Bachelor Thesis

In what ways are issues of gender bias addressed in the European Discourse on ADM? - Unmasking masculine domination patterns

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Submission Date: 29/06/2022
Total word count: 11.898 words

Abstract

This thesis seeks to advance the relationship between gender studies and automated decision-making in the Public European discourse on ADM. Since ADM products often have a gender bias, this study examines the extent to which this bias is addressed in the European discourse on ADM. It critically examines the extent to which masculine domination patterns are reflected in the European discourse on ADM. Significantly, a Critical Discourse Analysis following Fairclough's approach can help analyse the possibly existing masculine-dominant patterns in addressing gender issues in ADM by the European Union. In that sense, the research question is, *in what ways are issues of gender bias addressed in the European discourse on ADM?* This will form the basis of the thesis. In order to be able to conduct a Critical Discourse Analysis based on Fairclough's approach, policy documents and policy communications between 2018 and 2022 that have been submitted to or published by the European Commission (EC), will be analysed. Furthermore, CDA is carried out using verse coding to analyse both masculine patterns (discrimination) and anti-masculine patterns (anti-discrimination) in order to reduce a bias in the thesis. A Critical Discourse Analysis that examines discrimination and anti-discrimination concepts aim to study the question of how such patterns of masculine domination are reflected within the EU discourse on ADM. This method seeks to analyse the linguistic patterns in the policy documents and policy communications of the European Union on ADM regarding implied hegemonies. These hegemonies are marked by the EU discourse and the construction of masculine patterns. Finally, the result shows how masculine domination patterns shape the European Commission's Discourse.

Keywords: gender bias; automated decision-making; masculine domination; regulation; EU; inclusive technologies

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List of abbreviations

EU	European Union
EC	European Commission
EIGE	European Institute for Gender Equality
AI	Artificial Intelligence
ADM	automated decision-making
PDs	Policy documents
PCs	Policy communications
CDA	Critical Discourse Analysis
CE	Council of Europe
ETPC	Europe Technology Policy Committee

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1. Introduction

1. 1. Background

Artificial intelligence (AI) is influencing different areas of life and work. For example, automated decision-making (ADM) is increasingly deployed in job application selection or at home with Siri or Alexa to make decisions faster, easier, and more efficiently. ADM is a form of AI where decisions are made automatically without human involvement. However, despite the efficiency and ease of automated decision-making, it might also bring danger. One of the dangers of ADM is discrimination against women, which results from a gender bias in ADM. A current example is a headline by Bardhan (2022, p.1) who states, "Men Are Creating AI Girlfriends and Then Verbally Abusing Them":

"Although not exclusively, it seems that it's often men creating a digital girlfriend, only to then punish her with words and simulated aggression. These users' violence, even when carried out on a cluster of code, reflects the reality of domestic violence against women."

ADM often comes with a bias, be it a racial or ideological bias, which is highly addressed in the academic literature, for instance, by Niethammer (2020). This is notably because the research and development field of ADM lacks diversity - precisely the diversity of women (Araujo et al., 2020). Timnit Gebru [1] alluded that Google hires few women and even fewer non-white people in tech fields. Therefore, there is a diversity debate around AI, and ADM is stronger than ever, as it is dominated by companies with many male employees in Silicon Valley (Adams, 2021). Since most of the products of automated decision-making are produced by Silicon Valley and are approved by and consumed in the EU, this also has consequences for EU citizens (Kitsing, 2021). As the EU strives for values such as transparency, representation, and inclusiveness (European Council, 2021), the gender issues in ADM need to be addressed by the EU. In the parliamentary political discussions on ADM and AI in the European Union[2], little attention is paid to who makes the decisions related to the development of ADM and how it is deployed and regulated (Muehlematter, 2021). There is an increasing demand to include diverse voices in the discourse on ADM as the European Union promotes itself as an inclusive society (Engelke, 2020). Some provisions, such as ethical guidelines, state-regulatory legal decisions, or consumer rights from the European Union, already exist in this area (Hill, 2018). Based on this, it will be analysed in what ways the EU addresses the issues of gender bias in its policy documents and communications.

[1] Timnit Gebru is a computer scientist who conducts research in the field of artificial intelligence. Until the beginning of December 2020, she was Co-Head of Ethics in AI at the US technology company Google

[2] When talking about the "European Union" in this thesis, it specifically means the European Union, the European Commission, the European Parliament, the Council of Europe, the European Institute for Gender Equality, the Europe Technology Committee and the European network of legal experts in gender equality and non-discrimination.

Social and political scientists are already addressing the issue of gender bias in ADM and its discriminatory tendencies (Fritsch & von Schwichow, 2021). In addition, scholars like Orwat (2020) expose the research and development of ADM and the risks and dangers of ADM towards gender bias.

In previous research, many publications on ADM issues and future problems exist. Furthermore, scientific articles by political and social scientists are highlighted by an intersectional approach (e.g. Bauer & Lizotte, 2021). Since the topic of ADM is still relatively young, there are few publications by social scientists. Scholars like (Adams, 2021) often address the EU discourse on AI but not precisely the EU discourse on ADM. Firstly, reflecting the EU discourse on ADM would fill the first knowledge gap. Secondly, some scholars address democracy issues in AI, but the link between ADM and gender issues is underesearched (Orwat, 2020). Therefore, the study of EU discourse on ADM would fill another knowledge gap, explicitly focusing on unmasking masculine domination patterns in the EU discourse on ADM.

1.2. Research Problem

This thesis seeks to develop an answer to the research question:

In what ways are issues of gender bias addressed in the European Discourse on ADM? - Unmasking masculine domination patterns

This paper aims to analyse the potential masculine domination patterns in the EU discourse on ADM using a CDA with a focus specifically on ADM as well as the masculine domination patterns that are missing in state of the art and would thus fill the knowledge gap.

Given the knowledge gap, the research question is divided into three interpretative sub-questions:

1) *Firstly, what are the leading stakeholders that construct the European discourse on ADM?* will show which organisations from the European Union are leading the discourse on ADM. The thesis seeks to reveal those who are in the power position to shape discourse on ADM. Specifically, this thesis is interested in how women are explicitly or implicitly envisioned in this EU discourse on ADM. This fills the first knowledge gap, reflecting the European discourse on ADM in its discursive domination of power structures at the EU level.
2) *Secondly, to what extent are masculine domination patterns discernable in the European discourse on ADM?* As the discourse cannot be neutral, they are political in nature (Wilson, 2005) And given the nature of the stakeholders and their power positions, it is at least plausible (Van Dijk, 2017), that their writing and language is not devoid of gender bias and reveals a certain masculine hegemony, for instance, by discursively dwarfing or belittling women, explicitly or implicitly writing about women in a derogatory manner.
3) *To what extent are anti-masculine domination patterns discernable in the European discourse on ADM?* Clarifies the extent to which awareness, responsibility, exclusion, and inclusion are incorporated into the discourse. Sub-questions two and three fill the second knowledge gap,

reflecting the form and occurrence of masculine domination unmasked in the language and transmission of addressing gender bias in ADM.

These interpretative sub-questions lead to the answer to the research question: *In what ways are issues of gender bias addressed in the European Discourse on ADM? - Unmasking masculine domination patterns*

1.3. Research Approach

In order to answer the research question, the policy documents (PDs) and policy communications (PCs) must be interpreted, as the sub-questions are interpretative. To construct a critical engagement with social power dynamics and inequalities in the European discourse, the why and the purposefulness of actions will be asked (Keller, 2015). A CDA can only do this as it grasps and rethinks the European PDs and PCs in constructivist masculine domination patterns (Fairclough, 2017). Therefore, the CDA following Fairclough's approach (multidimensional approach) will be applied. Furthermore, the thesis aims to show how language is used in texts and contexts; therefore, the CDA following Fairclough's approach fits because he specifically analyses context, change and institutional setting. In doing so, the research design follows a qualitative deductive method (Keller, 2015).

The research is structured as follows: The second chapter explores the main arguments on gender issues in ADM, the concept of masculine domination and its connection to the European Union for the analysis. Chapter three presents the methods for case selection, data collection and analysis. Next, the structure of the CDA will be presented (Chapter 3), conducted (Chapter 4), and rounded off by answering the sub-questions. Finally, the concluding chapter will link all chapters by summarising the main arguments of this thesis and will answer the main research question, allowing for the formulation of some salient recommendations for future research and practical implications resulting from the findings.

2. Theoretical Framework

This chapter seeks to develop the main issues of gender bias in ADM and thus illustrate its relevance. First, the five leading gender issues in ADM are illustrated. Second, the issues of gender bias in ADM are reconstructed into a masculine domination lens. This helps understand the link between ADM, gender issues and masculine domination. Finally, it shows how masculine domination can be transferred to ADM and the European Union. In this context, the chapter explains how masculine domination patterns can be reflected in the European discourse on ADM.

2.1. Discourse on ADM and gender bias

To answer the main research question, it is necessary to define AI, automated decision-making and gender bias. With this, ADM is a form of AI. When defining AI, two core properties are consistently named: 1) the solution to highly complex tasks and 2) the ability to adapt to the environment (Waldmann, 2019: Araujo et al., 2020; Kaltheuner & Bietti, 2018). One concept of AI is ADM, which is used frequently in public institutions. It involves using data, machines, and algorithms to make decisions in various contexts with varying degrees of human oversight or intervention. It draws on data from databases, texts, social media, images, speech, and the like, which is then processed in various technologies (Walker, 2020).

