Personnel Review

A systematic literature review on artificial intelligence in recruiting and selection: a matter of ethics

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Abstract

Purpose – Starting from the relevance of ethics to the application of artificial intelligence (AI) in the context of employee recruitment and selection (R&S), in this article, we aim to provide a comprehensive review of the literature in light of the main ethical theories (utilitarian theories, theories of justice, and theories of rights) to identify a future research agenda and practical implications.

Design/methodology/approach – On the basis of the best-quality and most influential journals, we conducted a systematic review of 120 articles from two databases (Web of Science and Scopus) to provide descriptive results and adopt a framework for deductive classification of the main topics.

Findings – Inspired by the three ethical theories, we identified three thematic lines of enquiry for the debate on AI in R&S: (1) the utilitarian view: the efficient optimisation of R&S through AI; (2) the justice view: the perceptions of justice and fairness related to AI techniques; and (3) the rights view: the respect for legal and human rights requirements when AI is applied.

Originality/value – This article provides a detailed assessment of the adoption of AI in the R&S process from the standpoint of traditional ethics theories and offers an integrative theoretical framework for future research on AI in the broader field of HRM.

Keywords Recruitment and selection, Recruiting, Hiring, Staffing, Artificial intelligence, AI, Algorithm, Digital, HRM

Paper type Literature review

Introduction

A February 2022 survey conducted by the Society of Human Resources Management (HRM) found that 79% of employers use artificial intelligence (AI) and/or automation for recruitment and selection (R&S; Friedman, 2023). The potential benefits for organisations that implement this new technology in HRM have increased, especially under the pressure of

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the COVID-19 pandemic, along with the interest of researchers and practitioners in AI, culminating in a growing debate on this theme (Makarius *et al.*, 2020).

Scholars have started to sort and systematise knowledge regarding integrating AI into HRM (Gélinas *et al.*, 2022; Kaushal *et al.*, 2021; Qamar and Samad, 2022; Vrontis *et al.*, 2022). These contributions have focused on the R&S process, which is considered the backbone of HRM systems of any organisation, as one of the most prominent integrations of AI into HRM. In this regard, AI can deliver an enhanced candidate experience that is seamless, simple, and intuitive (Meister, 2019).

More specifically, a recent review contributed to the understanding of the antecedents and outcomes of the use of AI in staffing (Nguyen and Park, 2022) and suggested ethics as a future research avenue for understanding this specific research field. Similar conclusions and suggestions for future research were indicated by Malik *et al.* (2023) in their recent review of the general relationship between AI and HRM. These authors considered the research on ethical aspects of adopting and implementing AI in human resources (HR) as one of the main priorities in the field. Moreover, Hunkenschroer and Luetge (2022) directly investigated the ethical side of the application of AI in the R&S process, concluding that exploring the relevant aspects of AI in R&S is crucial and should be approached through the perspective of ethics theories. Indeed, scholars have noted that a comprehensive analysis of AI within the framework of traditional ethics theories is absent in this literature (Hunkenschroer and Luetge, 2022; Prikshat *et al.*, 2023). Motivated by this research gap identified in the existing literature, the present study aims to answer this question: What are the key relevant aspects of AI in R&S in light of the main ethical theories?

Therefore, inspired by previous studies (Kaushal *et al.*, 2021; Nguyen and Park, 2022; Vrontis *et al.*, 2022), we adopted a systematic literature review approach (Kunisch *et al.*, 2023; Paul *et al.*, 2021; Simsek *et al.*, 2023) to provide a comprehensive review of research on AI in the context of the R&S of candidates in light of ethical theories. Indeed, we systematise our review results using well-known ethical theories in the field of organisational theory and HRM (Cavanagh *et al.*, 1981; Greenwood, 2002, 2013; Winstanley *et al.*, 1996), namely utilitarian theories (which evaluate behaviour in terms of its social consequences), theories of justice (which focus on the distributional effects of actions or policies), and theories of rights (which emphasise the entitlements of individuals). Inspired by these three ethical theories we proposed three thematic lines of enquiry for the debate on the use of AI in R&S.

Accordingly, this review systematises the existing literature on the subject, revealing and exploring the significant theoretical and practical implications of AI in R&S. Moreover, the study offers an integrative framework for addressing ethical issues of AI within the broader field of HRM.

Artificial intelligence in R&S

In the literature, AI is defined as implementing digital technology to develop systems able to perform tasks that traditionally require human intelligence (Tambe *et al.*, 2019). Indeed, AI is constantly evolving, enabling the processing of large amounts of data, identifying patterns, and performing repetitive tasks without human involvement or supervision. Literature mentions various terms to refer to AI, including “algorithm”, “analytics”, and “digital” (Meijerink *et al.*, 2021). When applied in the field of HRM, AI generates an integration of the traditional people-orientated approach with greater emphasis on data and analytics (Gélinas *et al.*, 2022). One of the most prominent applications of this new tool is in R&S, considered the HRM backbone of any organisation. Recruiting is defined as those practices and activities carried out by the organisation to identify and attract a pool of potential applicants (Barber, 1998, p. 5), from which the organisation identifies the best candidate to join the organisation through the subsequent selection process.

AI has undergone substantial advancements in R&S due to persistent research contributions. However, despite the increasing literature on this theme, scholars emphasise the need for meticulous scrutiny of the ethical underpinnings of this technology (Malik *et al.*, 2023; Nguyen and Park, 2022; Qamar and Samad, 2022).

Research protocol

Consistent with recent trends in HRM systematic reviews (Sharma and Chillakuri, 2022; Sokolov and Zavyalova, 2022), we conducted a classifying literature review (Kunisch *et al.*, 2023) to provide a comprehensive review of AI research in the context of R&S. We adopted the Scientific Procedures and Rationales for Systematic Literature Reviews (SPAR-4-SLR, Paul *et al.*, 2021), a protocol suitable for the social sciences (Palumbo *et al.*, 2023).

Method

The method's reliability and systematicity is a cornerstone in our literature review's architecture. Embracing the comprehensive SPAR-4-SLR protocol, our methodology incorporated the essential practical steps outlined by Simsek *et al.* (2023), underscoring that the two approaches are complementary and, when assembled together (Figure 1), significantly enhance the overall reliability of the adopted research protocol.

After *envisioning* our research question, the second step was to define the boundary conditions of the review (*explicating*). In this regard, according to the suggestions of previous reviews on AI in the field of HRM (Kaushal *et al.*, 2021) and earlier works (Qamar and Samad, 2022; Sharma and Chillakuri, 2022; Sokolov and Zavyalova, 2022), this review concerned a comprehensive search using the two major databases: (1) the Web of Science (WoS) Social Science Citation Index; and (2) Scopus, focusing on business and management subject areas. To select papers on the basis of the best relevance in quality rating (Le Brocq *et al.*, 2023; Sokolov and Zavyalova, 2022), we adopted the 2021 Academic Journal Guide provided by the Chartered Association of Business Schools (CABS, 2021) and focused on specific management subcategories as shown in Figure 1.

