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Getting acquainted with Discrimination in AI-based Recruitment

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1. The situation in Denmark

1.1 New sphere for discrimination

According to a recent study, 16 % of large Danish companies and 17 % of institutions in the public sector use AI in selection and recruitment processes to shortlist possible candidates on the basis of *inter alia* occupational experience, educational background and age.[1] The Danish State utilises a recruitment system called *Statens eRekruttering,* which in 2013 processed 135.655 job applications.[2] However, according to the same study about 50% of female and male employers found that it should be possible for candidate to hide their age, gender and physical appearance until the personal interview, which indicates a substantial will not to discriminate on these criteria. The study also does not envisage an impetus towards more complex systems using AI to find the best matching candidate, although a great number of recruitment bureau advertise such services. Despite a somewhat considerable use of algorithms in recruitment there have been no studies on the discriminatory impact of the use of algorithms in relation to gender equality or equal treatment on other protected grounds, when utilised in HR. Assessing whether an algorithm can be deemed discriminatory and how a candidate is supposed to prove such discriminatory effects is an uncharted landscape in Denmark. And the perhaps not so distant future challenge of machine learning AI resulting in algorithms, which are difficult to comprehend even for experienced programmers, thus leading to recruitment or selection decisions not fathomable for the affected candidate, is also unresolved.

1.2 Effective job matching through AI

A new research project based on a collaboration between different universities and a large national recruitment company is aimed at designing the perfect algorithm for job matching by developing a machine learning solution called JobMatch based on unique data from 100.000 positions that the recruitments company's' consultants have matched manually over the last 10 years. The project is supported by the Innovation Fund Denmark with DKK 7.1 million and the tool will be built on similar algorithms to

[1] Recruitment analysis 2019 from the Danish consultancy agency Ballisager, p. 26 (only available in Danish): https://ballisager.com/wp-content/uploads/2019/08/Rekrutteringsanalysen-2019.pdf

[2] Case on Statens eRekruttering 2013 (only available in Danish): https://www.hr-manager.dk/case-statens-e-rekruttering

those used by Netflix and Spotify to recommend movies or music based on a user's previous consumption pattern. The tool will process job history, residence, and personal preferences for workplace culture in order to tailor its job recommendations to users.[3] Hopefully the collaboration between researchers and a commercial partner will lead to studies in the possible discriminatory effect of algorithms and the need for transparency in the functions of such algorithms based on machine learning. Especially considering that the data used to establish the machine learning function is based on manual matches performed by recruitment officers, which could replicate their possible gender bias.

1.3 Few cases on algorithmic discrimination

There have been no reports on documented cases of algorithmic discrimination in recruitment and selection systems. However, in late 2018 it was reported that several employers were using targeted advertising as part of their recruitment efforts by using the option to target their job adverts on Facebook aiming at male or young job candidates thereby excluding female or older Facebook users from being exposed to their job adverts.[4] This was possible through the aggregated data of the platform and gave the employers the ability to single out the recipients or viewers of their advert in contrast to non-targeted advertising forms. By using gender and age as criteria for visibility, the adverts facilitated gender and age discrimination, but the employers felt it gave them more value for money thereby not wasting the advertising budget. One of the employers was a member of the largest employer organisation in Denmark, and their response to the criticism was that, according to them, the use of targeted advertising was not in breach of the legal framework on equal treatment. One employer furthermore noted that they, besides the targeted adverts, used non-targeted adverts on other platforms in combination with the targeted adverts, thereby rectifying the possible discriminatory effect. This case led the Danish Institute for Human Rights to file a complaint with the Equal Treatment Board in March 2020 claiming that targeted advertising is in breach of the equal treatment framework.[5] The Institute argues that targeting job adverts is in violation of Section 6 of the Danish Act on Equal Treatment of Men and Women as regards access to employment etc., Consolidation Act No. 645, 8 June 2011 and Section 5 of the Danish Act on prohibition against discrimination in the labour market, Consolidation Act No. 1001, 24 August 2017. The Act on Equal Treatment of Men and Women as regards access to employment etc., prohibits job adverts in which the employer prefers candidates of a certain gender, and the Act on prohibition against discrimination in the labour market

[3] News from Copenhagen University, Department of Computer Science, September 2020: https://di.ku.dk/english/news/2020/new-project-will-crack-the-code-to-effective-job-matching-with-ai/

[4] The advert is mentioned in a news story here (only available in Danish): https://www.dr.dk/nyheder/indland/ikke-kvinder-virksomheder-maalretter-jobopslag-paa-facebook-til-maend

[5] The complaint is mentioned in Danish here on the institute's homepage: https://menneskeret.dk/nyheder/instituttet-klager-ligebehandlingsnaevnet-to-virksomheders-maalrettet-annoncering

has the same prohibition of adverts seeking or preferring a candidate of a certain age. The case highlights the concerns attributed to using AI in recruitment and the lack of transparency. The adverts are not visible to the victims and the adverts themselves do not appear discriminatory to those, who actually see the advert, thus making it difficult to establish a prima facie case. The Equal Treatment Board has yet to decide on the case.