On the one hand, many advantages, such as efficient work, occur, but on the other hand, it also creates some challenges, such as gender bias. The frequently emphasised chance that ADM is more neutral than "normal" decision-making made by humans is challenged by the previous ADM with various biases. Since routine decision-making often includes internalised biases, this gender bias is also reflected human datasets[3] of ADM. Therefore, automated decision-making can be seen as a mirror of our society. Biases in AI generally arise from erroneous data and/or its processing. The term gender bias stands for different types of gender-related distortions of perception. Conversely, technology is only as good or bad as the society producing it (Sun et al., 2019).

According to Harvard Business Review (2021), many examples illustrate this gender bias that arises during machine learning. Machine learning is the process before automated decision-making is applied and is guided by humans, which is why a human and socially influenced bias can quickly enter the process. Not at least because the AI and automated decision-making scene are male-dominated (Stathoulopoulos & Mateos-Garcia, 2019). The fewer women are involved in decision-making roles and thus in the machine learning process, the lower the quantity and quality of representatives (Park et al., 2021). The low representation creates risks for women in ADM, as discussed later. In the next section, the issues of gender bias in ADM are reconstructed.

[3] In this thesis, the term datasets is used for the process of ADM. Based on these datasets, automated decisions can be made. These entail often different type of biases (e.g. gender or racial bias)

2.2. Women in ADM Discourse

Two reasons are significant for the emergence of gender bias in ADM.

a. Lack of representation of women in AI and thus biased datasets in ADM.

b. Stereotypical clichés are also reflected in the development of AI and thus also in ADM.

These two reasons for the emergence of gender bias are strongly interrelated. When stereotypes exist, they affect access to AI research and development. Conversely, datasets based on stereotypes are created when a lack of representation exists. Furthermore, the lack of diversity is not only reflected in companies but also in the professoriate. Universities are the essential institutions where AI experts are trained. Therefore, it is even more severe when diversity is lacking here. This section lists the main issues associated with gender bias. However, it needs to be stressed that there are even more issues. Nevertheless, scientific articles frequently mention the following five leading issues (Niethammer, 2019; Fritsch & von Schwichow, 2021).

The first issue entails those women might be pushed into traditional roles. Some headlines regarding this, such as "Men Are Creating AI Girlfriends and Then Verbally Abusing Them" by Bardhan (2022), claim that "Some academic work has noted how passive, female-coded bot responses encourage misogynistic or verbally abusive users" (Bardhan, 2022). Fritsch & von Schwichow (2021) state that this also goes hand in hand with the duty of care attributed to or imputed to women.

Social scientists address a second issue: algorithms increasingly negatively influence people's lifestyles and personality development (Orwat, 2020). This development should be viewed critically, as automated discrimination against already marginalised groups repeatedly occurs in connection with data-based decision-making systems (Dräger & Müller-Eiselt, 2019; Lücking, 2020). In this context, public scandals have repeatedly been occurring for several years, such as the well-known example of the "Apple Card" credit card, where it was found that (married) women were granted lower credit limits than their (married) husbands (Hegemann, 2019). However, the promise of ADM being fairer was not kept, as algorithms cannot make neutral judgements no matter how much effort they try to make objective decisions (O'Neil, 2016). This discrimination is partly due to the outdated datasets at the time when women were not allowed to have their bank accounts. These data sets lead to women being considered less creditworthy than men (Niethammer, 2020).

Another issue is the perpetuation of heteronormative mechanisms of control and power (surveillance). Foucault's book, *Discipline and Punishment (1975),* catchily states that surveillance is a social control mechanism based on the panoptic. Freedom of expression, freedom of speech, and other critical parameters of a functioning democracy can be threatened by surveillance (Niethammer, 2020). In a patriarchal society, surveillance serves as a tool to maintain heteronormative and patriarchal power structures (Hussen, 2019). The applications are also increasingly used for digital surveillance of women and other marginalised people (Allen, 2000).

A fourth issue is the non-inclusive concept of gender and thus discrimination against the non-binary perspective. For Equal Pay Day 2019, the Berlin public transport company (BVG) came up with the idea to introduce a women's ticket to draw attention to the unequal pay for women. Women were supposed to pay less for a ticket on this day. The "Mind the Gap" campaign quickly came under criticism because the BVG used so-called Automated Gender Recognition software (AGR) on a ticket machine, which was supposed to use a camera to identify whether the person buying the ticket was a woman and therefore entitled to a discounted ticket (Klöpper, 2019). However, the system only distinguished between "male face" and "female face", a binary categorisation that has fatal consequences for queer or trans people. For instance, heteronormative, binary stereotypes such as the faces of "women" and "men" are thus perpetuated in these systems (Hay, 2019).

A final factor that has been unclear is the topic of health issues, which is higher for women due to gender bias in ADM. One example at the ADM level is online health check apps based on data collected primarily from men (Adams, 2021). According to the app, if a woman has symptoms such as pain in her left arm and back, she is diagnosed with depression. However, when male users report these symptoms, they are told to consult a doctor (Niethammer, 2021). These five issues are strongly interrelated and, at the same time, highlight an awareness of gender bias in ADM that should be addressed. This awareness is connected with the European Union's responsibility to take action against gender bias in ADM and regulate it. This is based on the idea of the inclusion of women and the targeted avoidance of the exclusion of women in AI and ADM. Therefore, the five issues are grouped under these three concepts. The stereotypes and the lack of representation will be reconstructed in the next section using the theory of masculine domination.

2.3. Concept of Masculine Domination

The gender bias that is "technological-induced" due to old data sets is related to the fact that they come from a masculine-domination perspective. The masculine domination theory by Bourdieu (2001) will help reconstruct the reasons (section 2.2) for the gender issues in ADM. Bourdieu's theory was chosen since it focuses on masculine domination, which is the issue of gender bias in ADM. Moreover, this perspective helps understand why masculine domination arises at the EU level. The presentation of the theory focuses on three essential points of *public space, habitus, and naturalisation.*

The closely intertwined concepts of naturalisation and habitus explain why stereotypes towards women exist and are reflected in ADM. If the social world establishes the difference between man and woman based on biological differences that appear as the "nature of things" *(naturalisation)*, this directly impacts the *habitus* of gender. This socially constructed difference then becomes something that appears natural as the basis and guarantee of the social view that created it. In doing so, men generally take advantage of biological differences in basic presuppositions, which leads to biological differences under social differences (Bourdieu, 2001).

The two concepts of naturalisation and habitus have implications for the third concept - the *public space.* This concept explains, firstly, why there is a lack of representation in ADM. Secondly, it explains masculine domination patterns at the EU level. Bourdieu defines public space as formal freedoms (the right to vote, education, and access to all professions, including political ones). Therefore, women are more likely to be excluded from public space due to naturalisation and imprinted habitus. However, he emphasises that excluding is not done obviously or directly (Bourdieu, 2001).

Instead, this symbolic violence (naturalisation, habitus and public space) leads to a kind of socially imposed agoraphobia (EU, University, Development of ADM) that can long outlast the lifting of the most visible prohibitions and that leads women to exclude themselves from the agora itself. The social world often suggests that women chose this for themselves. According to Bourdieu, these three concepts explain masculine domination (Bourdieu 2001) and can be transferred to the context of women's underrepresentation in AI and the issues of gender bias in ADM (Abuwatfa et al. 2021).

2.4. Masculine Domination and ADM

In this section, masculine domination is conceptualised as reflected in the EU discourse on ADM. Masculine domination also has implications for ADM: who produces them (naturalisation), the stereotypes that accompany them (habitus), and access to technologies (public space).

ADM is often seen as the technology for more innovation and progress in social, political and technological terms (Crawford, 2021). In particular, ADM helps make solutions more efficient, especially in the political and administrative sphere. ADM can therefore be seen as both technological and political instruments (Adams, 2021). This perspective is not new but is already deeply rooted in Enlightenment times. Convictions about society and nature are replaced by supposedly value-neutral scientific expertise and technical rationality (Horkheimer & Adorno, 1996). Nevertheless, scientific opinions about ADM are divided, and have a dialectical character.

Some scientists believe that ADM will make the world safer, more transparent, and more efficient (Xu et al., 2019), while some see it as increasingly mysterious (Marr, 2018). At the same time, ADM should provide realistic and democratic ways of addressing global challenges. Meanwhile, women and marginalised groups are excluded and discriminated against (Adams, 2019). This can be explained by the phenomenon of the dialectic of Enlightenment, which goes hand in hand with the development of modernity, including masculine domination. The relation between modernity, capitalism, politics, and ADM makes it clear that AI cannot be neutral (Niethammer, 2020). It focuses on a particular definition, Especially not when it comes to decision-making, which is automatically based on masculine-dominated data. Some gender scholars claim that a masculine-dominated discourse characterises the relationship between ADM and feminism. They claim that women's interests are insignificant, and those female scientists are underrepresented and stereotyped (Costa, 2019; Cummings, et al. 2020). Western countries are focused, in particular, on innovation, development and progress and less on equal rights or non-