Central in the subsequent *executing* step, "is the development of a strategy that guides the keyword searches that constitute the bulk of the search process" (Simsek *et al.*, 2023, p. 297). In this third step, based on the literature about the relationship between AI and R&S, we adopted an iterative process to select the keywords for the search string to provide a focused and comprehensive peer-reviewed literature base on AI in R&S (Meijerink *et al.*, 2021). Figure 1 shows the optimal combination of keywords used in WoS, cross-validated and integrated with Scopus results. The study intentionally avoids using ethics-related keywords to ensure a broad exploration of AI in R&S beyond articles specifically focused on ethical aspects. This deliberate omission allows the inclusion of studies addressing AI in R&S, even if they do not explicitly discuss ethical issues, aligning with the research objective. After merging the WoS and Scopus results and removing duplicates, we obtained a data set of 1,492 articles at the end of this step.

During the fourth step, we established the exclusion criteria by evaluating the relevance of the articles' content by considering the definition of the application of AI in R&S. Three exclusion criteria guided the *evaluating step* as shown in Figure 1: off-topic, off-scope and off-focus (Palumbo *et al.*, 2023). A two-stage evaluating procedure was adopted (Simsek *et al.*, 2023): each researcher manually selected documents to include in the analysis by reading the title and abstract, followed by a refined quality assessment based on a full-text review. During the review, some articles aligned with multiple perspectives, such as utilitarian aspects coexisting with discussions on justice and rights. In these cases, we adopted an "on balance" classification, prioritising the prevailing emphasis emerging from the article under

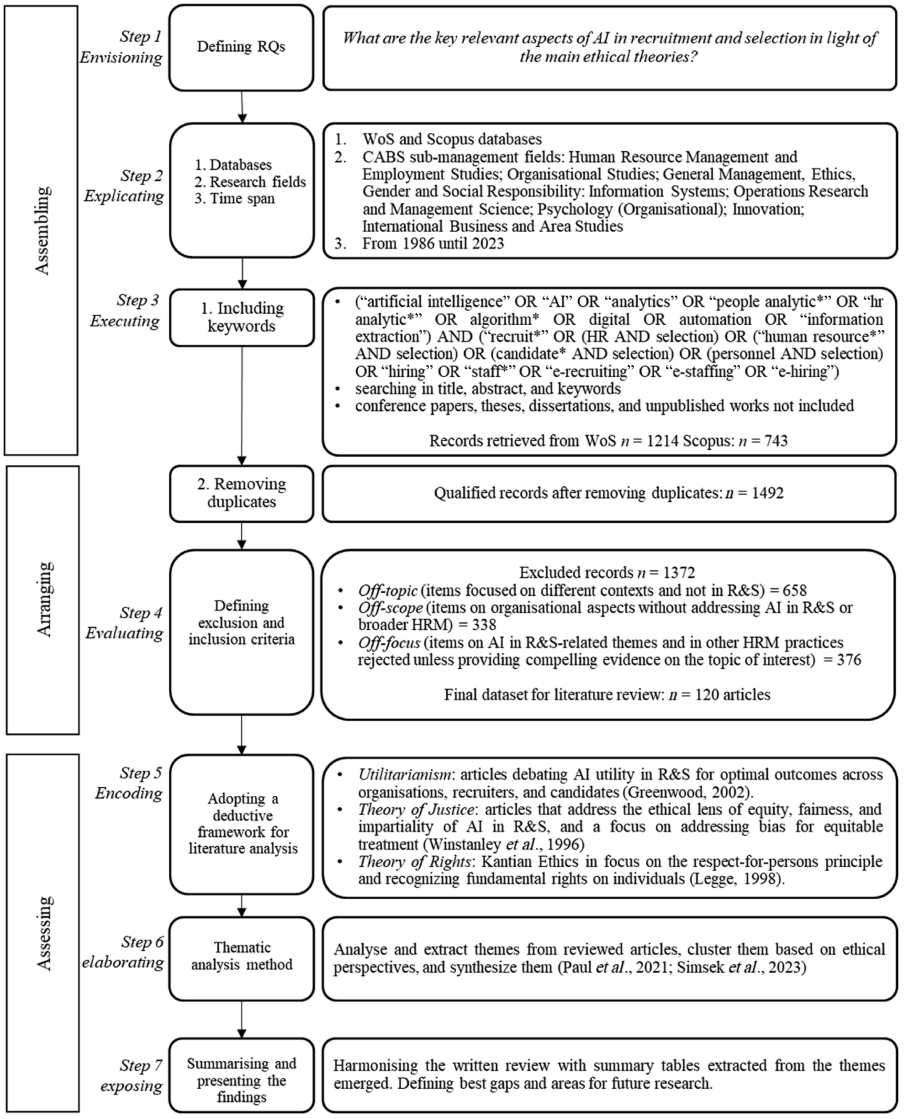


Figure 1.
Research protocol based on SPAR-4-SLR and Simsek *et al.* (2023)

Source(s): Authors' own creation

review. To ensure the best fit of the papers included in our database, we compared the data sets, discussing and solving any disagreements about the composition of the final dataset.

To ensure that this work contains all the relevant and previous review articles on R&S, we also searched for other reviews published in CABS journals regardless of the sub-research field criteria. We found one additional relevant review on this theme (Kaushal *et al.*, 2021), which we thus included in the final database. After an ultimate screening of the entire corpus

of selected articles to ensure the best relevance of the documents, the final data set was composed of 120 papers.

The subsequent stage of our systematic literature review involved the *encoding*. Aligned with our research question regarding the comprehension of pivotal facets of AI in R&S within prevalent ethical theories, we adhered to the methodology employed in previous studies investigations (Schumann, 2001). Specifically, the most effective way to grapple with ethical issues is to deductively apply a framework of the main theories (Simsek *et al.*, 2023) that have been examined and used to analyse ethical issues in other aspects of human life (Hunkenschroer and Luetge, 2022).

In this regard, the literature about the ethics in business in general, and in HRM in particular, can be summarised around three main ethical theories proposed by Cavanagh *et al.* (1981) and also discussed by Winstanley *et al.* (1996) and Greenwood (2002, 2013): utilitarian theories, theories of justice and theories of right.

The utilitarian theory asserts that the virtue of actions or behaviours is established exclusively through their outcomes. It introduces the principle of generating maximal benefit for the largest portion of society (Legge, 1998). In the context of HRM, this ethical perspective is contingent upon demonstrating outcomes that maximise utility. Expanding on this, based on Greenwood (2002), our approach to encoding articles from a utilitarian perspective is centred on the utility of AI in R&S for those involved, namely the organisation, recruiters and the candidates foremost.

The theory of justice (Rawls, 1971) is based on principles such as equity, fairness, and impartiality. Within the realm of HRM, these principles offer a robust framework for evaluating the ethical underpinnings of organisational practices, ensuring equitable treatment among the employees (Cavanagh *et al.*, 1981; Winstanley *et al.*, 1996). Finally, the third main theory refers to the Kantian view of ethics. Based on the respect-for-persons principle, Kant's ethical theory (1964) stipulates that individuals should always be treated as ends in themselves, not merely as a means to an end. This doctrine insists on respecting human beings due to their inherent moral dignity, transcending conditional value (Legge, 1998). Known as the theory of rights, it asserts that fundamental human rights, applicable in various contexts, including HRM, should be upheld in all decision-making (Cavanagh *et al.*, 1981).

