INSTITUTO UNIVERSITÁRIO DE LISBOA

Master's in Human Resources Management and Organizational Consulting

Recruitment and AI-based Technologies:

Recruiters' perception and intention to use

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Supervisor:

Filomena Nogueira da Silva de Almeida, PhD Assistant professor at ISCTE Business School

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Abstract

The use of new technologies in professional contexts has become a critical factor in organisational efficiency and competitiveness. As such, Artificial Intelligence (AI) in the recruitment process enables faster and more accurate decision-making by processing huge volumes of data, reducing human bias and providing personalised recommendations for better talent development and candidate selection. In this sense, putting the Technology Acceptance Model (TAM) into practice became essential in order to understand how recruiters perceive the most innovative technologies, in this case Artificial Intelligence tools. To this end, an online questionnaire was developed with quantitative and qualitative data in which 355 recruiters evaluated the dimensions of perceived usefulness, perceived ease of use, attitude towards use and intention to use AI tools.

This study highlights the role of AI in recruitment, emphasising its potential to increase efficiency and resource management, while warning of a possible loss of personal contact and the adaptation of jobs in this area. The results confirm the positive links between the above-mentioned dimensions, also highlighting the positive result of the variable intention to use and possible adoption of AI by recruiters, suggesting a balanced integration of AI as a supporting tool rather than a substitute. This data collected through the recruiter's opinion can offer practical guidelines for organisations wishing to take advantage of AI in recruitment, highlighting the importance of maintaining ethical standards and human involvement in the process.

Keywords: Artificial Intelligence, Recruitment and Selection, Technology Acceptance Model, Perception

JEL Classification: Technological Change: Choices and Consequences (O33); Human Capital; Skills; Occupational Choice; Labor Productivity (J24)

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Resumo

A utilização de novas tecnologias em contextos profissionais tornou-se um fator crítico de eficiência e competitividade organizacional. Assim sendo, a Inteligência Artificial (IA) no processo de recrutamento permite uma tomada de decisão mais rápida e precisa, processando enormes volumes de dados, reduzindo os preconceitos humanos e fornecendo recomendações personalizadas para o melhor desenvolvimento de talentos e da seleção de candidatos. Neste sentido, pôr em prática o Modelo de Aceitação Tecnológica tornou-se essencial para compreender como é que os recrutadores percecionam as tecnologias mais inovadoras, neste caso, ferramentas de Inteligência Artificial. Com este propósito, foi desenvolvido um questionário online com dados quantitativos e qualitativos onde 355 recrutadores avaliaram as dimensões de utilidade percebida, facilidade de uso percebida, atitude em relação à utilização e intenção de uso das ferramentas de IA.

Este estudo destaca o papel da IA no recrutamento, sublinhando o seu potencial para aumentar a eficiência e a gestão de recursos, enquanto alerta para uma possível perda do contacto pessoal e a adaptação de postos de trabalho nesta área. Os resultados confirmam as ligações positivas entre as dimensões acima mencionadas, realçando também positivo o resultado da variável intenção de uso e de possível adoção da IA pelos recrutadores, sugerindo uma integração equilibrada da IA como uma ferramenta que apoia e não como um substituto. Estes dados recolhidos através da opinião dos recrutadores podem oferecer orientações práticas para as organizações que pretendem tirar partido da IA no recrutamento, salientando a importância de manter padrões éticos e o envolvimento humano no processo.

Palavras-Chave: Inteligência Artificial, Recrutamento e Seleção, Modelo de Aceitação Tecnológica, Perceção

Classificação JEL: Mudança tecnológica: Escolhas e consequências (O33); Capital humano; Competências; Escolha profissional; Produtividade do trabalho (J24)

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Glossary

AI- Artificial Intelligence

HR- Human Resources

SPSS - Statistical Package for the Social Sciences

TAM- Technology Acceptance Model

PU- Perceived Usefulness

PEU- Perceived Ease of Use

A- Attitude

IU- Intention to use

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Introduction

Currently, we live in an era of technologies and systems, also known as Industry 4.0. Technological advancements have had significant implications and consequences, reshaping how we live, work, and how organisations lead business. Along with accelerating rates of innovation, it is possible to see a growing wave of new solutions and growth opportunities. The daily development of new technologies (such as digitisation, robotic process automation, artificial intelligence, and machine learning) provides new opportunities and advances, and humans expect a massive efficiency gain (Baldassari & Roux, 2017). This revolution consists of the development of "*information technologies combined with robotization, automation of tasks, the Internet, 3D printing, driverless cars, and safety and defence programs*" that allow us to interact and increase our way of life (Degryse, 2016, p.19).

Today, humans are progressively more dependent on technology, with an intrinsic need for new intelligent machines or tools that facilitate or contribute to all aspects of their lives. Accordingly, Artificial Intelligence or AI capabilities have reached new heights, severely impacting the operation of businesses. Artificial intelligence refers to technology with similarities to the human mind and includes technology with the ability to "learn, interpret and understand on their own in a similar way to that of humans" (Priya, 2021, p.3). The uses and applications of this technology are endless across different sectors and industries.

AI technologies offer significant opportunities to improve Human Resources (HR) processes, specifically when considering AI's potential and ability to "collect data like a human, analyse and review it, and provide various recommendations for future activities based on employee activity history and behaviour" (Aftabi, Bash, & Rangriz, 2022). This can be applied to various HR competencies: recruiting and talent acquisition, payroll, reporting and access policies, and procedures. AI has revolutionized the recruitment and selection process, enabling organizations to streamline candidate sourcing, resume screening, and candidate matching (RecruitBPM, 2024). A current obstacle for HR is the fast rate at which employees change jobs, representing a challenge for the retainment of great talents. AI can contribute to HR by actively managing minor or more repetitive tasks, taking this burden from the HR professionals. Indeed, if AI can take over specific minor tasks - such as employee questions – the HR professional can have more time to focus on strategic activities and responsibilities like engaging and motivating to achieve employee satisfaction and to help organization success.

The topic of this thesis was developed to highlight and explore an important and relevant issue that is no longer futuristic - but already a daily reality for HR professionals – and emerges

from two different findings. On one hand, it is possible to state that retaining people, which is one of the main concerns and obstacles for organisations and HR, can depend on the recruitment and the onboarding experience they've had when they joined the company in the first place. On the other hand, the advancement of technology in human resources activities and processes completely influenced and changed the way HR operates and works, especially in recruitment - AI is increasingly being used in various stages of the recruitment process, including job postings, resume screening, candidate assessments, and even in onboarding (Budhwar & Malik, 2022). Despite all of this, the literature lacks an understanding of current knowledge, perception and use of AI-based tools in the recruitment process by HR professionals or recruiters. Indeed, while the benefits of AI implementation are well evidenced, it is not clear whether HR managers are equally aware of them, nor how willing they are to be involved in introducing AI.

The aim of this study, considering the context presented, is to find out what recruiters perceive AI to be, what advantages and disadvantages they associate with it and also their intention to use AI tools in recruitment.

1. Literature review

1.1. Artificial Intelligence

Artificial intelligence has impacted our daily lives. It is an umbrella concept that subsumes an entirely new generation of technologies that can interact with the external environment in ways that increasingly simulate human intelligence naturally (Glikson & Woolley, 2020).

Although there are infinite definitions of AI, Lakhangaonkar and his colleagues (2021) defined with simplicity that AI "is the ability of machines to act and think like humans and work intelligently". This technology is widely regarded as an important innovation that will fundamentally change how humans perform their day-to-day workplace activities, with special implications for several service and industrial sectors (Clifton et al., 2020). More specifically, Pizzi and colleagues (2021) reported that AI can assist in several tasks such as analysing big data by gathering and interpreting this information, recognizing patterns, inferring rules, or predicting events. It can also assist in generating results, answering questions and evaluating the results of actions to improve decision systems to achieve specific goals. These findings also underline the need for continuing research regarding the effects of these trends on the workers who use them.

Artificial intelligence is one of the topics that has recently received attention in the field of HR and has the potential to change its future.

1.2. Artificial Intelligence and Human Resources

In the field of HR, AI technologies provide numerous possibilities for enhancing functions such as recruitment, payroll, self-service transactions, access policies, and procedures in organizations. AI is continuously expanding in numerous tasks and is now able to handle duties like hiring and analysis of data, which leads to workload reduction and can therefore enhance organizational performance. The usage of AI in the workplace has also been shown to improve HR functional effectiveness and concentration in training (Aggarwal & Kathuria, 2023). In the context of HR, Choudhary (2022) claimed that AI has the potential to revolutionize the way organizations attract, develop, and retain talent, leading to more efficient and effective HR processes.

Impact of Artificial Intelligence for RH department

Managing people in the workplace as Priya (2021) said, consists of the ability to develop a workforce which is talented and skilled to help the company achieve its goals, as well as its mission, vision, and different specific objectives. So, the author affirmed that retaining the best talent and maintaining employee satisfaction level are the prime objectives of HR. The HR department is currently embracing the digital revolution and employing big data analysis, artificial intelligence, and cloud computing, among other techniques, to streamline resources (Amla & Malhotra, 2017).

AI presents numerous excellent opportunities to advance the HR industry by facilitating tasks and improving the effectiveness of goal accomplishment. Saving time in repetitive, administrative and operational HR jobs will allow professionals to focus on more creative and strategic tasks for the achievement of the organization's objectives as well as to reach an effective workforce management which is considered a main source of competitive advantage within an organization (Dijkkamp, 2019). The company's success will depend on how it effectively and intelligently manages people, processes, and technology to provide transformational value at the most favourable cost (Priya, 2021). Due to all its established benefits, companies worldwide have been adopting up-to-date technology in various HR processes, such as recruitment.

However, all technological advances come with certain downsides. A main concern is that the inclusion of AI technology in the world specifically in the workforce will lead to the elimination of thousands of jobs. Indeed, Berg and colleagues (2018) pointed out that the adoption of such technologies will threaten 45–57% of all jobs in the United States, based on their estimations. However, a more recent study has hypothesised that these technological advances may cause an "upgrading or augmenting jobs instead of replacing them" (Pan & Froese, 2023). The lack of consistent literature on this topic might represent a major obstacle to the acceptance of AI and associated technology by workers.

Challenges that will emerge for HR with the introduction of AI

As we know, the world is progressively moving towards fast-changing technologies. This sustains the need to properly implement AI in HR, improving efficacy and efficiency. However, AI can also bring new challenges for HR professionals and organisations, which are crucial to consider.

It has been reported by Priya (2021) that organizations will start underestimating the ability and need of human resources and overestimating the importance and abilities of AI. At the same time, the results of AI are not always compatible with the manager's decisions or needs, which will result in some modification or manipulation of desired data by human hand - "they may ignore or underestimate the results of AI and found solutions as per their requirement" (Priya, 2021, p.8). To be more specific, AI will always have limitations associated with the human being's essence, such as the ability to have empathy and understanding. This results in a lack of emotional intelligence often required in HR to make the appropriate decision and adapt to new situations based on context, a role that AI will never be able to fill. The same author, Priya, also adds that confidentiality issues can also be raised with the use of AI in HR, where data must only be accessed by authorized personnel. With the use of any technology, hacking becomes a reality which can lead to extreme "fairness and legal constraints, and employee reactions to AI management" (Tambe et al., 2019). These issues are especially pertinent in the recruitment process, and once again it falls on the organisation, and HR professionals, to weigh the pros and cons of having an adequate AI implementation.

