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Recommended Citation

Ochmann, Jessica and Laumer, Sven, "Fairness as a Determinant of AI Adoption in Recruiting: An Interview-based Study" (2019). *DIGIT 2019 Proceedings*. 16.

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Fairness as a Determinant of AI Adoption in Recruiting: An Interview-based Study

Research-in-Progress

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Abstract

Traditional recruiting techniques are often characterized by discrimination as human recruiters make biased decisions. To increase fairness in human resource management (HRM), organizations are increasingly adopting AI-based methods. Especially recruiting processes are restructured in order to find promising talents for vacant job positions. However, use of AI in recruiting is a two-edged sword as the neutrality of AI-based decisions highly depends on the quality of the underlying data. In this research-in-progress, we develop a research model explaining AI adoption in recruiting by defining and considering fairness as a determinant. Based on 21 semi-structured interviews we identified dimensions of perceived fairness (diversity, ethics, discrimination and bias, explainable AI) thereby affecting AI adoption. The proposed model addresses research gaps in AI recruiting research in general and arising ethical questions concerning the use of AI in people management in general and recruiting process in particular. We also discuss implications for further research and next steps of this research in progress work.

Keywords: *AI recruitment, automation in HRM, AI adoption, fairness, ethics*

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Introduction

Traditional recruiting techniques are characterized by human decision-making that is often influenced by both societal biases as well as shortcomings of human cognitive processes (Brahma 2018). Consequently, recruiters frequently apply discriminatory tendencies within the recruiting process that describe the process of finding and selecting a matching candidate for a certain position. To increase fairness in human resource management (HRM), organizations highly demand information technologies (IT) that promise decisions that are more objective (Eckhardt et al. 2014; Wirtky et al. 2016). In this regard, artificial intelligence (AI) is increasingly used to automate recruiting of candidates as it is expected to offer various advantages, e.g. increased fairness in the recruiting process (Laumer et al. 2009a; Strohmeier and Piazza 2015; van Esch et al. 2019).

However, AI adoption in recruiting is a two-edged sword as the use case of Amazon's recruiting engine illustrates. In this particular case, the company applied an AI-based hiring tool that privileged men over women in the recruiting process (Dastin 2018). Given these challenges and considering that ethical discussions (e.g. value of personal data; total supervision) gain in importance for the successful adoption of AI in the context of HRM it is crucial to discuss fairness and its dimensions as a possible determinant of AI adoption. From an organizational point of view, fairness might be a determinant for the organizational adoption decision as only those AI-based recruiting systems will be used that provide fairness to the process as this is a regulatory and legal requirement to the recruiting process. From an individual's points of view, job seekers will be treated fairly and hence, fairness is an important determinant for their adoption decision as well. Therefore, we intend to answer the following research question:

What is fairness in relation to the use of AI in the recruiting process and is it an important determinant for AI adoption in the recruiting context?

We conduct an empirical study using 21 interviews to identify dimensions of perceived fairness of AI-based recruiting methods. Based on these dimensions we develop a model to explain AI adoption in recruiting that might be the starting point for further consideration of perceived fairness for the individual, but also the organizational adoption decision. The analysis therefore contributes to the discussion of adoption of AI technologies in HRM.

Related work

In this section, we will summarize related work on AI recruiting and ethical dimensions of AI to highlight the specific research gap that our approach is intended to fill.

AI and recruiting

The increasing demand for information technologies (IT) within the field of HRM as well as actual social developments such as the "war for talent" or the rise of social networks change the way organizations handle their recruiting processes (Eckhardt et al. 2008; Halutzky 2016; Laumer et al. 2009b; Laumer and Eckhardt 2009; Supjarendeet al. 2002; van Esch et al. 2019). Instead of taking time-consuming approaches to fill open positions with the right talent, organizations recently apply AI-based technologies that simplify recruiter's daily work thereby increasing efficiency of the recruiting process (Halutzky 2016). In the recruiting context, three different types of AI-based systems are discussed depending on whether the use of AI supports the applicant or the recruiter. First, job recommender systems that match a user profile and the various available job opportunities and then prioritize job opportunities for the applicant (Yu et al. 2011). Second, CV recommender systems that match job requirements with user profiles to support recruiters' decision-making. In this regard, the search for suitable candidates is supported by knowledge based search engines to pre-select potential candidates by automatizing search task and