As for the *elaborating* steps, we analysed and extracted themes from the articles under review, clustering them according to the above ethical perspectives and synthesising them (Paul *et al.*, 2021; Simsek *et al.*, 2023), as shown in Table 1.

Finally, the *exposing* step represents the culmination of our systematic literature review, providing a comprehensive delineation of our findings and insights while identifying gaps and delineating areas for future research.

Results

Descriptive results

Considering some descriptive results before presenting the literature review results allows having a prior snapshot of the phenomenon under investigation. The analysis of the publication trend provides a picture of the evolution of research on R&S focused on AI and presents the trends in this field (Figure 2).

Before 2019, few articles discussed AI in R&S. The pivotal year was 2020, marked by increased digitalisation due to the challenges posed by the COVID-19 pandemic. This shift prompted a surge in literature exploring new approaches to remote work and human resource management, resulting in a notable increase in publications in subsequent years.

Figure 3 shows the distribution based on the CABS (2021) research fields adopted as selection criteria in our review.

Authors	Year	Sample keywords	Dominant theme	Line of ethical enquiries
Bohmer and Schinnenburg	2023	– Advantages and disadvantages	Benefit of AI in R&S	Utilitarianism
Chen	2023	– Process efficiency – Stakeholders perceptions		
da Costa *et al.*	2023	– Process efficiency – Cost saving		
Gelinas *et al.*	2022	– AI advantages and disadvantages		
Giermindl *et al.*	2022	– AI advantages and disadvantages		
Gonzalez *et al.*	2022	– Familiarity applicants whit AI		
Hooper *et al.*	1998	– Time efficiency – Cost efficiency		
Indarapu *et al.*	2023	– ML utility – Candidate assessment efficiency		
Jatoba *et al.*	2023	– Decision-support systems		
Kaushal *et al.*	2021	– Process efficiency		
Kaushal *et al.*	2023	– AI adoption		
Kilic *et al.*	2020	– Rationality and objectivity in hiring decision		
Langer *et al.*	2021	– Support in DM		
Malik *et al.*	2023	– Time Efficiency – Cost Efficiency		
Malik *et al.*	2022	– Personalised and individualised employee experiences – Information process efficiency		
Malik *et al.*	2023	– AI advantages		
Marks	2022	– Alghoritms and human collaboration		
Nguyen and Park	2022	– Process efficiency		
Niehueser and Boak	2020	– Speed and efficiency of the work processes		
Ore and Sposato	2022	– Company appeal for applicants – Full candidate outreach		
Pan and Froese	2023	– Process efficiency		
Potocnik *et al.*	2021	– Impact of digitalisation		
Prikshat *et al.*	2023	– Optimisation		
Qamar *et al.*	2021	– Time efficiency – Cost efficiency		
Vrontis *et al.*	2022	– Process efficiency		
Wang *et al.*	2021	– Increased Applicant Experiences – Enhanced organisation attractiveness		
Zhang *et al.*	2021	– big data utility		
Kot *et al.*	2021	– AI supporting Employer reputation		
Islam *et al.*	2022	– Context-specific factors – Behavioural intention to adopt	Importance of contextual factors	
Kim v	2021	– Factors determining technology adoption		
Kshetri	2021	– Context characteristics and conditions		
Pan *et al.*	2022	– Importance of contextual factors		

Table 1.
SLR elaboration scheme

(*continued*)

Authors	Year	Sample keywords	Dominant theme	Line of ethical enquiries
Allal-Cherif *et al.*	2021	– Chatbots and recruitment process optimisation	Optimising Recruitment process	
Barducci *et al.*	2022	– Information extraction efficiency		
Black and van Esch	2020	– AI-enabled recruiting		
Black and van Esch	2021	– AI-enabled recruiting tools – Efficient candidate sourcing		
Bondielli and Marcelloni	2021	– AI-enabled recruiting tools		
Brandt and Herzberg	2020	– Linguistic Inquiry and Word Count and application success prediction		
De Mauro *et al.*	2018	– ML for mapping candidates' skills		
Eckhardt *et al.*	2014	– AI-enabled recruiting		
Fritts and Cabrera	2021	– Alghoritms and humans collaboration		
Fumagalli *et al.*	2022	– Humans as more error prone evaluators than algorithm		
Gethe	2022	– Enhanced Result Quality		
Gupta *et al.*	2018	– Recruitment process optimisation		
Holm	2014	– AI-enabled recruiting		
Koivunen *et al.*	2022	– Chatbot to increase attraction		
Malinowski *et al.*	2008	– Automated pre-selection		
Martinez-Gil *et al.*	2020	– Process trasparency		
Oberst *et al.*	2021	– Expert Recommendations Preferred over Algorithms		
Pessach *et al.*	2020	– Machine learning: high accuracy and interpretability		
Posthumus	2019	– Data analytics for recruitment		
Sharif and Ghodoosi	2022	– Blockchain for recruitment		
van Esch and Black	2019	– social media and recruiting		
van Esch *et al.*	2019	– Intention to apply for a job		
Vardarlier and Ozsahin	2021	– Social media for recruiting and branding processes		
Wesche and Sonderegger	2021	– Job-seekers pre-process perceptions		

(*continued*)

Table 1.

Authors	Year	Sample keywords	Dominant theme	Line of ethical enquiries
Balli and Korukoğlu	2014	– Automated selection decision support framework	Optimising Selection process	
Basch *et al.*	2022	– The usefulness of AVI		
Bhargava and Assadi	2023	– Better predictors of performance and fit using algorithms in interview		
Celik *et al.*	2009	– Fuzzy multi stage decision-making framework		
Collis *et al.*	1995	– Paper and pencils vs computer-based test		
Dulebohn and Johnson	2013	– HR metrics and analytics selection		
Dursun and Karsak	2010	– Fuzzy multi-criteria decision-making framework		
Hickman *et al.*	2021	– Cross-validated accuracy		
Kim and Heo	2022	– Applicants' perspective on AI interviews		
Koch-Bayram and Kaibel	2023	– AI vs humans		
Kochling *et al.*	2023	– Improved validity in interview		
Koenig *et al.*	2023	– Human-Rater Comparable AI Superiority		
Langer *et al.*	2019	– People's reaction to automated interviews		
Langer *et al.*	2020	– Automatic evaluation and consequences		
Langer *et al.*	2017	– People reactions to digital interviews		
Lee *et al.*	2022	– Predictive analytics for efficient decision-making		
Leutner *et al.*	2021	– Video- and game-based assessments		
Liu *et al.*	2023	– Lower social presence in digital interview		
Lukacik *et al.*	2022	– AVIs reactions and behaviours		
Michelotti *et al.*	2021	– Face-to-face vs videoconference for personality trait assessments		
Mirowska	2020	– Information about the selection process		
		– Impact on application intentions and intentions to pursue		
Pampouktsi *et al.*	2021	– ML supporting meritocratic personnel selection		
Polychroniou and Giannikos	2009	– Selection process optimisation		
Shet and Nair	2022	– HR analytics for selection efficiency		
Suen *et al.*	2019	– AVIs vs SVIs		
Thompson *et al.*	2023	– Human-rater comparable with AI		
		– Assessment validity		
Woods *et al.*	2020	– Criterion validity		
Mirowska and Mesnet	2022	– Candidates' expectations and reactions on selection process		