1.3. Artificial Intelligence and recruitment and selection

The recruitment and selection process consists of three stages: sourcing, screening and selecting (Dijkkamp, 2019). The evolution of these processes has undergone significant transformations over time. Traditionally reliant on manual methods, such as newspaper advertisements and physical job fairs, the arrival of the internet marked a paradigm shift. The digital era introduced online job portals and electronic resumes, streamlining the initial stages. More recently, Artificial Intelligence has become a pivotal force, leveraging machine learning algorithms for efficient processes.

This process typically starts with sourcing, aiming to attract external candidates for potential vacancies. Subsequently, the screening phase involves the review of candidates' resumes by both AI tools and HR professionals, with a noticeable increase in AI usage. The final selection decision

lies with the HR professional, who can make a well-informed choice through three evaluation moments: a personal interview, resume assessment by AI and/or HR, and, where applicable, a group assessment for certain roles (Dijkkamp, 2019).

Recently, a study was concluded on the factors that are driving the use of AI in Human Resources (Choudhary, 2022). First, to make sense of the massive amount of HR data created by organisations - such as employee performance indicators, engagement surveys, and candidate CV's - advanced analytical tools are required. Second, a factor is related to the usage of AI algorithms which can process and analyse data at a speed and scale beyond human skills. This has become necessary due to the requirement for quicker and more accurate decision-making in talent development, performance management, and recruitment. Finally, the search for AI solutions that can reduce human subjectivity and offer customized recommendations has been prompted by the need to improve employee experiences and minimize biases in HR procedures.

A different recent study (Ore & Sposato, 2022), which reported on the perspective of recruiters concerning the potential risks regarding the reliability and accuracy of AI, revealed that recruiters expressed concerns about the loss of the "human touch" or even the job replacement of human recruiters.

1.3.1. Advantages of AI in recruitment and selection

Artificial Intelligence has revolutionised the recruitment and selection process, enabling organisations to streamline candidate sourcing, resume screening, and candidate matching. HR faces difficulty in retaining talent due to employees frequently switching jobs.

AI-powered algorithms can automate repetitive, administrative and time-consuming tasks related to the analysis of large volumes of applicant data with candidate sourcing, and scheduling interviews and candidate information; it allows for the recognition of the relevant qualifications and predicts job performance with high accuracy and less biases. This automation will lead to the efficiency of HR processes, enabling faster decision-making, reducing time-to-hire, saving time to focus on the best matches of candidates to the firm requirements and improving the quality of candidate shortlisting (Choudhary, 2022). Additionally, it can enhance the entire candidate experience through efficient, regular, and transparent communication (Sen et al., 2023).

1.3.2. Challenges with AI implementation

The phenomenon of AI in recruitment and selection also generates some challenges and implications for the candidates who will go through the selection process with AI tools, as well as for the HR professionals. The main challenge is due to novelty, since the adaptation of new technological advancements with AI is still recent, and a lack of trust in AI prevails in organizations (Al-Alawi et al., 2021).

The competitive nature of job applications has led to increased anxiety, distress, and frustration among prospective employees. The interview, a common selection tool, can negatively impact an applicant's likelihood of applying for the job. Anxiety affects listening, nonverbal, and verbal communication skills, especially when applying for jobs incorporating AI. Even without direct communication, such as face-to-face or location interactions, social anxiety can be a deterrent for potential candidates. Despite the benefits of AI in recruitment, potential candidates may still experience anxiety towards organizations using AI in the recruitment process, an important factor for RH managers to consider (Esch, Black, & Ferolie, 2019). Still concerning anxiety, the same author stated that the AI component can have the ability to consider a candidate's physical attributes as part of the overall decision-making process which, as might be expected, has the potential to cause significantly higher levels of anxiety. Due to AI recruitment being in its beginning, candidates may not be aware of AI's full capability within the decision criteria. Therefore, these factors can be decisive in determining the likelihood of a person applying for a position that uses AI in its recruitment process.

The use of AI in the human resource management field has also the potential to cause “ethical concerns, privacy implications, legal issues” (Horodyski, 2023), “moral, and vilification concerns for potential candidates” (Esch, Black, & Ferolie, 2019). These ethical considerations are often overlooked, forgetting that AI should be aligned and regulated with the company's values and missions.

Another concern mentioned by Ore & Sposato (2022) was the replacement of human recruiters. The participants of the study claimed that communication with people will always be necessary for this mentioned process. The authors suggest that AI should be accepted as a tool to improve performance at work, rather than worrying that they might fall victim to the technology. It will be necessary for recruiters to guide their companies away from traditional and inefficient methods of hiring and selecting candidates. This should lead to the technology being successfully adopted and implemented, giving businesses a competitive edge through the hiring of top talent.

An additional drawback of having an AI-based recruitment and selection process is that before it can be used, it is necessary to have experienced people who can train the machines in order to reduce possible errors (Sen et al., 2023).

Hence, it is possible to conclude that AI is a technology that presents unique and competitive advantages for HR professionals, but is associated with known risks and limitations. To secure a successful integration, organizations must invest in data governance, AI infrastructure, and employee training. To fully use the capabilities of AI systems and HR specialists, cooperation is essential for reaching the best outcomes (Choudhary, 2022). Therefore, it is of the utmost importance to understand the attitude and perception of recruiters towards the use of this technology and all the variables that may be influencing such perception.

1.3.3. Artificial Intelligence Tools

A better understanding of how AI tools work and are perceived could help HR practitioners focus on what may improve the candidate's and recruiter's own experience. The limitations of current AI tools can provide valuable insights for recruiters and software developers, allowing them to better understand these shortcomings and focus on areas that need improvement.

AI is increasingly being used in various stages of the recruitment and selection process, including job postings, resume screening, candidate assessments, and even onboarding (Budhwar & Malik, 2022; Ore & Sposato, 2022). There are several types of AI-based recruitment strategies which will be mentioned and explained below.

According to the three stages of recruitment and selection by Dijkkamp stated above, the first stage, the sourcing process, always starts with a mapping of needs. In this stage, recruiters have recognized that AI can make their job more efficient and effective, since a Boolean search string is no longer necessary, which allows for more time and focus on the following stages (Dijkkamp, 2019). Currently, the sourcing stage often uses an Interactive Chatbox system or automated answering machine as an AI tool, which plays an important role in solving minor inquiries, for example regarding job descriptions and related questions. AI-driven chatbots and virtual assistants can be useful for large-volume procedures, providing instant responses to employee queries, managing responsibilities and organizing the schedule (e.g., setting up interviews), which in turn improves response times and employee satisfaction (Choudhary, 2022). These recruiting chatbots can also engage possible candidates by informing them about job opportunities, which helps the communication between companies and applicants (Al-Alawi

et al., 2021). However, these tools also have limits when it comes to evaluating intangibles like soft skills (Berg et al., 2018). It is important to note that AI is still in its initial development, so its influence on sourcing is considered minimal. Still, administrative tasks have decreased because of AI tool implementation, though it is important to assess their outcomes carefully. Views on the future are diverse as some predict task adjustments, while others believe AI will replace the sourcing position in a new professional environment. For the coming years, recruiters have highlighted new proficiencies including data and tool expertise, analytical abilities, beta skills, and commercial skills as essential. This is consistent with the first stage's tool introduction and the recruiter's increased duties and responsibilities during the sourcing stage (Dijkkamp, 2019).

The second stage, the screening process starts with a review of the resumes sent in, while evaluating if there is a match between the available job position and the reviewed candidate. To find suitable applicants, resume screening entails using AI algorithms to analyse resumes according to predetermined criteria. Candidate matching sorts through massive datasets to find the best candidates using machine learning (Cardoso et al., 2021). The AI tool *Ideal* can be used for screening resumes and shortlisting candidates based on job requirements. Most recruiters predict that the HR specialist's function in the screening process will significantly decrease and that resume evaluation will be fully handled by AI systems in the future. It is emphasized how quickly AI screening procedures have been adopted, with a singular emphasis on assessing individuals' competencies.

Finally, in the selecting stage, the recruiter chooses the most suitable candidates from a pool of applicants based on predefined criteria. It is also the stage that often involves a personal connection and an interview to evaluate a possible match. This stage relies on the recruiter since this connection is important for both the recruiter and the candidate, but new tools are under development.

A developing AI-based method called "video interview analysis" uses algorithms for facial recognition and natural language processing to evaluate candidates. Using non-verbal clues like body language and emotional expressions, facial recognition helps recruiters assess candidates' communication skills (Albassam, 2023). For this strategy, it is possible to use an AI-based tool such as *HireValue* that helps analyse candidates' verbal and non-verbal cues and use *RecRight* as a video interviewing platform with AI features for evaluating communication skills and cultural fit (Nguyen & Strazzulla, 2024). It is also possible to use the App *InterviewBuddy Pro* as an AI-driven interview preparation platform, that provides application feedback and insights for improvement.

Additionally, a new trend in recruitment and selection is the use of gamification. Gamification consists of *the "use of video game elements in other contexts to increase engagement"* (Barney, 2023). By using this, people feel more engaged with the organization, leading to an emotional relationship with the company and higher connection and application rates. With these games, the company can collect information from candidates regarding preferences and priorities, or even apply psychological tests. Albassam (2023) also adds that this strategy improves user engagement by making the hiring process more appealing, which can attract top talent. One of these tools is *Pymetrics*, which uses AI and neuroscience games to assess candidates' soft skills and cognitive abilities (Nguyen & Strazzulla, 2024). By adopting gamification, organisations can increase their candidate pool and cultivate a good brand image.

With all these artificial intelligence tools already available for recruiters to use, some questions can arise regarding recruiters' perception of AI tool usage, including its usability and challenges. This supports the importance of exploring the reliability of AI tool results, user experience, and how they contribute to the day-to-day tasks of recruiters.

Future perspectives indicate that the selecting stage will generally remain the same, with minimal AI impact. Despite this, an investment in communication and commercial skills is essential, since these prove valuable in attracting external talent during the sourcing stages. The introduction of AI may reshape the HR professional's role, allowing for increased personal contact with clients and candidates, and highlighting the ongoing importance of communication skills. These skills extend to advising clients, employees and candidates, contributing to a positive candidate experience (Dijkkamp, 2019).

In summary, recognizing the vital role of the human element in communication, organizations must integrate human characteristics into tools while organizing their human aspect distinctively. Interviews support the enduring importance of HR professionals' communication skills, as tasks diminish in sourcing and screening, leading to increased personal interactions. To exploit this evolving context, HR professionals should enhance their knowledge of tools and data, fostering trust through understanding how to operate them. The findings emphasize the necessity for HR professionals to develop proficiency in decision-making based on data, alongside their enduring need for strong communication skills and additional competencies (Dijkkamp, 2019). Given the earlier acknowledgement that the selection stage will see minimal changes with AI implementation, the present study places its emphasis on the recruitment process (sourcing and screening phases) for heightened efficacy and strategic talent acquisition.

Therefore, taking into account all the information presented beforehand, it is possible to understand the need to further understand the reasons and/or factors that lead recruiters to the choice of using AI, as well as to understand what information, knowledge and training recruiters need to accept and employ these technologies.

This study aims to contribute to the existing body of knowledge on AI in the context of HR and provide insights that can guide organizations, specifically the recruitment and selection departments, in effectively harnessing the potential of AI to enhance their HR practices and drive organizational accomplishment.

1.4. Technology and its acceptance

Based on previous literature, the psychosocial factors related to the acceptance of AI technology are regarded as central. Accordingly, acceptance-related variables (such as perceived usefulness, attitude, performance expectancy, effort expectancy, and trust) significantly and positively predicted behavioural intention, willingness, and behaviour of AI usage across multiple industries. Cultural factors are also an important consideration when comparing AI acceptance across different demographics (Kelly et al., 2023).

