: To what extent can AI facilitate a more inclusive and diverse recruiting process (RQ1)? Regarding RQ3, what are the primary ethical concerns and challenges that companies face when using AI for hiring purposes? Lastly, what are the necessary adjustments to increase the utilisation of AI technologies in the recruiting sector, and what are the predictions of Austrian HR professionals on the future of AI in this regard? The outcomes recommend that AI can radically enhance diversity and inclusion by boosting the pool of eligible candidates, writing gender-neutral job descriptions, and standardising assessments to reduce subjectivity.

An emerging field of technology, AI is finding increasing usage in recruitment systems with the goal of eradicating unconscious biases and unfair treatment, especially during the preliminary evaluation phases. In the context of Finland, Ashik (2023) conducted a thorough analysis of recruitment processes that were upgraded with AI. The output revealed that the experience of people with AI recruitment tools was different, and most of them were concerned about the biases that might infiltrate the system. In addition, over 70% of poll takers stressed the importance of a diverse and inclusive professional environment. Some of the non-Finnish respondents indicated that when they sought employment in Finland, they received unfair treatments due to their nationality or command of languages.

AI could become a game-changer in the business world by removing prejudice in thinking and speech as part of DEI efforts. This project will look at how AI can be used to detect, reduce, or remove unconscious biases in people's interactions. AI systems when constructed and implemented in a responsible manner, can analyse language and behaviour patterns, as well as ways of making a decision to promote a fairer outcome. Including as many needs and opinions as possible, such AI-driven technologies as

accessibility options, translation tools, and real-time feedback features can enhance inclusive communication. Although AI can be used to enhance DEI, there are barriers to its complete adoption. Ethical issues, like the possibility of AI system to enforce the existing biases, justify strict control, careful planning, and vigilance. To ensure that AI has a positive influence on DEI efforts and to prevent unwanted consequences, Kondra (2025) states that it is important to address such ethical issues. The work states how AI can be used to alter and enhance workplaces to be more diverse and inclusive by critically discussing different AI applications that can be used to drive DEI. It further demands a cautious and prudent use of AI. Integration of AI in DEI programs has brought a giant step closer to more just and inclusive workplaces. Organisations can create a future, using AI responsibly and ethically by creating equity, realising diversity, and making inclusion the cornerstone of organisational success.

Enhancing The Candidate Experience Through AI-Driven Talent Matching

Nawaz and Author (2025) examine AI's ethical, psychological, and strategic components in recruitment using quantitative survey data from 300 participants (200 candidates and 100 recruiters) and qualitative information from semi-structured interviews. AI is perceived as positively impacting TA due to its scalability, decision-making capabilities, and increased efficiency. Perceived fairness moderates the relationship between fairness and candidate involvement, according to the results, which are influenced by trust in these systems. AI is not just a tactical tool; it also takes shape in areas such as recruitment efficiency, as is typical of digital media. An examination of moderation reveals that company culture strengthens The two concepts are highly related: "trust and engagement", which highlights how important culture is when using AI. According to qualitative evidence, which contributes to the body of knowledge, addressing these needs calls for openness, efficiency, and rigorous procedures to

eliminate bias. In light of this, the research implies practical standards for equity, trust, and inclusion in AI recruiting and draws on established theories such as the "TAM" and "Strategic Alignment Theory". The findings highlight important concerns that organisations and clients have regarding AI and offer a framework to help with the ethical and effective use of AI in recruiting.

According to Mohanasundaram (2025), The use of AI in HR has completely altered the hiring process. Improving the intranet experience, shortening the acquisition process, and decreasing preconceptions are all possible with AI-driven podiums and tools. Modern institutions and businesses rely on top-notch employees to bring their visions to life. With the arrival of the "Fourth industrial revolution (4.0)", this need becomes even more pressing. Optimistic, emerging, and enthusiastic employees are a need for organisations to thrive in the current digital ecosystem. Hiring the right kinds of people who can thrive in the new digital world and nascent business climate requires a well-thought-out strategy for acquiring new employees. Any organisation needs a stylish strategy. Experts who can successfully and excellently complete job objectives might be identified and hired with its support. Organisations increasingly rely on data analysis for this approach, which is a top role. The impact of AI on strategy is the intended focus of this paper. It will also focus on the methods that businesses organize for hiring with the help of AI.

According to Tay *et al.* (2024), one of the most progressive "technological innovations", which is popularly termed AI, has already changed our living habits. It is also a common practice presently being done, especially in terms of recruitment, to collect huge amounts of data for application identification, applicant profiles' analysis, interviews, selection of the most appropriate potential among many others. This makes its impact on HR function, perception of prospective employees, firm's cultures, and

policies. This situation is problematic, and it is associated with reality for several reasons, which could be either due to lack of awareness by the recruiter or early adaptors who have started the implementation process on adoption curve model. It drives us to learn more and educate people concerning the possible uses of this technology. The AI optimizes the experience for the applicants because the HR manager does not have to spend much time on the procedure. This allows the company to save these resources and use them to boost its output. In fact, a study done by the "Sage group" shows that more than 24 percent of companies worldwide use AI for interviews and job evaluation. A majority of over two-thirds of HRM's is willing to adopt AI within one year. The WEF has projected that about seventy-five million out of the current workforce positions will disappear. The H.R. will be stressed by the addition of a hundred and thirteen million new jobs opportunities and positions. Especially, as there is the onset of AI and ML in organizations; they will lead to hiring additional HR experts to address the extra workloads.

Sundari *et al.* (2024) investigates the effects on engagement and efficiency of operations of using AI into HR strategy. AI frees up HR departments to concentrate on people management and company culture development by automating routine operations like information management, scheduling, and payroll. Personalised experiences and real-time feedback enhance EE, which in turn increases operational efficiency by 30% when AI is implemented. According to research. With AI's predictive personnel data analysis, businesses can make better strategic decisions. Employee pushback and the necessity for HR re-education are, nevertheless, obstacles. Enhancing engagement and well-being through AI integration requires organisations to boost internal communication and implement supporting policies.

The overload of unstructured resumes is caused by the explosion of online job applications and recruiters must find innovative ways of sifting through contenders in an well-organized manner. Focusing on the incorporation of the NLP and ML approaches, Dishankan and Shafana (2023) explores the history of the candidate profiling approaches. In addition to the conventional eligibility tests and ability assessments, as the study reveals, applicant profiling is constantly being improved. Such comprehensive approach to candidate assessment utilises a plethora of tools, such as social media profiling, psychometric assessment, emotional intelligence dynamics and employability scores.

Malik *et al.* (2023) examines several sources of data of a global "Multinational enterprise" (MNE) providing IT consulting services to unpack the configuration of an AI-aided HRM applications- and a HR platform-based HR ecosystem. In the study, a new theoretical model will be created to explain what type of AI-enabled HR ecosystem would accomplish and what it should be to provide an outstanding EX, which is a prerequisite to EE. The aim of this essay is to discover what the effectiveness of AI-assisted HRM on the EX and EE is and what role in the entire ecosystem of an organization it plays. To achieve this, it makes use of the theoretical frameworks of engagement platforms, AI-mediated social interaction, EX, and EE. HRM apps powered by AI boost EX and, by extension, EE, according to the research. The efficiency of the HR department and the output of individual workers have both improved. Research and practice implications are also covered.

AI technology is being used by HR departments. In this paper, they take a look at how AI could be used to executives in charge of hiring in order to improve the process for potential employees. The investigation is organized within the framework of signalling theory. (Balasundaram, Venkatagiri and Sathiyaseelan, 2020) analyses the existing research on AI techniques that businesses may employ to entice and hold top

personal by making an engaging and positive application experience. One case study of improving the applicant experience through high-volume resume processing is also covered in the paper. As far as AI applications in recruiting are concerned, some examples include the creation of "Text to apply, text recruitment, virtual career fair, chatbots to schedule and screen candidates, and video interviewing software" which records and stores video interviews, transcribing them, are some of the categories of AI-assisted technologies. The candidate experience during the recruiting process stands to benefit greatly from such applications. AI has the potential to revolutionise the way firms find and hire new personnel. It can streamline the recruitment procedure, increase the quality of applicants viewed, and improve the overall candidacy experience. Among the various applications of these skills is the augmentation of the hiring progression and the facilitation of the rapid and easy identification of suitable candidates for open positions. Some of the subjects discussed include AI in HR, mobile sourcing, video interviewing, virtual career fairs, chatbots, and text-to-apply.

CHAPTER III:

METHODOLOGY

Overview of the Research Problem

HRM main recruitment process has ongoing issues that hurt how well it works and make its operations less accurate and fair. The old ways of hiring rely on people doing the assessments, starting with looking at resumes, then arranging interviews, and finally judging candidates. This leads to delays and mistakes in the process. Old ways of hiring stop companies from finding the right people because these methods don't work well at finding good candidates. Because of this, companies spend money on hiring and then lose workers.

When people make decisions with hidden biases, it causes two main issues for companies. First, it leads to unfair rules that result in discrimination. Second, it lowers the variety of people working in the company. These biases, which come from gender, ethnicity, and different levels of education, cause problems in finding the best talent and limit the creativity of teams. Companies face difficulties in creating full solutions for their operational problems, even though they know about these issues clearly.

AI technologies face two main challenges in recruitment because they don't connect well with other systems and aren't used much in this area. It's hard for companies to properly use AI tools to improve the recruitment process across all steps. Companies that don't know how to properly use AI for matching talent might end up with poor or bad hiring outcomes. Right now, researchers haven't figured out how to make AI go beyond just looking for keywords, so it can really understand someone's thinking and Behavior in a better way for evaluating job candidates.

The study's purpose is to examine these issues by examining the application of AI technology in talent matching, aiming to enhance recruitment efficiency while reducing

biases and improving role-job candidate matches. This research examines AI-driven recruitment's current barriers and possibilities to deliver practical solutions that organisations need to implement effective and inclusive hiring systems.

Operationalisation of Theoretical Constructs

The study's theoretical framework is based on the "Technology Acceptance Model" (TAM) and "Innovation Diffusion Theory", which describes the adoption and perception of new technologies. Table 3.1 shows how constructions are operationalised.

Table 3.1: Operationalisation of Constructs

Construct	Variable	Indicators / Survey Items	Measurement Scale
Effectiveness of AI in Recruitment	AI Tool Utilisation	- AI tools are effectively organised in recruitment - AI tools reduce time-to-hire	5-point Likert scale (1=Strongly Disagree, 5=Strongly Agree)
	Time-to-Hire	- AI tools shorten the hiring process - AI systems are quicker than traditional methods	5-point Likert scale
	Recruitment Process Type	- AI-driven processes are more efficient than traditional ones. Traditional recruitment is more time-consuming	5-point Likert scale
Accuracy and Candidate Quality	AI System Type	- AI accurately matches candidate skills to job requirements - AI effectively finds candidates for roles	5-point Likert scale
	Hiring Accuracy	- AI improves the accuracy of selecting good-fit candidates - AI enhances candidate-job alignment	5-point Likert scale
	Candidate Quality	- AI improves the quality of candidates hired	5-point Likert scale

		- AI-selected candidates perform better in the role	
Fairness and Bias	Bias Mitigation Efforts	- AI reduces bias in recruitment - AI ensures fairness across gender, ethnicity, background	5-point Likert scale
	Fairness Perception	- AI-driven recruitment is fairer than traditional - Candidates perceive AI systems as impartial	5-point Likert scale
	Diversity Perception	- AI increases diversity in hiring - AI supports inclusive recruitment practices	5-point Likert scale
Challenges in AI Adoption	AI Tool Familiarity	- HR professionals are well-equipped to use AI tools - The Recruitment team is familiar with AI tools	5-point Likert scale
	AI System Complexity	- AI systems are easy to integrate - AI tools are complex without expert support	5-point Likert scale
	Implementation Barriers	- Organisation faces barriers (budget, expertise) - Challenges exist in implementing AI recruitment	5-point Likert scale
	Organizational Readiness	- Organisation is ready to implement AI - Infrastructure/resources available for AI adoption	5-point Likert scale

Research Purpose and Questions

The goal of this research is to find solutions to these issues by investigating the use of AI in talent matching, which can increase recruiting efficiency, decrease bias, and improve role-job applicant matches. This research examines AI-driven recruitment's

current barriers and possibilities to deliver practical solutions which organisations need to implement effective and inclusive hiring systems. More, Specifically, the Research Questions are as follows:

- **RQ1:** "How can AI enhance the efficiency of recruitment processes by streamlining talent matching workflows?"
- **RQ2:** "What role do AI technologies play in improving the accuracy of talent matching to align candidates' skills and competencies with job requirements?"
- **RQ3:** "To what extent can AI-driven recruitment systems reduce unconscious bias and promote diversity and inclusion in hiring practices?"
- **RQ4:** "What are the current limitations of AI tools in recruitment, and how can organisations overcome these challenges to maximise their benefits?"

Research Design

This study organises a quantitative research approach to comprehensively examine the effects of AI-driven recruitment platforms on efficiency, accuracy, and inclusion. In order to get quantifiable information from HR specialists and recruitment practitioners, a survey-based, structured methodology was used. The questionnaire included both "closed-ended and Likert-scale topics".

To identify patterns, correlations, and associations between variables like "AI tool organisation, time-to-hire, hiring accuracy, perceptions of fairness, and organisational readiness", the quantitative design was chosen because it permits objective measurement and statistical analysis. The architecture facilitates the testing of theories about implementation difficulties, talent-job alignment, bias mitigation, and recruiting efficiency.

Population and Sample

The participants in this demographic are recruiters, TA specialists, and HR professionals who have previously used AI-driven recruiting technologies. Purposeful sampling makes sure that all participants have relevant experience.

Table 3.2: Population and Sampling details

Parameter	Description
Population	HR professionals, recruiters, "Talent acquisition" experts
Sampling Method	Purposive sampling (non-probability)
Sample Size	100 participants (selected based on feasibility, time constraints, and to ensure a manageable, yet representative data set)

Participant Selection

Criteria listed in Table 3.3 were used for participation selection:

Table 3.3: Inclusion Criteria

Inclusion Criteria	Description / Details
Age	Participants aged 18–60 years
Gender	All genders included (male, female, non-binary)
Education Level	Minimum of a high school diploma or equivalent
Technology Access	Access to a computer or smartphone with internet
Consent	Willingness to provide informed consent for participation
Language Proficiency	Able to understand and communicate in [specify language, e.g., English]
Availability	Available to participate in the full duration of the study

Sample Justification and Outreach

The target sample size of 100 participants was chosen to balance statistical reliability with practical constraints, such as time and resource availability. Initially, over 120 HR practitioners and recruiters were reached out through email and professional networks (LinkedIn, HR forums, industry associations) of which 100 took part and fully

responded to the questions and met the inclusion criteria. This ensures the guaranteed relevancy and quality of the data. The outreach methods included personalised notifications of the invitation, follow-up, and offered a flexible time to complete the survey and gave them an opportunity to complete it at their own time.

Instrumentation

The primary way to acquire data for this study is through a well-designed questionnaire that asks HR professionals, recruiters, and TA experts that have used AI-based hiring technologies for their numbers. The questionnaire was made to get information about several parts of the organisation's AI to match talent, like how it affects the speed and accuracy of recruiting, if people think it's fair or unfair, and the problems of putting it into practice (Jamieson, Govaart and Pownall, 2023).

Table 3.4: Survey Instrument

Section	Variable Category	Likert-Scale Item
Section 1: "Demographic Details"	Gender, Age, Education, Job Role, Years of Experience, Organisation Type & Size, AI Experience	Multiple choice options
Section 2: "Effectiveness of AI in Reducing Time-to-Hire and Improving Accuracy"	AI Tool Utilisation	Likert Scale
	Time-to-Hire	
	Recruitment Process Type	
Section 3: "Comparisons Between AI-Driven and Traditional Recruitment Processes"	AI System Type	Likert Scale
	Hiring Accuracy	
	Candidate Quality	
Section 4: "Perceptions of Fairness and Bias in AI-Driven Recruitment Decisions"	Bias Mitigation Efforts	Likert Scale
	Fairness Perception	
	Diversity Perception	
Section 5: "Challenges in Implementing and Using AI Systems"	AI Tool Familiarity	Likert Scale
	AI System Complexity	
	Implementation Barriers	
	Organizational Readiness	

Data Collection Procedures

In this study, a "structured questionnaire" was utilised to gather data, which was sent electronically to facilitate easy and faster data collection. Questionnaires were sent by email and were also distributed using Internet services like Google Forms. This was done to assist in getting more people to complete the survey and to minimise the possibility of non-response bias, as they were allowed to choose the time and where they wished to participate. Online survey tools also have a wider scope, and it becomes easier to involve professionals and HR personnel in various organisations. The participants were identified and contacted through professional networking platforms such as LinkedIn, HR forums, industry associations and TA communities.

Data Analysis

The data that was collected were examined using a well-known and trusted program called "Statistical Package for the Social Sciences (SPSS)" intended to be used in quantitative research. SPSS has many tools that could help the researcher to check whether the results are valid, consolidate the responses of a respondent, and find out the correlation or the predictable interdependence of different aspects (Li *et al.*, 2019) (Alili and Krstev, 2019). The approaches have enabled the evaluation of AI talent matching systems in the recruitment exercise to be carried out comprehensively and cautiously.

Testing for Reliability

"Cronbach's Alpha" was used in the study to verify the "reliability of the questionnaire". The test assists in establishing whether the questions in the Likert scale capture the correct idea or not, and whether the questions are coherent with each other. The good measure is a score of 0.70 and above when the measures of the questions are the same, measuring the same main idea (Vaske, Beaman and Sponarski, 2017).

Descriptive Statistics

This method was used to gather information about the people who took the survey and their answers to the questions. This involved calculating frequency and percentage distributions, as well as averages and standard deviations (Dong, 2023).