Table 1. (*continued*)

Authors	Year	Sample keywords	Dominant theme	Line of ethical enquiries
Budhwar *et al.*	2023	– Risk related to AI	AI bias	Justice
Kelan	2023	– Human bias vs AI bias		
Lavanchy *et al.*	2023	– human-only vs algorithm-assisted human bias		
Pethig and Kroenung	2023	– Gender bias and discrimination		
Rodgers *et al.*	2023	– Biases, such as gender, age, race, school attendedetc.		
Simon *et al.*	2023	– Textual bias		
Zhang *et al.*	2023	– Reducing subgroup differences		
Soleimani *et al.*	2022	– Limit biased decisions		
Tilmes	2022	– Biases against marginalised groups		
Kochling *et al.*	2021	– Protected groups		
		– Gender and ethnicity bias		
Pessach and Shmueli	2021	– Privileged group selection bias		
Yarger *et al.*	2020	– Subgroups bias		
Suen and Hung	2023	– Applicants' trust in the technology	Trust perceptions	
Feldkamp *et al.*	2023	– Trust		
		– Moral judgement		
Figueroa-Armijos	2023	– Organisational trust		
et al.		– Social influence		
Langer *et al.*	2023	– Trustworthiness: ability, integrity, and benevolence		
Kares *et al.*	2023	– Trust violation		
da Motta Veiga *et al.*	2023	– Trust		
		– Organizational attractiveness		
Lee and Cha	2023	– Explainability and Interaction in AI adoption		
Bankins	2021	– Various justice perceptions	Justice perceptions	
Koch-Bayram *et al.*	2023	– Fairness perceptions		
Folger *et al.*	2022	– Procedural Justice perception		
Langer *et al.*	2021	– No process information vs process information		
		– No process justification vs process justification		
Noble *et al.*	2021	– Procedural justice		
		– Interpersonal justice		
Acikgoz *et al.*	2020	– Applicants' perceptions of justice		
Tambe *et al.*	2019	– Fairness and accountability		
Renier *et al.*	2021	– Reactions to erring algorithms vs human		
Kochling and Wehner	2023	– Perceived fairness		

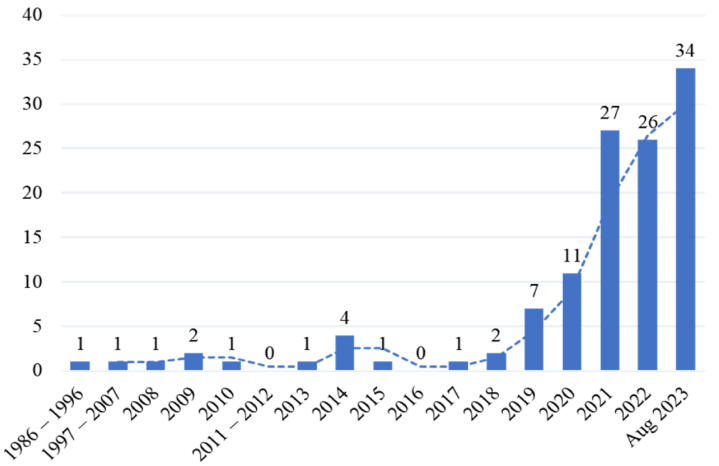
(*continued*)

Table 1.

Authors	Year	Sample keywords	Dominant theme	Line of ethical enquiries
Demir and Gunaydin	2023	– Candidates' data on Social media	Cybervetting	Rights
da Motta Veiga and Figueroa-Armijos	2022	– Candidates' Social media profiles		
Berkelaar and Buzzanell	2015	– Cybervetting – Candidates' privacy		
Berkelaar	2014	– Cybervetting – Transparency expectations		
Todoli-Signes	2019	– GDPR – Collective governance of data protection	Data protection	
Koivunen *et al.*	2023	– Requesting detailed data vs Respecting privacy		
Hunkenschroer and Luetge	2022	– Privacy and Informed Consent		
Yam and Skorburg	2021	– Human Rights Impact Assessment	Rights violation	

Table 1.

Source(s): Authors own creation



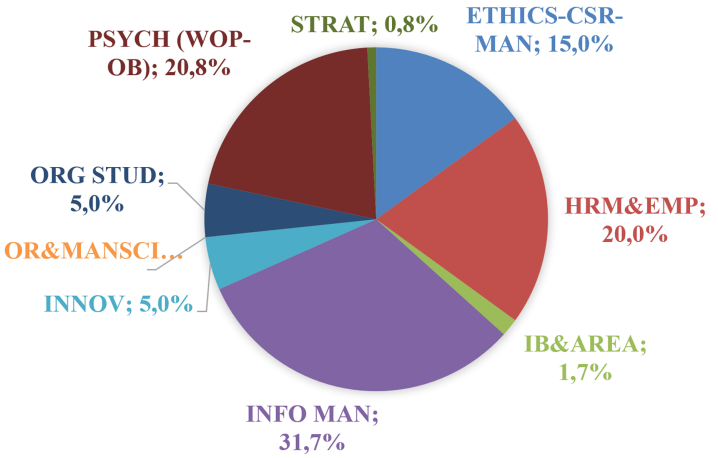
Source(s): Authors' own creation

Figure 2.
Publication trends of articles on recruitment and selection focused on AI

AI in R&S is studied across diverse journal fields, with "Information Systems" leading at 32% of articles. "Psychology (Organisational)" is the second field, while "Human Resource Management and Employment Studies" ranks third, emphasising insights for HR professionals on the advantages and disadvantages of AI in R&S.

Review results: an interpretative framework

The theoretical approaches explained in the method section offer the opportunity to frame the literature about AI in R&S around three main lines of ethical enquiries: (1) the utilitarian view – the efficient optimisation of R&S through AI; (2) the justice view – the perceptions of



Note(s): OR&MANSCI = Operations Research and Management Science; STRAT = strategy; IB&AREA = International Business and Area Studies; ORG STUD = Organisational Studies; INNOV = Innovation; ETHICS-CSR-MAN = General Management, Ethics, Gender and Social Responsibility; HRM&EMP = Human Resource Management and Employment Studies; PSYCH (WOP-OB) = Psychology (Organisational); INFO MAN = Information Systems
Source(s): Authors' own creation

Figure 3.
CABS field of articles included in the database

justice and fairness related to AI techniques; and (3) the rights view – the respect for legal and human rights requirements when AI is applied.

According to the above thematic lines, we systematised the articles in our review to create a constructive debate on this topic. This systematisation is summarised in Table 1, which offers a comprehensive overview of the literature supporting each theme presented in the subsequent pages.