There are several models which have been used to evaluate user acceptance of technology. Some of the most relevant ones are: the AI Device Use Acceptance Model (AIDUA; Gursoy et al., 2019), the Unified Theory of Acceptance and Use of Technology (UTAUT; Venkatesh et al., 2003), and the oldest model - the Technology Acceptance Model (TAM; Davis, 1989).

Gursoy and his colleagues (2019) developed the AI Device Use Acceptance model (AIDUA) using the cognitive appraisal theory to study user acceptance of AI technology. This model expands on prior acceptance models by investigating user acceptance of AI agents through analysing user experience in three stages (primary appraisal, secondary appraisal, and outcome stage) and six antecedents (Anthropomorphism, emotion, effort expectancy, hedonic motivation, performance expectancy, and social influence).

The UTAUT model, introduced by Venkatesh and colleagues in 2003, expands upon TAM (which will be explained below) by including factors like performance expectancy, effort expectancy, social influence, and facilitating conditions in order to forecast user acceptance and usage behaviour (Venkatesh et al., 2003). These models enhance technology acceptance prediction by adding subjective norms, image, job relevance, output quality, result

demonstrability, and perceived enjoyment as extra variables to TAM (TAM2 and TAM3). (Venkatesh and Bala's study from 2008).

Fred Davis created TAM in the 1980s to explore how users adopt information systems. It indicates that the variables perceived usefulness and perceived ease of use are crucial factors in determining an individual's willingness to adopt a new technology. TAM is a theory that is commonly used to explain an individual's acceptance of an information system. This model was the first to refer to psychological factors affecting technology acceptance and it was established from the Theory of Reasoned Action (TRA) by Davis (1989). Two concepts determine an individual's intention to use a new technology, in this case, AI tools. These mediator concepts are perceived usefulness and perceived ease of use. The first one is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1987). Regarding Perceived Ease of Use, it can be defined as "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989, p. 320). The original TAM assessed the impact of four internal variables upon the "actual use" of the technology. This last variable refers to the real engagement with a technology, which is directly influenced by the Intention to Use. This intention is formed by the perceptions of Perceived Usefulness and Perceived Ease of Use, as well as the user's Attitude Toward Using the technology which are mediators of actual use. Attitude represents the user's overall positive or negative feelings about using the technology, and it mediates the relationship between these perceptions and the intention to use. In Davis's model, "Actual Use" is the outcome that indicates whether the initial perceptions of usefulness and ease of use, along with the formed attitude, have led to a real and effective commitment to the technology. Indeed, user acceptance of technology is fundamental to the successful uptake of devices (Davis, 1989).

Even though it is the oldest model mentioned, the TAM has been the most widely used model for measuring technology acceptance and had the highest success rate in predicting behavioural intentions. Moreover, it is regarded as the top choice for evaluating current technology or studying acceptance across various contexts because it can incorporate extra variables (Kelly et al., 2023). TAM has been demonstrated to be easier to use than various models and provides a fast and low-cost way of gathering general data about an individual's perception of technology (Samaradiwakara, 2014).

1.5. Proposed Model

Since this study aims to analyse the level of acceptance of AI technology by recruitment and selection professionals, the technology acceptance model (TAM) will be used as the model for the present study. However, in the present study, the variable Actual Use will not be assessed since it was not mandatory to have previous or currently used AI in recruitment for participating in the study.

Therefore, the final established model is as represented in Figure 1.

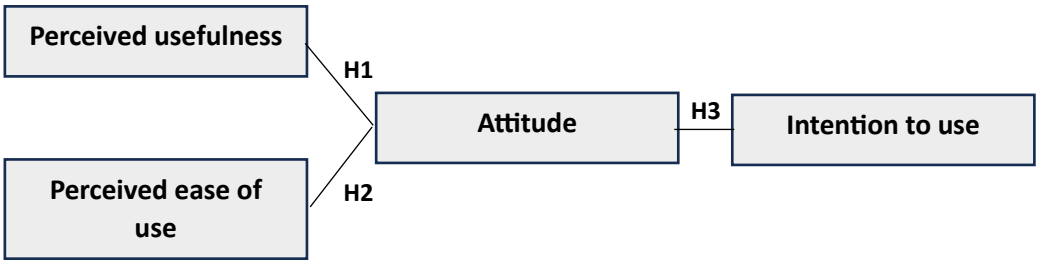

Figure 1. *Proposed Model for recruiters' perception of AI tools.*

Using this model as a theoretical framework, the study's hypotheses are as follows:

H1: Perceived Usefulness is positively related to the attitude towards the use of AI tools.

It is possible to explain perceived usefulness as the degree to which a given system can raise performance. Several metrics, including speed, accuracy, efficacy, performance, productivity, and usefulness, can be used to evaluate perceived usefulness (Sudiyani et al., 2019).

H2: Perceived ease of use is positively related to the attitude towards the use of AI tools.

Ease of use for AI means that it is easy to operate and interact with a tool or application. A technology system perceived to be easier to use than another is more likely to be accepted by users. On the contrary, a complex system, that is difficult to use, is less likely to be adopted since it requires significant effort and interest on the user's part (Teo, 2001). In the e-recruitment context, jobseekers would prefer the system if it were easy to use compared to other methods of job applications. Researchers have found that the perception of users concerning the role of artificial intelligence in enhancing different personal learning had a positive impact on learner's attitude to learning (Kashive et al., 2020).

H3: Recruiter Attitude is positively related to the intention to use AI tools. Attitude has long been identified as a cause of intention to use a technological system. Venkatesh and colleagues (2003) stated that one's overall emotional response to using a system is what attitude towards technology refers to. It can also be defined as "an individual's positive or negative feelings about performing the target behaviour" (David, 1989), meaning that this concept refers to a recruiter's judgement on whether the use of AI tools in recruitment is beneficial to them or not. The relationship between Attitude and Intention to use has long been evidenced (Suki, 2011; Liang, Lee & Workman, 2019).

2. Methodology

In this section, the research method of this study will be discussed, along with study procedures and assessment measures. This study used a questionnaire survey developed for online sample collection. It uses quantitative and qualitative data (e.g., open questions on the advantages and disadvantages of using AI tools), and uses a descriptive methodology, since the aim is to describe the characteristics of the determined population studied.

2.1. Sample

The sample for the current study was comprised of 355 individuals, 285 females (80.3%) and 69 males (19.4%). One individual preferred not to disclose. Regarding age, 22% were between 18-25 years old, 27% were between 26-30 years old, 27% were between 31-40 years old, 13.2% were between 41-50 years old, and 10.8% were more than 50 years old.

Regarding years of formal education, most participants had a Master's degree or equivalent (56.3%), 39.5% a Bachelor's degree or equivalent, 2.3% had finished secondary school or equivalent, and 1.1% had Ph.D. or equivalent.

In terms of current position, 37.5% were senior recruiters, 28.2% were Junior recruiters, 13.5% were team managers, 9.9% were HR directors, 4,8% were trainees, 2.7% were Recruitment and selection managers, and 3.4% were HR administrators.

Finally, 27.6% of the sample had already used AI tools (98 individuals) in day-to-day work and 72.4% responded negatively (257 individuals).

2.2. Instruments

The questionnaire used (Annex A) starts with sociodemographic data questions, in which all participants responded to a group of questions regarding gender, age and years of education. The next group of questions concerning job-related data included: position held, amount of CVs they assessed each week, adverts published per month and current usage of AI tools (Yes/No).

To make sure that the respondents knew what AI does or can do in recruitment and to better harmonise the concept of AI in recruitment, in section 2 of the questionnaire, a video was made on this topic, as well as 4 questions below, about the information in the video, as a way of making sure that the whole sample saw the video. Finally, after the respondents had watched the video and answered the questions, in section 3, the application of Davis's technology acceptance model was put into practice, with 17 questions relating to each of the 4 variables

under study. To know how each question was made for the variables, it's possible to have 4 subsections inside section 3. Subsection 1 is composed of the first 5 questions to measure the perceived usefulness variable which were taken from the author's Fred Davis (1989). According to Venkatesh and Davis (2000), in various studies carried out, it was shown that the value of Cronbach's alpha for the perceived usefulness raged from 0.87 to 0.98 across studies and time periods. Cronbach's alpha was computed to assess the internal consistency of the scales used in the questionnaire. The perceived usefulness scale in the present study had a Cronbach's alpha of 0.89. Subsection 2, which includes 5 questions taken from the study by Mark Turner and his colleagues (2008), Fred Davis (1989) and Venkatesh and Davis (2000), assesses the ease of use variable. As per Venkatesh and Davis (2000) and Davis (1989), it was shown that the value of Cronbach's alpha ranged from 0.86 to 0.98 across studies and time periods. In the present study, this value was 0.85. In subsection 3, 4 questions were taken from the author Ghani and his colleagues (2019) to measure the attitude towards the use of AI tools. In their study, Cronbach's alfa was 0.86 and, in this study, the value was 0.93. Lastly, the 3 questions of subsection 4 regarding intention to use, were adapted from Venkatesh and Davis (2000) and from Venkatesh and colleagues (2003). According to them, Cronbach's alpha ranged from 0.82 to 0.97 across studies and time periods. In this study, the value was 0.88.

The Cronbach Alpha's of the mentioned variables in the current sample can be found in Table 1.

Variable	**α**	**Nº of Items**
Perceived Usefulness	.90	5
Perceived Ease of Use	.85	5
Attitude	.94	4
Intention to Use	.88	3

Table 1- *Internal consistency of the study's variables as assessed by Cronbach alpha's (α).*

Factor analysis was also carried out for the 4 variables under study (Perceived Usefulness, Perceived Ease of Use, Attitude, and Intention to Use). This analysis suggested that the variance of each item was mainly explained by one specific factor/component. This means that each set of items within a variable were highly correlated with the overall construct. Meaning that all the items within each set of variables are highly correlated and measure a single underlying

construct (all the data regarding factor analysis are presented in Annex B, Table 8 to 11). This result indicate strong internal consistency and unidimensionality, confirming that each set of items effectively measures a single, cohesive construct.

2.3. Procedure

Participants were recruited via various online platforms (LinkedIn and Facebook), through a link that led to an online platform with the study's questionnaire on the platform GoogleForms. The snowball sampling method was also used with companies and colleagues working in Portugal and in the recruitment field as Recruitment and selection managers and also HR directors. A Request for collaboration to share the questionnaire was also sent via email to 24 recruitment companies across the country. Only two responses were received, one of which was positive about wanting and being able to share the link with its employees.

All participants were informed about the study's aims as well as of its anonymity, confidentiality, voluntary nature, and explicit academic usage. The sample was collected between the beginning of March until the end of April, and the initial sample consisted of 366 individuals. However, 11 individuals were excluded as they did not meet the inclusion criteria established.

Before sharing the final questionnaire with recruiters, a pre-test was carried out with 35 people to ensure that there were no problems with the questionnaire. Since the respondents were asked to give feedback on the questions, only the two questions concerning the number of CVs the recruiter receives per week and the number of advertisements they publish per month, were adjusted. After this, the questionnaire was ready to be shared with everyone in the interested area.

2.4. Questionnaire variables

Except where noticed, all scales will be answer on a 5-point Likert scale ranging from "Strongly disagree" to "Strongly agree".