Correlation Analysis

The study used "Spearman's Rank Correlation" to look at how strongly and in what direction different ordinal variables are related, especially those measured with Likert scales. This strategy was chosen since Likert-type data do not meet the requirements for parametric tests. The primary objective of the inquiry is to comprehend the interrelationship between AI adoption rates, the efficacy of recruiting practices, and public perceptions of inclusiveness and fairness. Spearman's correlation assist show how these factors relate to each other, allowing researchers to eye if better AI use leads to better hiring results or worse ones (El-Hashash and Shiekh, 2022) .

Examination of Regression

The study used Ordinal Regression Analysis to look more closely at the predicted interactions. This method works well because it deals with dependent variables that are measured on an ordinal scale, like people's views on AI's diversity, fairness, and how well it works. Ordinal regression is useful in determining the effect of various variables, including the level of readiness of an organisation, the complexity of the AI tools used, and the degree of familiarity with AI, on their scores of the results of recruitment (Garcia, 2021).

Chi-Square Test

The "One-Sample Chi-Square Test" was used to confirm whether the actual responses to the questions were highly different than the expected responses. This test is used to determine whether there is an equal distribution of opinions on using AI, fairness,

or inclusion or some opinions are prevalent. The research discovered by observing the different ways the answers matched the anticipated pattern what ideas had higher popularity and revealed what type of trends the group had (Rana and Singhal, 2015).

Merging the Results

The research will obtain a complete view of AI in recruitment through the outcomes of the "reliability tests, descriptive statistics, the correlation data, regression models, and chi-square tests". This blend allowed the study to get to know more about the benefits, shortcomings and ethics that are linked to AI-based talent matching systems since the research is not just a clarification of what is taking place. The synthesis of these methods makes the research findings applicable in practice, well-supported by statistics, and makes significant contributions to practice, as well as to the discussion of the scientific community.

Research Design Limitations

- **Sampling Bias:** In this study, purposive sampling has been taken because it ensures that recruiters and HR specialists who have been performed the AI-based hiring before are included. Such limits may inflate gains, understate difficulties or provide culturally acceptable solutions that may not fairly represent the recruitment industry overall.
- **Self-Report Bias:** their applicability to the other organizational settings, however, since the results can go beyond survey responses. This opens the potential of self-report bias where the respondents may exaggerate benefits, minimise challenges or provide socially acceptable responses that do not necessarily reflect on the recruitment process.
- **Cross-Sectional Design:** Because all the data is collected simultaneously, it is hard to trace the way attitudes and outcomes evolve with the development

of AI technology. Better understandings into the dynamic acceptance and long-term impacts of AI in hiring would be gained from a longitudinal design; however, this was outside the scope of this investigation.

Conclusion

This chapter has explained the methodological approach used to look at how AI-driven talent matching could make hiring, more accurate, and fairer while also bringing up related difficulties have made it easier to collect data, leading to increased participation and reduced, a quantitative, survey-based research methodology was employed, supplemented by intentional sampling of HR experts, recruiters, and TA specialists possessing relevant experience. The instrumentation was carefully designed around Likert-scale items to gather perceptions about crucial traits like recruiting efficiency, accuracy, reducing bias, and problems with implementation. Online platforms have made it easier to collect data, leading to increased involvement and reduced bias in responses. To achieve a complete evaluation of the data, SPSS-based analytical techniques were outlined, including “Cronbachs Alpha, descriptive statistics, correlation, ordinal regression, and chi-square tests”. Boundaries such as “self-reporting, sample bias, and the cross-sectional nature of the study” were accepted, but still, the methodology offers a good basis to produce insights that can improve recruitment processes and scholarly understanding.

CHAPTER IV:

RESULTS

Introduction

The chapter presents the results of the study concerning the effectiveness of AI-based hiring tools in the simplification, accuracy, and minimisation of bias in the process, as a whole. The discussion will be presented according to the key research questions, and will be underpinned with the descriptive data and survey results. The former will be the summary of demographics of the individuals who answered the survey. The second section is a discussion of the validity of the instrument employed. Alternative sections consider how AI can assist in accelerating the recruitment procedure, ensuring that the candidates would be suitable to hold the position, limit unconscious bias, and address the issues that will arise during deployment. All findings are elaborated using the mean values and standard deviations.

Reliability Analysis

This section shows the results of the reliability analysis, which was done to find out how consistent the scale used in the study was.

Table 4.1: Reliability Statistics

Cronbach's Alpha	N of Items
0.941	26

In Table 4.1 above, the reliability analysis shows that the “Cronbach’s Alpha” value is 0.941 for the 26 items used in the study. This result shows that the scale used to gather data is quite dependable because a Cronbach's Alpha value above 0.7 is normally acceptable, above 0.8 is good, and above 0.9 means outstanding internal consistency.

Findings of Demographic Details of Respondents

Table 4.2 shows the demographics of the people who answered, such as their gender, age group, level of education, job title, years of experience, size of the organisation, exposure to AI-driven hiring processes, kind of organisation, and how important they think AI is.

Table 4.2: Description of Respondents' Demography Details

Demographic	**Category**	**Frequency**	**Percent**	**Mean ± Std.**
What is your Gender?	Male	55	55	1.45 ± 0.50
	Female	45	45	
What is your Age Group?	18-24	12	12	2.83 ± 1.16
	25-34	30	30	
	35-44	30	30	
	45-54	21	21	
	55-64	5	5	
	65 Years or Older	2	2	
Highest Level of Education Completed	Associate's degree / Diploma	1	1	4.06 ± 0.71
	Bachelor's Degree	19	19	
	Master's Degree	53	53	
	Doctoral Degree (PhD, EdD, etc.)	27	27	
Job Title / Role in the Organisation	Human Resources Manager	37	37	2.94 ± 1.89
	Recruitment Specialist	7	7	
	TA Lead	23	23	
	HR Executive/Officer	10	10	
	HR technology/Data Analyst	4	4	
	IT Specialist/Developer	19	19	
Number of Years in the Recruitment Field	Less than 1	18	18	3.34 ± 1.56
	1-3	17	17	
	4-6	16	16	
	7-10	11	11	

	More than 10	38	38	
Size of the Organisation (Employees)	1-50	14	14	3.26 ± 1.57
	51-200	32	32	
	201-500	7	7	
	501-1000	8	8	
	More than 1000	39	39	
Experience with AI-Driven Recruitment Systems	I have never used AI tools in recruitment	22	22	2.24 ± 0.88
	I have used AI tools occasionally for Recruitment purposes	39	39	
	I have used AI tools frequently in recruitment processes	32	32	
	I have worked extensively with AI tools in recruitment	7	7	
Type of Organisation You Work For	Private Sector	91	91	1.16 ± 0.56
	Public Sector	4	4	
	Nonprofit Organization	3	3	
	Start up	2	2	
How do you perceive the importance of AI in the recruitment process?	Not important	2	2	3.92 ± 1.00
	Slightly important	8	8	
	Neutral	18	18	
	Important	40	40	
	Very Important	32	32	

The demographic analysis highlights balanced gender participation (Mean = 1.45 ± 0.50), indicating almost equal representation of males and females. The median age of respondents is around the 25-44 years (Mean=2.83 +- 1.16): thus, it can be assumed that the sample is predominantly constituted by early/mid-career workers.

The respondents are well qualified in terms of education and the average level of the respondents is at the Master degree level (Mean = 4.06 ± 0.71). This job role analysis

(Mean = 2.94 ± 1.89) implies a wide range of mixes of HR managers, TA leads, and IT specialists involved in the recruitment processes.

The overall work experience (Mean = 3.34 ± 1.56) of the respondents when it comes to recruitment indicates moderate to vast exposure of the respondents with a sizeable segment having over 10 years of experience in the industry. Organisational size (Mean = 3.26 ± 1.57) is distributed between both the small firms and the large enterprises, with most of the organisations being medium-to-large organisations.

Regarding technology, the experience of the respondents with the AI-driven recruitment systems (Mean = 2.24 ± 0.88) implies that the respondents have a familiarity with AI but not much usage, which creates the opportunity to adopt it more widely. The nature of organisation (Mean = 1.16 ± 0.56) shows that the majority of the respondents are in the private sector.

Lastly, the attitude towards AI in recruitment (Mean = 3.92 ± 1.00) is very favorable, and it can be stated that respondents attribute the significance of AI to be important to very important in recruitment.

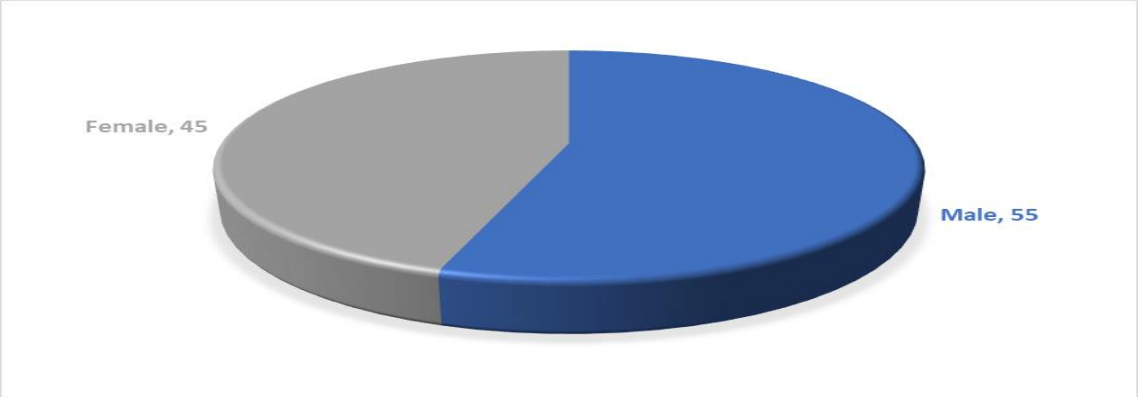

Figure 4.1: Gender of the Respondents

This demonstrates that the demographic analysis reveals that the study sample is not entirely unequal in terms of males and females with 55% and 45% of the

respondents' representing males and females respectively. This almost balanced distribution means that the information retrieved regarding the AI-driven matching of talent and recruitment effectiveness involves the input of both women and men, therefore, nullifying the possibility of gender bias in the findings.

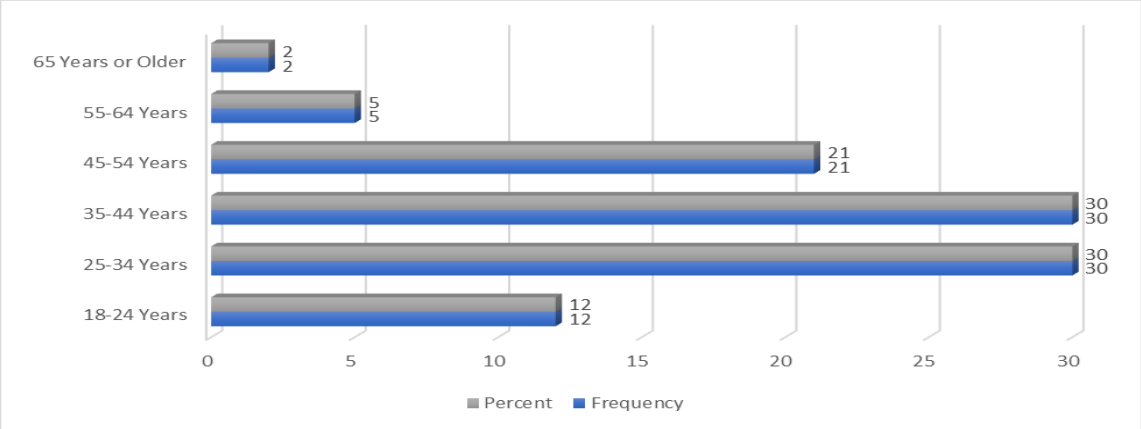

Figure 4.2: Age Group Distribution

Among the ages of 25 and 34 and 35 and 44, majority of the people who responded (30%) are in that age range which indicates that the survey largely represents the views of people working in mid-careers who are actively engaged in hiring processes. Reduced percentages are in younger (18-24 years, 12%), older (45-54 years, 21%; 55-64 years, 5% years; 65+ years and above, 2%) age groups, which means that the distribution of generational views is rather broad but uneven.

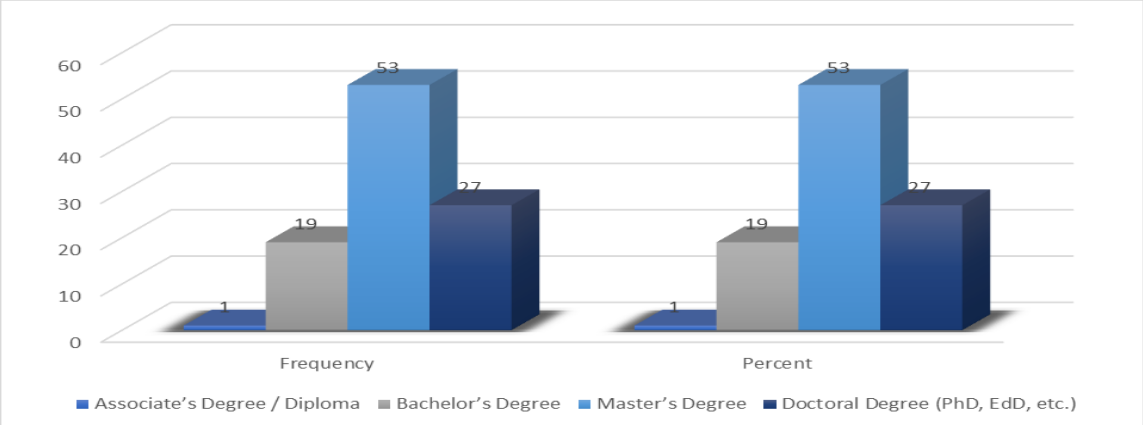

Figure 4.3: Highest Level of Education of Respondents

The majority of the respondents are advanced degree holders with 53% of them having a Master degree and 27% with a doctoral degree, the rest 19% have a Bachelor degree and only 1% have an Associate/diploma. This is an indication of a high level of education and the participants are most likely to be well-qualified professionals, who will offer informed views when it comes to the assessment of AI in hiring.

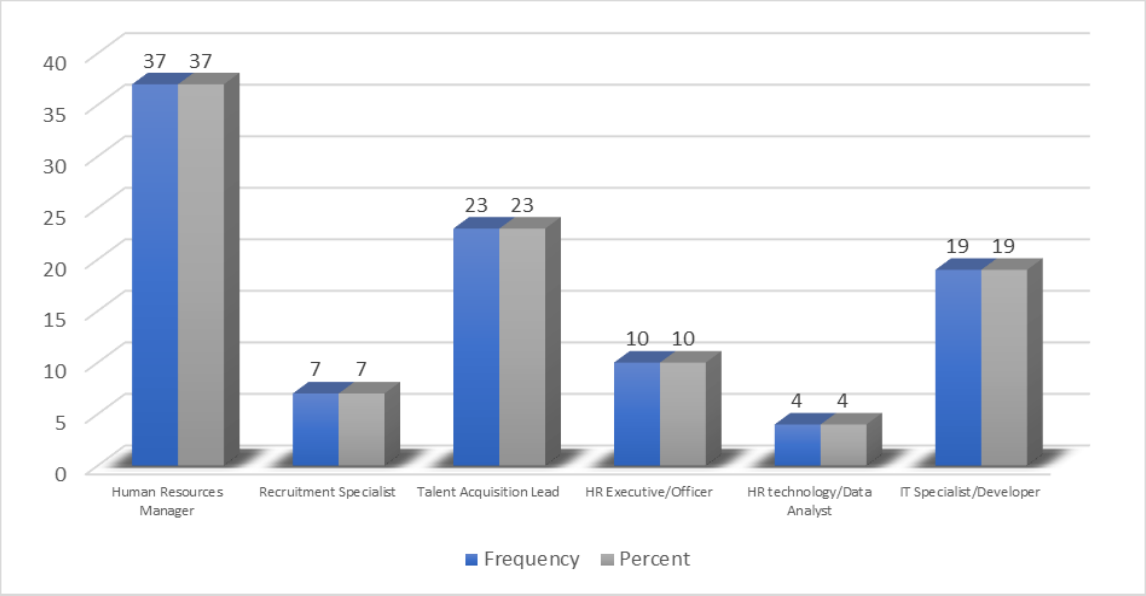

Figure 4.4: Role in Organisations

These roles are varied, and the biggest proportion is Human Resources Managers (37%), then TA Leads (23%), IT Specialists/Developers (19%), and smaller groups make and break (Recruitment Specialists 7%, HR Executives/Officers 10% and HR Technology/Data Analysts 4%). This combination proves that the sample is balanced in terms of the presence of decision-makers and technical professionals and provides a balanced view on both management and technical sides of AI-powered recruitment.

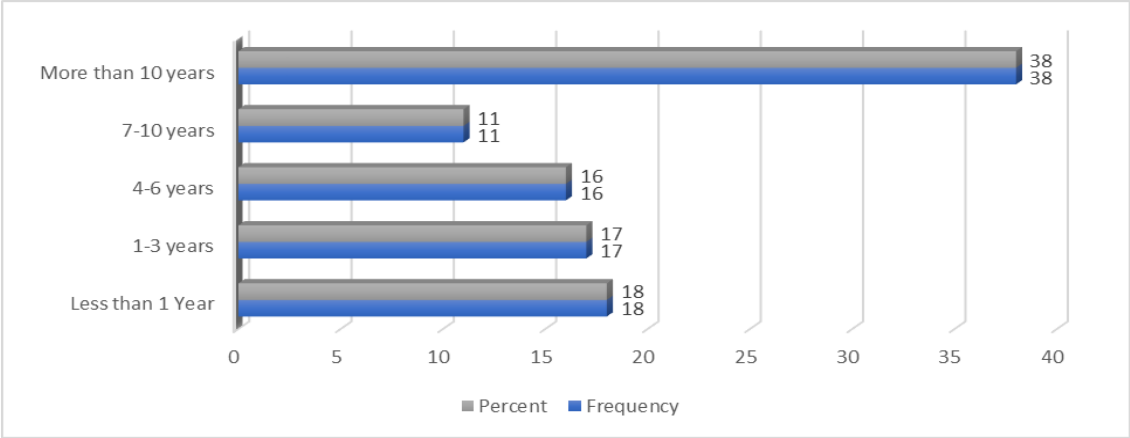

Figure 4.5: Number of Years in the Recruitment Field

The findings in Figure 4.5 above indicate a diverse amount of experience, with 38% of them having over 10 years and the rest belonging to less than 1 year (18%), 1-3 years (17%), 4-6 years (16%) and 7-10 years (11%). The supremacy of individuals with high levels of experience indicates that the results are supported with a high level of industry knowledge whereas the inclusion of less experienced respondents guarantees the integration of new attitudes.

