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Co-determing algorithmic applications

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1. Assessment of the situation in Germany

1.1 General remarks on the discussion paper

The case of Artificial Intelligence and the dimensions of gender biases in recruitment processes has been under scrutiny in Germany for a number of years and by various actors and institutions. Most notably, the Federal Discrimination Agency and the Expert Group working on the (Third) Equal Opportunity Report commissioned a number of important studies on algorithmic discrimination.

The paper by Miriam Kullmann is a concise analysis and summary of the overall technical debate. Various important aspects are highlighted by Kullmann's discussion paper. Most notably a critical classification of AI's potential and applicability against the background of comparative solutions and opportunity costs. One of the major problems with the functionality of algorithms is the quality of data as the crucial input for any algorithm. Referring to the 'Amazon example', Kullmann argues that self-learning models, such as deep learning algorithms, are prone to amplifying existing data patterns and might increase the problem of gender bias in specific applications. Kullmann presents five important fields of action for controlling the potential risks associated with AI in HR, all of which are being discussed in Germany as well in various contexts.

1.2 Use cases and a current example

One aspect in the German discussion touches the technical side of the pros and cons of AI in a more general way. The framing of "Big data instead of gut feeling" is part of the debate on whether machine learning algorithms might have more equal outcomes as the traditional method of handpicking staff. Even in many large companies in Germany the selection process is mostly done by humans on a 'manual' basis. Only minor algorithmic systems are usually applied to preselect applications or actively reach out to a specific target group. Hence, neutrality in the selection process is a strong criterion discussed in Germany in this context. Another important factor is cost efficiency when searching for staff, especially in larger scales. One current example is Deutsche Post's outreach for 10.000 new mail carriers and package deliveries. A digital tool named "Jobcheck" informs a job seeker about the job specification and tests challenges connected to daily work routines regarding the task of delivery. Time pressure is a crucial feature, which is exerted in the software simulation. "Jobcheck" is like a playful miniature assessment in order to increase the hit rate for the

appropriate staff. The algorithmic evaluation of the process is about to ensure an optimal matching for both sides.

1.3 Awareness and projections

According to current surveys in Germany there is a high degree of scepticism and hesitation regarding concrete applications of AI in the field of HR (Knobloch/Hustedt 2019). According to a survey for the career platform Monster by the universities of Bamberg and Erlangen-Nürnberg (Centre of Human Resources Information Systems (CHRIS)) in 2018, only one out of ten companies uses algorithmic HR systems. One out of five companies, however, is planning to start using the systems, which is a substantial increase compared to earlier figures from 2015. On the side of job seekers, the figures suggest a higher tech-affinity. 45.4 percent of the panel used automatic recommendation systems, which propose job opportunities based on their profile. Seven out of ten of the top 1000 companies and roughly two thirds of IT-companies assume that algorithms to preselect applications will be used more often in the near future.[1] Hence, there is a rather high degree of expectation regarding the technology and its applicability, which is in line with the general assessment of AI developments in other fields.

2. Policy debate in Germany

One major forum, where AI's societal implications has been scrutinized, was the Enquete Commission of the Deutsche Bundestag. This Commission also touched upon the topic of discrimination by AI applications. The general recommendation is to promote the transfer of existing research on the recognition and prevention of discrimination into the development of new software. Individuals should be enabled to defend themselves against algorithmic discrimination. To ensure this right, transparency, traceability and explainability of algorithmic decisions would need to be secured. Otherwise a legal revision of an automated decision would not be possible (according to the final report, which has not been fully published by the time of writing).[2]

The strategy of the German government regarding digitization has a great focus on the development of AI in Germany and Europe as cutting-edge technology for increasing Germany's competitive position. At the same time, public awareness regarding increasing AI applications especially in the work context led to the creation of institutions such as an 'AI Observatory', which is a start-up institution under the umbrella of the Federal Ministry for Labour and Social Affairs to monitor developments

[1] https://www.monster.de/mitarbeiter-finden/recruiting-tipps/einstellungsverfahren/rekrutierung/monster-recruitingtrends-2018/
[2] https://www.bundestag.de/dokumente/textarchiv/2020/kw44-pa-enquete-ki-abschlussbericht-801192

and the introduction of AI systems in the field of work including HR and recruiting. The basic understanding of the German institutional framework today follows a technology impact assessment focussed on fields of its respective application.