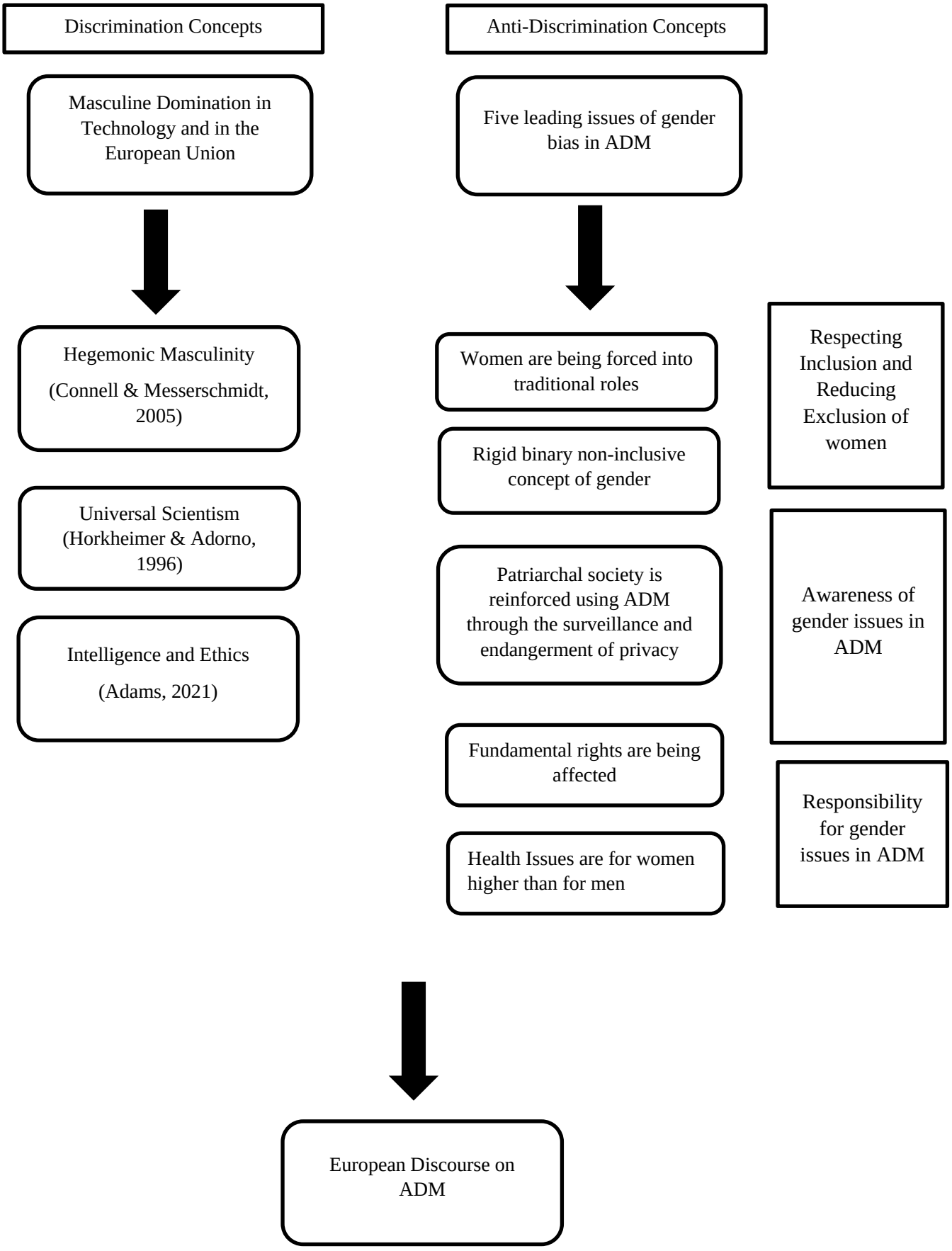
discrimination of women (Adams, 2021). This phenomenon is called Universal Scientism and is the understanding of Wallerstein (1997) and Santis (2020). Moreover, this concept is linked to a specific definition of Intelligence and Ethics as the idea of innovation and technology implies how things should be done and hence might exclude women or marginalised groups as in previous history (Adams, 2021).

Similarly, some scholars see AI as a political instrument. They argue that this is linked to potential, i.e. ADM as a neutral technology in which inputs and outputs can be understood; thus, more neutrality and equal access to professions can be ensured (Erdélyi & Goldsmith, 2018). The demasculinisation potential of AI thus depends heavily on the way it is addressed and thereby implemented. Uncovering these (non-) masculine-dominated patterns will be part of this thesis.

2.5. The European Discourse on ADM

The choice of the EU is justified by the fact that the EU, as an international organisation, is committed to non-discrimination in its constitution, especially with a focus on gender (Schiek & Chege, 2009). Similarly, citizens in the EU consume many ADM products from Silicon Valley that discriminates against women (Noble & Roberts, 2019), so the EU should act based on the law of non-discrimination. Therefore, it is analysed to what extent masculine-dominated patterns (discrimination) possibly overshadow anti-masculine domination patterns (non-discrimination). There are parallels in international relations, masculine domination, colonialism, and the global economy. This masculine domination is often explained with the concept of Hegemonic Masculinity by Connell & Messerschmidt (2005). These "manly" states are geared towards asserting the interests of men. Two concepts are of particular importance: leadership and security. The concept of leadership is about states striving for power, which is associated with masculinity and thus excludes women. Security is about maintaining power, which can be ensured through certain conditions of security (Connell & Messerschmidt, 2005). The states united in an international organisation is the EU, which strives for leadership and security. Since ADM can influence decision-making very efficiently from an economic and political point of view and thus save costs, ADM leadership would be profitable (Adams, 2021). At the same time, this ADM must be accompanied by security to remain constant. The EU does declare that it wants to become a global leader in AI and ADM (European Commission, 2021). This is evident in almost all selected EU documents on AI and digital technology. However, security is fundamental to them, i.e. cybersecurity (European Commission, 2021) — the fourth chapter analyses whether patterns of masculine domination exist in addressing gender issues. In Chapter 3, the concepts: Of hegemonic Masculinity, Universal Scientism, Intelligence and Ethics are summarised as "discrimination concepts" in Figures 1 and 2, as these concepts are based on a male-dominant perspective that results in discrimination against women.

Figure 1: Key theoretical concepts



2.6. Concluding remarks

Firstly, this chapter showed what constitutes ADM and how it is accompanied by gender bias. Secondly, the reasons for gender bias in ADM were described. Thirdly, the phenomenon was reconstructed with Bourdieu's masculine domination theory, in how far the lack of representation and the stereotypical clichés are to be viewed from a masculine-dominant perspective. As the European discourse on ADM is analysed, the connection between masculine domination, the European Union and technology is shown. These make up the discrimination concepts. Finally, the anti-discrimination concepts (Awareness, responsibility, Respect for Inclusion and Exclusion) were operationalised using the five leading issues. Given the theoretical framework, it is assumed that masculine domination patterns characterise the European discourse on ADM. In other words, it is expected to find masculine domination patterns in the European discourse on ADM.

3. Methods

The thesis aims to uncover whether and how patterns of masculine domination are reflected in the EU discourse on ADM. Hence, the logic of the chapter is to illustrate how the sub-questions will be answered. A CDA following Fairclough's approach helps unmask the discourse for its hidden connections between language and critical analysis of language use, ideologies, social (de)construction and social science perspectives (Keller, 2015). Based on Fairclough's approach, the case of the European discourse on ADM is analysed. A coding scheme is developed to transparently operationalise the discrimination and non-discrimination aspects to analyse the PDs and PCs. Firstly, it will be justified why the case of the EU is relevant. Hence, data collection will describe how and why the units of analysis will be collected. In the end, it will be illustrated how the coding scheme is developed to analyse the case and answer the research question.

3.1. Case Selection

The object is to study the case of the European discourse on ADM. Therefore, the units of analysis are the PD and PC of the European discourse on ADM. The case of the European discourse is chosen because, at the European level, there is an aspiration for more equality and the anti-discrimination clauses in the EU Treaty of Lisbon. However, contradictory, the gender issues in ADM violate non-discrimination law. Article 21 of the Charter of Fundamental Rights of the European Union states:
"Any discrimination based on any ground such as sex, race, colour, ethnic or social origin, genetic features, language, religion or belief, political or any other opinion, membership of a national minority, property, birth, disability, age or sexual orientation shall be prohibited."
On the one hand, the textual discourse data is characterised by discussions on challenges of gender bias in automated decision-making resulting in security or democratic participation problems. On the other hand, gender bias is a blind spot in some European discourses on ADM. This public is concerned about automated decision-making applications used or tested so far for the European market. Therefore, the case of the European discourse on ADM will be examined and how it is shaped by discriminating masculine domination patterns.
Relevant stakeholders are the European Commission, European Parliament, European network of legal experts in gender equality and non-discrimination, ACM Europe Technology Policy Committee, Council of Europe, Commissioner for Human Rights, Europe Institute for Gender Equality, and European Union Agency for Fundamental Rights.

3.2. Method of data collection

In order to analyse the European discourse on ADM, the data collection of textual discourse data needs to be explained. To find out how gender bias is presented in the European discourse on ADM, the AI and ADM discourses of official European documents are analysed, consisting of the published

documents of EU organisations. As the topic of AI and ADM is still very young, there are few publications specifically on ADM.

Hence not only European ADM discourses but also AI discourses are collected. Since ADM is a form of AI, it is also examined concretely in the context of the statements. Therefore, some quotes in the analysis talk about AI, but in the document context, they are related to ADM, so this can also be applied to ADM. These were collected through Eurostat, EU Data Portal and the official website of the European Commission. When selecting the documents, the focus is on whether AI, ADM or digital technologies are mentioned.

Furthermore, the main criterion is that a variety of EU actors are included to achieve greater data diversity and hence reduce the bias of only focussing on masculine domination patterns (discrimination concepts). The data selection of the purposive sampling allows for an investigation of particularly information-rich cases that provide a deep understanding as well as an understanding of what is still missing in the data (Etikan, 2016). Therefore, the cases represent a maximum variation of different European organisations and hence analyse the ambivalence of these discourses on ADM. Against this background, some EU documents are likely to focus on the innovative nature of such technologies. In contrast, other EU documents are likely to be more controversial about possible impacts on human rights, specifical discrimination against women and the gender bias accompanying it.