Perceived Usefulness is "the degree to which a person believes that using a particular system would enhance his or her job performance" and is often the strongest positive predictor of an individual's behavioural intention to use new technology. (Davis 1989, p. 320It is considered to be directly influenced by the perceived ease of use. According to Davis, perceived usefulness

refers to the user's belief that using a particular application will positively affect their job or personal performance (Surendran, 2012). For the present study, 5 items from the original questionnaire were selected (*"Using AI-bases tools in Recruitment and selection would improve my job performance in doing my work"; "Using AI-bases tools in Recruitment and selection would improve my productivity "; "Using AI-bases tools in Recruitment and selection would enhance my effectiveness in my job"; "Using AI-bases tools in Recruitment and selection would save me time "* and *"I would find AI-bases tools in Recruitment and selection useful in my job").*

Perceived ease of use is defined as "the degree to which a person believes that using a particular system would be free of effort" (Davis 1989, p. 320), this means a user's perception of how effortless a technological device would be to use. It is a direct determinant of Perceived usefulness since, all else being the same, the less effortful a system is to use, the more using it can increase job performance. This variable is reasoned to have a weaker influence on technology acceptance than Perceived Usefulness as it is only relevant to the technical use of a device, which has become less important as users have acquired increasing familiarity with using technology in their daily lives (Davis, 1985, 1989; Lunney et al., 2016). It will be measured with 2 items from Davis (1989), 2 from Mark Turner et al., (2008) and with 1 item from Davis and Venkatesh (2000): (*"Learning to operate the AI-bases tools in Recruitment and selection would be easy for me"; " I would find it easy to get the AI-bases tools to do what I want it to do"; " It would be easy for me to become skilful in the use of the AI-bases tools";* "*My interaction with AI-bases tools would be clear for me*" and *" I would find the AI-bases tools easy to use in Recruitment and selection").*

Attitude is defined as "an individual's overall effective reaction to using a system" and is also "the strongest predictor of behavioural intention." (Venkatesh et al, 2003). The attitude toward using a system relates to how the user evaluates the desirability of utilizing a specific information system application (Surendran, 2012). This variable will be measured with 4-item scale taken from Ghani study (Ghani, et al., 2019) ("Using *AI-bases tools in Recruitment and selection is, in general, a good idea"; "I feel positive towards the use of AI-bases tools in Recruitment and selection"; "Using AI-bases tools in Recruitment and selection would make work more interesting"; "I would like to work with AI-bases tools in Recruitment and selection for my future coursework"*).

Intention of use is defined as the degree of an individual intent to use a system that is measure of the likelihood of a person employing the application (Surendran, 2012) and it will be measured with 1 item from Venkatesh and Davis (2000) and 2 items from Venkatesh et al. (2003,

pp.460) scale, respectively: *("Assuming I have access to AI-bases tools, I intend to use it throughout this semester and the next"; "I predict I would use AI-bases tools in the next couple years"* and *"I plan to use AI-bases tools in the next couple years as often as possible").*

3. Results

3.1. Analytic strategy

The results section presents the findings of the statistical analyses conducted to address the research questions. This includes descriptive statistics, reliability assessment through Cronbach's alpha, correlation analysis, and linear regression analysis.

In order to summarize the main features of the data collected for the study variables, the statistical analysis involved descriptive statistics measures (absolute and relative frequencies, means and respective standard deviations) and inferential statistics.

All the statistical analysis was performed using SPSS software (Statistical Package for the Social Sciences) version 29 for Windows.

3.2. Analysis of the associations between variables

Pearson correlation coefficients were used to examine the relationships between the study variables. Table 2 displays the correlation, indicating that there was a significant positive correlation between the attitude and the perceived usefulness of AI tools (r = .83, p < .001). Additionally, the correlation between perceived usefulness and perceived ease of use was .52 and the correlations between perceived ease of use and attitude was .54. Regarding the variables attitude and intention to use, there was a positive and significant correlation between them (r = 0. 806, p < .001) (Table 3).

		Attitude	P. Usefulness	P. Ease of Use
Pearson Correlation	Attitude	-	.83	.54
	P. Usefulness	.83	-	.52
	P. Ease of Use	.54	-	-
p	Attitude	-	< .001	< .001
	P. Usefulness	< .001	-	< .001
	P. Ease of Use	< .001	-	-

***Table 2**-Correlations between variables*

		Intention to use	Attitude
Pearson Correlation	Intention to use	-	.806
	Attitude	.806	-
Sig. (1-tailed)	Intention to use	.	<.001
	Attitude	<.001	-

Table 3- *Correlations between variables*

A linear regression analysis was conducted to identify predictors of attitude and intention to use and the power of independent variables on the dependent variable. R Square indicates that approximately 65% of the variance in the attitude towards the use of AI tools can be explained by perceived usefulness ($R^2 = .649$, $p < .001$) and 29% the variance in the attitude towards the use of AI tools can be explained by perceived ($R^2 = .287$, $p < .001$). (Table 4 and 5) The results, presented in Table 6, show that variable intention to use significantly predicts the attitude, explaining 65% of the variance ($R^2 = .648$, $p < .001$).

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.806[a]	.649	.648	1,70203	.649	653,089	1	353	<,001

a. Predictors: (Constant), A.TOTAL

Table 4*- Model Summary Regression analysis*

Model Summary

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.536[a]	.287	.285	.75822	.287	142,433	1	353	<,001

a. Predictors: (Constant), Med_PEU

Table 5- *Model Summary Regression analysis*

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.806[a]	.649	.648	.56734	.649	653,089	1	353	<,001

a. Predictors: (Constant), Med_A

Table 6- *Model Summary Regression analysis*

4. Results Analysis

The current chapter presents the interpretation of the significant findings and insights derived from both qualitative and quantitative data collection results. It will concurrently embrace the research results with hypotheses testing and research questions.

For the first and second research question, it's possible to answer them with the last two questions from the questionnaire (advantages and disadvantages of using AI tools). For the analysis of the qualitative part, a content analysis of the information was carried out through two main phases: the pre-exploration phase of the available material, in which readings were made in order to grasp and organise important aspects for the next phase of the analysis in an unstructured way. The second phase consisted of coding and categorising. "Coding is a way of indexing or categorizing the text to establish a framework of thematic ideas about it" (Gibbs, 2007) and is also a process by which raw data is systematically transformed into categories that allow for a precise discussion of the relevant characteristics of the content (José Campos, 2004). Both phases were made by hand in Excel. Regarding the third research question, about recruiters intention to use AI, it will me answered with the hypothesis.

It's relevant to mention that concerning the question *"Have you ever used an Artificial Intelligence tool in your work?"* and *"Related to the previous question, if you answered yes, which tool(s) have you used?"*, from the most to the least mentioned, participants that responded affirmatively reported that the tools used were: Chat GPT, TeamTailor, LinkedIn recruiter, Recruiter box, Manatal, Waalaxy, Magical, Greenhouse, PeopleGPT, People Match, KeyWork, HeroHunt AI, Personio, Fetcher, Metaview, Jobsoid, Ideal, Talent Soft, Talent tech, and Smartrecruiters. This can give us an insight into how well or badly recruiters know about AI tools.

R1: According to recruiters, what are the benefits of artificial intelligence in recruitment?

AI tools in the recruitment process has yielded numerous benefits, enhancing various aspects of recruitment significantly.

Based on 710 opinions from recruiters, the categorization process resulted in the information being grouped into the following themes: “Making the process easier”; “Accuracy in profiles, approach, requirements”; “Accurate results”; “Cost reduction”; “Errors and bias”; “Agility of processes”; “Optimization/time management”; “Efficiency and efficacy”; “No information given/does not see advantages”; “Automation of more administrative, bureaucratic and non-creative processes and tasks”; “productivity”; “Related with the candidate” and finally “Related with the recruiter”.

By receiving feedback from recruiters, it was possible to understand that AI tools can make the recruitment process more efficient, simplifying recruiters' workloads. Assisting in the creation of particular documents, they decrease manual work and improve the efficiency of screening resumes, particularly useful for handling a high number of applications. Having instant access to information from any location ensures constant availability, while enhanced communication speed is achieved through quick response capabilities. AI also helps with screening profiles by removing ones that don't meet job requirements and makes it easier to organize and handle data.

AI tools improve the accuracy and efficiency of everyday hiring duties and candidate assessments. They enhance confidence in making decisions, guarantee rigor in the hiring process, and deliver precise outcomes based on specific criteria and filters. AI uses large data sets to identify the most suitable candidates with precision, preventing any qualified candidate from being missed. It was also stated that these instruments can offer a higher level of accuracy in data collection, which decreases potential mistakes and improves recruitment efficiency in general.

This technology can also enhance access to information, simplifying the task for recruiters to locate necessary resources and optimize different recruitment procedures. Utilizing AI tools can reduce time spent on repetitive mechanical tasks like developing ads, emails, and texts, speeding up the recruitment process, especially in resume and curriculum evaluation and focus on more strategic activities (mentioned by 135 professionals). Recruiters can speed up profile screening by using filters and criteria, improve screening efficiency, and cut down time

spent on sourcing and other recruitment tasks. Furthermore, AI enhances the speed of communicating with candidates, guaranteeing timely replies.

According to 59 professionals from our sample, AI tools enhance the efficiency and effectiveness of recruitment processes, ensuring a smoother workflow. It can systematize information, making it more accessible and organized, and utilize data and algorithms to predict behaviours, helping companies recruit the appropriate candidates.

Despite the many advantages, some recruiters remain sceptical, seeing no benefits at all or being unsure of the long-term effects. While 15 recruiters mentioned that they "don't see any advantages", a few believe there might be short-term benefits and that in the long-term consequences could be detrimental to the profession and companies.

71 recruiters gave their opinion regarding the AI tools automate various steps in the process, and from the 71 feedbacks, 26 mentioned specifically that for "simpler positions, AI tools would help saving time and resources by automating initial resume screening". AI could relief recruiters by creating attractive templates for job postings and emails, standardizes documents, and enhances overall performance through automation.

Additional benefits of AI tools include enhancing comparison abilities, saving time for more valuable tasks, helping to develop new strategies, and improving analysis capabilities. It can offer great assistance and support for everyday tasks, transforming repetitive actions into innovative projects, while also giving an alternative viewpoint and enhancing the decision-making process.

As 33 professionals said, AI tools significantly reduce errors in the recruitment process, preventing human errors due to fatigue or distraction and decreasing human error in general. It can detect errors that humans might miss, improve assertiveness in sourcing, and focus more on technical competencies. AI limits errors in task execution, reduces bias in the recruitment process, and can potentially increase diversity in the process.

AI will enable professionals to focus on supporting talent, improving their capacity to attract talent through technology and innovation. AI tools free up time for tasks like interviews and other recruitment phases that truly asks for human input. Some recruiters believe they will have a better "work-life balance by improving the quality of work, reducing administrative tasks", and freeing up time for engaging in creative endeavours. These tools can help recruiters

by taking care of repetitive tasks, allowing them more time to focus on their main duties and, as some have pointed out, "providing care and assistance to individuals."

For candidates, “AI can offer automated feedback to candidates who are not suitable”, enhancing their experience with consistent automated communication and reduced feedback delays. AI offers a different perspective on candidates, improves the quality of initial candidate approach communications, enhancing their overall experience with timely updates. Some proposes that AI can manage tasks such as addressing policy-related inquiries, allowing HR professionals to focus on strategic endeavours like engaging and inspiring employees, leading to increased satisfaction and success within the organization.

These conclusions highlight the transformative potential of AI tools in recruitment, emphasizing improvements in efficiency, accuracy, speed, and overall process management. While some scepticism exists regarding long-term effects, the immediate benefits for recruiters and candidates are evident, making AI a valuable asset in modern recruitment practices.

R2: What are the current downsides and disadvantages associated with the use of AI in the recruitment process, according to the recruiters?