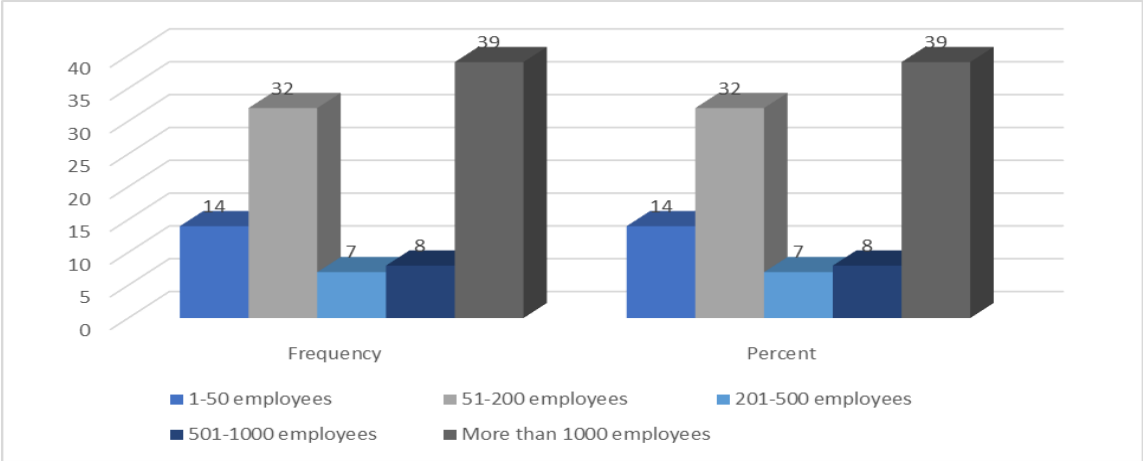

Figure 4.6: Size of organisation

In Figure 4.6 above, a good percentage of respondents (39%) work in large organisations that have over 1000 employees, then there are the medium sized firms that

employ between 51-200 employees (32%). Other smaller representation is made by micro and mid-sized firms: 14% 1 -50 employees, 7% 201-500 employees and 8% 501-1000 employees. It means that the study can reflect the information on diverse organisational sizes, and the focus is on bigger companies where the volumes of recruitment might require the introduction of AI.

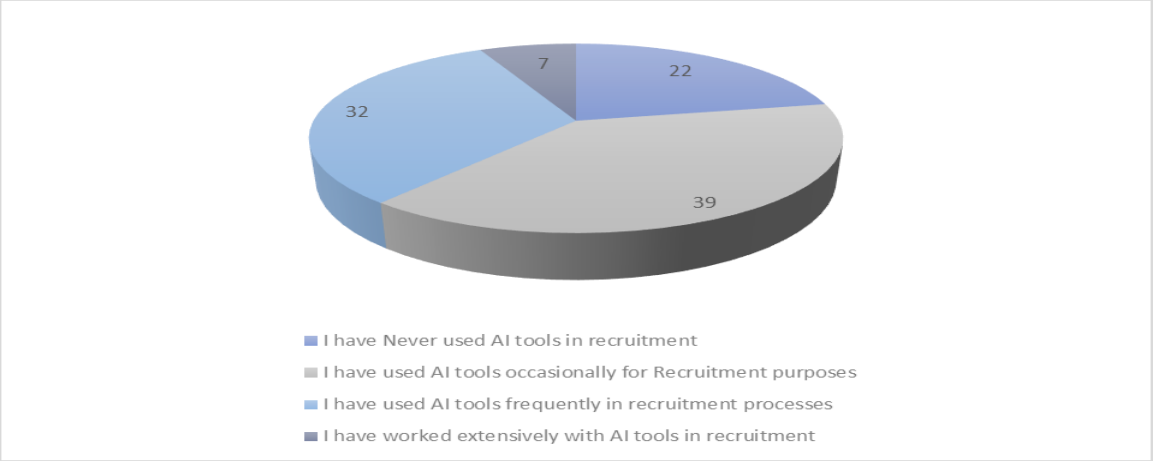

Figure 4.7: Experience with AI-Driven Recruitment Systems

Figure 4.7 above indicates that respondents are not familiar with AI tools equally, as 39% occasionally use them, 32% frequently do, 7% extensively use them, and 22% do not use AI in the recruitment process at all. This distribution brings to light that although the adoption of AI is increasing, there is a group with low exposure, and it may affect the attitude toward its usefulness.

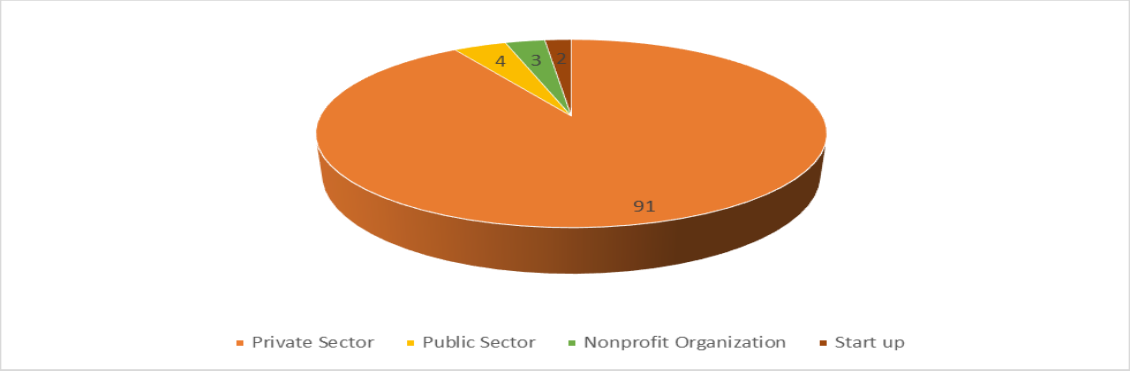

Figure 4.8 Type of Organisation You Work For

Figure 4.8 above shows that most of the respondents work in the private sector (91%), with minor proportions in the public (4%), nonprofits (3%), and startups (2%). This preponderance of the voices of the private sector implies that the results can be associated with the practices of the private sector of recruitment, where AI implementation can be more frequent.

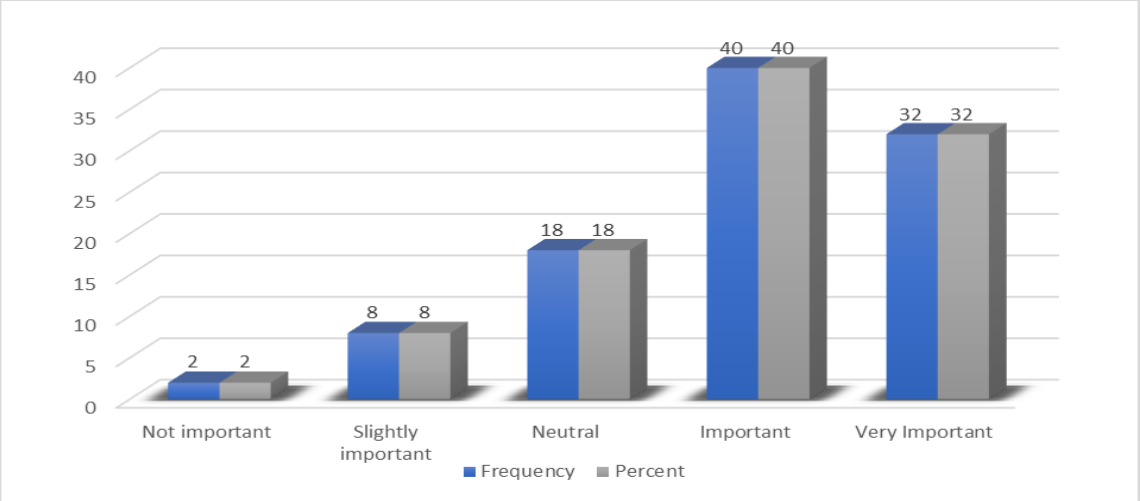

Figure 4.9: Perceiving the importance of AI in the recruitment process

Figure 4.9 above indicates that 40% of the respondents replied that AI played a role in hiring, and 32% of the respondents replied that AI played a very important role. These two categories formed a significant majority (72%) who like the role of AI. A less percentage gave it a neutral rating (18%), and only 10% considered it as not important or less important. It means that the perception of AI in **improving** the recruitment processes is more positive, and there is not much opposition.

Findings of Research Question One

The original research question consisted in examining the effectiveness of AI in reducing the time-to-hire and improving the accuracy of the recruitment processes. Descriptive statistics and frequency distributions were used to look at the answers from the participants. The results are shown in Table 4.3.

Table 4.3: Effectiveness of AI in Reducing Time-to-Hire and Improving Accuracy

Variables	Statements	Freq/ %	SD	D	N	A	SA	Mean ± Std. Deviation
AI Tool Utilisation	I believe AI tools are effectively utilised in the recruitment process.	Freq.	3	4	37	31	25	4.02 ± 0.75
		%	3	4	37	31	25	
	AI tools significantly reduce the time-to-hire compared to traditional recruitment methods.	Freq.	0	5	22	38	35	
		%	0	5	22	38	35	
Time-to-Hire	AI tools have shortened the time required to complete the hiring process.	Freq.	0	4	23	38	35	4.15 ± 0.80
		%	0	4	23	38	35	
	AI recruitment systems are quicker in hiring candidates than traditional methods.	Freq.	1	4	21	53	21	
		%	1	4	21	53	21	
Recruitment Process Type	AI-driven recruitment processes are more efficient than traditional recruitment processes.	Freq.	0	10	29	45	16	3.90 ± 0.78
		%	0	10	29	45	16	
	Traditional recruitment processes are more time-consuming compared to AI-based recruitment.	Freq.	1	4	26	48	21	
		%	1	4	26	48	21	
SD = "Strongly Disagree", D = "Disagree", N = "Neutral", A = "Agree", SA = "Strongly Agree"								

The results demonstrate that respondents largely agree that AI tools are effectively utilised in recruitment (Mean = 4.02 ± 0.75). Similarly, AI is strongly

perceived as reducing the time-to-hire, with the highest average score recorded under the time-to-hire construct (Mean = 4.15 ± 0.80).

Furthermore, respondents expressed positive perceptions about the efficiency of AI-driven processes compared to traditional recruitment (Mean = 3.90 ± 0.78), suggesting that AI is considered both faster and less time-consuming than conventional approaches.

Overall, the results show that AI makes hiring much more efficient, especially by speeding up the time it takes to make hiring judgments and making the whole hiring process easier.

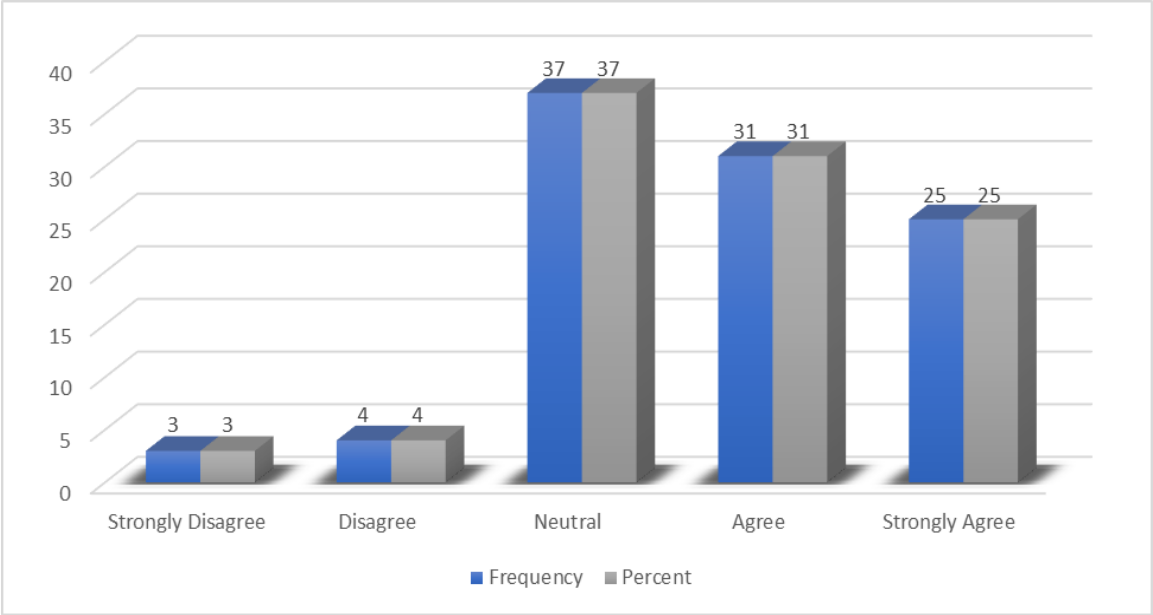

Figure 4.10: AI tools are effectively utilised in the recruitment process

In Figure 4.10 above, the answers demonstrate that most people felt that AI technologies are useful in the hiring process. 31% said "A," 25% said "SA," and 37% said "N," while only 7% said "SD" or "D." This shows that most people who answered think AI is a valuable part of hiring, but a significant number are still unsure.

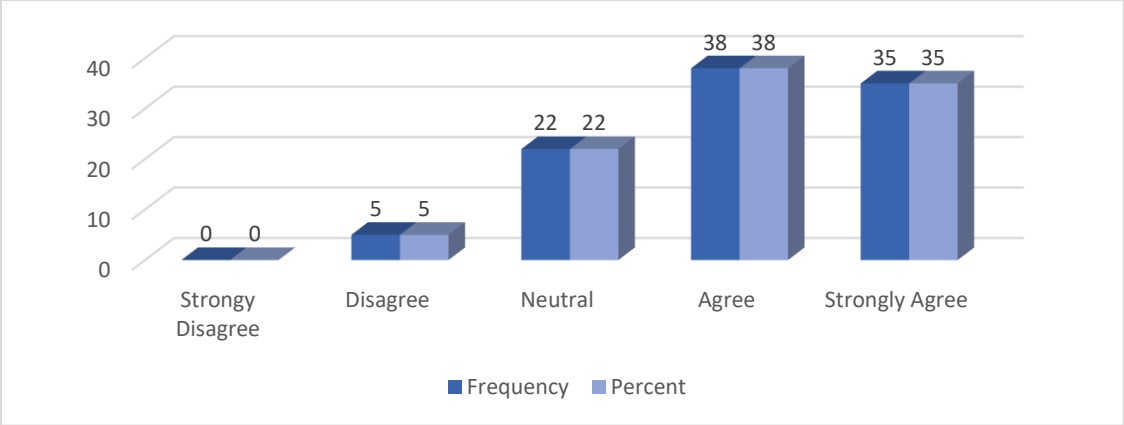

Figure 4.11: AI tools significantly reduce the time-to-hire compared to traditional recruitment methods

Figure 4.11 indicate that a large majority of respondents agree that AI tools significantly reduce the time-to-hire compared to traditional recruitment methods. Specifically, 73 percent (38% A and 35% SA) expressed a positive perception, while only 5% D and none SD. The average 22% was N, which indicates that although some of the respondents might not have encountered or completely seen the effects of AI, the general response is very much in support of the argument that AI-powered recruitment systems improve the efficiency and speed of hiring decisions.

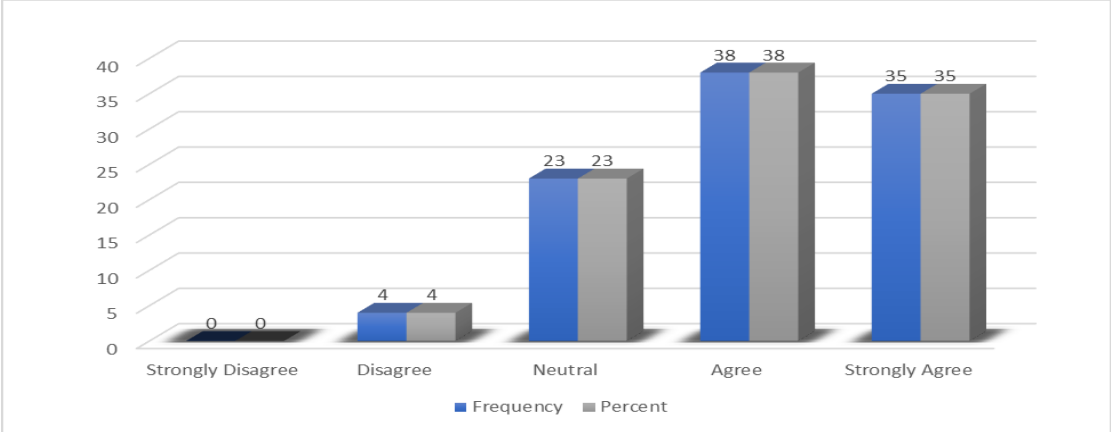

Figure 4.12: AI tools have shortened the time required to complete the hiring process

In Figure 4.12 above relating to whether AI instruments have decreased the number of hours required to complete the recruiting process, a majority of the figures

replied in the affirmative with 73% (A and SA), 23% N and 4% disagree. It is a champion agreement with the fact that AI can shorten the recruitment timelines.

