Artificial Intelligence and its ability to reduce recruitment bias

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Abstract

Artificial intelligence is transforming the landscape of Human Resource Management (HRM), altering conventional methods and elevating the recruitment process for companies. The conventional approach to hiring can be incredibly time-intensive, often stretching over several weeks to sift through all applications. This process can be daunting for recruiters, who are tasked with reviewing numerous resumes. AI steps in to streamline this process by rapidly sifting through a large number of applications, identifying the most suitable candidates, and providing concise overviews of their qualifications. This not only saves recruiters time but also allows them to concentrate on improving the candidate experience and attracting top talent. AI operates around the clock, ensuring the recruitment process remains active and effective even when recruiters are not on duty. Moreover, AI can help mitigate bias, when utilized correctly, it can facilitate more equitable hiring decisions by focusing on relevant skills and experiences rather than personal biases. This article explores the multifaceted role of AI in mitigating recruitment bias, AI algorithms use objective data and set criteria to reduce unconscious bias during initial screening. This approach helps ensure that job seekers are evaluated based on qualifications and merit, rather than personal characteristics.

1. Introduction

Artificial Intelligence (AI) holds the promise of significantly transforming the hiring process by tackling and diminishing the biases that have traditionally swayed decisions on who to hire. A study involving 296 companies shows that the complexity of AI is often seen as a barrier to its adoption, while a strong grasp of technology and supportive regulations make it more feasible to use. Importantly, the specific traits of AI, the size of the company, and the sector it operates in do not greatly influence the choice to implement AI. Additionally, the costs associated with transactions play a role in moderating the use of AI, affecting both the technological skills of the company and the difficulties presented by the complexity of technology. Indeed, a LinkedIn survey on Acara found that 44 percent of job seekers view the quick screening of resumes as the main advantage of AI in the hiring process. The manual review of resumes can unfairly disadvantage women, minorities, and older candidates, making the use of AI a more practical solution. AI can help reduce bias, and efforts like those by OpenAI aim to make AI fairer and more ethical by creating systems that are transparent and can be adjusted, similar to the safety features in cars. To fully benefit from these advantages, it's crucial to develop and apply AI systems that are regularly reviewed and improved to ensure they meet ethical standards and promote diversity and inclusivity in the hiring process.

This study delves into the complex function of AI in lessening hiring prejudice. AI systems employ unbiased data and establish standards to minimize implicit bias in the early stages of the hiring process. This method aids in guaranteeing that applicants are assessed on their skills and worth, instead of their personal traits. The conversation also touches on the ethical issues that come with using AI in recruitment, including concerns about transparency, responsibility, and the possibility of algorithmic biases. A major ethical issue with AI in recruitment is the risk of bias and unfairness. AI systems

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are trained on historical data, which might reflect past hiring practices and societal biases. (Bogen and Rieke, 2018) break down the recruitment process into four stages: sourcing, screening, interviewing, and selection. A comprehensive look at the advantages and disadvantages of AI in recruitment is provided, highlighting benefits such as the ability to craft job descriptions, respond to candidate queries via chatbots, and automatically set up interviews.

The article also explores how AI can assist in conducting literature reviews to improve understanding and decision-making in recruitment strategies. The initial step in a literature review is to define the research questions and main ideas (Templier and Paré, 2018). Researchers should also determine if their research question is novel and significant (Müller-Bloch and Kranz, 2015). This involves checking if other studies have already addressed the same question and if their work adds significant value (Rivard, 2014). Lastly, strategies for addressing the risks associated with AI are outlined, emphasizing the importance of ongoing monitoring and adjustments to ensure that AI applications are in line with ethical standards and organizational objectives.

Objectives

- To study the AI and its ability to reduce bias in recruitment
- To understand the ethical concerns while using AI in recruitment of employment
- To analyse the role of AI in literature review
- To examine the pros and cons of using AI in recruitment
- To know the role of AI in Management of recruitment risk

2. AI And Its Ability to Reduce Bias in Recruitment

- Through the analysis of recruitment AI, it is found that the growing body of literature on AI ethics and algorithmic bias that foregrounds how AI shapes and is shaped by gender and race, as well as how gender and race are produced in the daily operations of AI systems (Weber & Bath, 2007; Strengers & Kennedy, 2020).
- By mid-April 2020, just a few months after the COVID-19 pandemic began, a survey by Gartner, Inc. involving 334 HR leaders revealed that 86% of companies were starting to use new virtual technologies in their hiring processes (Gartner, 2020). As lockdown measures were expected to continue, the use of artificial intelligence (AI) was on the rise in various areas, and those involved in recruitment were unhappy with the conventional approaches. Consequently, HireVue observed a 614% surge in the use of AI for hiring by their clients in Japan (HireVue n.d.).
- Double-check AI predictions: Someone should review AI suggestions to accept, veto or examine them further. One body of research suggested a 50% chance of AI automating all jobs within 120 years, but it failed to account for nuances like checking for bias.
- A group of AI experts, such as OpenAI and the Future of Life Institute, is currently developing a set of guidelines to ensure AI is ethical and equitable, meaning it benefits everyone (Ahmed, 2018).
- A fundamental guideline is that AI should be engineered in a way that allows for audits to identify and eliminate any biases. This process should be similar to the safety checks performed on new vehicles before they are driven (Mujtaba, 2019). If the technology fails to meet these standards, it must be repaired before it can be used on a large scale.
- It's surprising that companies openly acknowledge that only a small fraction of the countless applicants they receive are actually considered. Technologists and legislators need to collaborate to develop tools and regulations that make it both feasible and obligatory to review every candidate throughout the hiring process. (FraiJ, J., & László, V., 2021)
- The National Institute of Standards and Technology (NIST) carried out a study that examined facial recognition software from over 100 developers across 189 organizations, including Toshiba, Intel, and Microsoft. Discussing the concerning findings, Patrick Grother, one of the researchers, notes: "Although it's generally inaccurate to make sweeping statements about all algorithms, our research indicates that there are significant demographic disparities in the majority of the algorithms we looked at."
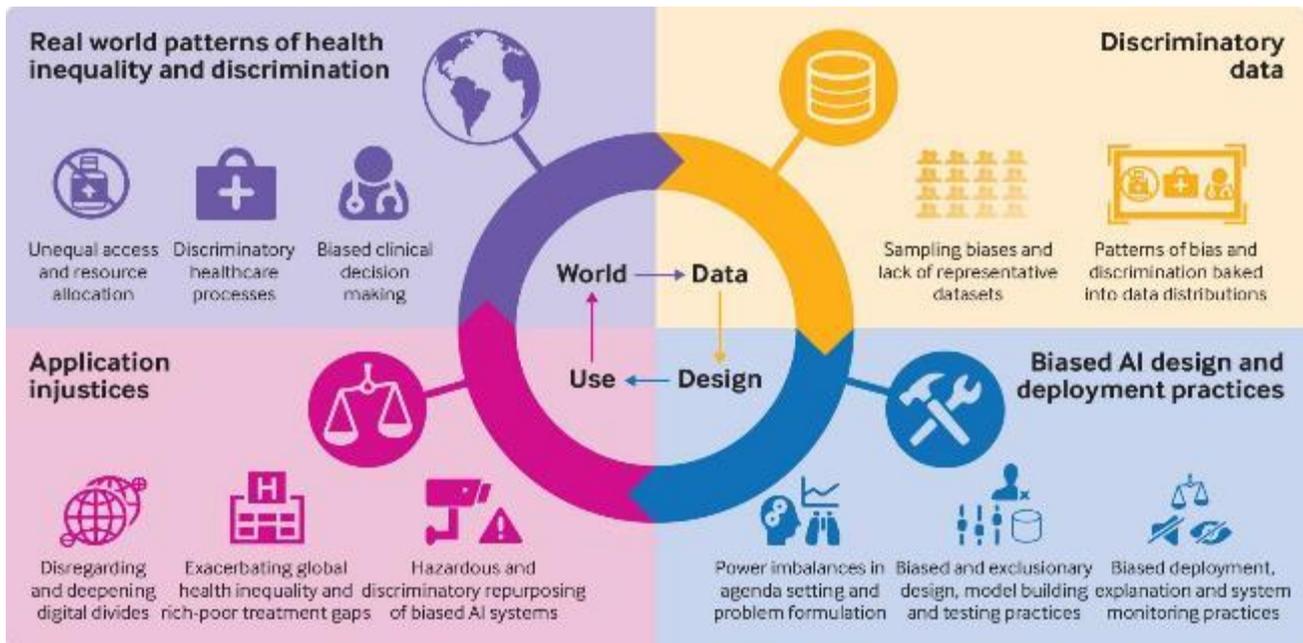
Figure 1 Interconnectedness and the Ways How Biased AI Systems Can Perpetuate and Exacerbate These Issues