Based on the feedback from recruiters regarding the use of AI tools, several critical points emerge that should be considered when integrating this technology into the recruitment process. These points highlight the disadvantages provided by the recruiters, offering a comprehensive view of the implications of AI in recruitment process. The categorization process resulted in the information being grouped into the following themes: “Possibility of Error and Lack of Precision and Reliability”; “Ethical Issues”; “Human Interaction and Empathy”; “Related with the candidates”; “Resistance to Change and Adaptation”; “Job Reduction and unemployment”; “Lack of Flexibility”; “Limitations”; “Excessive Dependence”; “AI implementation costs”; “Privacy and Data Protection” and finally “No opinion”.

One of the main disadvantages cited is the possibility of error and the lack of precision and reliability in AI tools. Errors and bugs (mentioned by 49 recruiters) can have significant impacts on the results obtained and mistaken or incomplete data entered into the system and errors related to algorithms can yield unreliable responses. The “lack of critical analysis and insufficient software precision” (27 recruiters) can result in false positives and negatives, holding back the candidate selection process. Additionally, there is concern about the lack of rigor and

absence of data validation, which can lead to the exclusion of good candidates. Some recruiters (14 recruiters) highlighted problems related to poorly constructed algorithms that may fail to identify relevant profiles.

One of the most frequently mentioned themes is the concern with the personalization and humanization of the recruitment process. Sixty-three recruiters often feel that AI, despite its advanced capabilities, still fails to capture the individuality of candidates, mainly because “soft skills are difficult to evaluate with a machine” (mentioned by 25 people), there’s a “lack of emotion and empathy which that make us (humans) unique” (mentioned by 27 people) and leads to “loss of a closer interpersonal relationship with candidates” (12 recruiters). This results in a less humanized and personalized process, where the lack of a human touch can make candidates feel less valued. Recruiters believe that personalization and humanization are essential to maintain positive candidate engagement, a crucial element that AI still struggles to adequately replicate.

Ethical and legal issues surrounding the use of AI are critical. Many recruiters expressed concerns about “bias and discrimination”, as algorithms could perpetuate existing biases if not carefully monitored and adjusted. In addition, there is legal uncertainty surrounding the use of AI, particularly in relation to data protection and the use of candidates’ personal data. Therefore, the implementation of AI in recruitment should be accompanied by strict ethical guidelines to prevent discrimination and ensure compliance with data protection laws. Respondents were concerned about the limitations of AI tools including insufficient information and generalizing information without adapting to specific situations. “AI tends to focus only on technical skills, ignoring important interpersonal skills”. Additionally, there is a centralization of tasks at the source (AI) and incompatibility with different recruitment platforms, which can exclude candidates with diverse or atypical experiences. Recognizing these limitations is essential for effectively and realistically integrating AI into the recruitment process.

Resistance to change is a significant challenge in adopting AI in recruitment. The lack of trust in the system (24 recruiters) and the difficulty of adaptation by managers and employees (16 recruiters) are common obstacles. The need to understand, learn to use new technologies and to change the way they work, can be a demotivating factor. Additionally, excessive dependence on technology (26 recruiters) can lead to a loss of control over decisions and the trivialization of work.

The “potential extinction of jobs” is one of the most serious concerns (mentioned by 43 recruiters). AI can lead to a reduced need for specialized labour and increased unemployment (21 recruiters). The “progressive replacement of people by machines” or algorithms can transform the job market and negatively affect those who enjoy the recruitment process. José Campos (2004) said that while doing a content analysis, its essential to consider the “implicit relevance” topic which is “an important theme that is not repeated in the reports of other respondents, but which in itself holds richness and relevance for the study”. One recruiter stated that it will be necessary “Reskilling for many” professionals, which is the process of “teaching an employee new skills to improve proficiency in their current job or move into an advanced position” (Patrizio, 2023). Reskilling can be a possible solution for a lot of jobs related with the fear of jobs extinction.

Finally, “operational costs of AI implementation” were frequently cited (33 recruiters). Technical and integration issues with existing systems can be common and maintaining AI tools can be expensive and complex. Adopting AI requires significant investment, not only in technology but also in employee training to ensure everyone can use the new tools effectively. AI tools will need to be continually maintained and updated to ensure they continue to be effective and integrate seamlessly with other systems.

In essence, although AI tools provide many benefits like improved efficiency and the ability to handle vast amounts of data, it is crucial to weigh these advantages against the importance of personalization, ethical concerns, and understanding technological and operational constraints. AI should be considered as a helpful tool that adds to, instead of substitutes, for the important function of human recruiters. Ethically incorporating AI in a responsible manner can help address various problems and lead to a more equitable and efficient selection process. Taking a thoughtful and even-handed approach will enable companies to optimize the advantages of AI while maintaining the crucial human touch in hiring, integrating automation with human engagement and analytical thinking.

With so many and different opinions, it's normal for many of them to contradict each other, as is in the case with errors, as some think that AI will reduce the human errors, and some believe that AI will bring much more bias and errors to the process. The same happen when talking about costs, as some told AI will reduce company’s costs and others mentioned AI implementation costs as a disadvantage. With these and others contradictive examples, make it difficult to analyse these results qualitatively.

R3: Do Recruiters intend to use AI tools?

H1: Perceived Usefulness is positively related to the attitude towards the use of AI tools

To test the hypothesis H1, correlations and linear regressions was studied. The correlation coefficient of r=.832 supports a strong positive relationship between the variables and the linear regression analysis reveals that perceived usefulness is a significant predictor of Attitude (R^2 = .649, p < .001). The high t-value and very low *p-value* (< .001) indicate that these results are statistically significant. It's also possible to conclude that the positive coefficient (B = .966) suggests that as Perceived Usefulness increases, Attitude also increases. With these results, it's possible to conclude a strongly influences the attitude towards using AI tools, suggesting that if AI tools are user-friendly and user-useful, recruiters are more likely to have a positive attitude towards them. Therefore, this Hypothesis is supported.

H2: Perceived ease of use is positively related to the attitude towards the use of AI tools.

As noted above, the R value is .536, indicating a moderate positive correlation between perceived ease of use (Med_PEU) and attitude towards AI tools (Med_A). The R Square value of .287 suggests that approximately 28.7% of the variance in attitude towards AI tools can be explained by perceived ease of use. The same can be confirmed through the ANOVA table (Table 13 in Annex B) shows that the regression model is significant ($F_{(1, 353)}$ = 142.433, p < .001), indicating that the model significantly predicts the dependent variable, attitude towards AI tools. In the Coefficients table, the unstandardized coefficient (B) for PEU is .693, with a standard error of 0.058, and a t-value of 11.935, which is significant at p < .001. This positive coefficient indicates that for each unit increase in perceived ease of use, the attitude towards AI tools increases by .693 units, confirming the hypothesis that perceived ease of use is positively related to the attitude towards the use of AI tools. It indicates the strength and direction of the relationship between Perceived ease of use and Attitude, supporting Hypothesis 2.

In fact, if AI tools are perceived as beneficial and useful, recruiters' attitudes towards these tools are positively impacted.

H3: Recruiter Attitude is positively related to the intention to use AI tools

The linear regression analysis reveals that Attitude is a significant predictor of Intention to use ($R^2 = .648$, $p < .001$). The positive coefficient (B = .644) suggests that as Attitude increases, Intention to use also increases. The high t-values and very low *p-values* (< .001) indicate that these results are statistically significant. The correlation coefficient of r=0.80 also supports the strong positive relationship between Attitude and Intention to use. A positive attitude among recruiters towards AI tools strongly predicts their intention to use these tools, indicating the critical role of attitudes in the adoption of AI technologies in recruitment. In this way, this hypothesis is supported: The recruiter attitude is positively related to the intention to use AI tools.

In summary, H1, H2 and H3 are supported. The model supported paths can be found in the Table 7 below.

Hypothesis	Independent variable	Dependent variable	Findings	Conclusion
H1: PU → A	Perceived Usefulness (PU)	Attitude (A)	β = .832 $p < .001$ $R^2 = .649$ $p < .001$	Positively & statistically significant
H2: PEU → A	Perceived Ease of Use (PEU)	Attitude (A)	β = - .536 $p < .001$ $R^2 = .287$ $p < .001$	(Moderate) Positively & statistically significant
H3: A → IU	Attitude (A)	Intention to use (IU)	β = .806, $p < .001$ $R^2 = .648$ $p < .001$	Positively & statistically significant

Table 7- *Results of hypotheses tests*

These findings support the importance of AI tools in recruiting setting. Indeed, perceived usefulness and perceived ease of use of AI tools influences recruiter attitude towards AI, which in turn impacts intention to use. It is important to highlight that overall intention to use AI tools was positive.

5. Discussion

The purpose of this study is to understand the perspective of recruiters regarding the use of artificial intelligence tools in recruitment, looking into the links between perceived ease of use, perceived usefulness, recruiter attitude, and intent to employ AI technologies in recruiting.

The study established a strong positive relationship between perceived usefulness and attitude towards AI tools. Recruiters who perceive AI tools as useful in improving their job performance are more likely to have a positive attitude towards these tools and, therefore, to use the technology. This finding aligns with the author Fred Davis in one of his working papers about TAM (1987), which posits that perceived usefulness is a critical determinant of user acceptance of technology. This goes also along with the findings in the literature by Kelly Sage and her colleagues (2023), that show that usefulness is a fundamental driver and is often the strongest positive predictor for the intentions to use a new technology, particularly AI.

The analysis confirmed that perceived ease of use significantly and positively affects recruiters' attitudes towards AI tools. This means that when recruiters find AI tools easy to use, they develop a more favourable attitude towards them. This result highlights the critical role of usability in technology adoption.

On Davis's study (1987), one of the results appeared to be that the usefulness value was greater than 4 times as much direct influence on attitude as does ease of use (with regression coefficients of .65 Vs .13). Additionally, when compared to usefulness, perceived ease of use has a relatively minor direct effect on attitude, instead influencing attitude indirectly through its rather significant effect on usefulness (Davis, 1987). Even though the value was lower with ease than with usefulness, this was not the case in the present study (.53 Vs .83 respectively). Davis suggests that these results can be explained through the construct of the concept of usefulness, which can reflect considerations of the "benefits" and "costs" of the technology to be used. Ease of use, on the other hand, can be seen as a (not so positive) effort that starts from the cost of using the system from the user's perspective. Although this explanation is valid and may even raise deeper questions about the concepts, a more plausible explanation for the fact that the value for ease was not as high as for usefulness, can be due to the specific characteristics of this sample. Only 25.1% of the total sample is over the age of 41, which may indicate that only these people possibly may find it more difficult to handle the new technology and see it as a difficulty rather than an asset to their daily lives.

One of the conclusions of Kelly Sage and her colleagues (2023) was that perceived ease of use is seen to have a smaller influence on technology adoption than Perceived usefulness, since it is merely relevant to the technical usage of a device. This has become less significant as consumers have gained more familiarity with utilising technology in their daily lives. This, however, does not go in line with the findings of the present study. If this were the case, the correlation and variance values from ease of use to attitude would be much lower.

In discussing the role of "attitude" in the adoption of AI tools in recruitment, it is important to recognize that this variable plays a crucial role in shaping both individual behaviour and organizational outcomes. Attitude, recalling the mentioned definition, is defined as an individual's positive or negative feelings about performing the target behaviour (David, 1989), meaning that a positive attitude towards AI tools increases the likelihood of their intended use. With the achieved results, it is possible to say that recruiters' attitudes towards AI tools significantly predict their intention to use these tools, in general. This relationship underscores the role of attitudinal factors in technology adoption and suggests that fostering positive attitudes towards AI through training and positive experiences can enhance their adoption in recruitment. This aligns with the original Technology Acceptance Model (TAM), which suggests that perceived ease of use and perceived usefulness are fundamental determinants of users' attitudes toward technology, as mentioned.