The utilitarian view: the efficient optimisation of R&S through AI. Some early applications of AI in R&S occurred in the military sector (Hooper *et al.*, 1998). Over two decades since these initial applications, the debate about the benefit of the application of AI in HRM (Gélinas *et al.*, 2022; Malik *et al.*, 2023; Vrontis *et al.*, 2022) has become a trending topic. This includes the benefit from the application R&S processes, discussed in the 29 articles of Table 1 (Allal-Chérif *et al.*, 2021; Nguyen and Park, 2022; Ore and Sposato, 2022).

The literature agrees that, in the field of HRM, R&S is the dominant domain involved with the application of AI (Malik *et al.*, 2023; Vrontis *et al.*, 2022). The main benefits relate to cost reduction, the possibility of accessing more applicants, getting quicker responses, increased positive perceptions of the company by applicants (Vrontis *et al.*, 2022), and enhancing the evaluation validity (Thompson *et al.*, 2023). Specifically, Koenig *et al.* (2023) demonstrated that machine learning (ML) can assess candidates' narrative responses to assessment questions as accurately as humans but with greater efficiency. Another study demonstrated that AI is believed to provide efficiency by automating ordinary screening tasks, allowing recruiters to spend more time on strategy formulation and implementation (Ore and Sposato, 2022). Moreover, Kot *et al.* (2021) demonstrated the significant relationship between perceived AI quality, AI adoption, and employer reputation.

Another critical topic that explicitly emerged in five papers included in Table 1, is the context in which this technology is adopted. In this regard, Pan *et al.* (2022) confirmed the

importance of government support, that relevant technological resources are essential for AI adoption, and simplifying AI's technical complexity is encouraged. In addition, research has called attention to the importance of contextual elements to understand the impact of this technology in the complex sociotechnical system in which it is implemented (Bankins, 2021), such as global south economies (Kshetri, 2021), and developed countries (Islam *et al.*, 2022).

Focusing on recruitment, Allal-Chérif *et al.* (2021) compared four case studies from different organisations adopting various digital technologies such as social networks, MOOCs, serious games, chatbots, and big data analysis matching systems for talent identification, selection, and retention purposes. Their findings suggest that integrating AI in recruitment facilitates a more comprehensive evaluation of emotional intelligence, fosters greater alignment with moral values, and enhances employee engagement. Consequently, this integration is posited to contribute to financial and social sustainability within organisations.

The above advantages have nurtured the interest of HRM researchers in AI-enabled recruiting due to their higher speed and efficiency in traditional screening and assessment practices compared with traditional practices (Black and van Esch, 2020). The theme of "Optimizing Recruitment Process" is explored in 25 articles in Table 1. This literature suggests that suggesting that AI-enabled recruiting systems can help companies access a wider and more diverse talent pool (Black and van Esch, 2020; Van Esch and Black, 2019) and bypass search firm fees cheaply, accessing hundreds of millions of passive candidates with profiles on social media platforms (Vardarlier and Ozsahin, 2021).

However, most of the contributions to this topic come from the automation literature, which focuses on developing chatbots, machine learning, and mathematical modelling to support the best fit between the candidate and the position the organisation offers (Martinez-Gil *et al.*, 2020). Automation techniques specialising in developing information extraction from resumés allow more candidates to be considered. They foster both person–job fitting for any job position (Barducci *et al.*, 2022), and person–team fit, namely the fit between an individual and the team members with whom the individual is supposed to work (Malinowski *et al.*, 2008).

Regarding optimising the selection process, this theme is discussed in 28 articles in Table 1; the literature has mainly focused on applying AI to the candidates' interviews (Kim and Heo, 2022). Studies compare digital and in-person interviews in candidate reactions and rater evaluations, revealing similarities and differences in results (Langer *et al.*, 2019; Suen *et al.*, 2019). In general, applicants react negatively to digital interviews due to concerns about privacy, authenticity, limited interpersonal communication (Langer *et al.*, 2017), and perceived lack of control during this interview type (Langer *et al.*, 2019). In addition, studies found that an asynchronous mode can decrease the candidates' perceptions of the impression they can make and the effect this may have on evaluating their competencies, thus penalising their chances of being hired (Suen *et al.*, 2019). As a result, using asynchronous interviews to preselect applicants may still have negative consequences for organisations, which may be perceived as less attractive when using these interviews instead of online tests or online application documents (Basch *et al.*, 2022).

Moreover, despite acknowledging the superior objectivity of AI evaluation, Mirowska and Mesnet (2022) demonstrated that participants expressed a desire for the maintenance of human elements in the evaluation process, seemingly preferring "the devil they know" (human biases and intuition) rather than the one they do not know (AI algorithm).

The above results confirm that applicants need to be informed and aware of the AI approach taken by the organisation (Köchling *et al.*, 2023). In addition, organisations need to consider not only the kind of information they present but also the total amount of information offered to increase fairness and the perception of privacy being respected

(Langer *et al.*, 2021). These considerations open avenues for exploring the theme through the next lines of inquiry.

The justice view: the perceptions of justice and fairness related to AI techniques. The second ethical line of enquiry about the application of AI in the R&S process encompasses the potential biases of the algorithms implemented in these HR practices, involving justice and fairness concerns. Our review highlights AI bias as an emerging dominant theme through the justice lens, discussed by 13 articles in Table 1. Different algorithm pathways may influence the strategies used by HRM decision-makers (Rodgers *et al.*, 2023). As for humans, AI algorithms might be affected by a selection bias because they are trained with data from a privileged group only (i.e. high socio-economic status, Pessach and Shmueli, 2021). Consequently, it would lead to high levels of unfairness against candidates that belong to subgroups based on race (Köchling *et al.*, 2021), gender (Pethig and Kroenung, 2023) and disabilities (Tilmes, 2022).

To overcome these AI biases, Soleimani *et al.* (2022) proposed a model of knowledge sharing between HR personnel and AI developers to tackle AI selection biases in recruitment systems. Indeed, to improve the ML models, AI developers need to engage with HR managers and employees in the same or similar roles, who thus are familiar with job functions and required criteria (Rodgers *et al.*, 2023; Soleimani *et al.*, 2022).

Another crucial aspect explicitly emerging in 7 papers listed in Table 1 is trustworthiness (Kares *et al.*, 2023), encompassing reliability and credibility. Trust depends on more than just effectiveness and efficiency; it is primarily rooted in mostly on ethical (Langer *et al.*, 2023) and moral (Feldkamp *et al.*, 2023) considerations. By fostering trust in applying AI in the staffing process, organisations can become more attractive and fulfilling workplaces (da Motta Veiga *et al.*, 2023).

Finally, 13 studies in Table 1 have explored the theme of justice perceptions in AI-driven hiring processes. These investigations primarily focus on distributive justice, examining candidates' perceptions of AI's fairness in hiring decisions. Additionally, procedural justice is addressed by studying the potential for discrimination and bias in AI algorithms during candidate evaluations (Bankins, 2021). Other studies of interpersonal justice have dealt with the role of humans in the selection process (Noble *et al.*, 2021), and informational justice researchers have focused on candidates' perceptions of explanations received about evaluation criteria, the interview process, and resulting hiring decisions (Langer *et al.*, 2021). In general, studies emphasise the impact of the type of interviews, particularly two-way communication and justice dimensions, on applicant reactions to AI in recruitment processes (Acikgoz *et al.*, 2020; Noble *et al.*, 2021).