The above figure presents a visual representation of the interconnectedness between real-world patterns of health inequality and discrimination, and the ways in which biased AI systems can perpetuate and exacerbate these issues.

2.1. Key components

- **Real World Patterns of Health Inequality and Discrimination:** This section highlights the existing disparities in access to healthcare, discriminatory healthcare processes, biased clinical decision-making, and the lack of representative datasets, which contribute to patterns of bias and discrimination baked into data distributions.
- **World Data:** This central element emphasizes the importance of data in AI systems and how the quality and representativeness of data can significantly impact the fairness and equity of AI-driven solutions.
- **Design, Use, and Application Injustices:** This section explores the various stages of AI development, from design to deployment, and how biases can be introduced or amplified at each stage. It includes power imbalances in agenda setting, biased and exclusionary design practices, biased deployment, and a lack of transparency in explanation and system monitoring.
- **Discriminatory Data:** This section highlights the role of discriminatory data in perpetuating biases and discrimination in AI systems. It emphasizes the importance of addressing biases in data collection and processing to ensure fair and equitable outcomes.

It emphasizes the need for critical awareness of the potential for bias in AI systems and the importance of addressing these biases at all stages of development and deployment. It calls for a more equitable and inclusive approach to AI development to ensure that these technologies benefit everyone, regardless of their background or socioeconomic status.

3. Sources of Fairness and Non-Discrimination Risks in AI

- **Implicit Bias:** Unconscious prejudice against certain groups, which can influence decisions without awareness.
- **Sampling Bias:** When sample data does not accurately represent the broader population, skewing results.
- **Temporal Bias:** Models that work well now may fail in the future due to unaccounted changes over time.
- **Over-Fitting:** Models that perform well on training data but poorly on new, unseen data due to excessive adherence to training specifics.
- **Edge Cases and Outliers:** Data points that fall outside the training data range, including errors (missing or incorrect values) and noise (disruptive data).

4. AI Recruitment Relies on Data-Driven Decisions

The process of hiring through artificial intelligence depends on making choices based on data, which naturally have fewer prejudices compared to the decisions made by people. Through examining huge quantities of information, artificial intelligence can spot patterns and trends that might not be noticeable to recruiters who are human (Raghavan et al., 2020).

This capability allows AI to make objective decisions based on empirical evidence rather than subjective opinions (Albert, 2019). For instance, AI can highlight candidates who might have been overlooked due to unconventional career paths or gaps in employment, ensuring a more inclusive selection process.
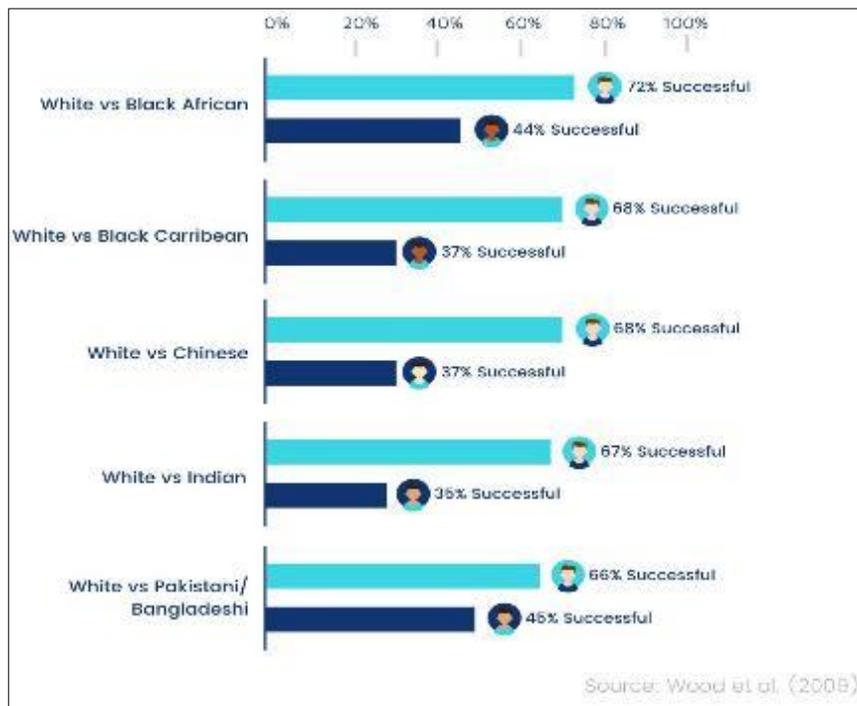
Figure 2 Discrimination by Ethnic Group