The Federal Discrimination Agency has commissioned a detailed expertise on risks of discrimination by the use of algorithms (Orwath 2019). In principle, this paper mirrors large parts of the policy debate in Germany:

- First, it sets out the need for overcoming technically-based discrimination risks of algorithms by defining socially acceptable differentiations in the data used by algorithms. Personal data and risks to the right to informational self-determination are to be considered.
- Second, data protection law is said to need clarifications with regard to anti-discrimination purposes. Consenting to the use of personal data is said to be no longer adequate in light of the actual practices of collecting and processing data.
- Third, the expertise states that the focus on data processing would need to be shifted or at least supplemented by the logic of decision-making by algorithms. Anti-discrimination law regulations are supposed to help to keep control of automatic decision-making.
- Fourth, another important regulatory would be to support affected persons according to the principle of subsidiarity. Legal authorities should be easily accessible for a respective person in order to have her case checked and, if necessary, corrected.

3. Recommendations

3.1 How to address the potential risk of (gender) discrimination of algorithms in recruitment processes

One fundamental measure to address the risk of gender discrimination of algorithms in recruitment processes is said to be the use of auditing methods in order to execute seals of quality for specific applications. Apparently, part of the “black box” problematic with complex algorithms can be solved by using evidence of unequal treatment. The source and robustness of (counterfactual) empirics is, however, of crucial importance for that matter. Obviously, this is a complex challenge for any auditing body. Furthermore, efficiency in the automation (if only partly) of recruitment steps might get lost as a side-effect of the necessary transparency of the algorithmic selection process. It is the calculating capacity of any cross-data sample, which determines a technical value-added by machine learning systems. Breaking up a software system for reasons of accountability, traceability and transparency endangers the overall use of the system, be it for reasons of increasing productivity or simply reducing costs and time budgets in the overall process.

3.2 How to raise awareness of the issue of gender bias in algorithms

Public auditing centres can be a supplement to auditing on company level. The implementation of AI systems in specific national business and labour contexts also means that AI has to be integrated into the respective stakeholder structures. In Germany, this means that the employees and the representatives of their interests should participate in this process from early on (in other European countries, different AI-related participation rules are in place). It is a challenge to make sure that such an early form of participation will actually and transparently take place. In practice, employers often lack access to the necessary information which they ought to make accessible for their employees and their representatives because the AI providers do not make the information transparent. Further demand for regulation has arisen from the fact that AI systems are learning in the business environment and, as opposed to non-learning IT systems, are constantly altering the technological basis. This dynamic character of learning systems is of great significance to all stakeholders and has so far been underestimated as far as regulation is concerned. Agreements concluded between social partners concerning AI systems will need to change their nature: in the place of constantly applied rules, regular consultations between the social partners and new centralised and decentralised conflict solution mechanisms will need to be planned.

Such “process agreements” may not be completely new for trade unions and workers’ representatives; however, in order to address the specific challenges of AI implementation, it will become necessary to continuously educate workers (and HR staff) in technical, legal, and especially cultural issues. This makes it possible for trade unions to enter a new field: industry-wide know-how focused on AI issues could help train and support workers’ representatives and employees. They could, for instance, participate in the certification of AI applications regarding behaviour and performance control functions, at least with standard applications. Such a certification could help avoid an inhibited implementation of AI systems by facilitating the process of employee representatives’ involvement, even though it could not replace it due to the mentioned permanent changeability of the systems (Albrecht/Kellermann 2020).

In the German system of co-determination auditing for algorithms, the measuring of outcomes, a proper risk assessment and the awareness about potential gender biases in automated recruitment processes is – in theory – rather common sense. In practice, it poses a lot of responsibility on workers’ representatives and works councils. One reason is that discrimination by AI is inherently different from human discrimination, for which there is protection by non-discrimination law and any detection of computerized discrimination demands a high level of technical insights and knowledge by any controlling instance. As Wachter et al. (2020) write, “consistent assessment procedures that define a common standard for statistical evidence to detect and assess prima facie automated discrimination are urgently needed to support judges, regulators, system controllers and developers, and claimants.”

Another recommendation to raise awareness of the issue of gender bias not only in recruitment but also in the effects on employment by the increasing use of machine learning technology is a discussion about its respective differentiated effects on female employment (Dengler/Matthes 2020). Gender specific segregation is still strong on the German labour market, most notably in so-called male jobs. By trend women work in jobs with lower income as men. However, male jobs tend to be more standardized and therefore parts of it more easily automatable by a digital system. There is an obvious danger that current structures in the labour market are reproduced and magnified by respective recruitment algorithms. Merging the discussion about German labour market's current segregation and its potential developments against the background of technological developments is another necessary step to lift the debate about discrimination into the field of a holistic technology impact assessment in the context of the future of the digital work-oriented society.

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