However, while a positive attitude towards AI can facilitate its adoption, it is crucial to consider the underlying factors that shape these attitudes. Concerns about job displacement, loss of the human touch in decision-making, and ethical implications are also critical elements that influence attitudes toward AI, as it was stated above. Recruiters may feel conflicted, acknowledging the efficiency gains AI offers while simultaneously fearing the loss of their professional roles and the quality of interpersonal interactions that are essential in recruitment. This ambivalence highlights the need for a nuanced understanding of attitude that goes beyond mere acceptance or rejection.

To ensure that positive attitudes towards this technology translate into meaningful and ethical adoption, organizations must address these concerns by promoting transparency, ensuring that AI systems are free from biases, and demonstrating how AI can enhance rather than replace human capabilities. Only by addressing these issues can organizations foster genuinely positive attitudes that support the sustainable and ethical integration of AI into recruitment processes. Thus, a critical examination of the "attitude" variable reveals that it is

not only about openness to technological innovation but also about aligning technology use with broader ethical and professional values.

The variable "intention to use" is a crucial component in the Technology Acceptance Model by Davis, often representing the final stage before actual adoption and usage of a technology and highlights the complexity of technology adoption beyond individual perceptions of usefulness and ease of use. In the context of AI tools in recruitment, this variable serves as a significant predictor of whether HR professionals will integrate these technologies into their workflows or not. While this model (TAM) provides a robust foundation for understanding technology acceptance, recent findings suggest that additional factors such as ethical considerations, trust, organizational culture, and user proficiency need to be integrated into the model to more accurately predict behavioural intentions. This calls for a more nuanced approach that considers both internal attitudes and external influences, ensuring that AI adoption in recruitment is not only efficient and effective but also ethical and aligned with user expectations and organizational values. As AI technologies continue to evolve, adapting and extending TAM to incorporate these broader considerations will be essential for fostering responsible and sustainable technology adoption in recruitment.

This present analysis supports the theory of various authors (Davis, 1987; Venkatesh & Davis, 2000; Davis 1989; Kashive, Powale & Kashive, 2020) that demonstrate that the variables perceived usefulness and perceived ease of use are critical determinants for the acceptance of a new technology (intention to use and the actual use).

6. Conclusions

6.1. Main findings

This study provides important insights into the use/future use of AI in recruitment processes. Respondents recognised the benefits of AI, such as time savings and increased efficiency, but voiced concern about the loss of personal touch and potential job displacement. These findings highlight the complex interaction between AI and HR, implying that, while AI provides useful tools, its ultimate replacement of human decision-making is dubious. It emphasises the importance of a balanced approach to AI integration, including fairness and

transparency on the process and ethical standards. The study's results demonstrate the links between perceived ease of use, perceived usefulness, recruiter attitude, and intention to use, contributing to the expansion body of the existing literature about this topic.

Feedback from recruiters suggests that AI tools are streamlining recruitment by automating manual tasks and improving the efficiency of resume screening, especially for large volumes of applications. Recruiters stated that AI can enhance accuracy in decision-making, speed up communication with candidates, and can offer constant access to data. However, concerns were raised about the technology's precision, with potential errors and a lack of personalization in candidate evaluations, particularly regarding soft skills. Many recruiters expressed ethical worries, citing risks of bias and issues related with data privacy. Some feared that AI could lead to job losses, as automation can replace certain roles in recruitment. While these tools help alleviate repetitive tasks and allow recruiters to focus on more strategic work, many believe that the human element remains crucial, particularly in engaging with candidates. Additionally, implementing AI can be costly, requiring ongoing updates and staff training. Despite these challenges, most recruiters acknowledged the immediate benefits AI brings in reducing errors, improving efficiency, and accelerating recruitment processes, though they emphasized the need for careful oversight.

As Artificial Intelligence came to stay, it’s important to understand that this technology should not replace recruiters; rather, they increase the recruiting process by enhancing time and resource management and making recruitment more cost-effective, particularly when many stages are involved. Recruiters from this sample recognise that these tools provide significant advantages and benefits to their day-to-day job, allowing them to better manage the recruitment process. Companies should be mindful of these limits and work with AI as a supplement rather than a full replacement for human recruiters.

This investigation adds to the literature on AI adoption in recruiting by empirically confirming the links between perceived ease of use, perceived utility, recruiter attitude, and intention to employ AI technologies. The findings highlight the significance of usability and perceived benefits in establishing positive attitudes and increasing the intention to utilise AI tools in recruitment procedures. Organisations can use these insights to more successfully use AI technologies and improve their recruitment tactics. As organisations implement AI-driven solutions, addressing these various perspectives will be critical in designing future recruitment processes, stressing the significance of ethical AI development to harness its potential.

Along with these lines, if the recruiting and selection process becomes more successful and efficient in the future thanks to technological advancements, the HR professional will have more time to focus on human contact with clients and candidates. In the later stages of the recruitment and selection process, the HR professional may dedicate more time to relationship building and stakeholder management. In this case, the HR professional will focus on binding and guiding new employees, ensuring a great applicant experience.

6.2. Practical implications

The findings from the present study have several practical implications. First, in order to improve the usage of AI tools in recruitment, they must be made more user-friendly. User-friendly interfaces and easy functionalities can considerably improve recruiters' perceptions of these tools.

Second, emphasising the benefits of AI technologies in terms of recruitment efficiency and effectiveness can help on the development of positive attitudes and can encourage adoption. This can be accomplished using case studies, demonstrations, and evidence-based presentations and even doing a pilot project using AI tools for a specific time. The consequence is that highlighting the real benefits of AI tools in recruitment procedures can greatly increase their adoption and use.

Finally, to foster good attitudes towards AI technologies, organisations should engage in thorough training programmes that teach recruiters how to use the tools while also demonstrating their benefits, cultivating good attitudes and intents towards using AI techniques.

6.3. Limitations and future research

While this study provides valuable insights, it has some limitations, and it is necessary to address them.

Although the sample of 355 respondents is a relevant number and a consistent sample, the results only concern to Portuguese people, making the sample insufficiently representative. In this sense, it would be interesting to have a larger and varied sample size in the next studies to ensure representativeness and to go into greater detail.

Another limitation in this study goes along with the fact that because it didn't take any external variables into the analysis as some organizational factors, trust or even social impact, it wasn't possible to provide a more complete representation of the determinants of AI adoption in recruitment. For future research, it would be interesting to understand other factors that can influence the recruiter's intention to use AI technology.

Regarding this last one, for future research, what would also be interesting to analyse would be the reasons why recruiters use or are going to use AI tools. Whether it's because they want to or because they're forced to by the company's protocols or rules.

Even though there was a specific section in the questionnaire with a video explaining the general topic (AI in recruitment) with questions about it, there are things that are not controllable, such as making sure that everyone has understood what AI is, whether they have fully understood what AI tools are and whether or not they have actually used them, or even in terms of their experience in recruitment. All this information, which we can't be sure is true and unable to acknowledge the effect these may have had, can influence the results obtained and become a potential confounding variable, which is another limitation of this study.

As another limitation, we can highlight the responses of those who have already use Artificial intelligence tools and those who have never used, so we should have had a more homogenous sample to draw better conclusions from this study. For future research, it would be better to have a deeper understanding on one group of recruiters, before and after going through a project where they work with AI tools for one month, for example.

Finally, due to the large number of different and often contradictory opinions on advantages and disadvantages answered by respondents, from optimism to concerns, it becomes difficult to see the preferable side and come to a conclusion that pleases all recruiters.

References

Aftabi, M., Bash, A., & Rangriz, H. (2022, October). Identifying the consequences and events of artificial intelligence in human resource management. *Research Gate*. Retrieved from https://www.researchgate.net/publication/364243400_Title_Identifying_the_consequences_a

Aggarwal, S., & Kathuria, P. (2023, May). Impact of Artificial Intelligence on Human Resource Management: A Review of Literature. *Journal of International Academic Research for Multidisciplinary*. Retrieved from https://www.researchgate.net/publication/370658730_IMPACT_OF_ARTIFICIAL_INTELLIGENCE_ON_HUMAN_RESOURCE_MANAGEMENT_A_REVIEW_OF_LITERATURE

Al-Alawi, A. I., Naureen, M., Ai-Alawi, E. I., & Ahmed Abdulla Naser Al-Hadad, A. A. (2021). The Role of Artificial Intelligence in Recruitment Process Decision-Making. *International Conference on Decision Aid Sciences and Application (DASA)*. Retrieved from https://ieeexplore.ieee.org/abstract/document/9682320

Albassam, W. A. (2023). The Power of Artificial Intelligence in Recruitment: An Analytical Review of Current AI-Based Recruitment Strategies. *Internation Journal of Professional Business Review, 8*(6). Retrieved from https://www.researchgate.net/publication/371792898_The_Power_of_Artificial_Intelligence_in_Recruitment_An_Analytical_Review_of_Current_AI-Based_Recruitment_Strategies

Amla, M., & Malhotra, M. (2017). Digital Transformation in HR. *International Journal of Interdisciplinary and Multidisciplinary Studies (IJIMS), 4*(3). Retrieved from https://www.researchgate.net/publication/330289647_Digital_Transformation_in_HR

Baldassari, P., & Roux, J. (2017). Industry 4.0: preparing for the future of work. *Gale Academic Onefile, 40*(3). Retrieved from https://go.gale.com/ps/i.do?p=AONE&u=googlescholar&id=GALE|A499598704&v=2.1&it=r&si

Barney, N. (2023). *Gamification*. doi:https://www.techtarget.com/searchhrsoftware/definition/gamification

Berg, A., Buffie, E. F., & Zanna, L. F. (2018, August). Should we fear the robot revolution? (The correct answer is yes). *Journal of Monetary Economics, 97*, 117-148. Retrieved from https://www.sciencedirect.com/science/article/pii/S0304393218302204

Budhwar, P., & Malik, A. (2022). Artificial intelligence – challenges and opportunities for international HRM: a review and research agenda. *The International Journal of Human Resource Management, 33*(6). Retrieved from https://www.tandfonline.com/doi/full/10.1080/09585192.2022.2035161

Campos, J. G. (2004). MÉTODO DE ANÁLISE DE CONTEÚDO: ferramenta para a análise de dados qualitativos no campo da saúde. *Revista brasileira de enfermagem, 53*, 611-614. Retrieved from https://www.scielo.br/j/reben/a/wBbjs9fZBDrM3c3x4bDd3rc/?format=pdf&lang=pt

Cardoso, A., Mourão, F., & Rocha, L. (2021). The matching scarcity problem: When recommenders do not connect the edges in recruitment services. *Expert Systems with Applications, 175*. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0957417421002050

Choudhary, S. (2022). AI in Organizations a Helping hand of HR. *International Journal of Innovative Research in science, Engineering and Technology, 11*(12). Retrieved from https://www.researchgate.net/publication/371577041_AI_in_Organizations_a_Helping_hand_

Clifton, J., Glasmeier, A., & Gray, M. (2020). When machines think for us: the consequences for work and place. *Cambridge Journal of Regions, Economy and Society*, 3-23.