In studies on hiring practices, researchers found that:

- White candidates were favoured in about **47% of cases**.
- Indian candidates had to send twice as many applications to get the same number of callbacks as white-named candidates.
- Equal treatment occurred in **35% of cases.**
- Ethnic minorities were favoured in **18% of cases.**

the London School of Economics took this study further - combining it with another field study - a part of a larger European project conducted in 2016/2017.

which was part of a larger European project, confirmed that ethnic minority candidates still faced significant discrimination in the hiring process. As a result, they often rely more on their social networks to find job opportunities. The differences in hiring outcomes for various ethnic groups are largely attributed to socioeconomic factors, which can be directly measured.

## 5. Ethical Concerns While Using AI in Recruitment Process

Artificial Intelligence has emerged as a substitute for human intelligence, impacting the lives of billions worldwide. This research project will concentrate on technologies designed to manage a critical aspect of human resources: recruitment. The investigation revealed three scholarly articles that utilized a theoretical framework for AI recruitment, thereby

establishing a theoretical basis for further discussion:

i. (Simbeck, 2019) drew upon ethical frameworks from various fields, including medicine, robotics, and AI, and applied these concepts to the realm of human resources. She suggested the adoption of essential ethical principles from these fields when integrating new AI technologies into HR analytics. These principles included privacy and confidentiality, the opportunity to opt out, institutional review, transparency, and respect for the evolving nature of personal growth.

ii. (Yarger et al., 2020) incorporated feminist perspectives and methodologies, advocating that these should guide the creation of AI hiring systems. Feminist insights highlighted how algorithms might inadvertently disadvantage historically marginalized groups if equity is not considered in their design. The authors introduced a feminist design justice framework, which includes prompts that encourage AI system designers to engage in a process that supports an ethic of equity.

iii. (Rąb-Kettler and Lehnervp, 2019) examined AI recruiting through a humanistic lens, emphasizing the importance of placing individuals at the forefront. They argued that technology and automation could be utilized in a manner that enhances the recruitment experience for both recruiters and applicants.

Additionally, it was noted that employers must assure job applicants that AI-powered tools are free from discrimination and protect privacy.

According to a UNESCO report, women constitute only 22% of the AI workforce. The underrepresentation of women in the field leads to gender biases and stereotypes being perpetuated in AI technologies. For instance, virtual personal assistants like Siri, Alexa, and Cortana are often defaulted as female, a deliberate choice that reflects how AI might continue to reinforce gender bias in society.
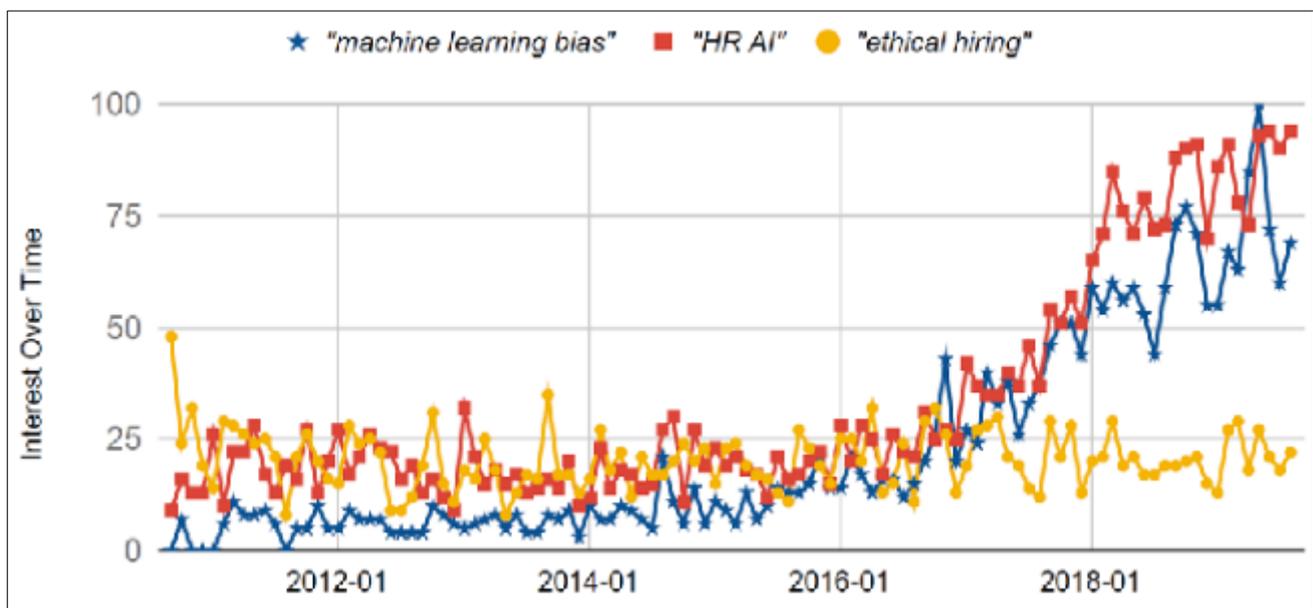
Figure 3 Worldwide Relative Search Interest in AI-Based Recruitment (Aug-2010 to Aug-2019)

- **Relative Interest Over Time:** The graph shows how search interest in each phrase has changed over time from **August 2010 to August 2019.** The interest is normalized and scaled so that the **highest point for each term is set to 100.** This allows you to compare the relative popularity of the terms rather than their absolute search volumes.
- **"Machine Learning Bias" (Blue):** This line indicates how interest in machine learning bias has evolved. You might see a gradual increase in interest, especially as discussions around AI ethics and bias became more prominent in the tech community and media.
- **"HR AI" (Red):** This line represents the trend for HR-related AI technologies. Interest might rise and fall based on developments in HR tech, company adoption, or public awareness of AI applications in human resources.
- **"Ethical Hiring" (Yellow):** This line tracks the interest in the concept of ethical hiring practices. Interest may fluctuate based on regulatory changes, media coverage, and broader conversations about ethics in hiring.