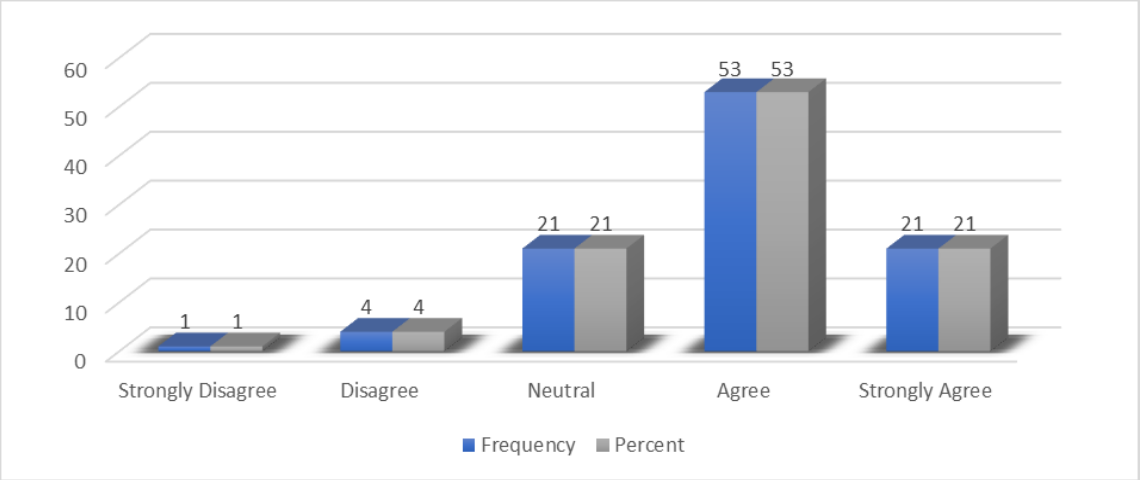

Figure 4.13: AI recruitment systems are quicker in hiring candidates than traditional methods.

In the previous Figure 4.13, where it is stated that AI recruitment systems find it easier to hire their candidates as compared to the traditional method, 74% A or SA, 21% were N and only 5% (D or SD) responded to the question. This points to a high level of optimism in the speed difference between AI and traditional recruitment.

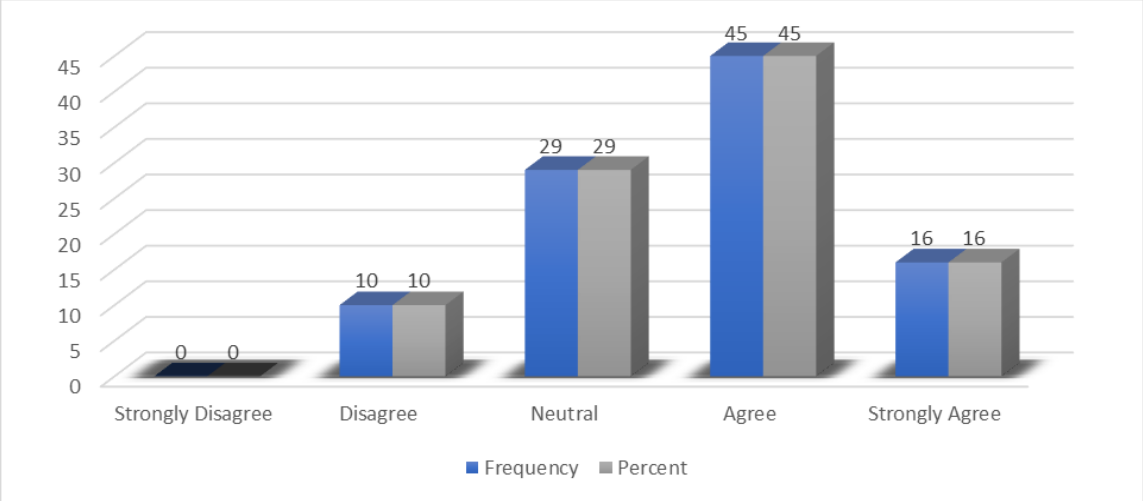

Figure 4.14: AI-driven recruitment processes are more efficient than traditional recruitment processes

As shown in the previous Fig 4.14, out of the assumption that AI-driven recruitment processes are better than the traditional recruitment processes, 61% A or SA, 29% were N, and 10% D. This is a positive sign, but still a significant portion of people is unconfident concerning efficiency benefits.

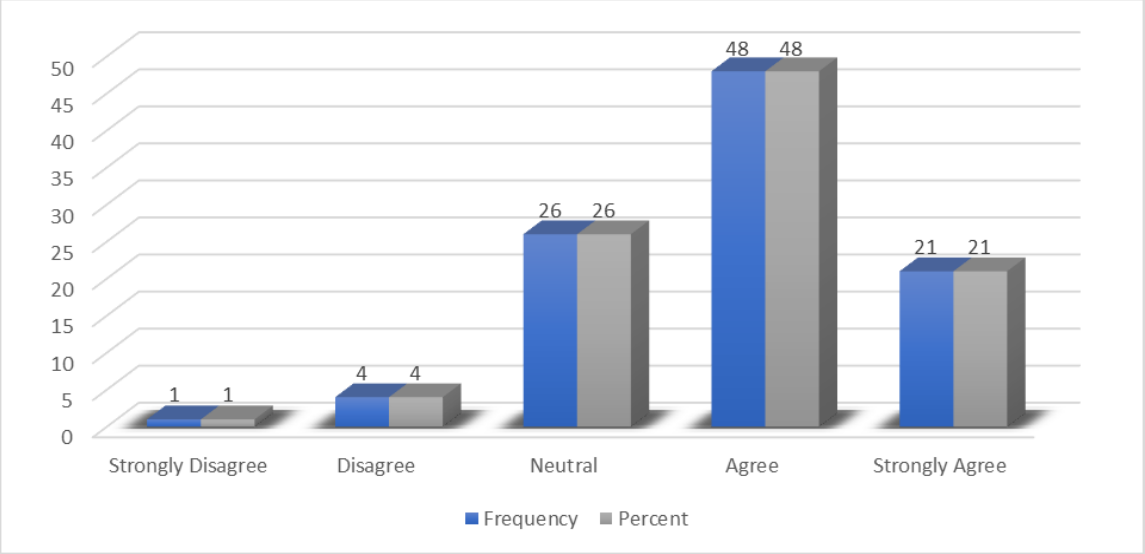

Figure 4.15: Traditional recruitment processes are more time-consuming compared to AI-based recruitment

In the preceding Figure 4.15, when enquired if conventional recruitment methods are more time-intensive than AI-driven recruitment, 69% A or SA, while 26% were N and only 5% D or SD. This reinforces the consensus that AI adoption effectively reduces delays inherent in traditional methods.

Analysis of the Relationship Between the Use Of AI-Driven Recruitment Systems and Recruitment Process Efficiency

- **H0 (Null Hypothesis):** "There is no significant relationship between the use of 'AI-driven recruitment systems' and recruitment process efficiency".
- **H1 (Alternate Hypothesis):** "There is a significant positive relationship between the use of AI-driven recruitment systems and recruitment process efficiency".

Table 4.4: Spearman's Correlation Between AI Tool Utilisation, Time-to-Hire, and Recruitment Process Type

Variables	AI Tool Utilisation	Time-to-Hire	Recruitment Process Type
AI Tool Utilisation	1.000	0.580**	0.668**
Time-to-Hire	0.580**	1.000	0.717**
Recruitment Process Type	0.668**	0.717**	1.000

The correlation results in Table 4.4 strongly support H1, indicating a significant positive relationship between AI-driven recruitment systems and recruitment process efficiency. The results show that AI tool utilisation is positively correlated with time-to-hire ($\rho = .580$, $p < .01$) and even more strongly with recruitment process type ($\rho = .668$, $p < .01$)**,** suggesting that greater use of AI tools improves recruitment speed and overall process effectiveness. Also, the time to hire and the type of recruitment process are strongly correlated ($\rho = .717$, $p < .01$), which once again testifies to the fact that the efficiency of AI use is directly transferred into the hiring processes. Thus, H0 is rejected, and H1 is accepted, which confirms the fact that the introduction of AI can dramatically improve the efficiency and effectiveness of recruitment.

Findings of Research Question Two

Table 4.5 presents a comparative analysis of AI-driven and traditional recruitment processes in terms of accuracy in talent matching, hiring decisions, and candidate quality.

Table 4.5: Comparisons Between AI-Driven and Traditional Recruitment Processes

Variables	Statements	Freq/%	SD	D	N	A	SA	Mean ± Std. Deviation
AI System Type	The AI system used in recruitment is accurate in matching candidates' skills and qualifications to job requirements.	Freq.	2	6	36	41	15	3.88 ± 0.77
		%	2	6	36	41	15	

	AI recruitment systems are effective in finding candidates that match job roles and responsibilities.	Freq.	0	4	24	51	21	
		%	0	4	24	51	21	
Hiring Accuracy	AI-driven recruitment improves the accuracy of selecting candidates who are a good fit for the role.	Freq.	2	3	26	45	24	3.96 ± 0.82
		%	2	3	26	45	24	
	AI systems improve candidate-job alignment, resulting in better hiring decisions.	Freq.	0	6	26	50	18	
		%	0	6	26	50	18	
Candidate Quality	AI recruitment systems improve the quality of candidates hired compared to traditional recruitment methods.	Freq.	3	8	30	41	18	3.70 ± 0.88
		%	3	8	30	41	18	
	Candidates selected by AI-driven systems perform better in the job role compared to those hired using traditional methods.	Freq.	2	8	38	41	11	
		%	2	8	38	41	11	

The results show that AI technologies are seen as contributing to the accuracy of hiring to a significant extent. The respondents also agreed that AI systems can be helpful in determining the skills and qualifications of the candidates against the job requirements (Mean = 3.88 ± 0.77), and in finding the right people to fill the vacancies.

Another area that AI scored highly is enhancing the accuracy of the candidate selection (Mean = 3.96 ± 0.82) and many respondents admitted that AI-based recruitment

results in increased job-competency fit between job requirements and the qualifications of applicants.

Lastly, the perceived change in the quality of candidates was not as high (Mean = 3.70 + 0.88) but the respondents nevertheless believed that AI-based recruiting leads to better hires in respect to traditional recruiting methods. This means that AI can only be beneficial to efficiency but also to long-term efficiency of recruitment results.

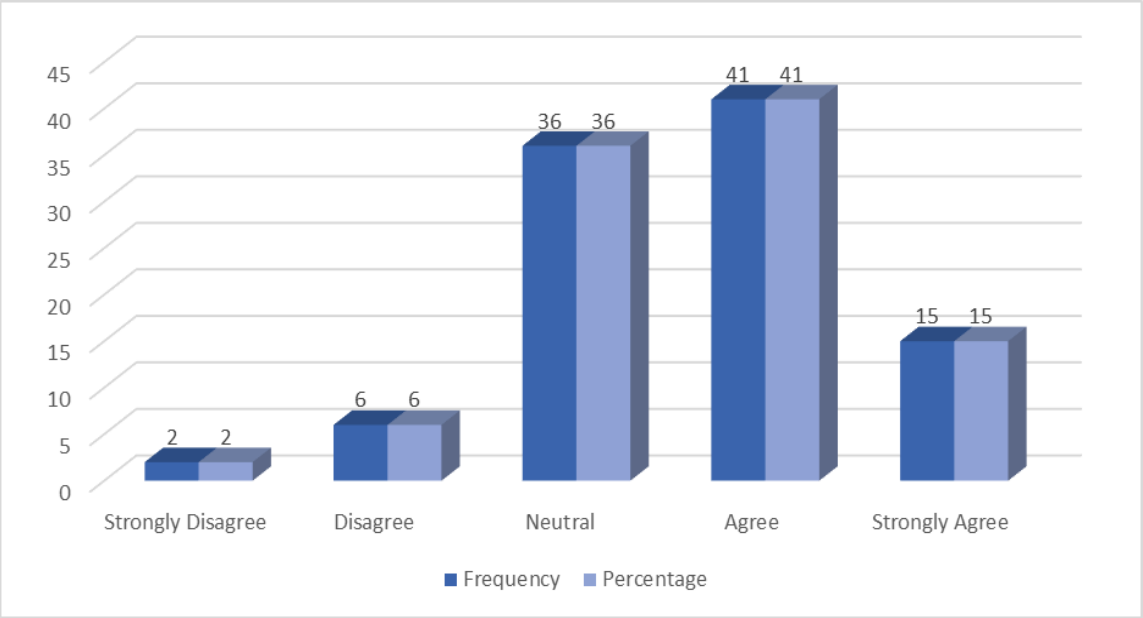

Figure 4.16: The AI system used in recruitment is accurate in matching candidates' skills and qualifications to job requirements.

Figure 4.16 above shows that the responses of the participants suggest that AI systems are generally believed to be correct when it comes to aligning the skills and qualifications of candidates to those required by the job. A total of 56% A or SA, 36% N and only 8% D or SD. This indicates that despite the fact that most people think AI is correct, a large percentage of people are not sure and thus show a level of indecisiveness meaning that the perceived accuracy of AI still needs stronger support or more unified experiences to create universal trust.

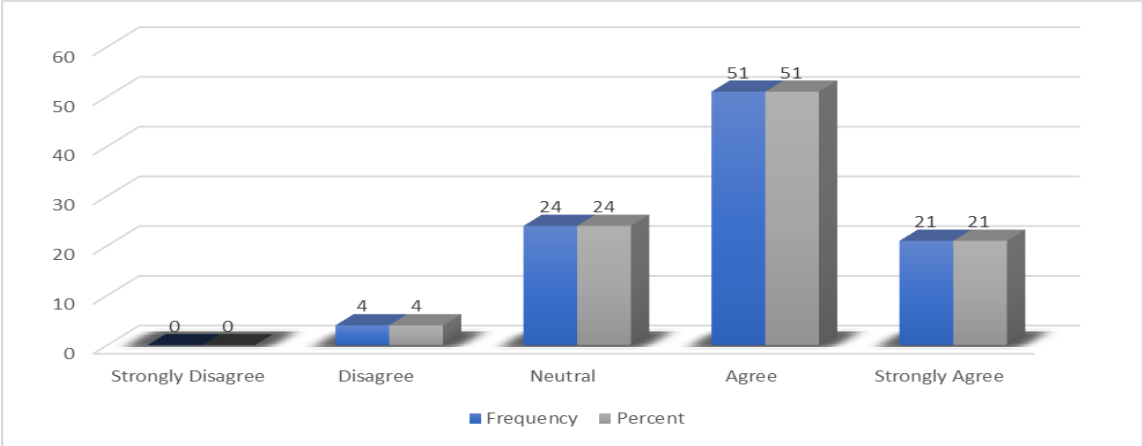

Figure 4.17: AI recruitment systems are effective in finding candidates that match job roles and responsibilities

In the above Figure 4.17, most respondents supported the idea that AI recruitment systems are effective in finding candidates who match job roles and responsibilities. In this case 72% A or SA and only 4% D and 24% N. The results described above demonstrate how much trust in the capability of AI to map the capabilities of the candidates to the needs of the job it is done is strong, the practitioners tend to acknowledge the effectiveness of AI in selecting candidates based on the specific duties of the position.

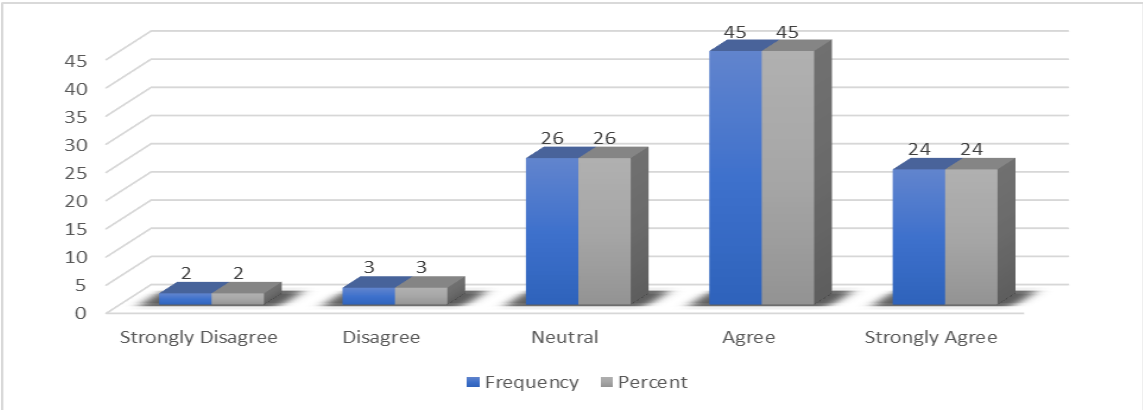

Figure 4.18: AI-driven recruitment improves the accuracy of selecting candidates who are a good fit for the role

Figure 4.18 indicates that respondents had positive perceptions about AI-based recruitment because they enhanced the accuracy of finding a good fit candidate. Most

69% A or SA, 26% N and only 5% D or SD. This is an indicator of a powerful belief that AI is a better means of selection based on fit but the existence of a neutral segment suggests that not all respondents are completely convinced of the accuracy of AI in the strength of job-person fit.