1.4 Does it require new regulatory measures?

The Danish national legal equality framework is almost in its entirety based on the implementation of the regulatory framework provided by EU law and the Danish legislator has in most instances not chosen to use the possibility to deviate from the directives. Furthermore, public body employers are obligated to inform a candidate, who receives a rejection on a job application, of the grounds for the decision according to section 22(1) of the Danish Public Administration Act. If the decision is made by an algorithm, the responsible public authority must refer to the rules and regulations on which the decision is based. If the decision rests on so-called administrative discretion (which could be said to be the case for an algorithm processing a number of different criteria within the scope of the legal foundation on which the decision is based) the grounds must also state the main considerations taken into account as part of the administrative discretion. However, such obligation does not apply to decisions made by private undertakings.

The existing regulatory framework in theory should be sufficient to tackle algorithmic discrimination in recruitment by the partial reversal of the burden of proof stipulated in the directives. However, in order for the burden of proof to shift, the plaintiff must provide prima facie evidence of discrimination, which is difficult due to the visibility challenge mentioned before. Case law from the ECJ would suggest that a lack of transparency in a recruitment system resulting in it being impossible for candidates to verify whether they were subject to detrimental treatment leads to the employer having to prove that the algorithm is not discriminatory.[6]

Beyond the equality framework, a candidate can rely on the regulation 2016/679 GDPR for several relevant tools to achieve transparency in order to combat algorithmic discrimination such as the right to access and the right not to be subject to automated decisions, including profiling. Whether the data subject has the right to be given an understanding of the causes and correlations for algorithmic decisions is a major challenge of computer science. If the AI-decisions could and should be

[6] In the Case 109/88 Handels- og Kontorfunktionærernes Forbund i Danmark (Union of Commercial and Clerical Employees, Denmark) v Dansk Arbejdsgiverforening (Danish Employers' Association), acting on behalf of Danfoss A/S [1989] ECR 3559, para. 15, the ECJ required an employer, utilising a wage setting system, which lacked transparency, to indicate how the system applied the wage setting criteria, thus forcing transparency upon the system. And in the Case 318/86 Commission v France [1988], paragraph 27, the Court found a system of recruitment characterised by a lack of transparency, as being contrary to the principle of equal access to employment on the ground that the lack of transparency prevented any form of supervision by the national courts.

explained to the subject of the decisions, it would help make algorithmic decisions more satisfying and acceptable. However, the scholars on GDPR have heated arguments on the question if the GDPR provides data subjects with the right to explanation in case of automated decision-making.

This uncertain background could perhaps explain why a public citizen proposal for a regulation initiative was put forward in 2019 addressing the issue of algorithmic discrimination by proposing legislation, which should prohibit using algorithms in recruitment and selection containing demographic discrimination. According to the anonymous proposers, demographic discrimination was programmed into and hid in algorithms, which necessitates a prohibition in order to maintain a just and equal access to the labour market.[7]

2. Policy debate on AI in recruitment

2.1 National strategy on AI

The Danish government has taken a somewhat cautious stance on the issue so far and has not put forward any binding regulatory instruments or recommendations on the issue. In March 2019 the Government adopted a national strategy for AI, which stressed that the use of artificial intelligence should centre on shared values such as security and equality. The strategy has as its vision to be a front-runner in responsible development and use of AI placing the same requirements on algorithms as would be on an employee. According to the strategy, the algorithms must ensure equal treatment by being objective, fair and impartial of personal conditions and not reflect prejudices or biases against gender, disability or ethnic origin.

The strategy requires the government to follow up on the principles and promote active work to prevent unwanted bias and promote designs that avoid classification discriminating on ethnicity, sexuality and gender, for example. Demographic and professional diversity should be the guiding parameters in working with artificial intelligence. The strategy has, however, not resulted in any bill or draft legislation for the time being.