offering semantic information about job seekers (Strohmeier and Piazza 2015). Third, CV data acquisition (“CV parsing”) constitutes another option to analyze resumes of applicants and rank candidates according to their skills. This technology has the potential to relieve HRM tremendously as the underlying algorithm is able to decide on its own what candidates should be preferred for a certain job (IBM 2019).

In general, review of literature shows that while academic research evaluates automation in HRM predominantly positive (Bondarouk et al. 2017; Laumer et al. 2018; Ruta 2009), little is known about its consequences for the fairness of the recruiting process (van Esch et al. 2019), especially when ethical dimensions are taken into account. Accordingly, the understanding of how organizations can proactively influence AI adoption in recruiting remains limited. Hence, the objective of this paper is to analyze fairness as a possible determinant of AI adoption thereby bearing in mind that results might differ depending on whether the organization’s or the applicant’s point of view is considered.

Fairness and ethical dimensions of AI

The application of AI-based recruiting technologies and current societal discussions such as the importance of data privacy or prevalence of social media highlight the need for the evaluation of ethical dimensions (Ochmann et al. 2019; Wirth et al. 2019). Especially when an AI recruiting tool automatically processes application data and makes own decisions, complex ethical questions arise and require a “growing awareness of the ethical, legal and societal impact of the potential actions and decisions of these systems,” (Verdiesen 2018). Therefore, a growing number of scientists and decision makers ask for guidelines and regulations to assure responsible design, development, implementation and policy of AI (Rajnai and Kocsis 2017; Verdiesen 2018).

Regarding the recruiting process, empirical research indicates that human-based recruiting decisions are often influenced by various factors such as race, gender, age, disabilities, sexual, or religious orientation, post codes, obesity, and facial attractiveness (Aslund and Nordström Skans 2012; Caers and Castelyns 2010; Eriksson and Lagerström 2012; Weichselbaumer 2003). This lack of objectivity might have a negative impact on an organization’s reputation. Individuals expect organizations to be fair in the recruiting process and want recruiters to make transparent decisions (Brands and Fernandez-Mateo 2017). In this regard, we assume that the construct of fairness covers both regulation by law and recognition of every human being detached from social status, hierarchical position, role, national, religious, or sexual affiliation, as well as their diverse interests and opinions (Fairness-Stiftung gemeinnützige GmbH 2019; Rawls 2001). The application of AI might be an appropriate instrument to prevent both discriminatory tendencies and unfairness in HRM as unbiased and correctly programmed algorithms are directly linked to consistent and impartial decisions (Xu and Barbosa 2018).

Besides the mentioned benefits of AI recruiting methods there are also some critical points. Today’s AI tools are often obscure and show deficit in terms of data security, appropriate testing material and validity testing. Furthermore, applicants are often not informed about the application of such systems, which results in an ethical dilemma. Nevertheless, literature describes that applicants mostly regard AI as an interesting novelty and useful recruiting tool, thus, increasing the likelihood of completing an application (van Esch et al. 2019).

Methodology

The overall aim of this research-in-progress paper is to identify dimensions of perceived fairness of automated recruiting approaches thereby considering perceived fairness as a determinant of AI adoption in recruiting.

Overall, 21 interviews with experts from various fields (HRM, AI and machine learning, law, data protection, politics) were conducted to gain a broad understanding about crucial beliefs and fears regarding the adoption of AI in HRM. Our interviewees provide both a perspective from an organizational and from an individual point of view as they indicate that AI in recruiting needs to be fair that both individuals and organization will use it. Our interviewees did not make the distinction between organizational and individual adoption decision. Table 1 illustrates the demographic characteristics.