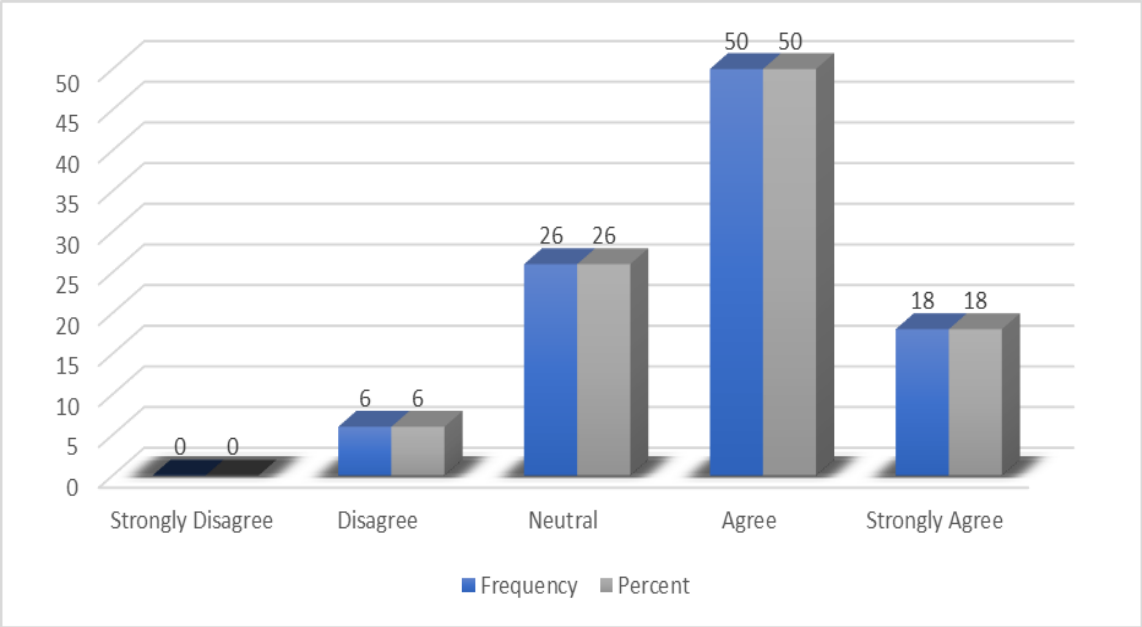

Figure 4.19: AI systems improve candidate-job alignment, resulting in better hiring decisions

In Figure 4.19 above, the subjects recognized the contributions of AI towards enhancing the alignment of candidates and jobs, and consequently leads to improved hiring. At 68% A or SA, and 26% N and 6% D. The findings indicate that a large proportion of HR professionals attach importance to the role of AI in the quality of decision making, however, the neutral percentage indicates that its positive contribution to the process cannot be felt in all organisational settings yet.

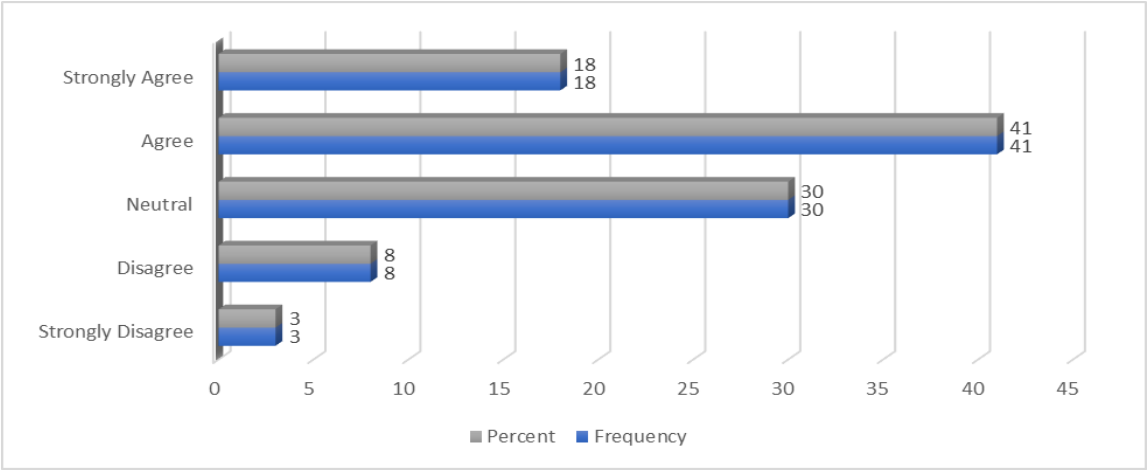

Figure 4.20: AI recruitment systems improve the quality of candidates hired compared to traditional recruitment methods

In the Figure 4.20 above, 59% A/SA, and 30% N/Remained D/SD when questioned about whether AI recruitment systems yield better quality candidates hired than conventional approaches. This indicates a positive leaning toward AI in improving candidate quality, though the notable proportion of neutral responses shows that some practitioners may not have experienced substantial improvements in quality yet.

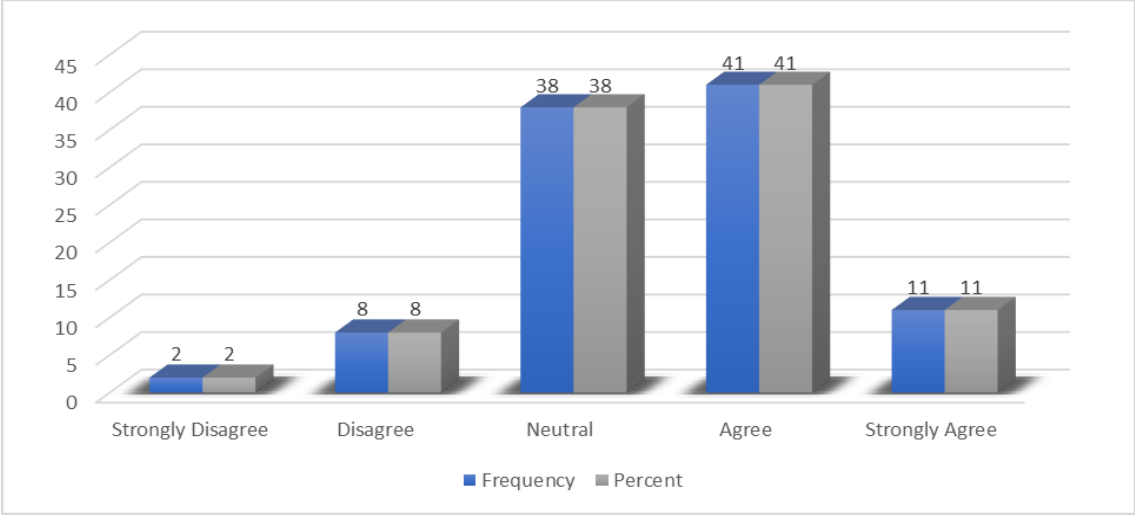

Figure 4.21: Candidates selected by AI-driven systems perform better in the job role compared to those hired using traditional methods

In the above Figure 4.21, opinions were more divided regarding whether candidates selected by AI-driven systems perform better than those hired through

traditional methods. While 52% A or SA, a relatively high 38% remained N, and 10% D or SD. This suggests that while many see performance benefits, a large neutral segment reflects cautious optimism, signalling that further evidence may be needed to establish AI's superiority in influencing post-hiring outcomes.

AI Technologies and Their Role in Enhancing the Accuracy of Candidate–Job Alignment

- **H0 (Null Hypothesis):** "AI technologies do not significantly improve the accuracy of aligning candidates' skills and competencies with job requirements compared to traditional methods".
- **H2 (Alternate Hypothesis):** "AI technologies significantly improve the accuracy of aligning candidates' skills and competencies with job requirements compared to traditional methods".

Table 4.6: Spearman's Correlation Between AI System Type, Hiring Accuracy, and Candidate Quality

Variables	AI System Type	Hiring Accuracy	Candidate Quality
AI System Type	1.000	0.765**	0.628**
Hiring Accuracy	0.765**	1.000	0.702**
Candidate Quality	0.628**	0.702**	1.000

The association data in Table 4.6 strongly support the idea that AI technologies are better than traditional techniques at matching candidates' skills and abilities with job requirements. The results demonstrate a very strong positive link between the type of AI system and recruiting accuracy ($\rho = .765$, $p < .01$). This means that more powerful AI systems make it much more likely that the right person will get the job. Similarly, AI system type is positively correlated with candidate quality ($\rho = .628$, $p < .01$), suggesting that AI contributes to hiring better-qualified candidates. Furthermore, hiring accuracy and candidate quality are also strongly correlated ($\rho = .702$, $p < .01$), reinforcing the

conclusion that improvements in AI-driven accuracy directly translate into higher-quality hires. So, the null hypothesis (H0) is not true, and the alternative hypothesis (H2) is true.

Findings of Research Question Three

In this section, Table 4.7 summarises respondents' perceptions of fairness, bias mitigation, and diversity in AI-driven recruitment processes.

Table 4.7: Perceptions of Fairness and Bias in AI-Driven Recruitment Decisions

Variables	Statements	Freq/%	SD	D	N	A	SA	Mean ± Std. Deviation
Bias Mitigation Efforts	The AI tools used in recruitment actively reduce bias in the hiring process.	Freq.	1	6	34	36	23	3.96 ± 0.88
		%	1	6	34	36	23	
	AI recruitment systems are designed to ensure fairness and reduce biases based on gender, ethnicity, or background.	Freq.	2	4	23	44	27	
		%	2	4	23	44	27	
Fairness Perception	I believe AI-driven recruitment is fairer than traditional methods.	Freq.	3	8	27	36	26	3.90 ± 0.83
		%	3	8	27	36	26	
	Candidates perceive AI recruitment systems as more impartial compared to traditional methods.	Freq.	0	9	31	37	23	
		%	0	9	31	37	23	
Diversity Perception	AI recruitment systems contribute positively to increasing diversity in the hiring process.	Freq.	0	8	31	39	22	3.90 ± 0.87
		%	0	8	31	39	22	
	AI-driven recruitment supports inclusive hiring practices better than traditional methods.	Freq.	0	7	31	39	23	
		%	0	7	31	39	23	

The results imply that AI is viewed as a beneficial factor in reducing bias in the recruitment process. The respondents affirmed that AI tools are proactive and based on their development, they tend to be fair in gender, ethnicity, and background (Mean = 3.96 ± 0.88).

The reactions to the fairness of the AI-guided recruitment were also positive (Mean = 3.90 ± 0.83), and the respondents expressed that AI-driven systems are perceived as more neutral than the conventional ones used in the hiring process. On the same note, AI was recognized to bring about diversity and inclusion in hiring (Mean = 3.90 ± 0.87) which means that it could assist in more inclusive hiring.

All in all, the findings indicate that AI-based recruitment systems are commonly considered to be effective in the reduction of unconscious bias and ensuring fairness and diversity. Nonetheless, the indifference of answers means that the additional advances might be still required to become absolutely sure in AI impartiality.

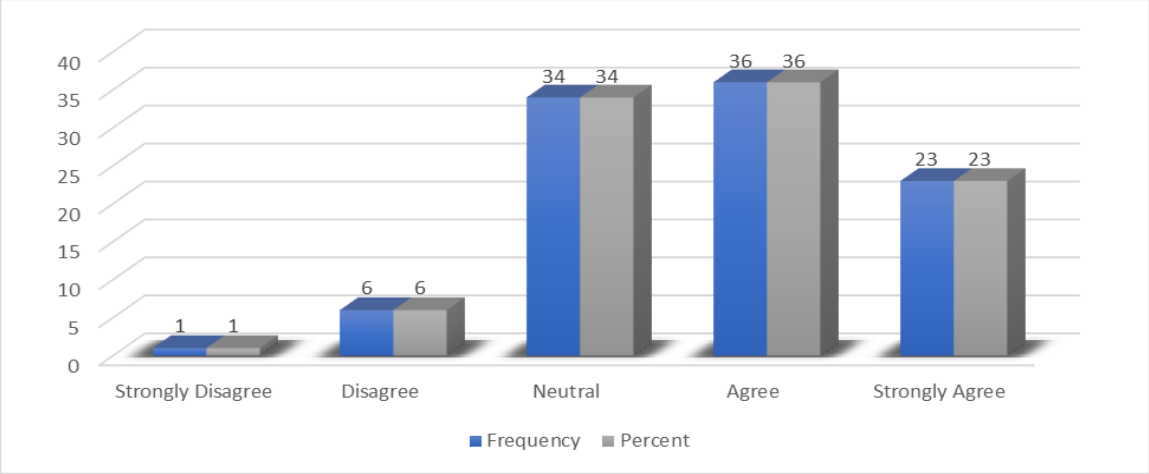

Figure 4.22: The AI tools used in recruitment actively reduce bias in the hiring process.

In Figure 4.22, the responses indicate that a majority of participants believe AI tools actively reduce bias in recruitment, with 59% A or SA, while 34% remained N and 7% D or SD. This indicates a positive perception of AI's role in minimising bias, though

the large neutral group suggests that not all respondents are convinced of its effectiveness in consistently addressing fairness issues.

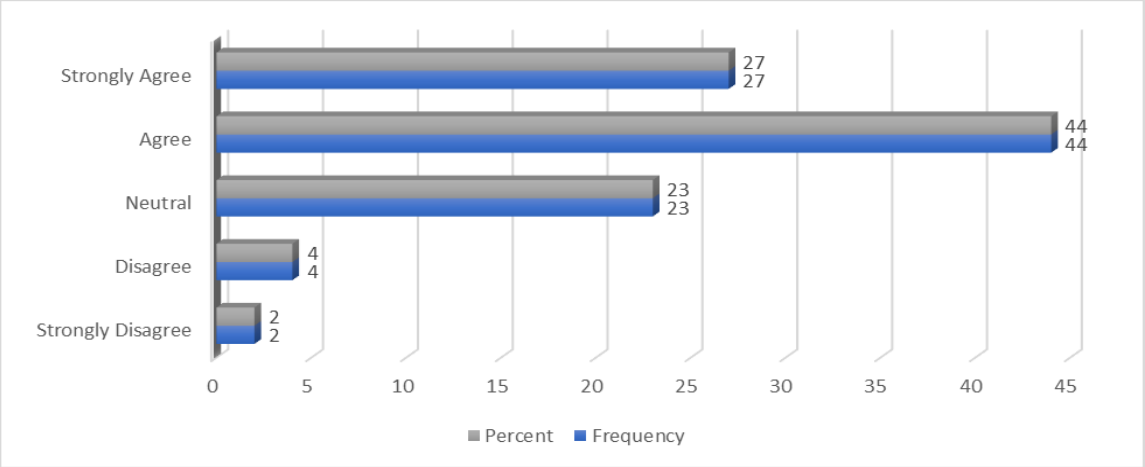

Figure 4.23: AI recruitment systems are designed to ensure fairness and reduce biases based on gender, ethnicity, or background

Most people who answered the question in Figure 4.23 above agreed that AI recruitment methods are made to be fair and cut down on bias based on gender, ethnicity, or background. Around 71% A or SA, while 23% were N and only 6% D or SD. The outcomes of these studies point to the high level of trust towards the fact that the fairness mechanisms instilled into AI tools can negate the traditional biases in hiring.

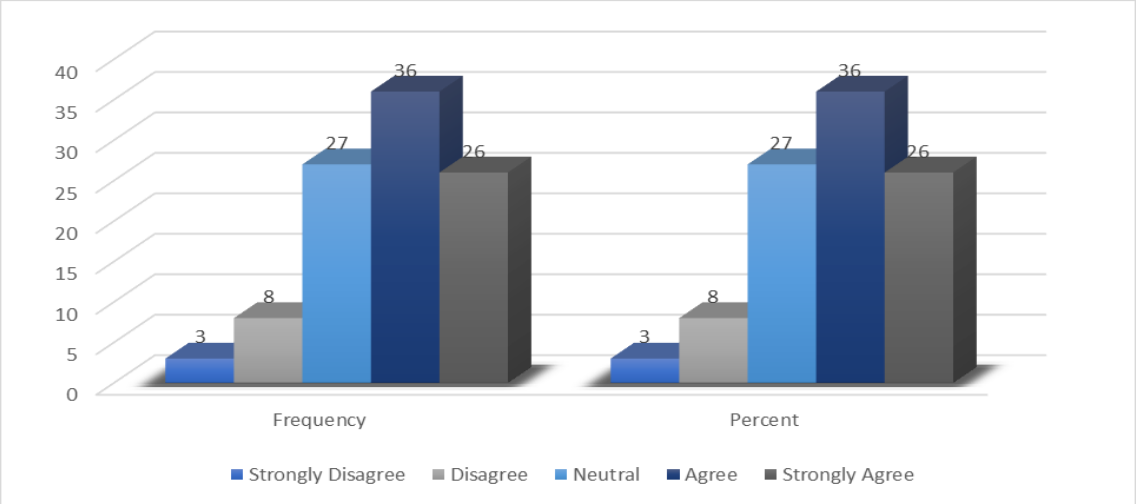

Figure 4.24: I believe AI-driven recruitment is fairer than traditional methods.

In Figure 4.24 above, the views on whether AI-based recruitment are fairer than the conventional ones were somewhat more split. A combined 62% A or SA, and 27% were N and 11% D or SD. This implies that despite the fact that most of them agree that AI has been established to be fair, a significant proportion of the respondents remain wary of accepting it as a better alternative in full acceptance.