The rights view: the respect for legal and human rights requirements when AI is applied. A final ethical line of enquiry about AI in R&S refers to the accountability of these technologies regarding the protection of individual privacy and the transparency of staffing decisions, with particular attention paid to the legal effects that these decisions consequently produce for candidates regarding discrimination against them.

In this regard, an emerging topic addressed by 4 papers of Table 1 is the employers' use of informal online sources for decisions, known as cybervetting (da Motta Veiga and Figueroa-Armijos, 2022; Demir and Günaydın, 2023). Cybervetting practices highlight a shift in the social contract, which prescribes normative expectations for workers' digital visibility and data usage (Berkelaar, 2014). While a Kantian approach promotes fulfilling expectations of mutual transparency, human dignity, and universal application, even in cybervetting, asymmetrical expectations of transparency exist. Candidates anticipate transparency in employers' communication regarding cybervetting practices. However, they do not hold the same expectation for transparency from the cybervetting process itself, as they perceive it as not ensuring ethical transparency (Berkelaar, 2014). On the other side, from the employers' perspective, the strength of workers' online information lies in the higher availability of work

and non-work information, such as interests, hobbies, interpersonal interactions, religious/political views, relationship/parental status, and sexual orientation. However, this information leads to varied assessments of job candidates' competence, character, and motivation (Berkelaar and Buzzanell, 2015).

In this regard, a relevant topic addressed by two articles in Table 1 discussing AI in R&S is rights violation. Yam and Skorburg (2021) suggested that organisations must identify the potential rights violations their hiring algorithms can cause against candidates. Among these, the authors extensively discussed the "Five Human Rights" of job applicants, including the rights to equality and non-discrimination, privacy, free expression, and free association.

Five papers (Table 1) surfed the adjacent line of enquiry of "Data protection". In this regard, Todolí-Signes (2019) analysed the safeguarding protections of employees against discrimination established in the European Union's General Data Protection Regulation (GDPR). In his article, the author described the protections ensured by the GDPR and the requirements it makes for those who use AI to make decisions about hiring in terms of transparency. Nevertheless, the existing legal framework emphasises the individual legal protection of workers as citizens, a focus that might prove insufficient to guarantee the safeguarding of workers' rights, especially considering the inherent power imbalance between employers and employees. In this regard, Todolí-Signes (2019) underlined that legal issues are particularly linked to AI-based interviews in their phenomenological contribution. At present, job-seekers have no right to demand disclosure of the algorithm's working procedure, and developers of AI interviews have no obligation to comply with such disclosure norms because no legal and institutional rules have been defined. In this regard, governmental regulations are needed to protect job-seekers, companies, developers, and especially candidates.

Discussion

Building upon recent calls emerging from the literature, this work aimed to address the relevant aspects of AI in the R&S process through the lens of prominent ethical theories (Hunkenschroer and Luetge, 2022; Prikshat *et al.*, 2023), namely the utilitarian theories, theories of justice and theories of rights (Cavanagh *et al.*, 1981; Greenwood, 2002, 2013; Winstanley *et al.*, 1996).

The consequent systematisation of our review into three lines of inquiry allowed us to debate AI in R&S through the main findings detailed in the results section. Table 2 summarises the key issues for each line of inquiry, along with their theoretical and practical implications, which will be discussed in this section. Finally, based on this discussion, we offer an integrative theoretical framework for future research on AI in the broader field of HRM.

The utilitarian view: main issues, theoretical and practical implications

Looking at the utilitarian point of view of Table 2, our results underlined that AI contributes to the optimisation and efficiency of the R&S process through the faster and more efficient elaboration of a massive amount of candidates' data. Nevertheless, the review results of previous pages suggest that the related advantages consider the organisations' point of view, overlooking the main consequences of this technology on the other party involved in the processes: the candidates. Studies have indicated candidates' tendency to avoid applying for jobs when AI supports the R&S processes (Mirowska and Mesnet, 2022). In addition, it is noteworthy that AI in recruitment often streamlines the process for the organisation by selecting a candidate pool that aligns with the set of defined criteria for the job, thereby

Ethical theories	AI in recruiting and selection: main line of ethical enquiries	Main issues	Theoretical avenues for future development	Practical implications
Utilitarian theories	*The utilitarian view:* the efficient optimisation of R&S through AI	• Improving organisational efficiency • Optimising the R&S processes and recruiters' activities • These technologies should ensure the optimisation of the techniques for organisations' interests and the other entities involved in the process, namely, candidates	• Sociotechnical perspective	• Ethics in AI-powered R&S can enhance organisational attractiveness • HRM professionals and designers must collaborate to develop algorithms that support effective and informed decision-making
Theories of justice	*The justice view:* the perceptions of justice and fairness related to AI techniques	• Procedural justice: AI algorithms might be affected by selection bias • Distributive justice: Trustworthiness • Informational justice: communication quality in terms of effectiveness, clarity, and accuracy in the exchange of information about R&S using AI	• Separating justice and fairness as research constructs can aid AI management in R&S	• Justice: organisational codes of conduct should address and regulate the critical ethical and moral AI-related issues in HRM, improving trustworthiness • Fairness: It is necessary to enhance the organisational communication procedures
Theories of rights	*The rights view:* the respect for legal and human rights requirements when AI is applied	• Cybervetting • "Five Human Rights" of job applicants • General Data Protection Regulation (GDPR)	• Cross-fertilisation among various theoretical perspectives, such as work sociology, HRM, and law research fields can lead to a greater understanding of AI in R&S • The right view might be adopted as a framework to explore the impact of AI in the R&S of "Gig workers"	• Transparency when adopting cybervetting • It is important to find a balance between the competing ethical principles of transparency with privacy and confidentiality • Human rights impact assessment • Enhancing the efficiency of laws and regulations relating to the use of AI in HRM.

Source(s): Authors own creation

Table 2. Ethical decision-making using AI in recruitment and selection: main issues and implications for research and practice

excluding many potential candidates. This suggests that the efficient optimisation of these practices for organisations, thanks to AI, might be to the detriment of candidates' optimisation of interests in job-seeking. In this regard, researchers and practitioners should consider the different interests at play in the process to advance the integration of AI in R&S. These technologies should ensure the optimisation of the techniques both for organisations' interests and for the other entities involved in the process, namely, candidates, consistently valuing their potential.

From a theoretical point of view, the sociotechnical perspective represents a supporting line for future investigations of this topic because it highlights the advantages that can result from the combination of technology and people (Shrestha *et al.*, 2019), as research demonstrated the same levels of trust in hybrid systems compared with human-only support (Kares *et al.*, 2023). In this regard, it is essential to understand how AI affects organisational roles and relationships, which become more complex. Sociotechnical capital, the successful collaboration between AI technology and people, is critical to firms' long-term competitiveness (Makarius *et al.*, 2020).