The data collection consists of 15 European documents, totalling 1,063 pages. Four selected European documents are PCs from the *Council of Europe*, *the Europe Technology Committee*, *the European network of legal experts in gender equality and non-discrimination and the European Institute for Gender Equality*, leaded and funded by the EU and consisting of 368 out of 1,063 pages. The other eleven PDs are from the European Commission. All documents were published between 2018 and 2022. A list of these PDs and PCs can be found in the Appendix. In Appendix A, the list of all PDs and PCs is included.

3.3. Method of data analysis

According to Fairclough, PDs and PCs from international organisations lend themselves to CDA because they are legitimised within complex chains, networks, or events (Fairclough, 2017). Therefore, they represent a possibility to unmask a possible inner bias and claims of the PDs and PCs in a structured and systematic way. In doing so, the hidden masculine domination patterns in the European discourse on ADM can be unmasked.

Since this thesis focuses on the European discourse on ADM and thus with the structural arrangements concerning discourse and power as well as the uncovering of systematic biases and discriminatory

tendencies, CDA is necessary for the thesis in terms of content and strategy (Wodak et al., 2001). Alternative strategies such as content analysis or case studies are less suitable. Since the thesis does not want to investigate the mechanisms, processes or configurations that lead to empirical phenomena, a case study would not be suitable (Bazeley, 2013). While a content analysis is suitable for analysing the content of the information in PDs and PCs (Given, 2008), the thesis aims to show how language is used in discourse; therefore, the CDA following Fairclough's approach fits because he specifically analyses context, change and institutional setting (Fairclough, 2017). In doing so, the research design follows a qualitative deductive method.

To carry out the CDA, a coding scheme must be created. A two-stage approach was chosen to analyse the PDs and PCs. Here, the analysis of the documents includes both patterns of masculine domination (discrimination codes) and patterns of anti-masculine domination perspective (anti-discrimination codes) to reduce a biased analysis focusing only on masculine domination patterns. The terms discrimination and anti-discrimination were chosen because the EU explicitly emphasises the anti-discrimination clause since the masculine domination pattern is a discriminatory concept.

The discrimination concept will be used to analyse the concepts of Hegemonic Masculinity (Connell & Messerschmidt, 2005), Universal Scientism (Wallerstein, 1997 & Santis, 2020) and Intelligence and Ethics (Adams, 2021). For the sake of simplicity, the five leading issues were divided into the anti-discrimination concepts of Awareness, Responsibility and Respecting inclusion and exclusion. Accordingly, the analysis compares actors and issues of both discriminatory and anti-discriminatory codes and concepts. Thus, the ambiguity of two opposing concepts can be examined in the same empirical space.

Anti-discrimination ensures objectivity, impartiality, validity, and dependability. Otherwise, a biased interpretation could result from portraying only one side of the debate. This used coding is called verse coding (Saldaña, 2015). Different concepts refer to either discriminatory or anti-discriminatory codes. Two further steps are added to carry out the Critical Discourse Analysis following the Fairclough approach.

After the codes have been created, the respective sections or paragraphs are analysed multidimensionally. Firstly, the macrostructure analyses the structural features of the PDs and PCs (Fairclough, 2017). It is analysed whether the discrimination and anti-discrimination concepts are found in the European discourses on ADM and which overlaps might exist. The argumentation's structure is also examined, mainly whether gender issues in ADM in European discourse are addressed. Also, masculine dominance patterns are analysed. At this point, it will be studied how the headers and other layout aspects direct the argument and what role the introduction and conclusion play in the general scheme of things.

Then, analysing the mesostructure is necessary to pay more attention to individual statements or discourse fragments (Fairclough, 2017). The five issues of gender prejudice in ADM are analysed using discrimination and anti-discrimination ideas from the theoretical framework. The microstructure analysis comes last. This means how the context informs the argument. Hence, it includes references, knowledge levels, and risk meaning. This will help to figure out the function of the intertextuality of the arguments. The second and final phase is determining linguistics and rhetorical mechanisms and how statements function linguistically.

One of the main criticisms is that CDA is very time-consuming when examining multiple PDs and PCs (Cummings et al., 2020). On the other hand, ATLAS.ti helps to work systematically and thus helps effectively in the organisation of the results and facilitates the interpretation of the meaning, interrelationships, associations, and contradictions of the research between theoretical concepts and different parts of PDs. Moreover, due to its function to jump back and forth, it is easier to construct the analysis for the reader (Friese 2019).

Figure 2: Coding Scheme

Discrimination Concepts	**Codewords**	**Anti-Discrimination Concepts**	**Codewords**
Agencies and institutions (top-down)	European Commission; European Parliament; Council of Europe; Europe Institute for Gender Equality, European Union Agency for Fundamental Rights.	Agencies and institutions (bottom-up)	European Institute for Gender Equality; European network of legal experts in gender equality and non-discrimination; Europe Technology Policy Committee¸ Commissioner for Human Rights
Hegemonic Masculinity	security; safety; fundamental rights; independence; competitiveness; leadership	Awareness of gender bias in ADM	pay gap; gender gap; job security; equal rights; social security; stereotype

Universal Scientism	cybersecurity, digitalisation, the fourth industrial revolution, progress, digital age; digital decade; digital compass; global leader; prosperity; transparency; growth productivity	Responsibility for gender issues in ADM	accountability; technology-neutral; regulation; bias perspective of homo sociologicus that technology cannot be only the solution but a challenge. Focus is more on awareness in the field of AI and ADM in development and research
Intelligence and Ethics	efficiency; innovative; ethic; intelligence; smart	Respecting inclusion and reducing exclusion of women	inclusion, representation; quotes; minorities; vulnerability; fairness; gender equality; equity; equal access; marginalised bridge; gap; disadvantage

3.4. Concluding remarks

This chapter sought to show how the sub-questions will be answered. The methods chapter illustrated why the EU was selected as a case and how the European discourse on ADM justified why a CDA is necessary. The EU discourse on ADM, PDs and PCs was selected from various EU databases. For the analysis, the CDA, following Fairclough's approach, was chosen to analyse the EU discourse on ADM concerning discrimination or anti-discrimination concepts and, if necessary, to unmask masculine domination patterns. The use of ATLAS.ti will carry out the developed coding scheme. The analysis is expected to find masculine domination patterns in the EU discourse on ADM. In Appendix C, the full description for further explanation of the coding scheme can be found.

4. Analysis

The analytical chapter examines how the EU addresses gender bias in ADM and whether this reflects a masculine dominance tendency. The investigation shows the theory's data appropriateness. Research shows that men in the EU organisation dominate the European Commission. The five primary difficulties are also addressed and implemented using masculine patterns. Neutralising wording seemed to legitimise the EU debate on ADM: EU PDs and PCs concentrate on cybersecurity and AI/ADM security to become a global leader. *Technological advancement, growth, and innovation* are crucial to becoming a worldwide leader, while PDs and PCs focus on trust and fundamental rights.

In the EU discourse on ADM, fundamental rights and gender are barely mentioned. In contrast, the EU discourse on ADM opened discussions on gender bias ethics. The analysis has three parts. First, EC political structures are occupied. The second section analyses masculine dominant patterns through Universal Scientism, Hegemonic Masculinity, and Intelligence and Ethics in EU discourse, which overlook or lose gender issues in ADM. The following section analyses the anti-masculine dominant patterns of Awareness, Responsibility, and Inclusion in the EU discourse and how gender concerns are included. This examination focuses on the EC and EIGE because they are different. However, the focus will be on the EC and EIGE. The EU discourse is then analysed in terms of masculine dominance. This helps explain why masculine dominance habits persist. The last section provides a summary of subquestions' responses. In Appendix B, the ATLAS.ti Output is attached.

4.1. The paradox of representation

The EC discourse has strong discrimination and weak anti-discrimination codes (Appendix B). If one looks at the occupation of political offices, especially of the high political decision-makers in the European Commission, the proportion of men is higher than the proportion of women (Eurostat, 2020). The European Commission's role is to represent the interests of the European Union as a whole. This also means that different interest groups, especially women, should be represented in the European Commission (Vleuten, 2012). The EC is the only institution with the right of initiative in the European legislative process; it alone can introduce legislative proposals negotiated by the Council of Ministers and the European Parliament. The EC also draws up the EU budget, which the Council and Parliament adopt. After its adoption, the Commission administers the budgetary funds (Tocci, 2019). These functions are essential to address gender issues in ADM. Although the European Commission is the only body with the right of initiative in the European legislative process, and the European Commission has funded several studies to investigate gender bias and gender issues in ADM on the European Level, significantly more discrimination codes are used. The EC-funded studies on gender bias in ADM show awareness in EC discourses of gender issues in ADM (EIGE, 2022). Nevertheless, a clear distinction is made from the anti-discrimination discourses of the European Institute for Gender Equality. In all selected funded studies of the EIGE on the part of the EC is at the beginning:

"[…]the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein." (European Institute for Gender Equality, 2022, p.2)

That means that due to the high number of male representatives, the influence on decisions is a masculine-dominant perspective. A masculine-dominant pattern marks this because the absence of women in EC positions illustrates that women are proportionally excluded from these decision-making processes (Tocci, 2019). In other words, the EC discourse is willing to have the discourse on gender bias in ADM but not criticising the masculine-dominated structures.