Characteristics	Attribute	Count	Share in %
Gender	Male	13	56,5%
	Female	8	43,5%
Age	24-29	7	33,33%
	30-39	2	9,52%
	40-49	4	19,05%
	50-59	4	19,05%
	>59	4	19,05%
Background	Recruiting	6	28,6%
	AI and ML	7	33,3%
	Law/Data protection	5	23,8%
	Politics	3	14,3%

Table 1. Demographics (N=21)

Recruitment of interviewees took place through personal contact and the social media platform LinkedIn. Potential experts were identified by screening their social networking sites in order to evaluate their involvement in the topic. Interviews were conducted exclusively in person or by phone. Data collection was completed once it became apparent that additional interviews would not provide new insights as subsequent interviews lead to redundant aspects mentioned by respondents (Lapointe and Rivard 2005). Moreover, we ensured that the sample size is above the recommended quantity of twelve interviews for a homogeneous group of respondents (Guest et al. 2006). We conducted an interview guideline considering questions regarding fairness in recruiting, diversity in organizations, ethical dimensions and the “black box problem”. Thus, respondents received sufficient freedom to describe their overall attitude toward the importance of fairness for AI adoption.

To ensure that no thematic aspect is missing in the analysis, the transcription in preparation for the data analysis was carried out after each interview using MAXQDA. The systematic analysis and categorization of the insights from the interviews followed the method of qualitative content analysis (Mayring 2014). In order to generate dimensions of perceived fairness from the interviews, we followed an explorative approach to code the interviews. In the following, we present the results of this approach.

Research results

In our analysis, we identified dimensions of perceived fairness (P2-P5) and perceived fairness as a determinant to explain the adoption of AI in recruiting by both organizations and individuals (P1) (see Figure 1). In the following subchapters, we will describe the resulting implications in more detail. The numbers in brackets refer to the interviewee who issued a certain statement.

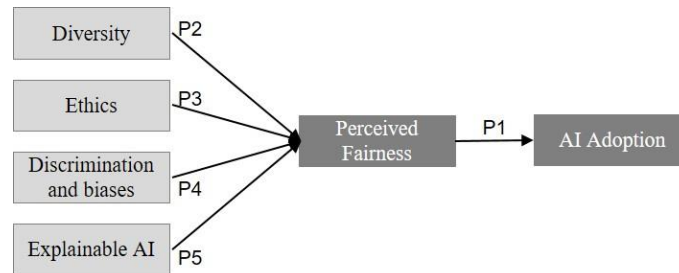


Figure 1. Determinants of AI adoption

Perceived fairness and AI adoption in recruiting

The interviews show that the use of AI in recruiting is mainly accepted when it comes to the pre-selection of promising talents, as automated data processing is precise and quick. Our interviewees did not distinguish between individuals and organizations as they indicated that AI will be used and accepted by both individuals and organizations when it provides fairness to the recruiting process. They argue that AI could be actively used to make recruiters aware of biases and ensure a higher level of objectiveness in decision-making thereby increasing the fairness of the recruiting process. One respondent stated that in general, humans are more likely to make subjective decisions. Given that, the underlying data is unbiased and of high quality, AI recruiting can support organizations to evaluate hard factors in CVs in an impartial way. Moreover, in the phase of pre-selection, interviewees mentioned that “it could be valuable if the system reports: ‘I recommend inviting this person. Then the recruiter can inquire the reasons and with the explanations of the system can decrease personal biases’” (#19). Besides, respondents note that AI “can also be suitable as final inspection when interviewers are personally attracted to the person and thus, might be hindered in an objective decision-making. This could dissolve prejudices” (#9). However, human recruiters are expected to be far better in the evaluation of interpersonal aspects and a candidate’s fit to the company. These observations outline that adoption of AI in HRM has the potential to increase fairness in the recruiting process thereby determining the adoption of AI recruiting – given that the underlying data is unbiased. Therefore, we propose:

Proposition 1: The higher (lower) the degree of perceived fairness, the higher (lower) the adoption of AI recruiting.