6. Ai in Literature Review

When used appropriately, AI tools can greatly enhance the speed of development and improve the quality of literature reviews. However, misuse of these tools can lead to plagiarism and academic fraud with serious consequences. Generative AI tools like ChatGPT can confidently provide answers about literature, but they are known to "hallucination" or fabricate information. Submitting literature analysis generated by such tools without verification significantly increases the risk of academic fraud. It's important to understand that while AI may produce misleading or incorrect information, it does not intentionally lie or plagiarize.

- To be precise, AI lacks the ability to fabricate falsehoods or copy others' work. This is a task that only humans, equipped with a moral compass to discern truth from falsehood and an awareness of when they are being truthful, exaggerating, deceitful, underhanded, or cheating, can accomplish. We must never rely on the answers generated by AI without confirming them ourselves and accepting full accountability for our conclusions.
- The initial phase of a literature review involves authors identifying and making sense of the research questions and key concepts or theories. Moreover, authors might be encouraged to first confirm the existence of research gaps, which could include checking if the gap has been previously addressed, if the research question offers a significant contribution that surpasses past work, and if it is indeed significant to fill the gap (Kalogiannidis S, Kalfas D, Papaevangelou O, Giannarakis G, Chatzitheodoridis F., 2024).
- There's a possibility to assist researchers in determining if gaps remain by identifying similar or identical contributions of knowledge and previous review articles. During the process of discovery and verification, the employment of AI is expected to introduce uncertainty, necessitating researchers to make the final call on how to address these gaps (Pessach and Shmueli, 2022).

In the literature review of Artificial Intelligence (AI) in Human Resource Management (HRM), the transformative impact of AI on traditional HR practices is a central theme. AI significantly enhances efficiency by automating routine tasks such as resume screening and interview scheduling, allowing HR professionals to focus on more strategic activities. According to studies by (Marr, 2017), AI's ability to analyze large datasets improves decision-making and aligns HR strategies with business goals.

Despite these benefits, the adoption of AI brings challenges such as algorithmic bias, data privacy concerns, and potential job displacement. Literature highlights the need for transparency and fairness in AI systems to address these issues, emphasizing the importance of robust measures to ensure that AI-driven processes are equitable and data protection is maintained, (van Esch et al. 2019). Overall, while AI offers considerable advantages for HRM, addressing these ethical and practical challenges is crucial for maximizing its potential benefits while mitigating associated risks (Kaur and Kaur, 2022).

6.1. Advantages of Using AI in Recruitment

Numerous research findings indicate that nearly half of all businesses across the globe are currently implementing AI in their human resources activities. Concurrently, 66% of chief executives are convinced that AI can provide remarkable advantages in the hiring process. Moreover, over 80% of human resources experts assert that the integration of AI technologies within HR enhances the involvement of employees. Let's examine some figures to understand the prevailing scenario. In 2022, the AI recruiting market was estimated to be worth USD 540.4 million:
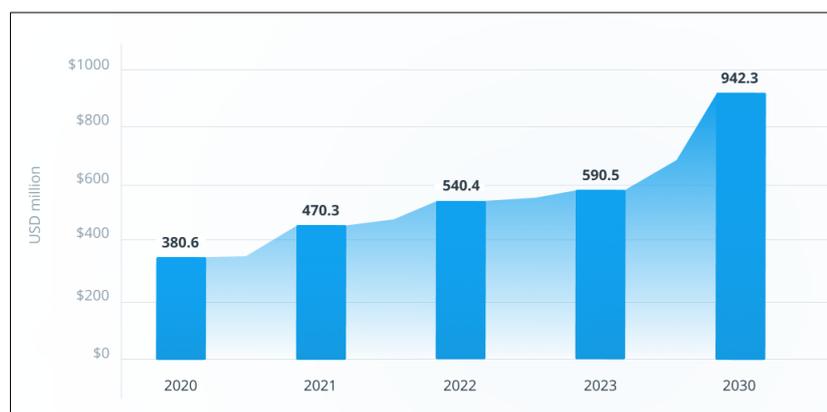
Figure 4 Global AI Recruitment Market

The AI recruitment industry is projected to grow from USD 590.5 million in 2023 to USD 942.3 million by 2030. According to Facts and Factors, the AI recruiting market is expected to reach USD 890 million by 2028.

According to other sources, the AI market share in the recruitment industry is expected to grow to USD 222.94 million between 2021 and 2026.

Artificial Intelligence (AI) is set to revolutionize Human Resources (HR). Tools and technologies powered by AI can simplify procedures, automate the handling of data, and enhance the analysis of employee data (Hunkenschroer and Luetge, 2022). HR leaders and experts are rapidly embracing AI and the insights derived from data to make more educated choices in recruitment, performance evaluation, and improving strategies for retaining employees.

In a 2019 survey by Insight222, 46% of HR professionals indicated their intention to incorporate AI into HR by 2023. By December 2022, a study by McKinsey revealed that 50% of the organizations they surveyed had implemented AI within their operations. This represents a 2.5-fold increase in AI adoption compared to 2017.

It's evident that artificial intelligence is increasingly prevalent in today's business landscape. Yet, the success of data-driven insights and AI technologies hinges on HR professionals possessing the necessary skills to utilize them effectively. When David Green inquired about the essential skills HR professionals must acquire to thrive in the AI-driven digital era on the Digital HR Leaders podcast, Tomas Chamorro-Premuzic, Manpower Group's Chief Innovation Officer, shared his insights.

1. **Faster and More Efficient**:
   o it helps reduce or eliminate time-consuming activities, streamline and automate resume reviews, match job requirements and candidates' existing skills more efficiently and effectively, and enable timely decision-making (Vedapradha et al., 2019).
2. **Faster hiring decision:**
   o More than half of organizations are unhappy with the amount of time it takes to fill a position, according to a Harvard Business Review report. Speed can be important in busy, high-churn sectors like restaurants, and it can also help you lock down the best candidate in a competitive hiring market (Fernandes França et al., 2023).
   o Job applicants also value a quick hiring process. About 38% of employees interviewed by Robert Half mentioned that they become disinterested in a position if the recruitment process takes too long, indicating that accelerating your hiring timeline enhances the experience for applicants.
3. **Reduced Recruiter Workload**:
   o AI is expected to significantly increase the productivity of recruiters and free them up for more strategic and human-centric tasks (Upadhyay & Khandelwal, 2018).
4. **Improved Communication**:
   o AI chatbots can answer simple candidate questions and even analyze interactions to provide insights about their personality, helping build better relationships. (Köchling et al., 2022)

AI implementation can potentially provide a competitive advantage by enabling a better understanding of talent compared to competitors, thereby enhancing the company's competitiveness (Johansson and Herranen, 2019).