Kronsell (2015, p.1) stresses the reproduction of the masculine-dominant structure of the European Commission:

"[...]for the most part it studies the policy implications of European integration on gender equality focusing on women's working conditions and care responsibilities and rarely considers the ways in which gender relations are reproduced in European integration through masculine norms and gender power".

This is partly since, male positions occupy the structural organisation of the EC. This is not only about enabling women to have better conditions but also becoming a part of the legislative processes. The absence of or at least the lesser expression of a female perspective can therefore be assumed. The paradox of representation is thus that the masculine-dominated EC promotes studies on gender bias in ADM by EIGE, which explicitly addresses the underrepresentation, the reproduction of stereotypes and all five issues of gender bias in ADM mentioned in the theoretical part (EIGE, 2022). Nevertheless, the awareness of the EC discourse fails in the representation of women. This is reinforced by the lack of addressing the concrete gender issues in ADM in the EC discourse.

With that, the first sub-question can be answered: *what are the leading stakeholders that construct the European discourse on ADM?* It was shown that the leading stakeholders, particularly the European Commission, lead the EU discourse on ADM. A robust decision-making power characterises these over laws and initiatives and clear abstinence from paid studies that should address gender bias in ADM.

4.2. The European Commission as a driver of masculine domination

Hegemonic Masculinity

Not only does the masculine-dominated occupation of EC provide patterns of masculine domination, but the EC discourse also reveals masculine domination patterns. In the next step, the discrimination concepts are unmasked. At the same time, the EC discourse contains anti-discrimination concepts that are analysed in their ambivalence. The masculine-dominant occupation of the EC goes hand in hand with the concept of Hegemonic Masculinity. The concept coined by Connell & Messerschmidt (2005) sees international organisations as a reflection of patriarchy in which parallels between masculine cultures, such as power and conflict development, the global economy, colonialism and international

relations, exist. With this, the main characteristics of a reflection of patriarchy are the concept of leadership and security. Technology in a masculine-dominated concept is related to leadership, according to Hoffmann (2001). He emphasises that concepts such as leadership are themselves archaic, hierarchical and violent. Regardless of gender, concentrating on leadership is a masculine concept expressed in one person's ability to exercise domination over all other actors—the codes of leadership and security highlight EC discourse. Leadership is one of the highest codes in the EU discourse (Appendix B). The European Commission comments on power (development) in the White Paper *"European approach to excellence and trust":*

[...] "Simply put, AI is a collection of technologies that combine data, algorithms and computing power. Advances in computing and the increasing availability of data are therefore key drivers of the current upsurge of AI. Europe can combine its technological and industrial strengths with a high-quality digital infrastructure and a regulatory framework based on its fundamental values to ***become a global leader****". (European Commission, 2020, p.2)*

The emphasis here is on becoming a leader or global leader of AI and setting this as the top priority. Even if issues or problems of gender issues are addressed, the following sections still emphasise making every effort to fill the leadership position. The problems that ADM or AI can bring with it are invalidated by the fact that Europe is the driver of a human-centric approach:

"Europe can become a global leader in developing and using AI for good and promoting a human-centric approach and ethics-by-design principles."(European Commission, 2018, p.8)

The line of argumentation that the EU Commission uses is a leadership interest-driven discussion. Here the condition is set that Europe can only become a global leader if a human-centric approach is promoted. Here, the human-centric approach is an anti-discrimination concept that is ambivalent to the concept of leadership. However, the emphasis is on promoting and not on implementing a human-centric approach. In this way, the human-centric approach and ethics are used as instruments for the desired leadership. Overall, according to Hoffman (2001), the emphasis on leadership is a masculine-driven perspective because it places the concept of leadership above gender issues in ADM. Only when the status of a global leader is achieved a human-centric approach is sought. Here, the priority of leadership is at the top, while the priority of the human-centric approach plays a latter role and is not even defined. Likewise, like Hoffmann (2001), this is violent because the EU wants to become a global leader immediately and as quickly as possible, regardless of gender issues.

When gender issues are addressed in EC discourse, it is only in the context of the security concept. A male perspective dominates this. This is because security comes from masculine-dominant positions that want to provide "security" for women. On the one hand, this could be understood as an anti-

discrimination concept. On the other hand, however, the quality of a state's security is often linked to women's security (Hoffmann, 2001).

Conversely, the security of a state is also a guarantor of global leadership. In other words, the line of argument relates the improvement of gender equality to the improvement of the state's security. If global leadership is guaranteed, production is higher so it can be kept stable. Security is, therefore, not an anti-discrimination concept in the context of the EC discourse because security issues such as health issues in ADM are hardly addressed in the EC discourse. These are important because women have jobs more likely to be replaced by ADM than men (Artificial Intelligence Index, 2021). Furthermore, Hoffmann criticises those insecurities that affect women, in particular, are not sufficiently taken into account by the "malestream" approaches (Hudson, 2008). Instead, however, the focus is mostly on security concerning cyber security:

"Changes to the concept of safety: the use of AI in products and services can give rise to risks that EU legislation currently does not explicitly address. These risks may be linked to cyber threats, personal security risks (linked for example to new applications of AI such as to home appliances), risks that result from loss of connectivity, etc. These risks may be present at the time of placing products on the market or arise as a result of software updates or self-learning when the product is being used."(European Commission, 2020, p.14).

Security risks, such as the fact that women are more likely to be victims of surveillance, are not addressed here (Niethammer, 2020). Instead, security risks cannot even be clearly defined in the EC Discourse. Instead, these risks are linked to examples of "loss of connectivity" without further elaboration. The responsibility of who takes over the accountability for these security problems also remains unspecified. Therefore, consumers with particular consideration for women should be prepared that these gender issues in ADM addressed in the theoretical framework may arise. The concepts of leadership and security are also strongly related to the concepts of Universal Scientism by Santis (2020) and Wallerstein (1997). The affinity shapes the idea of becoming a global leader and mastering security issues with technology. In other words, progressive technology is the approach to becoming a global leader in AI. The concept of Universal Scientism characterises this affinity to technology.

Universal Scientism

In the ECs discourse, the codes for the concept of Universal Scientism were relatively high (Appendix B). According to Santis (2020) and Wallerstein (1997), scientism is a kind of pseudo-religious idea that can be used to explain an existing scientific truth. This is characterised by its validity and applicability across all times and spaces (Wallerstein, 1997). Its connection to masculine domination is characterised by the white western male who wants to "radicalise" nature and thus, focus entirely on technological

progress (Adams, 2021). Several passages or statements from the EC discourse reflect the concept of Universal Scientism in connection with masculine domination:

"Growth in computing power, availability of data and progress in algorithms have turned AI into one of the most important technologies of the 21st century."(European Commission, 2018, p.1)

Or

"Rapid technological progress means that the world of work will be significantly transformed, and sooner rather than later. In particular, technological changes will modify the skills required of workers, meaning that potentially very large numbers of workers will need to up-skill." (European Commission, 2018, p.5)

Or

"AI and other digital technologies can contribute to a sustained post COVID-19 recovery due to their potential for ***increasing productivity*** *across all economic sectors, creating new markets and bringing tremendous opportunities for Europe's economic growth." (European Commission, 2021, p.3)*

These statements reflect patterns of masculine domination in the form of Universal Scientism since these statements focus on the essential argument of technological change that is seen as an essential driver for economic growth and sustainable development (Adams, 2021). With the use of words like "sooner rather than later" or "significantly", the emphasis on technological progress is reinforced. The EC discourse focuses primarily on growth, which comes with technological progress, where AI and ADM are seen as the key technology of our time to become a global leader. Although the studies of potential gender issues in ADM are financed and known by the EC, the striving for technological progress predominates the EC discourses on ADM. Growth and progress are essential to becoming a global leader (European Commission, 2021).

The emphasis on innovation and technological progress illustrates the concept of Universal Scientism (Santis, 2020). Likewise, increasing productivity is highlighted. These tremendous opportunities must be caught up to become a global leader through technological progress. Despite the urgency to combat issues of gender biases in ADM, the emphasis is on the speed of development and use of AI. On the one hand, technological progress is central to becoming a global leader who is a masculine domination pattern.

On the other hand, a technology from a universal scientist approach is also considered the solution for addressing gender issues in ADM. This means that technology comes first, then the solution to gender issues in ADM. This view that the development of technology is prioritised has already been seen in the above quote:

"Europe can become a global leader in developing and using AI for good and promoting a human-centric approach and ethics-by-design principles." (European Commission, 2018, p.8)

It foregrounds technology's speed and "tremendous opportunities" to catch up with AI knowledge and become a global leader. Despite the numerous funded studies from the European Commission that have examined the issues and recommendations of gender bias in ADM and point to the need to implement the issues of gender bias in ADM, this is given little attention and, at some point, ignored as gender issues are seen as something that hinders technological progress in the EC discourse. Technological progress is often hindered by the fact that the discussion lies in the responsibility and accountability of risks and gender issues in ADM, what intelligence and how intelligent ADM are, and what trust can be given to them - i.e. the question of intelligence and ethics. Therefore, the European Commission has published a White Paper on a European approach to excellence and trust. *Nevertheless, how does the EC discourse define ADM and intelligence?*

Intelligence and Ethics

The European Commission defines ADM as:

"a generic 'umbrella' term that refers to systems that rely on data and computational infrastructure to display intelligent behaviour by analysing their environment and taking actions - with some degree of autonomy - to achieve specific goals. It encompasses technology from algorithms to deep neural networks (ADM)". (European Institute for Gender Equality, 2022, p.89)

In the EIGE discourse, the EC is criticised for taking an approach of understanding AI and ADM together by simply opting for the technological view. Here, EIGE proposes to include a gender-sensitive perspective. Despite this, according to the EIGE report, the EC does not address a gender-sensitive view of AI. Instead, the EC discourse is based on not achieving a standard fair and gender-responsive strategy. Instead, the EC discourse is concerned with seeing ADM as intelligent enough, which is also primarily granted autonomy. According to the EC definition, this means that something can be determined as "intelligent" in the sense of society. Thus, if the environment is characterised by stereotypes and the lack of representation of women, the EC discourse does not work against gender issues in ADM but accepts the status quo. Furthermore, EC discourse does not address alternatives on how to address stereotypes or women's lack of representation. Furthermore, if reference is made to achieving the goals associated with growth and innovation, the claim that ADM is more neutral and equitable than humans must be critically questioned if the environment determines technology.