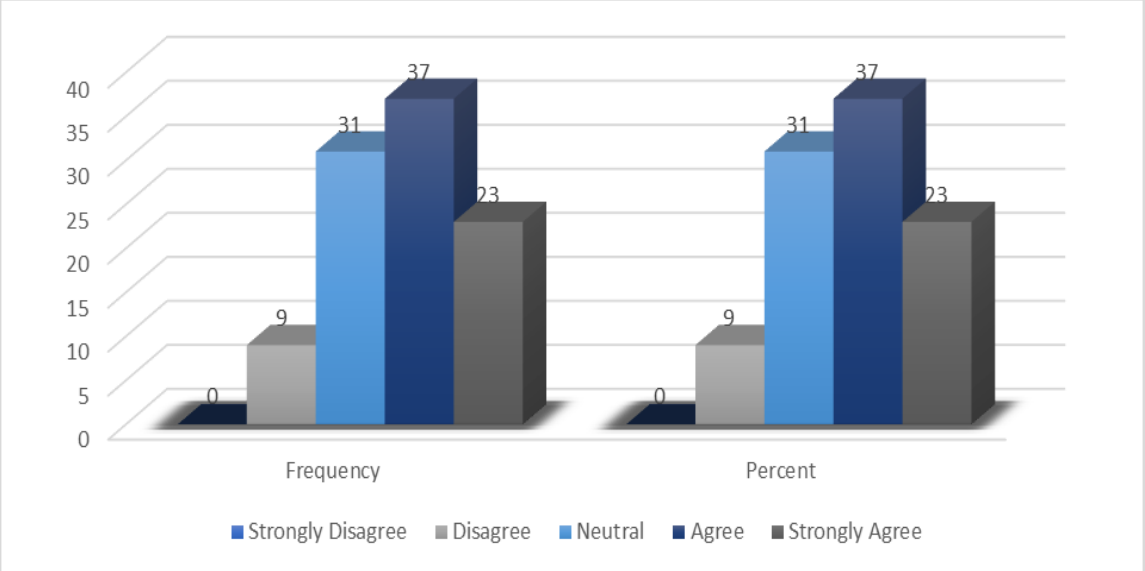

Figure 4.25: Candidates perceive AI recruitment systems as more impartial compared to traditional methods.

In Figure 4.25 above, when respondents were asked the question of whether they think that AI recruitment systems are more fair than conventional recruitment methods, 60% A or SA, and 31% were N and 9% D. This implies that most respondents feel that AI increases impartiality, despite the large neutral group indicating that they do not know how applicants themselves hold the process.

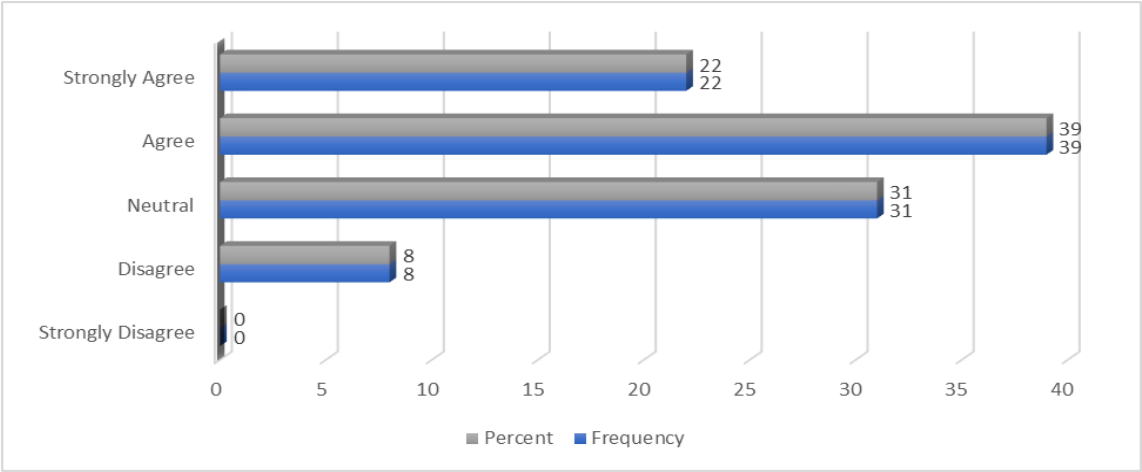

Figure 4.26: AI recruitment systems contribute positively to increasing diversity in the hiring process

The findings indicated in the above Figure 4.26 show that 61% of the respondents A or SA that AI systems are beneficial in enhancing diversity in the recruitment process. However, 31% remained N and 8% D, indicating that while AI is largely seen as supporting diversity, its impact may not yet be consistently visible across all recruitment contexts.

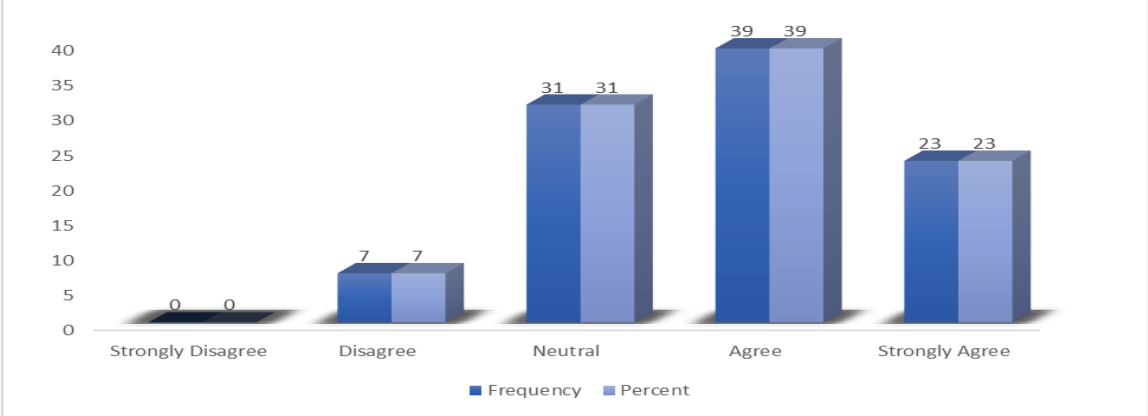

Figure 4.27: AI-driven recruitment supports inclusive hiring practices better than traditional methods

In the above Figure 4.27, perceptions of AI in supporting inclusive hiring practices were also positive, with 62% A or SA, 31% N, and only 7% D. This reflects a general consensus that AI can advance inclusivity, although the persistent presence of a

neutral group suggests that practical evidence of inclusivity improvements may still be evolving.

AI-Driven Recruitment Systems in Reducing Unconscious Bias and Promoting Diversity and Inclusion

- "**Null Hypothesis (H_0):** AI-driven recruitment systems do not significantly reduce unconscious bias or promote diversity and inclusion in hiring practices".
- "**Alternative Hypothesis (H_3):** AI-driven recruitment systems significantly reduce unconscious bias and promote diversity and inclusion in hiring practices".

Table 4.8: Model Fitting, Goodness-of-Fit, and Pseudo R-Square Results

Test	Statistic	Value	df	Sig.
Model Fitting Information	-2 Log Likelihood (Intercept Only)	149.814	–	–
	-2 Log Likelihood (Final)	54.037	–	–
	Chi-Square (Final vs. Intercept Only)	95.777	2	.000
Goodness-of-Fit	Pearson Chi-Square	38.197	34	.284
	Deviance Chi-Square	28.756	34	.722
Pseudo R-Square	Cox and Snell	.616	–	–
	Nagelkerke	.674	–	–
	McFadden	.389	–	–

The model fitting results confirm that the inclusion of predictors significantly improves the model compared to the intercept-only version (Chi-Square = 95.777, df = 2, $p < .001$). The goodness-of-fit statistics (Pearson $\chi^2 = 38.197$, $p = .284$; Deviance $\chi^2 = 28.756$, $p = .722$) indicate no evidence of poor fit, suggesting the model adequately explains the observed data. Additionally, the Pseudo R-Square values (Nagelkerke $R^2 = .674$) show a strong explanatory power, meaning that nearly 67% of the variance in

diversity perception can be explained by the predictors. This supports the hypothesis that AI systems contribute to reducing bias and improving fairness in recruitment.

Table 4.9: Parameter Estimates

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[DP = 2.00]	7.527	1.377	29.858	1	.000	4.827	10.226
	[DP = 3.00]	11.588	1.633	50.327	1	.000	8.386	14.789
	[DP = 4.00]	14.981	1.930	60.260	1	.000	11.199	18.764
Location	BME	1.717	.386	19.798	1	.000	.961	2.473
	FP	1.591	.394	16.341	1	.000	.820	2.362

Table 4.9 demonstrate that both predictors are statistically significant. BME (Estimate = 1.717, Wald = 19.798, $p < .001$) and FP (Estimate = 1.591, Wald = 16.341, $p < .001$) both positively influence diversity perception, as their confidence intervals (BME: 0.961–2.473, FP: 0.820–2.362) do not include zero. The significant threshold values also confirm the ordered progression across response categories. This implies that better management of bias-mitigation efforts (BME) and fairness perception (FP) significantly increases the likelihood of respondents agreeing that AI-driven recruitment reduces bias and promotes diversity.

Findings of Research Question Four

This section will comment on the challenges and problems associated with the implementation of AI recruitment systems. The results show that the HR professionals are familiar with the AI tools, where they perceive the system as one that is complicated, the difficulties that are faced by organisations and their willingness to use AI. The review indicates that people have diverse values and the greatest concerns are the issue on whether AI is desirable, the difficulty in the implementation process and whether people are physically prepared to do it, which influence the success of AI implementation.

Table 4.10: Challenges in Implementing and Using AI Systems

Variables	Statements	Freq/%	SD	D	N	A	SA	Mean ± Std. Deviation
AI Tool Familiarity	HR professionals are well-equipped to use AI recruitment tools effectively.	Freq.	5	18	38	32	7	3.39 ± 0.96
		%	5	18	38	32	7	
	There is a high level of familiarity with AI tools among the recruitment team.	Freq.	5	16	32	36	11	
		%	5	16	32	36	11	
AI System Complexity	AI recruitment systems are easy to use and integrate into existing recruitment processes.	Freq.	2	8	28	47	15	3.67 ± 0.84
		%	2	8	28	47	15	
	AI tools in recruitment are complex and difficult to implement without expert support.	Freq.	4	16	32	39	9	
		%	4	16	32	39	9	
Implementation Barriers	Our organization faces significant barriers to adopting AI tools in recruitment, such as budget limitations or lack of expertise.	Freq.	3	12	40	31	14	3.63 ± 0.92
		%	3	12	40	31	14	
	There are several challenges associated with the implementation of AI recruitment systems in our organization.	Freq.	1	11	42	30	16	
		%	1	11	42	30	16	
Organizational Readiness	Our organization is ready to implement AI systems in the recruitment process.	Freq.	2	10	30	44	14	3.73 ± 0.87
		%	2	10	30	44	14	
	Our organization has the necessary infrastructure and resources to adopt AI-driven recruitment tools effectively.	Freq.	6	6	25	49	14	
		%	6	6	25	49	14	

Table 4.10 presents the outcomes of the issues and limitations connected with AI based recruitment system. The results indicate the respondents are in varied views of their familiarity of the structure, its complexity and the readiness of the organization.

The mean value in responses to the familiarity of AI tools was the lowest (M = 3.39, SD = 0.96; M = 3.47, SD = 0.95), which implies that the HR professionals and recruitment teams do not feel very familiar or conversant with AI technologies. This demonstrates that there exists knowledge and training gap that might complicate the process of taking up the new technology.

The analysis of the participants revealed a moderate level of agreement on the complexity of AI systems, suggesting that they are quite easy to use (M = 3.67, SD = 0.84), yet at the same time, the research respondents recognize the complexity of AI systems and the need to utilize the services of experts (M = 3.53, SD = 0.88). The standard deviations are quite large which indicates the divergent opinions and it is important to note that the ease of use can be subject to individual experience or the environment of a company. Concerning the barriers of implementation, the average scores (M = 3.63, SD = 0.92; M = 3.68, SD = 0.89) indicate that numerous organizations will encounter barriers of the budget constraint, technical knowledge, or integration. These are some of the challenges that pose real hurdles that organizations should strategically overcome.

Lastly, organizational readiness produced slightly better means (M = 3.73, SD = 0.87; M= 3.59, SD = 0.96), which means that though some organizations are of the opinion that they are well prepared with the necessary infrastructure and resources, this preparation is not consistent with all respondents.

On the whole, the results indicate that despite the promise of AI systems in the recruitment process, there are still issues related to the familiarity of the users, its

perceived complexity, and organizational readiness. The training, professional assistance, and investment in infrastructure might allow improving the potential of AI-supported recruiting by overcoming these challenges.

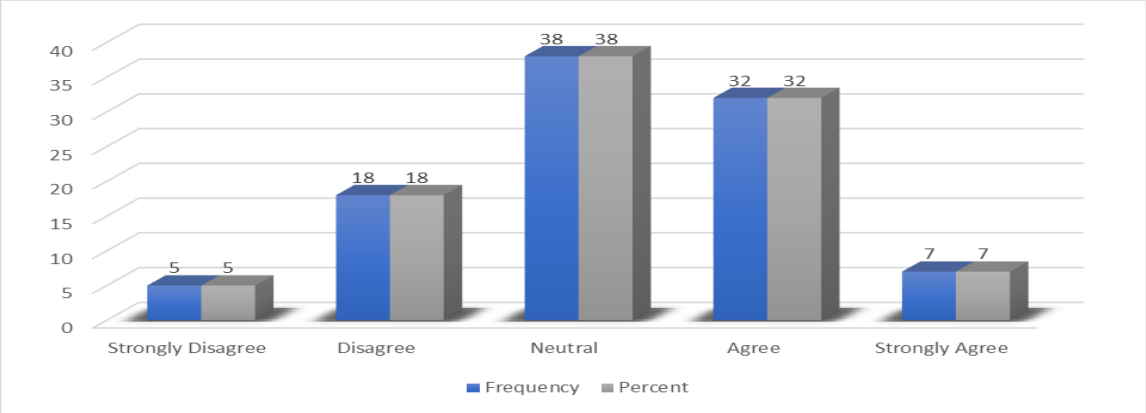

Figure 4.28: HR professionals are well-equipped to use AI recruitment tools effectively

The above Figure 4.28 reveals conflicting attitudes towards the value of using AI recruitment tools by HR professionals, which are well equipped to use them. It was A or SA only 39% and N only 38%, with a significant 23% D or SD. This also means that although not all HR experts express doubts about their ability to manage AI tools, a major percentage of them are either not confident or are not entirely sure about their readiness which means that they may require to be trained and up-skilled.

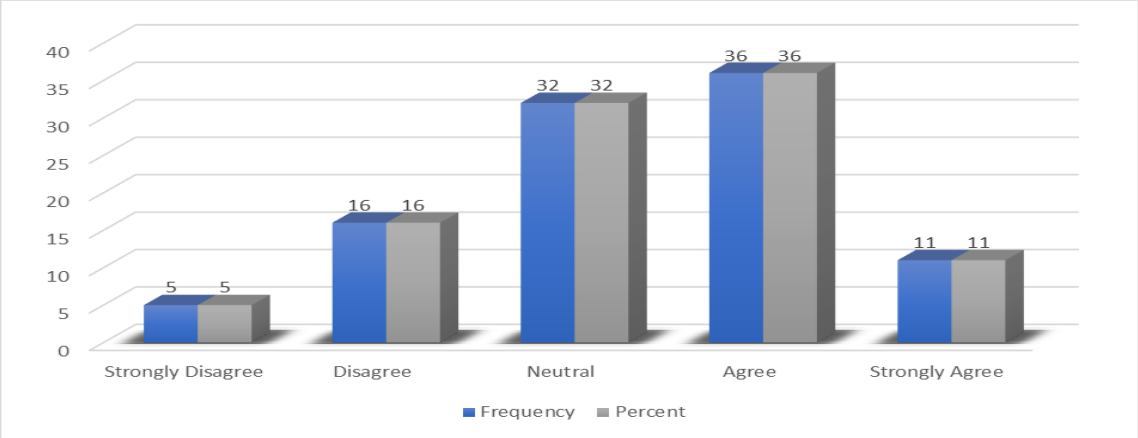

Figure 4.29: There is a high level of familiarity with AI tools among the recruitment team.

In the above Figure 4.29, when asked about the level of familiarity with AI tools among recruitment teams, 47% A or SA, while 32% were N and 21% D or SD. This suggests that nearly half the respondents are confident about familiarity with AI tools, but the large neutral and disagreeing segments reflect a knowledge gap that may hinder effective AI adoption.

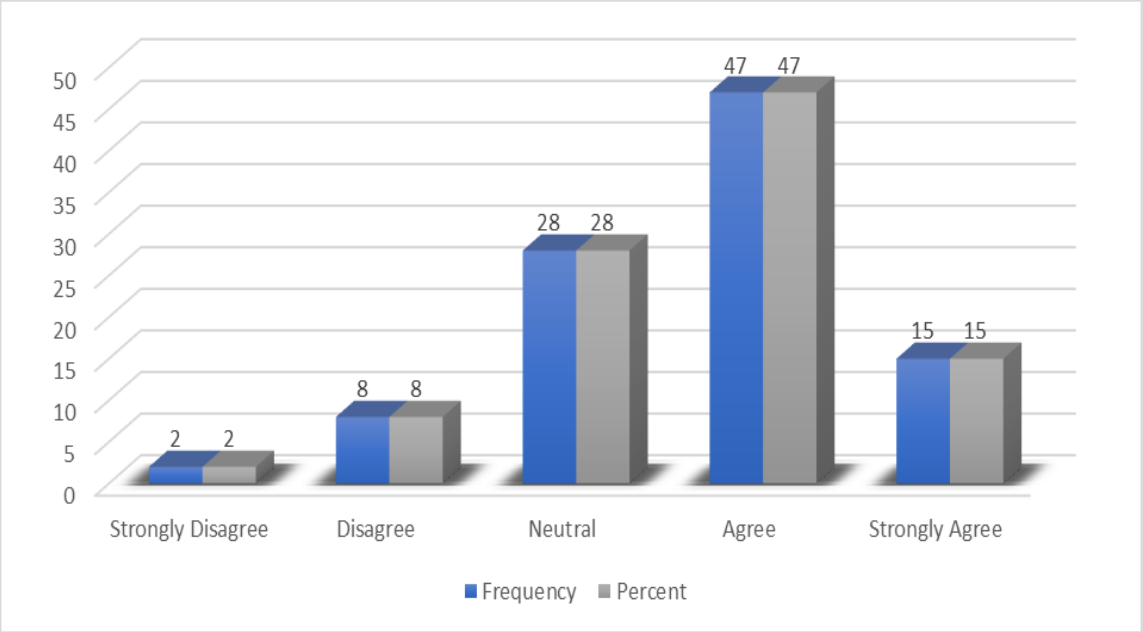

Figure 4.30: AI recruitment systems are easy to use and integrate into existing recruitment processes.