Diversity

Recently, diversity in organizations gain in importance as interdisciplinary teams are more likely to find innovative and creative solutions thereby increasing economical profit (Annabi and Lebovitz 2018; Dijk et al. 2012). In our interviews, we also found support for the importance of diversity as an incubator for innovation and creativity. The use of AI facilitates the recruiting process by scanning resumes of job candidates automatically. This procedure allows for a controlled variation in personal factors such as gender, ethnical background and handicap in order to create diversity. Respondents stated that a team’s output might benefit from the use of AI recruiting that fosters diversity. For instance, interviewees note “diversity always triggers creativity. Firms such as Google have understood this early on and thus, they are extremely diverse in their workforce,” (#14). Moreover, diversity and equal rights contain vast economic potential (#16). As the use of AI recruiting can lead to more impartial recruiting decisions thereby ensuring diversity and equality of opportunities and enhancing creativity, we deduce the following proposition:

Proposition 2: The higher (lower) the degree of diversity ensured by AI recruiting, the higher (lower) the perceived fairness of AI recruiting.

Ethics

Regarding ethical questions, it becomes apparent that interviewees associate a high degree of fairness with transparent AI-based recruiting methods. Several respondents highlighted the increasing importance of ethical issues due to the potentials enabled by innovative data processing. In general, respondents see ethics critical as we live in a fast-moving world: “One phenomenon of digitalization is that we (...) have less time to think and spend less time to reflect on our own acting and behavior. This also applies to the question of ‘How ethically do I act?’ which we ask ourselves increasingly less due to automation” (#10). Moreover, respondents addressed the ethical dilemma, which is directly linked to the rapid development of new technologies: “AI, as a technology, could be the greatest boom to mankind, but at the same time it could have very destructive applications as well. I think there definitely needs to be ethics” (#7). Additionally, the protection of ethical standards in the recruiting process is crucial. For example, interviewees believe that an AI-based decision should be interpreted and verified by a human to ensure adherence of ethical guidelines. Due to the increasing data collection, data sovereignty is further a critical ethical dimension as it can provide insights in very personal aspects of humans’ lives. In general, human recruiters should not become redundant when it comes to decision-making as the following statement illustrates “This is another dimension of ethical question: do we want that machines make the decision? And I disagree” (#4). Following these arguments, we conclude that in the recruiting context ethical behavior can influence the perceived fairness of AI recruiting, such that we assume:

Proposition 3: The more (less) ethical aspects are considered, the higher (lower) the perceived fairness of AI recruiting.

Discrimination and biases

The recruiting process should be characterized by a high degree of neutrality, e.g. recruiters should focus on information that is related to future performance of the vacant job (Caers and Castelyns 2010). However, empirical research indicates that recruiter’s decisions are highly influenced by personal factors such as race, gender, age, disabilities, sexual, or religious orientation, post codes, obesity, and facial attractiveness (Aslund and Nordström Skans 2012; Caers and Castelyns 2010; Eriksson and Lagerström 2012; Weichselbaumer 2003). The interviews confirm these findings as participants perceive traditional recruiting practices as unfair. Interviewees believe that subjective discrimination plays a major role in today’s recruiting environment. Several interviewees describe the current recruiting processes and especially the recruiting decisions as unfair as “humans have biases and make based on these their decisions – willingly or unwillingly” (#9). Especially women are obviously discriminated as the following statement illustrates: “women do not only earn less but have, furthermore, if biologically capable of bearing children, severely lower chances, because it is predictable, that the ‘oh so expensively trained specialist’ suddenly has the idea to become a mother. Moreover, women in leadership positions play a much smaller role and are structurally disadvantaged” (#20). Interviewees further mentioned that AI adoption in recruiting might be an appropriate instrument to assure unbiased decisions as algorithms can be programmed in a way, which concentrates on the skillset: “[AI] can be also be suitable as final inspection when interviewers are personally attracted to the person and thus, might be hindered in an objective decision-making. This could dissolve prejudices” (#9). However, the quality of AI-based recruiting decisions highly depends on the underlying data. As a result, “decisions driven by prejudice before will trigger artificial decisions driven by prejudice in the future” (#12). In summary, the conducted interviews show that an unbiased AI can support in coping with discrimination during the recruiting process. As a result, recruiting decisions might be characterized by a higher degree of fairness and neutrality, such that we propose:

Proposition 4: The higher (lower) the extent to which individuals perceive that AI lead to unbiased decisions and less discrimination, the higher (lower) the perceived fairness of AI recruiting.