Davis, F. (1987). User acceptance of information systems: the technology acceptance model (TAM). Retrieved from https://deepblue.lib.umich.edu/bitstream/handle/2027.42/35547/b1409190.0001.001.pdf

Davis, F. (1989). Perceived Usefulness, Perceived Ease of use and user acceptance of information technology. *MIS quarterly, 13*(3), 319-340. Retrieved from https://www.jstor.org/stable/249008?origin=JSTOR-pdf

Degryse, C. (2016). *Digitalisation of the economy.* Brussels. Retrieved from https://salus.adapt.it/wp-content/uploads/2019/10/Degryse_Digitalization-and-impagct-on-labour-mrk_ETUI_2016_02.pdf

Dijkkamp, J. (2019). *The recruiter of the future, a qualitative study in AI supported recruitment process (Master's thesis, University of Twente).* Retrieved from https://essay.utwente.nl/80003/1/JorisDijkkamp_MA_BMS.pdf

Esch, P. v., Black, J. S., & Ferolie, J. (2019). *Marketing AI recruitment: The next phase in job application and selection* (Vol. 90). Computers in Human Behavior. doi:https://www.sciencedirect.com/science/article/pii/S0747563218304497

Ghani, M. T., Hamzah, M., Ramli, S., Daud, W., Ramli, T., & Mokhtar, N. (2019). A questionnaire-based approach on technology acceptance model for mobile digital game-based learning. *Journal of Global Business and Social Entrepreneurship (GBSE) , 5*(14), 11-21. Retrieved from http://www.gbse.my/V5%20NO.14%20(MARCH%202019)/Paper-199-.pdf

Gibbs, G. R. (2007). Analyzing Qualitative Data. *SAGE Research Methods*, 38-55. Retrieved from https://www.betterevaluation.org/sites/default/files/Thematic_coding_and_categorizing.pdf

Glikson, E., & Woolley, A. (2020, April). Human trust in artificial intelligence: Review of empirical research. *Academy of Management Annals*, 5-8. Retrieved from https://www.researchgate.net/publication/340605601_Human_trust_in_artificial_intelligence_Review_of_empirical_research_Academy_of_Management_Annals_in_press

Gursoy, D., Oscar Hengxuan Chi, O. H., Lu, L., & Nunkoo, R. (2019, December). Consumers acceptance of artificially intelligent (AI) device use in service delivery. *International Journal of Information Management, 49*, 157-169. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0268401219301690

Horodyski, P. (2023, August). Applicants' perception of artificial intelligence in the recruitment process. *Science Direct, 11*. Retrieved from https://www.sciencedirect.com/science/article/pii/S2451958823000362

Kashive, N., Powale, L., & Kashive, K. (2020, December). Understanding user perception toward artificial intelligence (AI) enabled e-learning. *International Journal of Information and Learning Technology, 38*(1), 1-19. Retrieved from https://www.emerald.com/insight/content/doi/10.1108/IJILT-05-2020-0090/full/html?skipTracking=true

Kelly, S., Kaye, S.-A., & Oviedo-Trespalacios, O. (2023). What factors contribute to the acceptance of artificial intelligence? *Telematics and Informatics , 77*. Retrieved from https://www.sciencedirect.com/science/article/pii/S0736585322001587

Lakhangaonkar, Ubale, D., & Ubale S. (2021). Reinventing RH with AI. *International Interdisciplinary Research Journal*. Retrieved from https://www.researchgate.net/profile/Supriya-Lakhangaonkar/publication/357897630_Reinventing_HR_with_AI/links/6271373c2f9ccf58eb29670b/Reinventing-HR-with-AI.pdf

Liang, Y., Lee, S.-H., & Workman, J. (2019, September). Implementation of Artificial Intelligence in Fashion: Are Consumers Ready? *Sage Journals, 38*(1). Retrieved from https://journals.sagepub.com/doi/10.1177/0887302X19873437

Nguyen, A., & Strazzulla, P. (2024, March). *12 Best Video Interview Software Platforms in 2024*. Retrieved from SelectSoftware Reviews: https://www.selectsoftwarereviews.com/buyer-guide/best-video-interview-software

Ore, O., & Sposato, M. (2022, June). Opportunities and risks of artificial intelligence in recruitment and selection. *International Journal of Organizational Analysis, 30*(6). Retrieved from https://www.emerald.com/insight/content/doi/10.1108/IJOA-07-2020-2291/full/html

Pan, Y., & Froese, F. J. (2023, March). An interdisciplinary review of AI and HRM: Challenges and future directions. *Human Resource Management Review, 33*(1). Retrieved from https://www.sciencedirect.com/science/article/pii/S1053482222000420

Patrizio, A. (2023, September). Reskilling. *Tech Target Network: HR Woftware*. Retrieved from https://www.techtarget.com/searchhrsoftware/definition/reskilling

Pizzi, G., Scarpi, D., & Pantano, E. (2021). Artificial intelligence and the new forms of interaction: Who has the control when interacting with a chatbot? *Journal of Business Research, 129*. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0148296320307499

Priya. (2021, December). Role of Artificial Intelligence in Human Resources Management. *Research Gate*. Retrieved from https://www.researchgate.net/publication/367654666_Role_of_Artificial_Intelligence_in_Hu

RecruitBPM. (2024). doi:https://www.recruitbpm.com/blog/ai-in-recruitment-guide/

Samaradiwakara, G. D. (2014). Comparison of Existing Technology acceptance theories and models to suggest a well improved theory/model. *International technical sciences journal, 1*(1). Retrieved from https://enos.itcollege.ee/~edmund/inf-hw/seminaritoo/itsj-spec-1-1-3.pdf

Sen, S., Kadam, S., & Kumar, R. V. (2023). Role of Artificial Intelligence-Enabled Recruitment Processes in Sourcing Talent. *International Conference on Information Systems and Computer Networks (ISCON)*, 1-5. Retrieved from https://ieeexplore.ieee.org/abstract/document/10112009

Sudiyani, N. N., Sawitri, N. P., Adiandari, A. M., & Perdanawat, L. P. (2019). The Role of Attitude in Mediating the Effect of perceived usefulness on the. *International Journal of Advanced Trends in Computer Science and Engineering, 8*(1). Retrieved from http://repo.unr.ac.id/521/2/%284%29%20T2019%20-%20Q4Sudiyani%2C%20ria%2C%20ade%2C%20virra-IJATCSE%202.pdf

Suki, N. M. (2011). Exploring the relationship between perceived usefulnes, perceived ease of use, perceived enjoyment, attitude and subscibers'intention towards using 3G mobile services. *Journal of Information Technology Management, 23*(1). Retrieved from https://jitm.ubalt.edu/XXII-1/article1.pdf

Surendran, P. (2012). Technology Acceptance Model: A Survey of Literature. *International Journal of Business and Social Research, 2*(4). Retrieved from http://thejournalofbusiness.org/index.php/site/article/view/161/160

Tambe, P., Cappelli, P., & Yakubovich, V. (2019, August). Artificial Intelligence in Human Resources Management: Challenges and a Path Forward. *Sage Journals, 61*(4). Retrieved from https://journals.sagepub.com/doi/10.1177/0008125619867910

Teo, T. S. (2001, May). Demographic and motivation variables associated with Internet usage activities. *Internet Research, 11*(2). Retrieved from https://www.emerald.com/insight/content/doi/10.1108/10662240110695089/full/html

Turner, M., Kitchenham, B., Budgen, D., & Brereton, P. (2008, June). Lessons Learnt Undertaking a Large-scale Systematic Literature Review. *12th International Conference on Evaluation and Assessment in Software Engineering (EASE)*. Retrieved from https://www.scienceopen.com/hosted-document?doi=10.14236/ewic/EASE2008.12

Venkatesh, V., & Bala, H. (2008). Technology Acceptance Model 3 and a Research Agenda on Interventions. *Decision Sciences Institute, 39*(2), 273-315. Retrieved from https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1540-5915.2008.00192.x?casa_token=9E2zjMu92bQAAAAA:21hb4sLLzYjQTsHZw0Ib3vvantMXzD1fLUqVEt3_zh5qf2ATRGpzskJ6gggjpHOCgrqdTBRLuO_uKA

Venkatesh, V., & Davis, F. (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. *Management Science, 46*(2), 186-2004. Retrieved from https://doi.org/10.1287/mnsc.46.2.186.11926

Venkatesh, V., Michael G. , M., B. Davis, G., & Davis, F. (2003, September). User Acceptance of Information Technology: Toward a Unified View. *JSTOR, 27*(3), 425-478. doi:https://doi.org/10.2307/30036540

Annexes

Annex A: Questionnaire

Tese de Mestrado em Gestão de Recursos Humanos e Consultadoria Organizacional

O meu nome é Isabel Braz e estou no 2º ano do Mestrado em Gestão de Recursos Humanos e Consultadoria Organizacional.

Este questionário tem como objetivo estudar alguns aspetos relacionados a utilização de ferramentas de Inteligência Artificial no Recrutamento, por isso este questionário deve ser apenas respondido por recrutadores, diretores de RH e managers do departamento de R&S.
Os resultados obtidos serão utilizados apenas para fins académicos, realçando que as respostas serão anónimas.
Este questionário tem a duração de aproximadamente 4 minutos.
Por favor responda de forma espontânea e sincera a todas as questões. Obrigada desde já pela participação!

Para qualquer questão, por favor contacte imdcb@iscte-iul.pt

* Indica uma pergunta obrigatória

1. **Género:** *

Marcar apenas uma oval.

- ◯ Feminino
- ◯ Masculino
- ◯ Outro
- ◯ Prefiro não dizer

2. **Idade:** *

Marcar apenas uma oval.

- ◯ 18 - 25
- ◯ 26 - 30
- ◯ 31 - 40
- ◯ 41 - 50
- ◯ > 50

3. **Habilitações literárias:** *

Marcar apenas uma oval.

- ◯ Ensino Secundário (12º ano)
- ◯ Licenciatura
- ◯ Mestrado ou Pós graduação
- ◯ Doutoramento
- ◯ Outra: _____

4. **A empresa onde trabalha atualmente presta serviços de Recrutamento e Seleção para outras empresas (clientes)?** *

Marcar apenas uma oval.

- ◯ Sim
- ◯ Não

5. **Que cargo ocupa na sua atual empresa? (escolher o que melhor se adequa)** *

Marcar apenas uma oval.

- ◯ Estagiário
- ◯ Recrutador Júnior
- ◯ Recrutador Sénior
- ◯ Chefe de equipa
- ◯ Diretor do departamento de Recrutamento e seleção
- ◯ Diretor de Recursos Humanos
- ◯ Outra: _____

6. **Há quanto tempo trabalha na área de Recrutamento e Seleção ou tem contacto com a área?** *

Marcar apenas uma oval.

- ◯ < 1 ano
- ◯ 1- 3 anos
- ◯ 4 - 6 anos
- ◯ 7 - 10 anos
- ◯ > 10 anos

7. **Qual é o número aproximado de Currículos que recebe por semana, para fazer triagem?** *

Marcar apenas uma oval.

- ◯ < 15
- ◯ 15 - 30
- ◯ 31 - 45
- ◯ > 45
- ◯ Não realizo este tipo de tarefa devido ao meu cargo

8. **Quantos anúncios de vagas publica por mês, aproximadamente?** *

Marcar apenas uma oval.

- ◯ < 2
- ◯ 3 - 5
- ◯ 6 - 8
- ◯ > 8
- ◯ Não realizo este tipo de tarefa devido ao meu cargo

9. **Já alguma vez usou alguma ferramenta de Inteligência Artificial no seu trabalho?** *

Ex: Teamtailor, HireEZ, Pymetrics, Ideal, ...

Considere Ferramentas de IA para recrutadores, como soluções tecnológicas que utilizam capacidades de inteligência artificial para aprimorar diferentes aspetos e tarefas do processo de recrutamento.

Marcar apenas uma oval.

- ◯ Sim
- ◯ Não

10. **Relativamente à questão anterior, se respondeu que sim, qual/quais ferramentas foram utilizadas por si?**

Inteligência Artificial no Recrutamento

Peço agora que veja o vídeo abaixo antes de prosseguir com o questionário. Certifique-se de dedicar atenção ao vídeo, uma vez que as suas respostas e a minha posterior análise das mesmas, serão baseadas nas informações apresentadas.
Após a visualização do vídeo, serão realizadas algumas perguntas relativamente à informação presente no mesmo.