In Figure 4.30 above, most of the people who answered said that AI recruitment tools were easy to use and fit into their current processes. 62% said they were A or SA, 28% said they were N, and only 10% said they were D or SD. This reflects a generally positive perception of usability and integration, although the neutral group implies that some organizations may not have yet fully tested or experienced smooth integration.

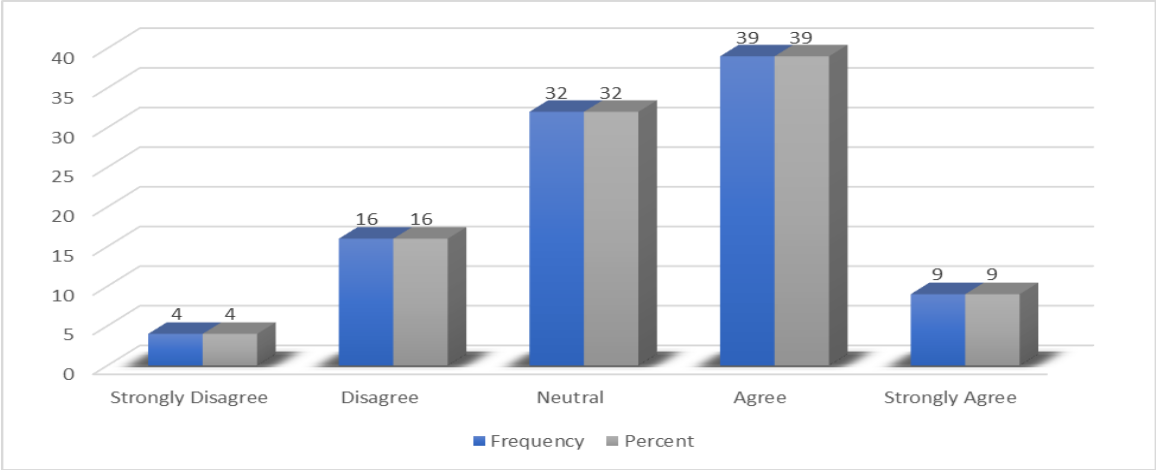

Figure 4.31: AI tools in recruitment are complex and difficult to implement without expert support

In the above Figure 4.31, responses regarding the complexity of AI tools reveal that 48% A or SA that these systems are difficult to implement without expert support, 32% remained N, and 20% D or SD. This indicates that although AI tools are regarded as helpful, they are considered to have a high level of difficulty, which is why the technical assistance or outside expertise could be crucial in their use.

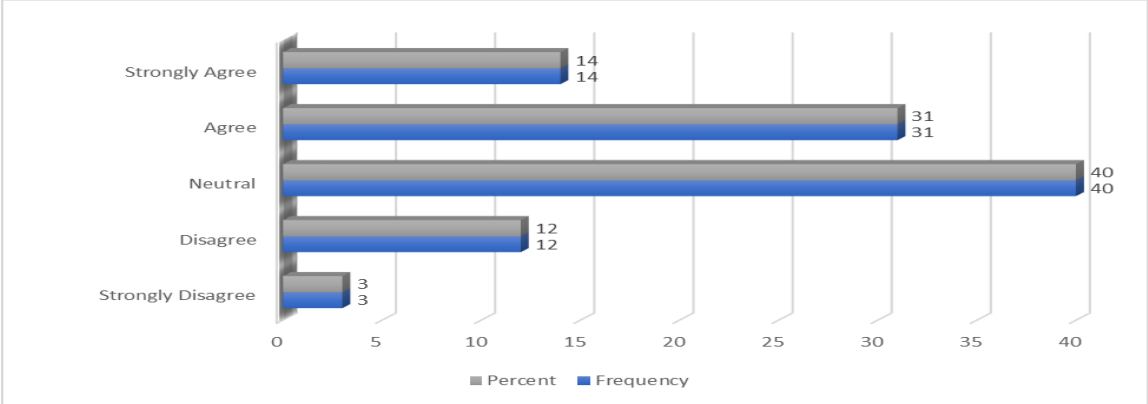

Figure 4.32: Our organization faces significant barriers to adopting AI tools in recruitment, such as budget limitations or lack of expertise

When questioned about obstacles in the implementation of AI tools, as shown in the above Figure 4.32, 45% A or SA, 40% were N, and 15% D or SD. This shows that, the financial and skill-based constraints are actual issues in most organizations, however,

the level of neutrality is high, thus implying that not all respondents experience the barriers equally.

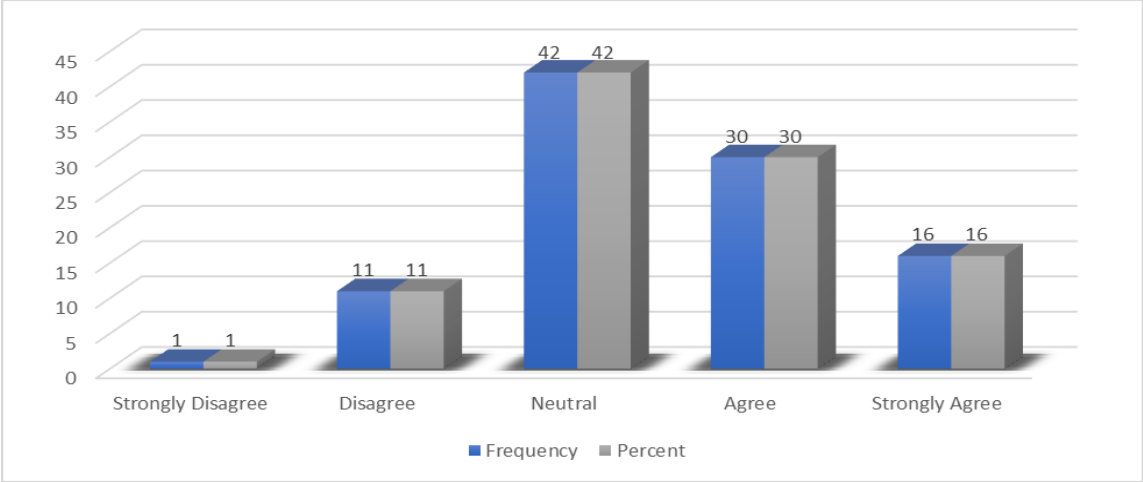

Figure 4.33: There are several challenges associated with the implementation of AI recruitment systems in our organization

Most respondents in the Figure 4.33 above have admitted to having difficulties with the implementation of AI recruitment systems with 46% A or SA, 42% N, and only 12% D or SD. This implies that though the challenges are commonly known, the neutral section is an indication that some of the challenges might have different severity levels according to the organization setting.

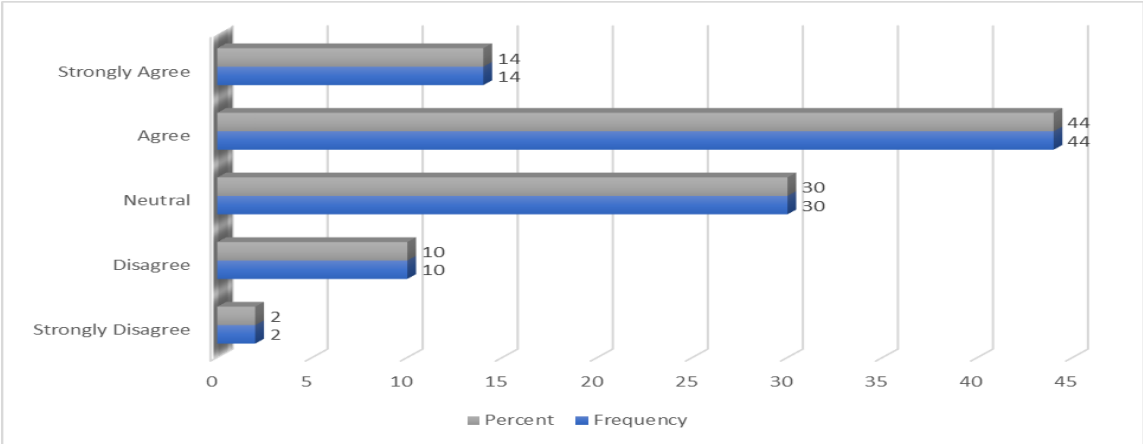

Figure 4.34: Our organization is ready to implement AI systems in the recruitment process

Figure 4.34, on the above question of readiness to use AI in recruitment 58% A or SA, 30% were N, only 12% were D or SD. This is an optimistic idea, as over half of the participants indicated that they were ready; nevertheless, the neutral category of respondents demonstrates doubt, potentially because of lack of knowledge about available resources or business priorities.

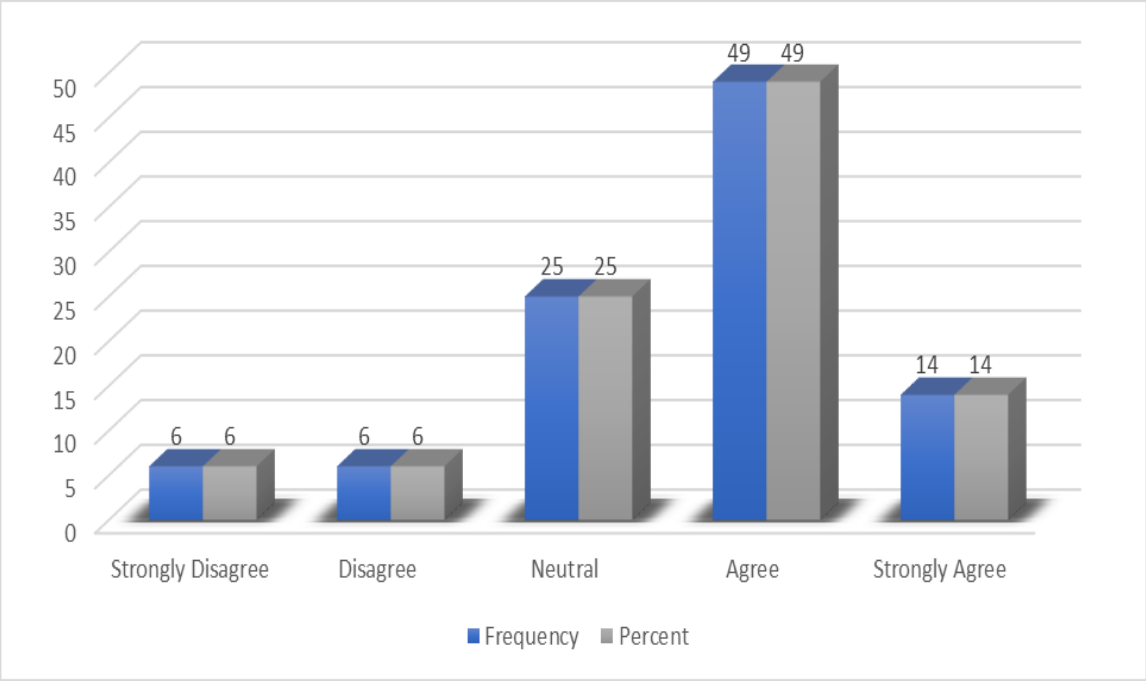

Figure 4.35: Our organization has the necessary infrastructure and resources to adopt AI-driven recruitment tools effectively.

In the above Figure 4.35, the results show that 63% A or SA that their organization has the necessary infrastructure and resources to adopt AI-driven recruitment tools, 25% remained N, and 12% D or SD. This indicates that most organizations believe they are equipped for AI adoption, though the presence of neutrality and some disagreement suggest uneven distribution of resources across different contexts.

Analysis of Limitations of AI Recruitment Tools and Organizational Strategies for Mitigation

- "**Null Hypothesis (H_0):** The effectiveness of AI recruitment tools is not significantly limited by challenges, and organizational strategies do not have a significant role in mitigating these limitations".
- "**Alternative Hypothesis (H_4):** AI-driven recruitment systems significantly reduce unconscious bias and promote diversity and inclusion in hiring practices".

Table 4.11: Hypothesis Test Summary

	Null Hypothesis	Test	Test Statistics	Sig.	Decision
1	"The distribution of AI Tool Familiarity is normal with a mean of 3.39 and a standard deviation of .96290".	"One-Sample Kolmogorov-Smirnov Test"	0.257	.000[a]	"Reject the null hypothesis".
2	"The distribution of AI System Complexity is normal with mean 3.67 and standard deviation .84154".		0.253		
3	"The distribution of Implementation Barriers is normal with mean 3.63 and standard deviation .91734".		0.234		
4	"The distribution of Organizational Readiness is normal with mean 3.73 and standard deviation .87450".		0.311		
"Asymptotic significances are displayed. The significance level is .050".					

The Kolmogorov-Smirnov test results show that for all four constructs—AI Tool Familiarity, AI System Complexity, Implementation Barriers, and Organizational Readiness—the null hypotheses of normal distribution were rejected ($p < .05$). It demonstrates that there is a significant variance of difference, unlike normal, and, therefore, recruiting artificial intelligence systems are difficult to effectively utilize. To be more precise, HR professionals demonstrate uneven degrees of knowledge, struggle to implement systems, face challenges such as lack of finances and capabilities, and not every one of them can implement new systems. The results confirm H4, which states that the boundaries of AI technologies are significant but can be reduced with the help of specific organizational actions i.e. education, investment in infrastructure and change management.

Summary of Findings

The research conclusion implies that AI-based recruitment systems have a significant influence on enhancing different aspects of the employment process. Firms that apply AI in the recruitment process are more effective as the systems enable them to make the process smoother, reduce manual labor and accelerate the process of filling a vacant job. AI tools assist the recruiters in identifying the most suitable job candidates because matching the skill and qualification of an individual to the job requirements becomes easier.

This helps people make better decisions and make sure that the people they hire are right for the job. The employment process can be made fairer, less biased, and more diverse and welcoming with the assistance of AI hiring systems. They also contribute to the increase of accuracy and effectiveness of the process. Such improvements make the hiring process less biased, as the systems of detection and mitigation of bias are introduced. This ensures that everybody is judged based on their abilities, and no other

aspects. The disposition of individuals towards fairness will also augment improved efforts to come up with fair and reasonable process. It demonstrates that the implementation of AI does not only somehow stimulate the work of things, but also contributes to making the working environment more comfortable and ensuring more ethical employment criteria.

The outcomes demonstrate the significance of AI in the recruitment process as it makes the process simpler, enables job-seekers to get the right job and the people are treated fairly. Based on the data, the employment of AI is never just a matter of technology, but a new practice that enables businesses to come up with better, faster and more varied decisions. This results in a bigger and skilled labor force and makes an efficient organization.

Conclusion

This chapter discussed the findings of the study regarding the implications of AI-based hiring tools on the hiring process regarding justice, accuracy, efficiency, and inclusiveness. The findings showed that the measurement tools used in the investigation were useful and helped to understand the background of those individuals who took part in the study. The research found that AI devices make the hiring process more fruitful as there is less time spent to find the right person, as the process is simplified and the process of matching people and jobs becomes more efficient. It was also observed that AI is able to match the skills and abilities of a candidate to the demand of a job that facilitates the recruiting process to be more precise and aids in enhancing the quality of hired individuals.

The research additionally indicated that AI can decrease the unconscious bias and promotes diversity and inclusion. The statistical models revealed that the measures to minimize bias and enhance the perceptions of fairness have significant impacts on

diversity outcomes. This demonstrates how AI could make the hiring process more equitable. There were also significant challenges identified in the research such as difficulty in adjusting to the tools, operating complex systems, and encountering challenges in implementing AI, as well as not being an organization-ready organization. These challenges highlight why it is necessary to make organizations good plans to educate individuals, lay down the necessary systems, and react to changes so as to reap maximum benefits on AI.

The results prove the concepts of the study and imply that the introduction of AI into the hiring mechanism is a paradigm shift tool that can streamline the latter, make it more precise and effective in the representation of a more diverse population into the current recruitment procedure.

CHAPTER V:

DISCUSSION

Discussion of Results

This study puts forth that recruiting AI makes the process of finding the right talent easier, faster, and more effective. The results confirm that AI helps companies locate better people faster, which puts them in a better position in the job market. AI has been much better than the old strategies in terms of expediency and accuracy in getting things accomplished. It also mechanises repetitive tasks, minimises the number of people who have to perform tasks manually and filters out job candidates who have the right skills for the job. This aligns with the main theme of this study that AI eases the hiring process in the modern world of employment. It also makes the recruitment process more believable and it is more based on real figures, which is beneficial to both companies and candidates.

It is also discovered that AI can be applied to make job candidates more eligible. The AI will work to improve skills, connect people with the work more efficiently, and help managers find the most suitable candidates due to advanced calculations and information analysis. They are the findings that help to prove the three main ideas of the study along with agreeing with other studies that assert that AI can indeed improve the workforce and make it more accurate and productive. The research also shows that AI can help reduce the underlying biases and foster diversity that will lead to more equal and free chances in employment. This will go a long way in making AI an effective tool in coming up with hiring systems that are fair, transparent and future-proof.

These are the problems that the research project is aware of making AI-based hiring tools unreliable. They also discovered that issues such as complex systems, expensive installation, lack of experience and unwillingness to spend money are huge

components that minimize the effectiveness of these tools. The results prove that the issues may be resolved by means of the structured training, proper leadership and ethical management. It is through active companies that can afford AI without a significant risk of bias and inefficiency. The findings show that talent matching using AI makes the task of hiring simpler and more accurate. It also makes hiring a business strategy that uses technology and human judgment to bring out long-term success.

Discussion of Research Question One

The present work examined the ways in which AI can be utilized to make hiring more effective by enhancing the degree to which job applicants are suited to suitable roles. It was thought that the application of AI to hiring would play an effective role in making the recruitment process successful (MESHRAM, 2023). The data confirmed the idea and indicated that the operations and hiring processes in companies using AI-powered solutions were much faster. AI can assist hiring managers to save time and better spend it by automating many routine processes, such as analysing resumes, developing shortlists, and scheduling interviews. This will enable them to work on more significant issues (Pratap Singh Rathore, 2023). This helps make the hiring process more efficient and consistent so that it works. Companies who deploy AI have an edge in the current labour market because it makes work more efficient right away.