Regarding the implications of this ethical approach, considering the potential benefit of AI, and given that organisations need to remain competitive globally, the adoption of automation in management practices will continue to increase. Nevertheless, there is a risk that businesses may seek automation in R&S for short-term financial gain while ignoring greater macro-effects on their main stakeholder – first of all, the candidates (Koch-Bayram and Kaibel, 2023). Listening to the voices of potential employees can help organisations improve their image and reputation. More specifically, the attractiveness of an organisation implementing AI in the recruitment process influences applicants' likelihood to apply. Candidates seem to be more accepting of AI support for CV and résumé screening if adequately informed in advance (Koch-Bayram and Kaibel, 2023; Köchling *et al.*, 2023), as they see human recruiters as error-prone and biased in this phase. Nevertheless, their acceptance diminishes regarding AI assistance in interviews (Koch-Bayram and Kaibel, 2023; Köchling *et al.*, 2023), whereby the error committed by an algorithm generated less acceptance and more negative feelings compared with human error.

In general, implementing AI without further explanation to candidates compared with a human condition diminished organisational attractiveness and the intention to proceed with the application process. Therefore, showcasing and communicating how the organisation utilises AI in their R&S enhances candidates' ethical perceptions of these practices, thus representing a lever to improve organisational attractiveness.

Moreover, because algorithms can learn from the input data but are not capable of judging and making decisions, a necessity arises for collaboration between HR professionals and AI developers, which could benefit both in terms of improvement, adaption, and learning to make better hiring decisions (Soleimani *et al.*, 2022). Although AI is considered a tool to legitimise an objective decision-making power over R&S, it does not feel the pressure of power as a human would perceive; neither does it pose the problem of decision-making bias. Despite its potential benefits in mitigating human recruiter bias in favour of objectivity, AI introduces a distinct challenge concerning algorithmic bias. The technical tool cannot capture critical elements but collects the information it needs from others. Therefore, the tool does not provide a neutral and perfectly objective basis for decision-making, especially regarding decision-making power. This is consistent with Cavanagh *et al.* (1981), who argued that "decision-makers may be only in partial control of a certain decision and thus unable to use a specific ethical criterion" (p. 371). Decisions based on AI processing have consistently partial control over the information processed. It follows that, although managers make the final decision about candidates based on AI processing, designers generate the AI algorithm tool (Soleimani *et al.*, 2022), set the processing criteria, and thus shape the consequent results. The consequence is that although AI legitimises the decision-making power of managers

through the objectivity of algorithms in data analysis, the indirectly dominant power over the decision is that of designers, who set the operating criteria of the algorithm for hiring decisions.

All the above considered, the collaboration between HR managers, who are familiar with job functions and required hiring criteria, and developers of AI, who design the criteria of AI processing, can contribute to the strengthening of valuable AI systems to support the creation of effective sociotechnical capital for the firm.

The justice view: main issues, theoretical and practical implications

Table 2 also suggests that using AI in the R&S process not only introduces efficiency benefits and trade-offs but also raises significant ethical questions, particularly regarding justice in various aspects of this construct (Colquitt, 2001). In this regard, automated systems, though effective and efficient, may encounter challenges in engendering a comparable level of trust or mistrust as human decision-making, especially in ethical (Langer *et al.*, 2023) and moral considerations (Feldkamp *et al.*, 2023), due to the apparent absence of evaluative ability or transparency within automated systems.

Moreover, machine learning models are designed to make decisions and predictions based on patterns identified in large data sets, resulting in potential selection bias (Pessach and Shmueli, 2021) and unfair treatment. As a result, procedural justice is crucial, as AI algorithms have the potential to discriminate and be biased in the candidate evaluation process (Bankins, 2021). Interpersonal justice involving the role of humans in the selection process (Noble *et al.*, 2021) and informational justice regarding the clear communication of the evaluation criteria, interview process, and hiring decisions (Langer *et al.*, 2021) are emerging aspects related to candidates' justice perceptions.

Consistent with the tendency in organisational justice research, the studies in our review used the terms *justice* and *fairness* interchangeably, whereby one is the synonym for the other (Mirowska and Mesnet, 2022): the fairness perceptions about AI systems applications in R&S involve the ethical aspect that is concerned with people's equal access and distribution of rights (Varma *et al.*, 2023); in other words, it is a justice issue. Nevertheless, from a theoretical point of view, considering the multidimensional debate of AI applications, we argue that a more concise distinction between justice and fairness might offer new and different insights for future research. Goldman and Cropanzano (2015) differentiated justice from fairness concepts, proposing the former as referring to "events in the work environment that are morally required and involve normative standards" and the latter as related to "a subjective assessment of these events and whether the events as implemented are morally praiseworthy" (p. 317). This distinction might be fruitful for future research advancements in AI exploration in R&S and the overall HRM field.

This theoretical distinction would have also practical implications. First, the specific focus on AI organisational justice in R&S as a distinct construct from fairness perceptions might contribute to practice in structuring appropriate organisational codes of conduct addressing and regulating the critical ethical and moral AI-related issues in HRM.

Second, exploring fairness could serve as a valuable direction for future research into AI perceptions among diverse actors engaged in hiring processes. This perspective line of inquiry, employing a combination of quantitative and qualitative methods across various organisational settings, could provide further insights into the relevance of organisational transparency. Organisational communication transparency necessitates a clear and detailed description of the AI methodology in R&S. This comprehensive disclosure is essential for making candidates fully cognisant of the criteria, legal prerequisites, and outcomes associated with the use of AI systems in R&S. In this way, as considered above, organisations might highlight the potential benefits that a candidate gains in the selection

process through AI rather than only describing what AI will involve in the R&S process (Tursunbayeva *et al.*, 2022), thus breaking the barrier of perceived unfairness bias of AI techniques.

The right view: main issues, theoretical and practical implications

Finally, respect for legal and human rights is another important issue of Table 2, as emerged in our review. When adopting AI in the R&S processes, this main theme is even more critical in light of the emerging employers' use of informal online sources for hiring decisions, known as cybervetting (da Motta Veiga and Figueroa-Armijos, 2022; Demir and Günaydın, 2023). This practice occurs without workers' knowledge or consent. As a result, the greatest criticism is the perceived invasiveness and/or unfairness of this practice by applicants, leading to decreased acceptance rates and potential legal claims. In this regard, the absence of specific regulations in the law allowing the collective protection of employees' interests has inspired scholars to create a specific regulation for the protection of workers' data and rights, such as the international human rights law proposed as a consistent and universal standard (Todolí-Signes, 2019). Ensuring legal and human rights compliance is crucial when using AI for R&S processes, as it is the foundation of any HR data policy (Tursunbayeva *et al.*, 2022). According to our review, research suggests that algorithms might not only cause harm to human fundamental rights against candidates but also result in discrimination and disrespect of moral rights (Varma *et al.*, 2023), which laws need to protect. It is even more critical regarding cybervetting (da Motta Veiga and Figueroa-Armijos, 2022; Demir and Günaydın, 2023), presenting organisations with dual challenges. Leveraging digital platforms, such as LinkedIn, organisations must not only communicate transparently about decisions involving cybervetting but also navigate the balance between the ethical imperative of transparency and the equal principles of privacy and confidentiality. It underscores the complex landscape organisations encounter while capitalising on the flexibility of digital tools.