In other words, the focus of the EC discourse is that machines act "intelligently" enough to achieve technology, growth and the goal of global leadership. However, the EC is aware that only with trust from the public can acceptance of ADM increase. Artificial intelligence is capable of following and

acting according to ethical rules, but it cannot be said to have the moral capacity humans can ethically justify for the following reasons: Technologies cannot be said to have a conscience. This is also clear to the European Commission, and so the strategy of the White Paper is called: a European approach to excellence and trust. Here, as with intelligence, the concept of trust plays a renewed role. This is how it is emphasised:

"To gain trust, which is necessary for societies to accept and use AI, the technology should be predictable, responsible, verifiable, respect fundamental rights and follow ethical rules." (European Commission, 2018, p. 7).

It becomes apparent that the European Commission recognises a criticism of ADM and AI of the EIGE Discourse. However, to continue technological progress and become a global leader, the solution is "trust". This "trust" is expressed by creating the impression that technology is manageable - a marketing narrative. Similarly, an implicit distinction is made between fundamental rights and ethical rules, even though they go hand in hand. Subsequently, "ethical rules" are in no way defined or established. It is merely emphasised:

"This strategy supports an ethical, secure and cutting-edge AI made in Europe. It builds on Europe's scientific and industrial strengths and is based on three pillars: increasing public and private investments in AI, preparing for socio-economic changes and ensuring an appropriate ethical and legal framework." (European Commission, 2018, p.1)

Or

"By earning people's trust, the envisaged risk-based legislation should foster the uptake of AI across Europe and boost Europe's competitiveness" (European Commission, 2021, p.7).

Apart from the fact that the term "risks" does not describe the dimension of what gender issues exist and the term implies much more than only a potential and not a currently escalating danger exists. Instead, as the title of the PD, "a European approach to artificial intelligence to excellence and trust," suggests, it is an approach to generate trust for an excellent booming economy.

The concepts of Universal Scientism are evident in conjunction with Intelligence and Ethics. While the AI strategy is to follow an ethical ADM, it is linked to scientific and industrial strengths to boost the economy by increasing socio-economic changes and public and private investments. Socio-economic changes should also include gender issues. However, this is not explicitly addressed. The emphasis on "preparing" for socio-economic changes should also be noted here. This should be seen as something with a future perspective and less as an acute urgency. Instead, it is essential to emphasise that it is

cutting-edge made in Europe. Europe is the leader in scientific and industrial strengths, reflecting the concept of Universal Scientism and Hegemonic Masculinity.

If these not clearly defined high risks should apply to ADM products, the European Commission offers the following options to generate trust and thus include the ethical as well as an anti-discriminatory perspective:

	Option 1 EU Voluntary labelling scheme	Option 2 Ad hoc sectoral approach	Option 3 Horizontal risk-based act on AI	Option 3+ Codes of conduct	Option 4 Horizontal act for all AI
NATURE OF ACT	An EU act establishing **a voluntary labelling scheme**	**Ad hoc sectoral acts** (revision or new)	A single binding **horizontal act on AI**	Option 3 + code of conducts	A single binding **horizontal** act on AI
SCOPE/ DEFINITION OF AI	One definition of AI, however applicable only on a voluntary basis	**Each sector can adopt a definition** of AI and determine the riskiness of the AI systems covered	**One horizontally applicable AI definition** and methodology for determination of high- risk **(risk-based)**	Option 3 + industry-led codes of conduct for non-high-risk AI	**One horizontal AI definition,** but no methodology/or gradation **(all risks covered)**
REQUIREMENTS	Applicable only for **voluntarily labelled AI systems.**	Applicable only **for sector specific AI systems** with possible additional safeguards/ limitations for specific AI use cases per sector	Risk-based horizontal requirements **for prohibited and high risk AI systems** + min. information requirements for certain other AI	Option 3 + industry-led codes of conduct for non-high-risk AI	For **all AI systems** irrespective of the level of the risk

Figure 3: Options for high-risk AI from the European Commission for the European Parliament (European Commission, 2021, p.36)

Trust is represented here by options that are intended to prevent high-risk AI. However, independent oversight, addressed in the EIGE discourse, is not brought in. Independent oversight refers to groups that independently assess what is ethically correct and to what extent AI may go concerning fundamental rights. Instead, companies are responsible (option 2 in Figure 3). Moreover, a masculine-dominated perspective from the EU Commission defines high risk in a fixed, vague and circular way. This definition does not include that women are even more frequently affected by job losses, for example. It does not address the fact that the masculine-dominated tech industry reproduces gender issues. Instead, a great responsibility is left to companies that are criticised precisely because of their masculine-dominated structure. Monitoring is to be served by "authorities" who are considered "competent", i.e. intelligent enough.

Similarly, the aim of combating the high risks is not to create fewer tendencies towards discrimination. Instead, this trust is based on trusting "competent" authorities. These, in turn, are supposed to promote competitiveness, reflecting the concept of Hegemonic Masculinity and Universal Scientism. The discourse of power structures also becomes apparent here. On the one hand, the discourse is reflected in what is defined as (not) intelligent and (not) competitive by masculine-dominated structures. On the

other hand, it becomes visible that these "competent authorities" are responsible for what is trustworthy and what is not. Overall, the discourse serves a masculine-dominated perspective that advocates the expansion and promotion of technology as a measure of intelligence and competitiveness.

To sum up, intelligence is defined by progressive technological AI and is attempted through trust, but by setting up masculine-dominated options that do not directly address the risks. The concepts of Hegemonic Masculinity, Universal Scientism and Intelligence and Ethics are not separable in the analysis context. The discourse of leadership (Hegemonic Masculinity) is used to justify competitiveness (Universal Scientism). However, to elegantly avoid critical confrontations, an attempt is made to establish trust. This trust is used circularly and vaguely in the EU's PDs and PCs to make it appear that the European approach to gender bias in ADM is fair and controllable

4.3. The EU, ADM and Anti-Discrimination

To prevent bias, anti-discrimination codes were examined. The EIGE discourse has a relatively high number of anti-discrimination codes. Nevertheless, this discourse also contains discrimination codes. The analysis in this section is to interpret this ambivalence. As mentioned in the earlier chapter, it becomes clear that the EIGE, the European network of legal experts in gender equality and non-discrimination, and the Europe Technology Policy Committee were prompted by the European Commission to investigate gender issues specifically and gender bias in ADM and to propose possible solutions.

The concept of awareness in the EIGE discourse is very high. Overall, all gender issues described in the theoretical part are addressed. These are also provided in great detail with examples and even with recommendations, which would be the task of the European Commission to remedy or avoid for the most part in the future. The European Institute for Gender Equality emphasises this:

"Challenges are evident in automation of work, non-standard forms of employment, the AI workforce and algorithmic management of the workforce. AI also contributes to the reproduction of gender stereotypes, sexism and discrimination, and enables new forms of gender-based violence." (European Institute for Gender Equality, 2022, p. 81)

In concrete terms, discrimination is also addressed as anti-discrimination within the framework of fundamental rights, not only vaguely and circularly as in the discrimination group codes. The Europe Technology Policy Committee states:

"Ensuring gender-fair research and improving gender inclusion in software may have significant societal implications in many domains: healthcare, finance, education, and others." (Europe Technology Policy Committee, 2019, p. 19).

This distinguishes it from the European Commission's proposal of *"a European approach to excellence and trust"* as it addresses concrete issues of gender bias in ADM. At the same time, however, the EU Discourse is ambivalent:

"In those cases, the choice implicit in the regulation would be that the respect of the fundamental right in question (in this case: non-discrimination) prevails over the loss of economic activity. Nevertheless, given the size of the EU market, which in itself accounts for 20% of the world market, it is very unlikely that the limited additional costs of algorithmic transparency and accountability would really prevent the introduction of this technology to the European market."(European Commission, 2021, p. 74).

Especially as it points out that anti-discrimination is above the loss of economic activity, and thus accountability should be borne. At the same time, this argument swings into a discrimination code in which technology is seen as something unstoppable. Moreover, it becomes clear which priorities are given to algorithmic transparency and accountability: a shallow one. Thus, the discourse here remains between an anti-discriminatory society but at the same time a society that is technologically controlled. This is characterised by the one masculine principle: leadership. Thus, the EU discourse is not only technologically controlled but a masculine-dominated principle. The focus seems to be on the inexorability of the progress of technology as an anti-discriminatory technology.

Moreover, the EIGE discourse points out that one can look between a philosophical and engineering perspective on AI. They emphasise that the philosophical perspective is a gender-just and fair perspective that looks for new technologies. This is different from the engineering-oriented perspective that the European Commission takes, based on a pragmatic and only technological definition of AI. On the one hand, the EIGE discourse aims to address the problems of gender issues, which is also done concretely for the most part. On the other hand, the authors take a substantial distance from the EU. This is not only because they criticise the EU's approaches to ADM. Instead, it indicates that although space is created for the authors, the power structure over the scope of action of regulations still lies within the European Commission (European Institute for Gender Equality, 2022).