2.2 Discussion due to White paper

Since the European Commission's issued the 'White paper on Artificial Intelligence' it has triggered discussions in the form of a national consultation process and has given rise to public responses from *inter alia* national policy-makers. As part of the consultation process the government initiated a dialogue with a number of stakeholders, including social partners, in the framework of the White Paper consultation process. Stakeholders have *inter alia* called for non-discriminatory

[7] In order for the Parliament to be obligated to address a public citizen proposal in a hearing, it needs to receive support from 50.000 citizens, See the proposal in Danish here: https://www.borgerforslag.dk/se-og-stoet-forslag/?Id=FT-01422

outcomes which respect fundamental rights, transparency in AI design and diversity in the development of AI in order to avoid bias and EU-regulation facilitating access to the reasons behind algorithmic decisions.[8]

2.3 Recommendation from Expert Group on Data Ethics

In 2018 the Danish Government appointed a Danish Expert Group on Data Ethics to review how Danish undertakings can turn responsible data usage into a competitive advantage. The group issued their recommendations called 'Data for the benefit of people', which is *inter alia* built on the value of equality and fairness.[9] The recommendation stipulates that when using machine learning and algorithms for processing data, active work should be done to prevent undesired bias in data (such as when manually sorting and tidying data), as well as to work towards designs that avoid categorisation that discriminates between e.g. population groups. In regard to this, the rationale and criteria for methods that reduce bias and discrimination should always be explicit and open to revision. The recommendation is not a binding instrument, but as an attempt to disseminate the recommendation, the expert group issued the so-called 'The data ethics oath', whereby company directors and employees who work with data must take an oath on data ethics. The purpose of the oath is to have companies and the individual employees acknowledge that they will help put data ethics on the agenda and continually ask questions that ensure that decisions regarding advanced data use and AI are made on a well informed and ethically aware basis. When taking the oath the company in question declares to prioritize responsible data use and actively address *inter alia* the question: 'What measures do we take to ensure that our use of data is not discriminatory or biased on the grounds of sex, ethnicity or social groups?'

2.4 Recommendations within the financial sector

Another example of a policy initiative is the set of recommendations by the Danish Financial Supervisory Authority (the Danish FSA) launched in September 2019 to be followed when using supervised machine learning.[10] The recommendations highlight the issue of bias in data and stress that bias can have many sources and can give rise to inappropriate outcomes of the model. For example, bias may arise from data containing variables that are considered discriminatory, such as gender or ethnicity. The recommendations acknowledge that bias also can occur indirectly through interactions between several variables, which are not in themselves discriminatory.

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[8] See the memorandum to the European Affairs Committee of the Danish Parliament (2020): https://www.ft.dk/samling/20191/almdel/ERU/bilag/210/2171335/index.htm

[9] See the recommendations here (only available in Danish): https://dataetiskraad.dk/sites/default/files/2020-02/Recommendations%20from%20the%20Danish%20Expert%20Group%20on%20Data%20Ethics.pdf

[10] See the recommendations here: https://www.dfsa.dk/~/media/Tilsyn/Recommendations_when_using_supervised_ML-pdf.pdf?la=en

The latter can be difficult to test statistically, and development of the model and evaluation of results should therefore substantially involve experts with domain knowledge of the given topic according to the recommendation. Even though the recommendations are focused on automated decisions pertaining to the financial market, the recommendations could also be true of AI-based recruitment decisions.

3. Recommendations

3.1 How to address the issue?

There's a lack of knowledge of the potential discriminatory effects of using AI-based recruitment system and no established case law on the requirements of how to establish a prima facie case of discrimination reversing the burden of proof under such circumstances. As mentioned above, the case law from the ECJ could suggest a shift in the burden of proof in circumstance, where the recruitment system lacks transparency. However, this does not resolve targeted advertising. There needs to be more research on the effect of AI based recruitment systems, such as the research project mentioned above. The national strategy and the recommendations from the expert group are well-intended initiatives, but their effect on system developers is probably very limited. It is absolutely vital that system developers have a knowledge of and are mindful of algorithmic discrimination, but requiring their systems to be transparent is perhaps more important as it empowers the candidates to supervise the recruitment procedure. A solution involving adding a particular set of rules in the gender equality and non-discrimination law framework to combat algorithmic discrimination thereby sacrificing the present dynamic legal framework, which is based on principles and fundamental rights, is not the way to resolve the issue.

3.2 Raising the awareness of stakeholders

As mentioned above I consider the challenge of visibility to be the major obstacle to ensuring an effective protection against algorithmic discrimination both in terms of exposing discriminatory measures and none the least in terms of proving the existence of such discriminatory measures. Awareness needs to be raised on both sides and with the system developers. The candidates need to be aware of their rights under the GDPR, even though it cannot provide a solution to all instances, where a recruitment system is used.

The national trade unions could launch campaigns directed towards their members to highlight the dangers of recruitment systems.