Explainable AI

AI solutions gain in complexity, such that humans find it increasingly difficult to understand AI-based predictions. This phenomenon is subsumed under the term “black box” and covers decision processes that even the designers cannot illuminate. To address this issue, regulatory authorities and other initiatives

have lately focused on algorithm transparency and started to promote the concept of explainable AI (Strobel 2018). In our interviews, we found support for the correlation of human's understanding and the perceived fairness of an AI-based decision. Respondents noted that the explicability of AI-based recruiting decisions ensures both the human control in the recruiting process and unbiased decisions. As individuals struggle against being patronized by AI, they want developers to design transparent algorithms: "Machines need to provide justifications. Respectively, which question leads to which result. A black box would be inappropriate" (#9). One recruiter stated that he would trust such systems if he is "involved in the process of building the AI, if having given input for the underlying parameters, (...) and if we had done extensive testing" (#15). By contrast, another recruiter mentioned: "Currently, I could not really trust the results of such a system without having seen the applicant" (#21). In general, it is important that the use of AI in recruiting relieve organizations by simultaneously disclosing the reasons for a certain decision: "The systems should support with explanations. Otherwise, if no indicator is available about how much I can trust a result, I either trust blindly or I have a complete mistrust" (#12). Overall, explainable AI might mitigate the black box problem thereby increasing trust that a fair decision was made, such that we assume:

Proposition 5: The higher (lower) the extent to which AI-based decisions are comprehensible, the higher (lower) the perceived fairness of AI recruiting.

Discussion and implications

This research-in-progress was motivated to analyze fairness as a determinant of AI adoption in recruiting. For this purpose, we propose a research model that identifies dimensions of perceived fairness of AI recruiting. Our interviews illustrate that interviewees perceive that AI will make recruiting more fair. Our interviews also indicate that when fairness is perceived to be given both individuals and organizations will adopt AI for the recruiting process. We will discuss the implication of these results to the literature in the following.

First, while prior studies have generated insights by outlining the impacts of different factors on users' perceptions towards adopting/rejecting a technology (Venkatesh et al. 2012), the issue of how ethical questions and perceived fairness can influence AI adoption is largely unaddressed. Therefore, the results contribute to the discussion of AI adoption in HRM by highlighting the need for a comprehensive model to explain determinants of fairness in the context of AI adoption and by suggesting a first model that illustrates fairness and its dimensions in the recruiting context. Second, considering prior research on AI recruiting we followed the call for an investigation of technology adoption (Burton-Jones, A., Stein, M., Mishra, A. 2017). So far, little is known about AI-based recruiting methods in general and impact of these methods in particular. We identified an impact of perceived fairness on the intention to adopt in our interviews. Results highlight the importance of automation in HRM and give guidance for future research as our findings show that fairness and its different dimensions should be considered when implementing AI recruiting in order to increase AI adoption.

Besides these contributions, the presented research-in-progress underlies several limitations that needs to be considered when extending the presented work. The greatest challenge is that the perceived fairness of AI recruiting might depend on the considered target group. For example, from the applicant's point of view it is important that the process of data collection is transparent. In comparison, recruiters might focus on factors that facilitates their everyday work. As this research-in-progress offers an integrated view of these two target groups, it is important in a next step to identify similarities and differences between these groups regarding the factors determining AI adoption in recruiting. Nevertheless, our interviews with different stakeholders indicate that perceived fairness is similar for the individual and the organizational adoption decision, although both are theoretical distinct phenomena. Therefore, this research needs to be extended to better carve out the definition and mechanisms of perceived fairness at the individual and the organizational level and how it is related to other relevant concepts such as technostress and the respective personality (Maier et al. 2019; Tarafdar et al. 2019)

Acknowledgements

This research was supported by the Adecco Stiftung "New Ways for Work and Social Life".

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