It is also supported that the use of AI is directly connected with the enhancement of the work process standardization and faster decision-making. Personal preferences and manual recruitment are the usual way of recruiting people; this is prone to error that is hard to rectify (Rukadikar, Khandelwal and Warrier, 2025). It is also disclosed that the application of AI has a profound connection with the greater standardization of the working process and the faster decision-making. The traditional approach to recruitment relies on human senses and is conducted in a manual manner and this can be liable to an

error that can take a very long time to rectify (Venugopal *et al.*, 2024). Finally, AI may be considered as the tool to make the employment process faster, more efficient, devoted to the meaningful purposes, and developed a more accurate perception.

The study presupposes that the operations of AI-based companies are much more efficient and that the recruitment process is also faster and less time-consuming and the gap is reduced between the methodologies of recruitment. This confirms that the use of AI is directly proportional to efficiency that is not necessarily associated with reduced work but also with a better hiring process (Rozario, Venkatraman and Abbas, 2019). It further reveals that the process of AI-based companies is far more streamlined and the recruitment process is quicker and less dissimilar to other methods of recruiting. This supports the idea of how the introduction of AI has a direct positive effect on efficiency, not only regarding the minimization of the amount of work, but also regarding the smoothing out of the hiring process (Dutta and Vedak, 2023). Such a close interconnection of the two demonstrates that AI is among the most critical technologies that contemporary HR operates to find employees.

The outcome of this research influences the performance of the organisation not only in its day-to-day operations but in general performance. The AI facilitates it, as it reduces the time spent on the hiring process, manages resources more competently, and makes the process easy to the job seekers (Jha, Jha and Gupta, 2019). These advantages assist the companies in filling the job opportunities faster and make their recruitment of the employees more efficient and appealing. The employment of AI in hiring also enables the process to evolve and be better, thus the organizations are able to satisfy new hiring requirements, but not to impact the quality of their work. These results can be related to other studies connected to the application of AI in the hiring process, which demonstrated the relevance of AI to building long-term and prospective HR plans (Wong, 2025). The

background demonstrates that AI does not only make the hiring process quicker, but it transforms the ways in which people perceive hiring as a distinct aspect of running a company.

Discussion of Research Question Two

The research question considered in the study was how AI could help in appropriately pairing the right employees with the job opportunity by making sure their skills, and capabilities are relevant to what the job demands. The assumption was that AI systems will not only do better than the usual procedures of recruitment in this regard but will also validate the results. AI uses tools, which analyze data, intelligent algorithms and how to understand human language to define which job applicants are most appropriate. The job descriptions had been fixed. (Morandini *et al.*, 2023). AI helps in filtering the bad matches by screening the resumes, skills and even the manner in which individuals behave. This will enhance the likelihood that those who secure jobs are a good fit to the job and the company.

The results support the fact that AI in job-candidate matching processes is more reliable and fairer than the traditional hiring techniques. The traditional methods tend to be a fast scan through their resume and making speculations about their judgment that might not consider any other skills or abilities an individual will have (Babu V, 2025). The AI technologies are the ones that incorporate different aspects of information, such as technical skill, pattern of experience, and competency models. All these are used by them to identify whether a job opportunity is a good match. This can be used to narrow down the hiring process by giving the recruiters a smaller number of candidates who meet the requirements of the job as listed as well as those unstated. These findings confirm the hypothesis and demonstrate that AI positively influences the precision of decisions and reduces chances of human error in the initial recruitment phase.

A significant conclusion of this study is the identified association between AI utilisation and the calibre of applicants subsequently subjected to final evaluation. AI reduces the likelihood of encountering underqualified people in future career search procedures through job and skill mapping (Kulkarni, Lengnick-Hall and Martinez, 2015). This can help companies save time and money by letting them look at people who actually qualified for the jobs they are advertising. The decision to concentrate on enhancing the quality of candidates is driven by the fact that AI can go through a lot of applicants and choose the ones with the greatest opportunity for advancement (Horodyski, 2023a). Not only does this help the company hire better people, but it additionally assists in the company do better over time by preventing turnover caused by bad character fit.

It can use the information to plan your staff strategically and go ahead of the competition. Companies that utilise AI to discover the right people for employment should expect to hire better people, make it simpler for employees to connect with the company's goals, and keep them longer. Also, aligning candidates to the job appropriately helps the employer's brand considerably because it simplifies and makes easier to judge applications (Rehman *et al.*, 2025). The findings corroborate those of previous researchers, indicating that AI has the potential to transform employment processes through improvements in predictability, data utilisation, and outcome orientation. AI technologies are particularly crucial for rendering talent matching more precise, which has immediate impacts on how well a firm does in the long run.

Discussion of Research Question Three

The study discussed AI technologies to further talent matching by matching the experience and ability of the individuals with the job needs. This was a hypothesis that the AI systems would far outdo more primitive recruitment methodologies in this setting,

and the data strongly supported such a hypothesis (Griffin, 2018). It uses AI technology, potent algorithms, NLP, and evaluation instruments based on data in order to identify the most successful applicants to the job requirements. The AI has ensured that the actual number of mismatches reduces due to scanning resumes, skills information, and even psychological information. It further means that the individuals appointed are in a better position to address the requirements and standards of the firm (Blessing, 2025).

The results show that AI can make candidate-job matching fairer and more reliable than traditional screening methods. Most of the time, hiring people involves looking at resumes, which can be biassed and subjective. It might also miss other skills or abilities that aren't as clear (Soleimani *et al.*, 2025). AI technologies, on the other hand, look at a lot of different data points, such as technical skills, patterns in experience, and competency models, to see if a candidate is a suitable fit. This method also makes hiring more accurate since it gives the person doing the hiring a shorter list of applicants who meet both the explicit and implicit job requirements (Derous and Decoster, 2017). These results corroborate the concept that AI facilitates superior and more precise picks during the initial stages of recruitment.

One of the most important things this study found is that people think there is a connection between AI applications and the quality of candidates who are finally chosen. AI makes it less likely that you'll hire people who aren't qualified for the position later on in the hiring process if you map skills to job requirements correctly (Hosain *et al.*, 2025). This is to make sure that businesses spend their time and money on evaluating those who are really qualified for the jobs in question. AI's ability to go through a lot of applicants and pick the best ones is shown by the higher quality of candidates (Albaroudi, Mansouri and Alameer, 2024). This, in turn, helps the organisation operate better in the long term

by lowering the turnover rate caused by poor role-person fit and enlightening hiring quality.

These findings can be extrapolated to strategic personnel planning and its implications for competitive advantage. Companies that use AI to match skills can expect to hire better people, find better employees who fit their needs, and keep more of their employees (Uthman, 2024). A certain candidate job fit also assists employers to establish their brand by providing the applicants with a more equal and fair method of judgement. The results align with the earlier studies that indicate that AI can help to make the hiring process more data-driven, predictive, and result-oriented (Gupta, 2024). To conclude, the idea of talent enhancement with the help of AI technologies is not only factual but also leads to the success of the organisation in the long term.

Discussion of Research Question Four

The research attempted to determine the weaknesses of AI-based recruitment tools and how organisations could address these weaknesses to reap the most using these tools. The hypothesis was that even though AI-based recruitment technology poses critical challenges, organisational strategies can be utilized to effectively combat the challenges (Ore and Sposato, 2022). This assertion is supported by the investigation and it shows that these adoption issues do not always revolve around technological inefficiency, but it is actually organisational preparedness, technological familiarity and implementation (Mujtaba and Mahapatra, 2025). This means that the technology itself is not limited in its potential to help the recruitment process, but rather the readiness of organisations to adapt, integrate, and continually adapt such technologies into their human resource ecosystems.

Among the limitations, one can outline the complexity of the AI systems, as they can be operated effectively only with specialised knowledge and training of recruiters.

The challenge many organizations face is balancing the implementation of these tools within their current recruitment processes, which often results in opposition from the human resource department, accustomed to working with conventional methods (Yadav, Mathur and Dave, 2025). Moreover, constraints to implementation, including cost, infrastructure, and expertise and knowledge, also limit the triumph of the "AI in the recruitment process". However, the following barriers can be overcome through structured training programs, effective planning for integration, and the implementation of technology solutions (Sýkorová *et al.*, 2024). The research shows that the more adaptable an organisation is and invests in AI literacy, the higher the chance of overcoming these barriers.

The results also highlight how organisational readiness can contribute to the successful realisation of the intended impact of AI systems. Ready is not solely a technical infrastructure but also incorporates leadership and cultural acceptability as well as the appropriate policy frameworks to regulate the use of AI (Lund *et al.*, 2025). Unless their organisations are appropriately aligned, they can never fully leverage AI tools and reach their full potential. This brings out the importance of change management where employees initiate and take an active role in the change process. Demonstrating an open mindset to technological change can help companies achieve greater user acceptance, making AI systems complementary to human decision-making, which will lead to more effective recruitment and a reduced chance of disruption (Akinnagbe, 2024).

The general conclusion of these results is that AI is not always the peripheral factor of the recruitment process, but rather will heavily rely on how organisations function within the ecosystem. The difficulties in overcoming system complexity, its unwillingness to be adopted, and the disconnect in infrastructure must be addressed as a whole in order to integrate technology with people-focused methods (Jarrahi *et al.*, 2023).

Organisations that invest in training, ethics testing, and continuous auditing of their systems are in a better situation to benefit from the absolute advantages of AI-enabled recruitment (Roppelt *et al.*, 2025). The discussion confirms the hypothesis by showing that despite the fact that there are limitations to recruitment, they can still be addressed by implementing certain initiatives that would eventually turn the process into a more efficient, more inclusive and future-proof procedure, assisted by AI.

CHAPTER VI:

SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

Summary

This study has discussed how AI-based recruitment systems can enhance talent matching, operational efficiency, and accuracy of candidate job fits. It was not terrible but AI will make the process of hiring simpler by automating applicant screening, shortlisting, and scheduling. This enables the recruiters to make strategic decisions. The researchers concluded that AI technologies would allow supporting more consistency in the processes, speed up the hiring process, and present the hiring managers with data-driven insights so that they could make better judgements overall. Besides, AI can minimise the mistakes of humans, and provide an equal rating to all the applicants, which is a sign that expertise can change the methods we recruit people in the future.

The study also established that AI can make hiring practices fairer and more open by minimising automatic biases and promoting diversity in applicant pools. The analysis showed that in spite of the barriers connected with the complexity of the system, cost, and preparedness of the organisation, the barriers may be mitigated with the aid of systematic training and proactive change management, along with accountability. Overall, the findings indicate that AI hiring systems result in “superior hires” and “organisational performance”. In order to ensure that hiring is a strategic business operation and not a tactical business routine. The twenty first century is ready to confront the data driven approach to the management of a workforce as shown above. It utilises both the technology and human judgment.

Implications

The HRM and organisational strategy implications of this study are enormous. The services of AI technologies can be used by even companies to recover their hiring

process, which proves that hiring which relies on AI can support the enterprises to work and become more effective. The computerisation of monotonous responsibilities like screening resumes and shortlisting the candidates also contributes to speeding up the hiring process and reducing the workload that needs to be conducted by the administrators. This gives the HR professional the chance at making strategic decision-making, engaging people, and planning the workforce the top priority in their list. Thus, the employment process becomes more effective and faster when organizations use AI technologies and, consequently, allows them to appeal and keep brilliant staffs in the labour markets that are progressively competitive.

The long-term impacts of AI on organisational performance include the enhancement of the quality of the workforce and the increase that the matching of talents is made even more precise with the help of AI. It has been researched that AI systems facilitate finding the most suitable match between skills and requirements of the job and an applicant. This reduces the possibility of underqualification and rejection of applicants in the event of a competency-mismatch. With the right talent at the right job, they perform better, they remain longer and the whole company becomes productive. Moreover, ongoing assessment will help AI to make more frequent and grounded decisions with regard to employment. This can be applied to the organisation that it means that in hiring process, AI does not only make work run smoothly, it might also be used as a workforce planning tool. This helps the HR to make evidence-based decisions that would assist it to streamline the hiring process to suit the business objectives.

There are also the significant implications of such findings on diversity, inclusion, and ethical recruitment practices. As it was noted, AI-based solutions can help minimize the effects of unconscious bias and help make the process of evaluating the candidate more objective, providing everyone with equal opportunities without references to his or

her gender, race, or background. This will assist in making the work places easier and the company appear better. The second aspect where AI causes trust in brands is that it assists in establishing an open and just decision-making procedure amongst the company and the worker. The usage of AI can be used to make organisations more efficient and achieve the increase of socially responsible and ethical employment procedures. AI is a tactical tool that is capable of empowering organisations and the society at large to accomplish their goals in terms of hiring new employees.

Finally, the effects on the preparedness and the commitment of an organization to new technologies are addressed. To be successful, AI needs training and change management as well as support of appropriate infrastructure. Companies that invest in the education of their HRs and, additionally, make their workplaces healthier and friendlier towards technology recruiting services, are more likely to maximise AI recruiting resources. Conversely, the impact of non-preparedness on AI efficacy remains uncertain. This means that strategic planning, continuous monitoring, and alignment with organizational goals are key in ensuring that AI is used effectively. Overall, the study highlights the concept that AI-based recruitment is a technological advancement and strategic investment that can revolutionise recruitment to be an efficient, inclusive, and future-oriented organisational process.

Recommendations for Future Research

Based on the analysis & findings contained in this study, it is likely to engage in several research initiatives to further develop the knowledge and application of AI-based talent matching and recruitment practices:

- Explore how AI-based recruitment may impact employee retention and career development in different industries over the medium term.

- Conduct a test of AI applications in soft skills, cultural fit and behavioural aptitude identification for applicants.
- Investigate how AI can decrease the presence of unconscious bias in various organisational and cultural settings.
- Reflections on ethical issues and legal aspects of AI in the hiring process, such as privacy and algorithm transparency.
- Explore how organisational readiness and change management impact successful AI adoption
- Test AI functioning in dynamic labour markets, such as major and specialised recruiting situations.
- Discover ways to combine AI-based insights with human judgment in recruitment models to achieve maximum accuracy and fairness.

More research is needed to find out how widely and deeply can be used in hiring processes in a huge number of industries and businesses of all sizes. Although this study demonstrated how AI is effective in improving efficiency, accuracy, and fairness, the future research may be concerned with its effectiveness in high-volume recruitment process contexts or in highly niche talent pools. Furthermore, investigation on the incorporation of AI with current HR tools, like workforce planning tools and ATS, might yield valuable insights for the advancement of comprehensive recruitment software. Such studies would enable organisations to see more clearly the strategic value of AI, as well as its possible limitations, bottlenecks, and opportunities for process optimisation.

Another important area for future research is to have an observation into the moral, cultural, and organisational matters that come up when AI is used in hiring. Studies can explore how AI can be used to decrease unconscious bias in different countries, industries, and organisational structures, including how AI impacts employer

branding and applicant experience. Moreover, hybrid systems that incorporate AI automation and human judgment can assist individuals in making balanced decisions. Certain tasks can be automated with AI, whereas human judgment ensures fair, open, and reliable decisions. Finally, we will discuss how organisational readiness, change management practices and ethical governance influence how businesses can make the most out of AI technology and ensure that their practices in hiring are legal and ethical and provide trust and sustainability.

Conclusion

The work accomplishes that AI-based system of recruitment is a new-era technology, which is applied in TA because it transforms the recruitment process into a more efficient, precise, and strategic means of TA. AI can also automatize routine functions and provide data-driven insights that enable recruiters to save "time-to-hire" and recover the fit between contenders and jobs. Findings: It is also revealed in the research study that AI can contribute to the work of a business, not only in terms of the look of the performance of the operations but also during the hiring process, that is manifested through the decreasing of the gap between the job applicants and the prospective requirements of the company regarding skills and competencies. AI is also a much-needed solution to the dilemma of recruitment in a competitive labour market environment because it was an unorganised and mostly manual process that has evolved into a systemised and objective process.

It was also observed that AI positively influenced hiring fairness and inclusion, being effective and precise. By eliminating unconscious bias and ensuring that applicants receive equal consideration, AI can diversify, level the field, and open up workplaces. The outcomes from these initiatives are positive - they fuel the employer brand, build trust, and help organisations establish themselves as socially accountable entities.

However, the study also showed that the benefits of technology can only be maximised if they are complemented by organisational readiness, well-supported leadership and ethical governance. This underscores the need for, and strategic importance of, seeing AI not as a technological innovation, but as a strategic enabler of organisational and social goals.

Some of the issues that may complicate the effective application of AI discussed in the research study include the complexity of the system, its high cost to implement, and the reluctance of recruiters to take risks. These obstacles indicate that AI recruitment solutions depend on an organisation in terms of readiness, flexibility, and commitment towards human capital growth. Some of the key elements in a successful introduction of AI into the recruitment ecosystems include training, gradual introduction, and well-defined policy frameworks. Thus, AI during the recruitment process can only be as effective as the firm is ready to change and can introduce technological solutions along with the entire human resource strategy.

Last but not least, the presented research offers a new direction for future research on the long-term consequences of AI, including retention, career growth, and workforce diversity across various areas. According to this study, it is impossible to establish the road to higher efficiency without compassion, openness, and fairness. Hybrid recruitment models need to be applied with the assistance of AI in order to supplement human decision-making. To establish an improved future of AI as a valid source of partnership in workforce management, further research would be desirable to discuss ethical, cultural, and organisational issues. Finally, the study draws the conclusion that in the future, the term 'AI-driven talent matching' is not the solution for improving the recruitment process, but rather the catalyst for transforming the hiring process into a strategic, information-driven, and forward-thinking business process.

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