6.2. Disadvantages of Using AI in Recruitment

1. **Limited Personal Touch:** AI can't fully understand or assess things like personality, cultural fit, or potential growth. Job seekers might struggle to show their unique qualities through automated systems (Chen 2023).
2. **Technical Glitches and Errors:** AI systems can have technical problems, which might lead to qualified candidates being wrongly excluded from consideration. This can be frustrating for those whose applications are overlooked due to these errors (Bogen and Rieke, 2018).
3. **Lack of Transparency:** AI makes it hard for job seekers to understand why they were or weren't selected (Chilunjika et al., 2022). Without clear feedback, candidates may be uncertain and frustrated about their application status.
4. **Loss of Human Interaction:** Traditional recruitment involves personal connections and understanding. AI's efficiency may come at the cost of missing out on how well candidates fit with a company's team and culture (Cho et al. 2023).
5. **Lack of Human Judgment:** AI excels at analyzing data but might miss the nuances that human judgment can catch (Drage and Mackereth, 2022). There's a risk that AI could repeatedly suggest similar candidates, so it's important to review AI's recommendations and ensure they align with your needs.

7. Management of Recruitment Risk by AI

Within the framework, the information provided is skewed, and the results are expected to reflect this bias (Huang & Rust, 2021). For example, Amazon employs artificial intelligence to evaluate and rank candidates for employment, often showing favoritism towards males (Weissman, 2018). Moreover, mistakes in artificial intelligence are common in the insurance sector when setting car insurance premiums based on religious beliefs instead of gender (Villasenor, 2019). Consequently, automated systems exhibit prejudices in setting prices that fluctuate and in offering special deals to specific groups (Miler & Hosanagar, 2020; Brit, 2021). Therefore, bias can seep into the algorithms, and only the data used for training purposes within the systems are likely to be advantageous (Brit, 2020).

To address these issues, employers should start by thoroughly understanding how AI systems work and ensure that the technology complies with local laws, not just those of the US. It's crucial to conduct thorough due diligence by asking AI providers how their systems are trained to avoid bias, especially in relation to local discrimination laws (Birzhandi and Cho, 2023). Additionally, employers should continuously monitor the AI system's outputs to identify and address any potentially discriminatory patterns that may arise, ensuring a fair and effective recruitment process.
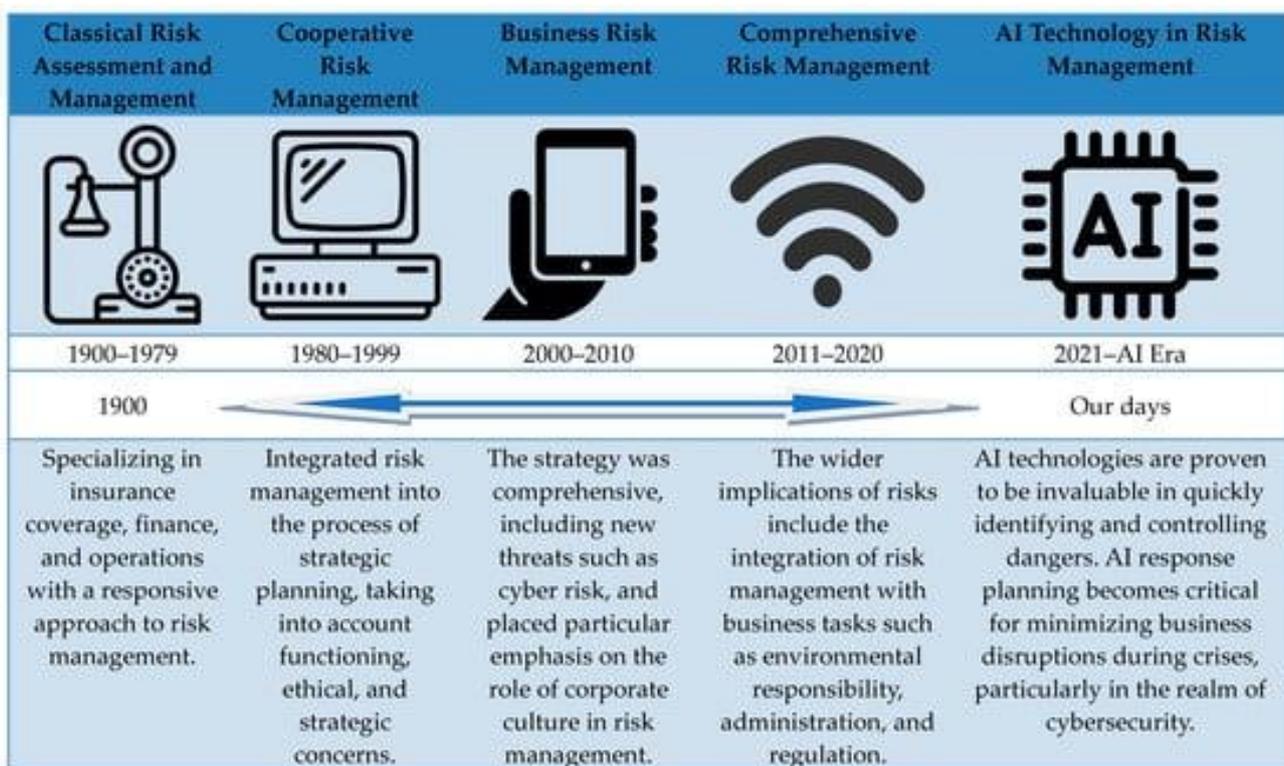
Figure 5 Historical Evolution of Managing the Risk by AI

- Early 1900s: Risk management was basic, mainly focusing on insurance and preventing losses after they happened.
- 1920s-1940s: Risk management became more organized, with systematic methods and expanded insurance options.
- 1950s-1960s: Risk management theory developed, bringing academic and theoretical ideas into practice.
- 1970s-1980s: Risk management started to be part of business strategy, focusing on identifying and addressing risks before they become problems. Formal frameworks were introduced.
- 1990s: The concept of Enterprise Risk Management (ERM) emerged, looking at risks from a global perspective.
- 2000s: Regulations increased and there was a greater focus on building a strong risk culture, especially after financial crises and governance issues.
- 2010s: Technology and data analytics were integrated into risk management, making it more dynamic and responsive.
- 2020s: The focus shifted to resilience and adaptability in the face of global challenges like pandemics and climate change, using AI and comprehensive risk management approaches.