The EIGE discourse also addresses the concept of more active inclusion and hence less exclusion. In particular, stereotypes should be combated, which is mentioned quite frequently in the EIGE discourse. (European Institute for Gender Equality, 2022).

This not only explains the cause of gender bias but also addresses its implications for the labour market and that far too little is being done to combat these stereotypes. Overall, there are both anti-discrimination and discrimination discourses on ADM. However, a masculine-dominated power structure is implied:

"For the same reasons, a legally binding transversal instrument should contain provisions on ensuring that gender equality and rights related to vulnerable groups and people in vulnerable situations, including children, are being upheld throughout the lifecycle of artificial intelligence systems." (Council of Europe, 2021, p.5)

On the one hand, it is addressed that transversal instruments are needed to control gender equality and thus gender bias in ADM. Nevertheless, it is remarkable that women are placed next to vulnerable groups. Furthermore, these vulnerable groups are associated with children, equally transferred to women. Hence, it creates a distinctive attitude from men towards women. This symbolic expression is intensified by the fact that women live in a separate system that ADM could reinforce. It becomes clear here that AI is brought as a solution to this inequality. Instead, women are denied competencies in the masculine-dominated society that ADM must bring closer to women - instead of acknowledging the problem that AI puts these women at a disadvantage. This exclusion from the public space is taken for granted, and the emphasis on inclusion becomes higher:

"AI-based technology can exacerbate gender stereotypes, often to achieve better marketing outcomes." (European Institute for Gender Equality, 2022, p. 30).

However, reasons must be found for the demand for inclusion. Thus, sections in which inclusion occurs as an anti-discriminatory code are linked to discriminatory codes. This statement shows that gender inclusiveness is usually seen as a disadvantage and that there is an advantage to be gained from inclusion. This advantage is emphasised by the concepts of Hegemonic Masculinity and Universal Scientism because it focuses on technological progress to achieve better marketing outcomes to become a leader finally. Furthermore, inclusion is supposed to create an economic advantage that can lead to growth and thus to leadership for Europe. This problem is also emphasised by the European Institute for Gender Equality (2021):

"However, the lack of awareness of gender issues or systematic gender mainstreaming is a missed opportunity to develop new, gender-responsive regulations." (European Institute for Gender Equality, 2022, p. 87).

It is pointed out here that the gender issue receives little awareness. This makes it clear that the options in Figure 3 are not gender-responsive regulations.

In terms of *responsibility and accountability*, the EIGE discourse takes a different position from that of the European Commission discourse. The European Agency for Fundamental Rights emphasises:

"In addition, situations of potential bias or discrimination cannot be easily solved by simply excluding information on the protected group from the dataset." (European Agency for Fundamental Rights, 2018, p. 8).

In contrast to the European Commission's options to tackle high risks, both stakeholders emphasise that the problems of gender issues lie much deeper than just eliminating algorithmic errors. Here, the discourse circulates on who takes responsibility for the risks of gender bias. While the EU Commission shifts the responsibility to companies to eliminate gender issues, the European Council (2021) emphasises:

"Private sector actors that design, develop or implement algorithmic systems should follow a standard framework for human rights due diligence to avoid fostering or entrenching discrimination throughout all life-cycles of their systems. They should seek to ensure the design, development and ongoing deployment of their algorithmic disabilities or who may face structural inequalities in their access to human rights." (Council of Europe, 2020, p. 12).

The emphasis here is that the ultimate responsibility and assessment of discrimination against human rights should be determined by a standard framework of the European Union. In contrast to the European Commission, which does not propose independent oversight, but instead shifts the responsibility to companies (Figure 3), the discourse of the Europe Technology Policy Committee (hereafter referred to as ETPC) emphasises:

"Development teams of software (and in particular of ADM systems) must follow best practice in diversity and inclusion. This may require the involvement of non-profit organizations to formulate gender-inclusiveness guidelines and assign roles and responsibilities to appropriate bodies for their application. Gender awareness must be considered necessary and basic knowledge for computer scientists and engineers." (Europe Technology Policy Committee, 2019, p. 5).

This is not just about gender inclusiveness. Guarantee independent oversight instead. A social scientist best handles the ethical framework for this subject. Independent monitoring representing multiple perspectives and organisations that might assess the risk of prejudice independently of economic and political interest would make ADM's developer responsible and accountable. EIGE discusses all five ADM gender issues. These are often ambivalent with EC discourse. EIGE discourse is less common than EC discourse. This is because EC discourse occurs in masculine-dominated power structures. This represents the masculine-dominated ADM discourse

4.5. Concluding remarks

To summarise the answers to the sub-questions, firstly, *what are the leading stakeholders that construct the European Discourse on ADM?* revealed that the EC and EIGE are leading the discourse on ADM. However, the power position of the EC is much stronger as it can initiate regulations and hence influence regulating gender bias in ADM. The thesis seeks to reveal those in the power position to shape discourse on ADM. Specifically, this thesis is interested in how women are explicitly or implicitly envisioned in

this EU discourse on ADM. The first knowledge gap is filled by reflecting the European discourse on ADM in its discursive domination of power structures at the EU level.

Secondly, *to what extent are masculine domination patterns discernable in the European discourse on ADM?* revealed that the discourse is neutral; they are political (Wilson, 2005). The discrimination codes were very high and revealed the implicit and explicit discrimination of women in the EU discourse on ADM. The non-addressing in the EC discourse of all gender issues in ADM showed that little attention is paid to them. If this has happened, it is only with the concepts of Hegemonic Masculinity, Universal Scientism and Intelligence and Ethics. This is because the focus is on technological progress leading to a global leader in AI. Given this, trust must be achieved in order to convince excluded groups. In the EIGE discourse, however, all five issues of gender bias were addressed. Despite this, they were occupied with discrimination concepts, especially the concept of Hegemonic Masculinity - an efficient economy of ADM through the inclusion of women.

Accordingly, *the third sub-question (3) to what extent are anti-masculine domination patterns discernable in the European Discourse on ADM?* clarified that awareness, responsibility, exclusion and inclusion are little incorporated into the discourse. However, they were still marked by masculine domination patterns. Sub-questions 2 and 3 filled the second knowledge gap, reflecting the form and occurrence of masculine domination unmasked in the language and transmission of addressing gender bias in ADM.

5. Conclusion

5.1. Answer to the Research Question

Two knowledge gaps needed to be filled:

Firstly, the knowledge gap in analysing EU Discourse on ADM filled the gap as previous research has only focused on AI since its recentness (Orwat, 2020). Secondly, another knowledge gap s filled by unmasking masculine domination patterns in addressing gender issues in ADM at the European level. With the Critical Discourse Analysis, different ways of masculine domination patterns in the EU's ADM discourse were reflected. This phenomenon was examined explicitly at the European Commission and European Institute for Gender Equality discourse as both were contradictory and similar. However, both were the prominent leaders in the EU Discourse on ADM, focusing on discrimination and anti-discrimination concepts. The mechanism of versus coding unravelled the dialectic behind this co-occurrence to obtain a clear distinction and explanation for the existence of masculine domination and anti-masculine domination patterns in the same empirical space. The coding scheme and the use of the qualitative research software programme ATLAS.ti illustrate the existence of various patterns of masculine domination within the EU discourse on ADM. The most salient ones were highlighted in the analysis, along with some aspects that would indicate anti-discrimination (anti-masculine domination) but turned out to be rare compared to the discrimination codes. At the level of the EC and EIGE, the predominant factors are the issue of representation and the part of the policy process that the discourse represents. Evaluation reports or policy recommendations are more likely influenced by masculine actors, especially the EU institutions, which hold the most decision-making power. Therefore, patterns of masculine domination are more deeply embedded in the outcomes of the political process than in the discussion of issues. Thus, the EU as an international organisation generally seems to provide an appropriate forum to discuss ADM issues in an anti-discrimination sense (Sinclair, 2018), but the outcomes still reflect persisting masculine domination hierarchies (Nikita & Dhawan, 2015; Halperin & Palan, 2015). Furthermore, the EIGE discourse showed a high potential for anti-discrimination, as stakeholders may be able to speak as representatives for the marginalised.

Nevertheless, the action level of the analysis deepens the interpretation that the mere representation of anti-discrimination actors does not automatically lead to anti-discrimination actions. First, at the linguistic level, usage reflects discriminatory language. Second, the often-implicit mission of feminist prosperity, which places the EU as the 'saviour' bringing peace and democracy, also explores such patterns (Santis, 2020). Although there seems to be a general awareness of anti-discrimination issues, they are largely ignored by concrete AI and ADM-related policies and recommendations. Third, the underlying themes and ideologies, in particular, reproduce patterns of masculine domination, as there is an extraordinary gap between discriminatory and anti-discriminatory codes at the level of 'concepts' (Santis, 2020). Nevertheless, the limitations still need to be mentioned. AI and ADM are new; the EU

started including the topic in its PDs and PCs only in 2018. Therefore, the availability of EU PDs and PCs on AI and ADM is deficient, and only 15 documents could be selected for the analysis. Moreover, the two main EC and EIGE discourses do not reflect the underlying thinking and structures of the EU. Therefore, the limitation of a CDA is that the interpretation of the results has focused only on the strongest discrimination and anti-discrimination concepts. Last but not least, the distinction between quantity and quality of the coded statements has to be criticised. The number of coded statements was the decisive factor in classifying a discriminatory concept.