Through the absence of specific regulations in the current law, scholars have taken the initiative to propose a specific regulation aimed at protecting the data and rights of workers based on international human rights law that has the potential to become a consistent and universal standard. This shows us that even in the face of challenges, we can always find ways to protect the interests of workers and ensure their rights are safeguarded (Todolí-Signes, 2019).

Despite these relevant propositions, from a theoretical perspective, further empirical research is needed to identify, update, strengthen, and adapt policies that effectively manage AI's processes, effects, and potential outcomes in recruiting and selecting candidates (Kim and Heo, 2022). By doing this, future studies might enrich the current knowledge base by adopting a cross-fertilisation approach that involves different lenses of research, such as work sociologists, HRM, systems engineers, and law researchers, who could contribute to offer a more overarching perspective of the adoption of AI into the R&S process, and more generally in the field of HRM.

Furthermore, the rights view of ethics would help comprehend the challenges the workforce poses on digital platforms, commonly called "gig workers" (Duggan *et al.*, 2020). Given the prevalent involvement of gig workers in the AI-driven recruitment processes, it becomes essential for future research to delve into the strategies through which gig workers can enhance their employability.

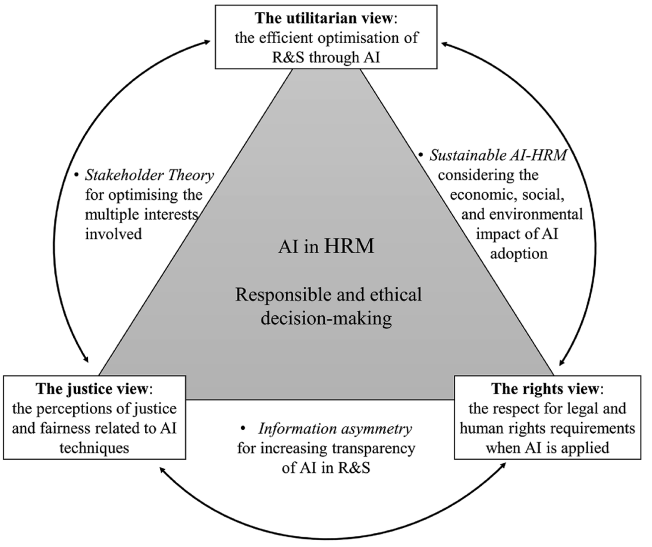
In this regard, from a practical point of view, organisations might benefit from improved instruments able to address the respect for job applicants' rights in the context of R&S through AI techniques (such as the Algorithmic Impact Assessments, Yam and Skorburg, 2021). Policymakers might better identify and define the conditions determining the legal boundaries regarding the latitude of decisions made by AI systems in the R&S of workers, in addition to a generic one for all citizens.

Widening perspectives: AI in HRM through a framework for responsible and ethical decision-making

This study has navigated the complex landscape of AI implementation in R&S. Acknowledging the prevalence of the utilitarian perspective in both research and practice, we advocate for a more comprehensive approach that considers the broader ethical framework encompassing justice and rights. This shift is imperative for effectively managing the tensions inherent in, for example, the potential benefits of reducing human recruiter bias versus the drawbacks of algorithmic bias, as well as the trade-offs between time-saving advantages and the risk of excluding qualified candidates based on pre-established criteria. These tensions necessitate a more balanced exploration to ensure a holistic understanding of the implications of AI not only in R&S but also within the broader HRM.

An integrative framework, as shown in Figure 4, not only aligns with the multifaceted nature of the challenges posed by AI in R&S but also serves as a foundation for responsible and ethical decision-making in the broader HRM. As we move forward in integrating AI into HRM practices, it is crucial to recognise the interconnectedness of the three ethical perspectives investigated in this review and navigate them judiciously to foster sustainable and equitable outcomes for organisations, candidates, and society at large. Indeed, the discourse in the preceding pages on the theoretical implications within each prevailing theme prompts us to suggest theoretical connections for forthcoming research on AI in HRM. In doing so, we reinforce the theoretical starting point for building a solid, responsible AI theory and better supporting and guiding organisations, policymakers, and societies in general about applying this revolutionised technology.

As depicted in Figure 4, theoretical connections could potentially intertwine the three dominant perspectives for AI responsible and ethical decision-making into the broader HRM: Stakeholder Theory, the Sustainable framework of AI in HRM, and the Management of Information Asymmetry in HRM.



Source(s): Authors' own creation

Figure 4.
AI in HRM responsible and ethical decision-making

The Stakeholder theory (Parmar *et al.*, 2010) offers a valuable perspective that helps link different ethical approaches while illuminating how increased reliance on AI affects the interests of various parties and the relationships companies share with them (Wright and Schultz, 2018). By adopting a stakeholder-centric approach within HRM, future research could play a role in mitigating instances where shareholder interests supersede those of employees, thus involving and enhancing perceptions of procedural and distributive justice (Greenwood, 2002; Guerci *et al.*, 2014).

Furthermore, stakeholder theory could potentially enrich the literature by interconnecting with research on sustainable HRM (Lopez-Cabrales and Valle-Cabrera, 2020). In the context of our research topic, sustainable HRM pertains to the ethical and conscientious incorporation of AI into HRM systems, practices, and policies. Future research within this framework might ensure the presence of a resilient workforce that enhances the organisation's sustainable competitive advantage, all while considering the economic, social, and environmental ramifications of these initiatives, as well as the adherence to legal requirements and respect for human rights.

From our review results of rights and justice perspectives, the need for more transparency of AI adoption in R&S is emerging. In this regard, involving information asymmetry management in future HRM research would contribute to increased transparency (Bergh *et al.*, 2019), thus improving AI's responsible and ethical HRM decision-making framework. Indeed, the concept of information asymmetry would be considered an additional linchpin for building bridges between the different perspectives investigated in this review. Based on Bergh *et al.* (2019), within the domain of HRM, future investigations might contribute to mitigating information asymmetry concerning AI by promoting increased transparency between organisations and individuals while ensuring the protection of sensitive data. Furthermore, this line of research has the potential to yield improved outcomes of AI in HRM on both individual and organisational fronts. At the individual level, this could manifest in heightened perceptions of fairness, greater respect for individual rights, and optimising interests for all involved parties in the HRM process. Meanwhile, at the organisational level, benefits may include optimising organisational outcomes, enhanced perceptions of justice, and adherence to legal requirements, thereby facilitating the implementation of responsible and ethical decision-making practices.

Taking into account all the aforementioned promising avenues and themes emerging in this review, it is essential to underline that the thematic lines of enquiry proposed represent a valuable integrative research framework for other HRM practices in general, always keeping in mind that the application of AI in HRM is a matter of ethics, and ethics is a matter of humans.

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