8. Challenges Of Using AI In Recruiting and How to Address Them

The idea of human prejudice shows up in two types of assertions. First, there are fundamentalist assertions regarding the intrinsic nature of human thought or the process of making decisions, suggesting that these are inherently flawed or illogical (Pessach and Shmueli, 2022; Raghavan et al., 2020; Will et al., 2023). For example, (Chilunjika et al., 2022: 7) state that 'the human interface' is 'typically prone to prejudiced evaluations. Second, there are assertions regarding how human prejudices result in unfair treatment in hiring practices, such as certain employers unconsciously favor men over women and people of certain ethnic backgrounds (Hofeditz et al., 2022: 145; Gupta, A., Mishra, M., 2022; Tursunbayeva et al., 2022; Will et al., 2023).

1. **Bias in Data:** AI can inherit biases from the data it's trained on, just like what happened with Amazon's AI tool, which ended up favouring men because of biased data. To avoid this, ensure you feed your AI recruitment tool with clean and unbiased data. This helps the AI make fairer decisions. (Cho et al., 2023)
2. **Understanding Candidates:** AI chatbots may struggle to understand what candidates are saying, leading to frustration (Drage and Mackereth, 2022). To fix this, give candidates multiple choice options to guide the AI and make sure they can reach a human recruiter if needed.
3. **Lack of Human Intuition:** AI doesn't have the intuitive judgment that humans do. It's important to use AI as a supportive tool rather than replacing human recruiters. AI should assist with tasks, but human recruiters should make the final decisions based on their insights and experience (Fernandes França et al., 2023).
4. **Integration with Existing Systems:** Implementing AI can be challenging if it doesn't seamlessly integrate with your existing HR systems. To overcome this, choose AI tools that are compatible with your current technology and ensure you have a plan for smooth integration and training for your team (Hunkenschroer and Luetge, 2022). This will help avoid disruptions and make the transition to using AI more effective.
5. **Solutions for possible risk in AI recruitment:** To manage risks in AI recruitment, employers should first understand how the technology works and ensure it complies with local laws, especially since many AI tools are developed in the US and may not meet UK or European regulations. It's essential to conduct thorough due diligence by asking potential AI providers about how their systems are designed to prevent bias and adhere to local discrimination laws (Yadav, S., Kapoor, S., 2024). Additionally, employers should regularly monitor the AI's performance to catch and address any signs of bias or unfair treatment, ensuring that the tool supports a fair and compliant recruitment process.

9. Using The AI Risk Framework to Responsibly Adopt AI In Recruitment

Figure 6 Adopting AI in Recruitment – AI Risk Framework

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To use AI responsibly in recruitment, organizations should follow a structured approach. This helps them handle ethical and legal issues and improve how effectively AI tools work in HR. Here's a simple breakdown of the framework:

1. **Acceptable Risk:** This means that any risks are understood and managed with proper measures. For example, if there are systems in place to prevent bias in hiring and track demographic information, the risk is considered acceptable.
2. **Mitigation Required:** This means that more safeguards need to be put in place before using the AI. For instance, if there isn't a plan to regularly review how well the AI's decisions match job requirements, further steps are needed.
3. **Unacceptable Risk:** This refers to situations where the risk outweighs the benefits, even with controls in place. For example, if an AI system could cause harm through its recommendations, it is considered too risky to use.

By following this framework, organizations can ensure they adopt AI tools that are both effective and fair, while managing potential risks carefully.

10. Conclusion

AI offers a promising path to reducing bias in recruitment by automating and streamlining processes, potentially leading to a fairer and more efficient hiring system. It can handle large volumes of applications, helping to identify qualified candidates based on objective criteria. However, AI systems can also inherit and perpetuate existing biases if not carefully managed. Addressing these ethical concerns involves using unbiased data, ensuring compliance with local laws, and monitoring AI outputs regularly. While AI improves efficiency and expands candidate reach, it also comes with risks such as reduced personalization and potential technical issues. To maximize AI's benefits while minimizing drawbacks, organizations must approach its implementation thoughtfully and rigorously.

Artificial intelligence (AI) offers a multitude of advantages for the recruitment process, including faster hiring times, reduced workloads for recruiters, and improved communication with candidates. However, alongside these benefits come significant risks, particularly concerning bias and a lack of human touch.

AI can perpetuate existing biases in recruitment if the data it's trained on is skewed. To address this, organizations must ensure their AI tools are built on unbiased data and regularly monitor their performance for signs of unfair treatment. Transparency is also crucial; candidates should understand how AI is being used in the recruitment process and have the opportunity to provide feedback. While AI excels at analyzing data, it lacks the human intuition needed for a well-rounded hiring decision. AI should be used as a supportive tool, not a replacement for human recruiters. Recruiters can leverage AI for tasks like resume screening and scheduling interviews, while reserving final hiring decisions for themselves, ensuring the best possible fit for the company and the candidate.

By carefully considering the risks and implementing strong mitigation strategies, organizations can harness the power of AI to create a more efficient and equitable recruitment process. This includes understanding how AI systems work, ensuring compliance with local laws, and conducting regular audits to identify and address any potential biases. Frameworks like the AI Risk Framework can guide organizations in adopting AI responsibly, maximizing benefits while minimizing risks. Ultimately, AI is a powerful tool that can transform recruitment, but it's essential to use it responsibly. By prioritizing fairness, transparency, and human judgment, organizations can leverage AI to build a more diverse and talented workforce.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest is to be disclosed.

References

[1] Chen, Z. (2023), Ethics and discrimination in artificial intelligence-enabled recruitment practices. Humanit Soc Sci Commun 10, 567 (2023). https://doi.org/10.1057/s41599-023-02079-x

[2] Drage, E., Mackereth, K. (2022), Does AI Debias Recruitment? Race, Gender, and AI's "Eradication of Difference". Philos. Technol. 35, 89 (2022). https://doi.org/10.1007/s13347-022-00543-1

[3] Yadav, S., Kapoor, S. (2024) Adopting artificial intelligence (AI) for employee recruitment: the influence of contextual factors. Int J Syst Assur Eng Manag 15, 1828–1840 (2024). https://doi.org/10.1007/s13198-023-02163-0

[4] Gupta, A., Mishra, M. (2022). Ethical Concerns While Using Artificial Intelligence in Recruitment of Employees. Business Ethics and Leadership, 6(2), 6-11. http://doi.org/10.21272/bel.6(2).6-11.2022.