5.2. Practical Implications

The EU and international organisations must promote eye-level dialogue on gender issues in AI and ADM with various stakeholders, i.e. NGOs that deal with gender issues in ADM. This is especially true of ADM technologies, regardless of the respective context. Feminist organisations should be helped to create analysing methods for ADM, such as Explainable AI, that match their demands. Women's inclusion in every part of the process chain and their acknowledgement are crucial. Anti-masculinisation requires both eye-level and bottom-up conversation. This reduces the likelihood of perpetuating masculine dominance and generates a general approach.

Third, gender-equitable cooperation and research must be fostered. This means that EU enterprises, researchers, and institutions should be financially and ideologically supported via ADM systems. Recognising gender imbalances and inequalities regarding hegemonies and masculine power structures in AI and ADM politics of the EU is necessary. These factors directly empower women. For the EU, this entails including women and marginalised groups in AI and ADM policy discussion, implementation, and evaluation. It entails studying and implementing policies and technology in their respective context. The EU should financially and diplomatically support this. Lastly, to develop a discourse at eye level, the EU should confront masculine-dominant concerns and their hidden patterns of masculine dominance – anti-masculinisation takes time. This thesis shows that this procedure needs a lot of work and adjustment but is realistic and crucial for developing a gender-equal ADM results has focused only on the strongest discrimination and anti-discrimination concepts. Last but not least, the distinction between quantity and quality of the coded statements has to be criticised. The number of coded statements was the decisive factor in classifying a discriminatory concept.

5.3. Implications for Future Research

This research makes it unlikely that the status quo will eliminate hegemonic power relations. This concerning report demands more study. Critical ADM scholars could promote a gender-just legal framework. Given the EU's self-image as an open and inclusive society, AI and ADM ethics research are desirable. This is because many issues remain regarding how to handle the power of new

technologies and their impact on society. Critical gender studies should go beyond Western academic work to the global South to encourage various viewpoints and issues.

In addition to scientific implications, political and corporate teleology require explicit regulators. ADM technologies should be evaluated for gender responsiveness and regulated accordingly. Examine the discriminatory legislation constraints that apply to ADM inventions. Alternative (political) narratives may be needed to increase sensitivity to possibilities and change. Thus, future researchers can draw from the fullest: the dataset of existing literature, research, examples of application, and regulation can and must be constantly enlarged to include a reformatory lens to avoid biases and contribute to a genuinely open and inclusive society.

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Appendix A: Units of Analysis – European Policy documents and policy communications

1. **Council of Europe.** (2020a). Unboxing artificial intelligence: 10 steps to protect human rights. Commissioner for Human Rights. https://www.coe.int/en/web/commissioner/-/unboxing-artificial-intelligence-10-steps-to-protect-human-rights

2. **Council of Europe.** (2020b). Council of Europe. Recommendation CM/Rec(2020)1 of the Committee of Ministers to member States on the human rights impacts of algorithmic systems. https://search.coe.int/cm/pages/result_details.aspx?objectid=09000016809e1154

3. **Council of Europe.** (2022). Ad hoc Committee on Artificial Intelligence (CAHAI). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52018DC0795

4. **European Commission.** (2018a). Guidelines on Automated individual decision-making and Profiling for the purposes of Regulation 2016/679. https://ec.europa.eu/newsroom/article29/items/612053/en

5. **European Commission.** (2018b). Coordinated Plan on Artificial Intelligence. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52018DC0795

6. **European Commission.** (2020). White Paper On Artificial Intelligence - A European approach to excellence and trust. https://ec.europa.eu/info/sites/default/files/commission-white-paper-artificial-intelligence-feb2020_en.pdf

7. **European Commission** (2021a). Communication on Fostering a European approach to Artificial Intelligence. Shaping Europe's Digital Future. https://digital-strategy.ec.europa.eu/en/library/communication-fostering-european-approach-artificial-intelligence

8. **European Commission.** (2021b). Regulation of the European Parliament and of the Council Laying down Harmonised Rules on Artificial Intellgence Act and Amending Certain Union Legislative Act. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0206

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10**. European Commission.** (2022). Data Act: Proposal for a Regulation on harmonised rules on fair access to and use of data. https://digital-strategy.ec.europa.eu/en/library/data-act-proposal-regulation-harmonised-rules-fair-access-and-use-data

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12. **European Institute for Gender Equality. (**2022). Artificial intelligence, platform work and gender equality. https://eige.europa.eu/publications/artificial-intelligence-platform-work-and-gender-equality-report

13. **European Parliament.** (2020). Automated decision-making processes: Ensuring consumer protection, and free movement of goods and services - Wednesday, 12 February 2020. https://www.europarl.europa.eu/doceo/document/TA-9-2020-0032_EN.html

14. **Europe Technology Policy Committee.** (2019). Gender Bias in Automated Decision Making Systems. https://www.acm.org/public-policy/europe-tpc

15. **European Union Agency for Fundamental Rights.** (2018). BigData: Discrimination in data-supported decision making. https://fra.europa.eu/en/publication/2018/bigdata-discrimination-data-supported-decision-making

Appendix B: ATLAS.ti Output

Agencies an... 4 4		Agencies an... 3 11		Awareness 5 50		hegemonic... 6 166		Intelligence... 5 113		Respecting i... 11 121		Responsibili... 4 55		Universal Sc... 10 85		Sum	
1	1,72%			19	32,76%	6	10,34%	5	8,62%	20	34,48%	2	3,45%	5	8,62%	58	100,00%
		1	7,69%			5	38,46%	4	30,77%	1	7,69%	2	15,38%			13	100,00%
1	11,11%			4	44,44%					2	22,22%	2	22,22%			9	100,00%
1	4,17%			1	4,17%					15	62,50%	5	20,83%	2	8,33%	24	100,00%
		1	8,33%	2	16,67%	1	8,33%			4	33,33%	3	25,00%	1	8,33%	12	100,00%
		1	2,17%	1	2,17%	17	36,96%	11	23,91%	2	4,35%	3	6,52%	11	23,91%	46	100,00%
		1	1,67%	5	8,33%	11	18,33%	13	21,67%	19	31,67%	2	3,33%	9	15,00%	60	100,00%
		1	1,67%	1	1,67%	29	48,33%	8	13,33%	3	5,00%	2	3,33%	16	26,67%	60	100,00%
		1	2,27%	4	9,09%	10	22,73%	16	36,36%	1	2,27%	1	2,27%	11	25,00%	44	100,00%
		1	2,00%	1	2,00%	13	26,00%	6	12,00%	20	40,00%	9	18,00%			50	100,00%
		1	1,08%	2	2,15%	30	32,26%	38	40,86%	9	9,68%	1	1,08%	12	12,90%	93	100,00%
		1	3,57%	3	10,71%	5	17,86%	3	10,71%	9	32,14%	7	25,00%			28	100,00%
4	0,66%	11	1,82%	50	8,26%	166	27,44%	113	18,68%	121	20,00%	55	9,09%	85	14,05%	605	100,00%

Appendix C: Description of Coding Scheme

Stakeholder

Discrimination Concepts	**Codewords**	**Anti-Discrimination concepts**	**Codewords**
Agencies and institutions (top-down)	A clear choice was made between European organisations. The European organisations mentioned in *Figure 2* were considered a top-down perspective as they are staffed by many men (Eurostat, 2020). Similarly, these European organisations are not independent as they act under certain political constraints (European Commission, 2021).	***Agencies and institutions (bottom-up)***	These are bottom-up organisations (Figure 2), operating independently of political constraints. Although they are financially dependent on the top-down institutions, they work purely scientifically with various science faculties from Europe. Therefore they are independent. (European Union, 2022)

Issues

Hegemonic Masculinity	The concept of hegemonic masculinity is characterised in particular by the concepts of leadership and security. To achieve these, on the one hand, the protection of fundamental rights is essential, i.e. to guarantee the state's security. But, on the other hand, this is connected to independence and competitiveness. (Connell & Messerschmidt, 2005)	**Awareness of Gender Issues in ADM**	Some feminist scholars use awareness to focus on specific issues of gender bias. In particular, this is an awareness that stereotypes exist. This means that equal rights need to be established. These go hand in hand with the fact that there is a gender and pay gap and that social security should first be ensured to make this awareness more apparent. (Niethammer, 2019)
Universal Scientism	The belief is that technology can fix anything. Along with this, ADM is also a solution rather than an issue for gender bias. It starts from a	**Responsibility for gender issues in ADM**	In contrast to universal scientism is the concept of responsibility. It assumes that the state and organisations show consideration for

	perspective of neutrality. Therefore, concepts related to innovation, growth, progress, cybersecurity and proudktivität are essential here. These aspects only allow for progress in the research and development of technologies. (Wallerstein, 1997 & Santis, 2020)		marginalised groups and women. Technological progress also goes hand in hand with certain groups being disadvantaged. So this goes along with the fact that ADM is not yet ready to include non-binary perspectives. The perspective of the non-binary is difficult to capture because it is based on specific social ideas (Hay 2019; Fritsch & von Schwichow, 2021).
Intelligence and Ethics	According to Adams (2021) both concepts are value-laden and differentiate between "powerful" and "non-powerful" (as not intelligent) people	**Respecting of inclusion and reducing inclusion of women**	The debate about what is intelligent and ethical enough is contentious. However, as defined by Adams (2021), certain vulnerable or disadvantaged people are excluded regarding intelligence. Hence, this comes with an ethical approach to fairness, equal access, inclusion, and representation. (Dräger & Müller-Eiselt, 2019; Lücking, 2020)