Inteligência Artificial no Recrutamento

http://youtube.com/watch?v=gNtIzTpwRdY

11. **Qual é o principal objetivo da Inteligência Artificial (IA) na ciência da computação?** *

Marcar apenas uma oval.

- ◯ Criar robôs que trabalhem melhor que os humanos
- ◯ Criar máquinas que "pensam e agem" como os humanos
- ◯ Desenvolvimento de robôs
- ◯ Não tornar claro o papel do humano nas organizações

12. **Para além do processamento de dados, que outras capacidades possui a IA, tal como mencionado no vídeo?** *

Marcar apenas uma oval.

- ◯ Compreensão limitada da informação
- ◯ Dificuldade em gerar resultados
- ◯ Compreensão e interpretação de informação e de dados
- ◯ Ignorar resultados

13. **Como é que as máquinas inteligentes da IA processam os dados para tomar decisões?** *

Marcar apenas uma oval.

- ◯ Através da Intuição
- ◯ Através de Algoritmos
- ◯ Através de Emoções
- ◯ Seleção aleatória

14. **Se houver uma grande dimensão de dados, como é que é influenciada a precisão da IA, de acordo com as informações fornecidas?** *

Marcar apenas uma oval.

- ◯ Não tem qualquer impacto na precisão
- ◯ Diminui a precisão
- ◯ Aumenta a precisão
- ◯ Reduz a necessidade de algoritmos

Secção 3

Esta secção é composta por 17 perguntas cujas respostas são dadas através da seguinte escala: (1) Discordo totalmente, (2) Discordo, (3) Indiferente, (4) Concordo, (5) Concordo totalmente.

15. **A utilização de ferramentas de IA no recrutamento melhoraria o meu desempenho profissional.** *

Marcar apenas uma oval.

	1	2	3	4	5	
Disc	◯	◯	◯	◯	◯	Concordo totalmente

16. **O uso de ferramentas de IA no recrutamento melhoraria a minha produtividade.** *

Marcar apenas uma oval.

	1	2	3	4	5	
Disc	◯	◯	◯	◯	◯	Concordo totalmente

17. **Utilizar as mesmas ferramentas no recrutamento aumentaria a minha eficácia e eficiência no meu trabalho.** *

Marcar apenas uma oval.

	1	2	3	4	5	
Disc	◯	◯	◯	◯	◯	Concordo totalmente

18. **A utilização de ferramentas de IA no recrutamento poupar-me-ia tempo.** *

Marcar apenas uma oval.

	1	2	3	4	5	
Disc	◯	◯	◯	◯	◯	Concordo totalmente

19. **Considero que as ferramentas de IA no recrutamento seriam úteis para realizar as tarefas do meu trabalho.** *

Marcar apenas uma oval.

	1	2	3	4	5	
Disc	◯	◯	◯	◯	◯	Concordo totalmente

20. **Aprender a utilizar as ferramentas de IA no recrutamento seria fácil para mim.** *

Marcar apenas uma oval.

	1	2	3	4	5	
Disc	◯	◯	◯	◯	◯	Concordo totalmente

21. **Seria fácil conseguir que as ferramentas de IA fizessem o que eu quero que façam, ou seja, manuseá-las.** *

Marcar apenas uma oval.

	1	2	3	4	5	
Disc	◯	◯	◯	◯	◯	Concordo totalmente

22. **Teria facilidade em tornar-me hábil na utilização das ferramentas de IA.** *

Marcar apenas uma oval.

	1	2	3	4	5	
Disc	◯	◯	◯	◯	◯	Concordo totalmente

23. **A minha interação com as ferramentas de IA seria clara.** *

Marcar apenas uma oval.

	1	2	3	4	5	
Disc	◯	◯	◯	◯	◯	Concordo totalmente

24. **Considero as ferramentas de IA fáceis de utilizar no recrutamento.** *

Marcar apenas uma oval.

	1	2	3	4	5	
Disc	◯	◯	◯	◯	◯	Concordo totalmente

25. **Utilizar ferramentas de IA no recrutamento é, no geral, uma boa ideia.** *

Marcar apenas uma oval.

	1	2	3	4	5	
Disc	◯	◯	◯	◯	◯	Concordo totalmente

26. **Considero positiva a utilização de ferramentas de IA no recrutamento.** *

Marcar apenas uma oval.

	1	2	3	4	5	
Disc	◯	◯	◯	◯	◯	Concordo totalmente

27. **O uso de ferramentas de IA nas minhas atividades e tarefas diárias tornaria o trabalho mais interessante e apelativo.** *

Marcar apenas uma oval.

	1	2	3	4	5	
Disc	◯	◯	◯	◯	◯	Concordo totalmente

29. **Partindo do princípio de que tenho acesso a ferramentas de IA, tenciono utilizá-las ao longo deste semestre e do próximo.** *

Marcar apenas uma oval.

	1	2	3	4	5	
Disc	◯	◯	◯	◯	◯	Concordo totalmente

30. **Prevejo que utilizarei as ferramentas de IA nos próximos dois anos.** *

Marcar apenas uma oval.

	1	2	3	4	5	
Disc	◯	◯	◯	◯	◯	Concordo totalmente

31. **Tenciono utilizar as ferramentas de IA nos próximos dois anos com a maior frequência possível.** *

Marcar apenas uma oval.

	1	2	3	4	5	
Disc	◯	◯	◯	◯	◯	Concordo totalmente

Vantagens e Desvantagens da utilização de ferramentas de Inteligência Artificial

Para terminar este questionário, pedia que, na sua opinião, indicasse no mínimo 2 vantagens e 2 desvantagens que vê na utilização de ferramentas de Inteligência Artificial no seu dia-a-dia no trabalho.

Annex B: Statistical Results

	Component 1
A utilização de ferramentas de IA no recrutamento melhoraria o meu desempenho profissional.	,85
O uso de ferramentas de IA no recrutamento melhoraria a minha produtividade.	,88
Utilizar as mesmas ferramentas no recrutamento aumentaria a minha eficácia e eficiência no meu trabalho.	,81
A utilização de ferramentas de IA no recrutamento poupar-me-ia tempo.	,78
Considero que as ferramentas de IA no recrutamento seriam úteis para realizar as tarefas do meu trabalho.	,86

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

***Table 8**- Component Matrix Perceived usefulness*

	Component 1
Aprender a utilizar as ferramentas de IA no recrutamento seria fácil para mim.	.800
Seria fácil conseguir que as ferramentas de IA fizessem o que eu quero que façam, ou seja, manuseá-las.	.733
Teria facilidade em tornar-me hábil na utilização das ferramentas de IA.	.845
A minha interação com as ferramentas de IA seria clara.	.844
Considero as ferramentas de IA fáceis de utilizar no recrutamento.	.753

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

***Table 9-** Component Matrix- Perceived ease of use*

	Component 1
Utilizar ferramentas de IA no recrutamento é, no geral, uma boa ideia.	.938
Considero positiva a utilização de ferramentas de IA no recrutamento.	.935
O uso de ferramentas de IA nas minhas atividades e tarefas diárias tornaria o trabalho mais interessante e apelativo.	.885
Gostaria de trabalhar com ferramentas de IA no recrutamento no decurso do meu trabalho, num futuro próximo.	.915

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

***Table 10**- Component Matrix Attitude*

	Component 1
Partindo do princípio de que tenho acesso a ferramentas de IA, tenciono utilizá-las ao longo deste semestre e do próximo.	.872
Prevejo que utilizarei as ferramentas de IA nos próximos dois anos.	.900
Tenciono utilizar as ferramentas de IA nos próximos dois anos com a maior frequência possível.	.929

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

***Table 11**- Component Matrix- Intention to use*

	Mean	Std. Deviation	N
A utilização de ferramentas de IA no recrutamento melhoraria o meu desempenho profissional.	3.66	.973	355
O uso de ferramentas de IA no recrutamento melhoraria a minha produtividade.	3.91	.919	355
Utilizar as mesmas ferramentas no recrutamento aumentaria a minha eficácia e eficiência no meu trabalho.	3.70	.918	355
A utilização de ferramentas de IA no recrutamento poupar-me-ia tempo.	4.19	.783	355
Considero que as ferramentas de IA no recrutamento seriam úteis para realizar as tarefas do meu trabalho.	3.83	.991	355
Aprender a utilizar as ferramentas de IA no recrutamento seria fácil para mim.	3.97	.862	355
Seria fácil conseguir que as ferramentas de IA fizessem o que eu quero que façam, ou seja, manuseá-las.	3.49	.940	355
Teria facilidade em tornar-me hábil na utilização das ferramentas de IA.	3.97	.816	355
A minha interação com as ferramentas de IA seria clara.	3.79	.843	355
Considero as ferramentas de IA fáceis de utilizar no recrutamento.	3.45	.911	355
Utilizar ferramentas de IA no recrutamento é, no geral, uma boa ideia.	3.73	.963	355
Considero positiva a utilização de ferramentas de IA no recrutamento.	3.78	.929	355
O uso de ferramentas de IA nas minhas atividades e tarefas diárias tornaria o trabalho mais interessante e apelativo.	3.52	.995	355
Gostaria de trabalhar com ferramentas de IA no recrutamento no decurso do meu trabalho, num futuro próximo.	3.80	1.023	355
Partindo do princípio de que tenho acesso a ferramentas de IA, tenciono utilizá-las ao longo deste semestre e do próximo.	3.69	1.074	355
Prevejo que utilizarei as ferramentas de IA nos próximos dois anos.	3.82	1.070	355
Tenciono utilizar as ferramentas de IA nos próximos dois anos com a maior frequência possível.	3.62	1.044	355

Table 12- *Descriptive statistics*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	81.885	1	81.885	142.433	<001[b]
	Residual	202.940	353	.575		
	Total	284.825	354			

a. Dependent Variable: Med_A

b. Predictors: (Constant), Med_PEU

***Table 13**- ANOVA test*

Questions regarding the variables in English:

Perceived Usefulness- PU refers to the user's perception of the degree to which using a technology will improve his or her conditions.

1. Using AI-bases tools in Recruitment and selection would improve my job performance in doing my work.
2. Using AI-bases tools in Recruitment and selection would improve my productivity;
3. Using AI-bases tools in Recruitment and selection would enhance my effectiveness in my job.
4. Using AI-bases tools in Recruitment and selection would save me time
5. I would find AI-bases tools in Recruitment and selection useful in my job

Perceived ease of use - PEU indicates the user's perception of the amount of effort (i.e., time and resources committed) to use a system or to introduce/update a piece of technology. The less effort suggests an easier adaptation of new technology.

1. Learning to operate the AI-bases tools in Recruitment and selection would be easy for me
2. I would find it easy to get the AI-bases tools to do what I want it to do
3. It would be easy for me to become skilful in the use of the AI-bases tools
4. My interaction with AI-bases tools would be clear for me.

5. I would find the AI-bases tools easy to use in Recruitment and selection

Attitude

1. Using AI-bases tools in Recruitment and selection is, in general, a good idea
2. I feel positive towards the use of AI-bases tools in Recruitment and selection
3. I believe that using AI-bases tools in my daily activities would make work more interesting
4. I would like to work with AI-bases tools in Recruitment and selection for my future coursework.

Intention of use

1. Assuming I have access to AI-bases tools, I intend to use it throughout this semester and the next
2. I predict I would use AI-bases tools in the next couple years
3. I plan to use AI-bases tools in the next couple years as often as possible