[5] AI in Recruiting: What to Know https://builtin.com/articles/ai-recruiting

[6] Hunkenschroer, A.L., Luetge, C. (2022) Ethics of AI-Enabled Recruiting and Selection: A Review and Research Agenda. J Bus Ethics 178, 977–1007 (2022). https://doi.org/10.1007/s10551-022-05049-6.

[7] Gupta, A., Mishra, M. (2022). Ethical Concerns While Using Artificial Intelligence in Recruitment of Employees. Business Ethics and Leadership, 6(2), 6-11. https://doi.org/10.21272/bel.6(2).6-11.2022

[8] Kalogiannidis S, Kalfas D, Papaevangelou O, Giannarakis G, Chatzitheodoridis F. (2024) The Role of Artificial Intelligence Technology in Predictive Risk Assessment for Business Continuity: A Case Study of Greece. Risks. 2024; 12(2):19. https://doi.org/10.3390/risks12020019

[9] Mujtaba, (2019), Ethical CI, Ethical Considerations in AI-Based Recruitment, Dena F. Mujtaba and Nihar Ranjan Mahapatra, {2019 IEEE International Symposium on Technology and Society, ISTAS, 2019,1-7. https://api.semanticscholar.org/CorpusID:209459647

[10] FraiJ, J., & László, V. (2021). A Literature Review: Artificial Intelligence Impact on the Recruitment Process. International Journal of Engineering and Management Sciences, 6(1), 108-119. https://doi.org/10.21791/IJEMS.2021.1.10.

[11] https://www.researchgate.net/publication/334108500_A_Systematic_review_of_literature_on_Recruitment_and_Selection_Process

[12] https://www.sciencedirect.com/science/article/pii/S2667096823000125

[13] Seppälä, P., & Małecka, M. (2024). AI and discriminative decisions in recruitment: Challenging the core assumptions. Big Data & Society, 11(1). https://doi.org/10.1177/20539517241235872

[14] Bogen, M., & Rieke, A. (2018). Help wanted: an examination of hiring algorithms, equity, and bias.

[15] Drage E, Mackereth K (2022) Does AI debias recruitment? Race, gender, and AI's "eradication of difference". Philosophy and Technology 35: e89.

[16] Fernandes França TJF, Mamede HS, Perreira Barroso JM, et al. (2023) Artificial intelligence applied to potential assessment and talent identification in an organisational context. Heliyon 9(4): e14694.

[17] Nadeem A, Marjanovic O, Abedin B (2021) Gender bias in AI: Implications for managerial practices. In: Dennehy D (eds) Responsible AI and Analytics for an Ethical and Inclusive Digitized Society. Cham: Springer, 259–270.

[18] Birzhandi P, Cho Y-S (2023) Application of fairness to healthcare, organizational justice, and finance: A survey. Expert Systems with Applications 216: e119465.

[19] Bogen M, Rieke A (2018) Help wanted - An examination of hiring algorithms, equity, and bias. Report, Upturn, December.

[20] Chilunjika A, Intauno K, Chilunjika SR (2021) Artificial intelligence and public sector human resource management in South Africa: Opportunities, challenges and prospects. SA Journal of Human Resource Management 20(1): 1–12.

[21] Cho W, Choi S, Choi H (2023) Human resources analytics for public personnel management: Concepts, cases, and caveats. Administrative Sciences 13(2): 1–22.

[22] Müller-Bloch, C., & Kranz, J. (2015). A Framework for Rigorously Identifying Research Gaps in Qualitative Literature Reviews. Proceedings / International Conference on Information Systems (ICIS). http://aisel.aisnet.org/icis2015/proceedings/ResearchMethods/2/

[23] Rivard, M., Terroux, A., & Mercier, C. (2014). Effectiveness of early behavioral intervention in public and mainstream settings: The case of preschool-age children with autism spectrum disorders. Research in Autism Spectrum Disorders, 8, 1031-1043.

[24] Weber, J., & Bath, C. (2007). "Social" robots & "emotional" software agents: Gendering processes and de-gendering strategies for "technologies in the making". In Gender designs IT: Construction and deconstruction of information society technology (pp. 53–63). VS Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-531-90295-1_3

[25] Strengers, Y., & Kennedy, J. (2020). The smart wife: Why Siri, Alexa, and other smart home devices need a feminist reboot. MIT Press.

[26] Gartner. (2020, April 30). Virtual interviews to hire candidates during COVID. Retrieved March 21, 2022 from https://www.gartner.com/en/newsroom/press-releases/2020-04-30-gartner-hr-survey-shows 86--of-organizations-are-cond

[27] HireVue. (n.d.). Train, Validate, Re-train. Hirevue.Com. https://www.HireVue.com/blog/hiring/train validate-re-train-how-we-build-HireVue-assessments-models

[28] Sánchez-Monedero, M.A., Sánchez-García, M., Alburquerque, J.A., & Cayuela, M.L. (2019). Biochar reduces volatile organic compounds generated during chicken manure composting. Bioresource technology, 288, 121584.

[29] Raghavan, Manish and Barocas, Solon and Kleinberg, Jon and Levy, Karen, Mitigating Bias in Algorithmic Hiring: Evaluating Claims and Practices (June 21, 2019). ACM Conference on Fairness, Accountability, and Transparency (FAT*), 2020, Available at SSRN: https://ssrn.com/abstract=3408010 or http://dx.doi.org/10.2139/ssrn.3408010

[30] Lan, Z., Chen, M., Goodman, S., Gimpel, K., Sharma, P., & Soricut, R. (2019). ALBERT: A Lite BERT for Self-supervised Learning of Language Representations. ArXiv, abs/1909.11942.

[31] Simbeck, K. (2019). HR analytics and ethics. IBM J. Res. Dev., 63, 9:1-9:12.

[32] Yarger, L., Cobb Payton, F. and Neupane, B. (2020), "Algorithmic equity in the hiring of underrepresented IT job candidates", Online Information Review, Vol. 44 No. 2, pp. 383-395. https://doi.org/10.1108/OIR-10-2018-0334

[33] Rąb-Kettler, K., & Lehnervp, B. (2019). Recruitment in the Times of Machine Learning. Management Systems in Production Engineering, 27, 105 - 109.

[34] Dana Pessach and Erez Shmueli. 2022. A Review on Fairness in Machine Learning. ACM Comput. Surv. 55, 3, Article 51 (March 2023), 44 pages. https://doi.org/10.1145/3494672

[35] Marr, B. (2017). Data Strategy : How to Profit from a World of Big Data, Analytics and the Internet of Things Ed. 1.

[36] Davenport, T.H., & Harris, J. (2007). Competing on Analytics: The New Science of Winning.

[37] van Esch, Patrick & Black, Stewart & Ferolie, Joseph. (2018). Marketing AI recruitment: The next phase in job application and selection. Computers in Human Behavior. 90. 215-222. 10.1016/j.chb.2018.09.009.

[38] Kaur K, Gurnani B, Nayak S, Deori N, Kaur S, Jethani J, Singh D, Agarkar S, Hussaindeen JR, Sukhija J, Mishra D. Digital Eye Strain- A Comprehensive Review. Ophthalmol Ther. 2022 Oct;11(5):1655-1680. doi: 10.1007/s40123-022-00540-9. Epub 2022 Jul 9. PMID: 35809192; PMCID: PMC9434525.

[39] Hunkenschroer, A.L., & Luetge, C. (2022). Ethics of AI-Enabled Recruiting and Selection: A Review and Research Agenda. Journal of Business Ethics, 178, 977 - 1007.

[40] Vedapradha, R., Hariharan, R., & Shivakami, R. (2019). Artificial Intelligence: A Technological Prototype in Recruitment. Journal of Service Science and Management.

[41] Jacob Fernandes França, T., São Mamede, H., Pereira Barroso, J.M., & Pereira Duarte dos Santos, V.M. (2023). Artificial intelligence applied to potential assessment and talent identification in an organisational context. Heliyon, 9 4, e14694 .

[42] Upadhyay, A.K., & Khandelwal, K. (2018). Applying artificial intelligence: implications for recruitment. Strategic HR Review.

[43] Köchling, A., & Wehner, M.C. (2022). Better explaining the benefits why AI? Analyzing the impact of explaining the benefits of AI-supported selection on applicant responses. International Journal of Selection and Assessment.

[44] Johansson, J.V., & Herranen, S. (2019). The application of Artificial Intelligence (AI) in Human Resource Management: Current state of AI and its impact on the traditional recruitment process.

[45] Huang, M., & Rust, R.T. (2020). A strategic framework for artificial intelligence in marketing. Journal of the Academy of Marketing Science, 49, 30 - 50.

[46] Lourdes Martínez-Villaseñor, Hiram Ponce, and Karina Perez-Daniel. 2019. Deep Learning for Multimodal Fall Detection. In 2019 IEEE International Conference on Systems, Man and Cybernetics (SMC). IEEE Press, 3422–3429. https://doi.org/10.1109/SMC.2019.8914429

[47] Lee, D., & Hosanagar, K. (2014). Impact of Recommender Systems on Sales Volume and Diversity. International Conference on Interaction Sciences.

[48] Pessach, D., & Shmueli, E. (2022). A Review on Fairness in Machine Learning. ACM Computing Surveys (CSUR), 55, 1 - 44.

[49] Schlagwein, D., & Willcocks, L. (2023). 'ChatGPT et al.': The ethics of using (generative) artificial intelligence in research and science. Journal of Information Technology, 38(3), 232-238. https://doi.org/10.1177/02683962231200411

[50] Chilunjika, Alouis & Intauno, Kudakwashe & Chilunjika, Sharon. (2022). Artificial intelligence and public sector human resource management in South Africa: Opportunities, challenges and prospects. SA Journal of Human Resource Management. 20. 10.4102/sajhrm.v20i0.1972.

[51] Rieskamp, Jonas & Hofeditz, Lennart & Mirbabaie, Milad & Stieglitz, Stefan. (2023). Approaches to Improve Fairness when Deploying AI-based Algorithms in Hiring – Using a Systematic Literature Review to Guide Future Research. 10.24251/HICSS.2023.026.

[52] Köchling, A., & Wehner, M.C. (2020). Discriminated by an algorithm: a systematic review of discrimination and fairness by algorithmic decision-making in the context of HR recruitment and HR development. Business Research.

[53] Tursunbayeva, A., Pagliari, C., Di Lauro, S., & Antonelli, G. (2021). The ethics of people analytics: risks, opportunities and recommendations. Personnel Review.

[54] Drage, E., & Mackereth, K. (2022). Does AI Debias Recruitment? Race, Gender, and AI's "Eradication of Difference." Philosophy and Technology, 35(4). https://doi.org/10.1007/s13347-022-00543-1

[55] Templier, M., & Paré, G. (2017). Transparency in literature reviews: an assessment of reporting practices across review types and genres in top IS journals. European Journal of Information Systems, 27(5), 503–550. https://doi.org/10.1080/0960085X.2017.1398880

[56] AI Recruiting: Uses, Advantages, & Disadvantages (January 2, 2024), https://technologyadvice.com/blog/human-resources/ai-recruiting/#advantages_of_ai_recruiting

[57] Recruitment Bias Report: How Bias Affects Hiring and How to Remove It (October 28, 2022), https://www.beapplied.com/post/recruitment-bias-report-how-bias-affects-hiring-and-how-to-remove-it

[58] Research shows AI is often biased. Here's how to make algorithms work for all of us (Jul 19, 2021), https://www.weforum.org/agenda/2021/07/ai-machine-learning-bias-discrimination/

[59] How AI Recruitment Can Reduce Bias in Hiring, https://glider.ai/blog/how-ai-recruitment-can-reduce-bias-in-hiring/

[60] Ethical Considerations in AI-Powered Recruitment, (December 28, 2023), https://recruitingdaily.com/ethical-considerations-in-ai-powered-recruitment/

[61] AI in Recruiting 2024: Pros and Cons, https://www.kornferry.com/insights/featured-topics/talent-recruitment/ai-in-recruiting-navigating-trends-for-2024

[62] Four Advantages and Disadvantages of AI in the Hiring Process (July 17, 2023), https://acarasolutions.com/blog/recruiting-trends/four-advantages-and-disadvantages-of-ai-in-the-hiring-process/

[63] AI in Recruitment: Managing the Risks for Successful Adoption, https://www.aihr.com/blog/ai-in-recruitment/

[64]   Challenges of Using AI in Recruiting and How to Work Around Them, https://www.recruiter.com/recruiting/challenges-of-using-ai-in-recruiting-and-how-to-work-around-them/

[65]   Artificial intelligence: Risks in recruitment (04.04.2023), https://www.bristows.com/news/artificial-intelligence-risks-in-recruitment/

[66]   AI for Recruiting: A Comprehensive Overview (July 2023), AI Recruiting in 2023: A Comprehensive Guide for Success (ddi-dev.com)

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