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**Artificial intelligence on the European Commission's agenda: the path towards a
regulatory proposal**

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1. Introduction

Artificial intelligence (AI) technologies are increasingly used in public and private services available daily to citizens of the European Union (EU) (European Commission, 2020, p. 1). The European Union alone aims to invest 1 billion per year in AI development (European Commission, 2021b, p. 1). While the use of AI technologies has great industrial and practical benefits, such as mitigating climate change, improving healthcare and security, these technologies also pose certain risks. The most prominent risks are discrimination, lack of transparency of how AI makes decisions, data collection, and threats to citizens' privacy (Katzenbach & Ulbricht, 2019, pp. 6-7). These risks may have a far-reaching effect on the population as AI is used more and more. Therefore, AI governance and regulation have emerged as relevant topics among policymakers and academics in the EU and globally. Authors note that insufficient and slow policy change in the area of AI has consequences for the access to justice by citizens, emphasizing the need for improved legislative tools to control and monitor the development and use of these technologies (see Hacker, 2018; Kullmann, 2018; Katzenbach & Ulbricht, 2019; Larsson, 2020). As such, in the European Union, there is a turn towards policymaking in the area of AI, with the scope of minimizing risks, while maximising the benefits of using AI. EU's turn towards AI as a policy issue is the focus of this research.

One of the priorities of the incoming European Commission of 2019 was creating a 'Europe fit for the digital age', which includes strengthening the EU's role in developing and regulating the use of AI (Leyen, 2019). Specifically, in the realm of AI, the Commission's approach focuses on incentivising innovation in AI, while upholding standards of human rights and privacy (Larsson, 2020, pp. 2-3). Two years after the swearing-in of von der Leyen's Commission, in April 2021, a proposal for a regulation of the use of AI was published (European Commission, 2021a). This research aims to understand the factors that led to the creation of this regulatory proposal. Therefore, the research question is:

What factors explain the creation of the Commission's proposal for a regulation on artificial intelligence?

The Multiple Streams Framework (MSF) will be the theoretical lens used to answer this question. MSF seeks to explain policy change using five elements: the problem stream, the policy stream, the politics stream, the policy window, and a policy entrepreneur (Cairney &

Zahariadis, 2016, pp. 96-102). These five elements will be applied in an attempt to explain policy change in the area of AI.

Current literature on AI governance in the EU mostly provides policy recommendations and often socio-legal content analyses of EU documents relating to AI regulation (see Hacker, 2018; Katzenbach & Ulbricht, 2019; Larsson, 2020; Koulu, 2020; Borutta, Haag, Hoffmann & Kevekordes, 2020). As such, there is little scholarship on the agenda-setting processes surrounding AI and the factors that have contributed to high attention and the creation of the regulatory proposal in 2021. Therefore, this research aims to provide an insight into the factors that led to the high attention given to the issue of AI regulation and ultimately to the creation of the regulatory proposal. The research moves away from analysing the content of the regulatory proposal and other preceding documents and rather focuses on the process of AI becoming a politically salient policy issue on the Commission's agenda.

The practical relevance of this research is that by understanding when and why policymakers pay attention to issues created by the use of AI technologies, we are able to understand what facilitates successful policy change in this area. As authors note, the use of AI in our everyday lives and various sectors of the economy is increasing (Hacker, 2018, p. 1144), all the while regulation is lagging behind technological advancements (Larsson, 2020, p. 11). As evidence on the risks of using AI is mounting, AI regulation is increasingly becoming a global topic of conversation (Katzenbach & Ulbricht, 2019, pp. 2-3). In this global discourse, the EU often presents itself as a leader in developing policies regulating the digital sphere (Engström, 2018). As such understanding the factors that facilitated the process of policy change on AI in the EU can contribute to the knowledge on how to obtain high agenda attention, develop similar regulations abroad, and continue improving ones in the EU.

To sufficiently explore this question, this paper is divided into five sections. Section 2 provides relevant definitions, an overview of existing literature on AI regulation in the EU and introduces existing debates on the theoretical framework, MSF, and its applicability. Section 3 elaborates on the method chosen to answer the research question, process tracing, and operationalizes relevant concepts. Section 4 provides the analysis of the collected data, by applying MSF and analysing the presence of each element, and discusses the research findings. Finally, section 5 summarizes the main findings, and reflects on potential strengths and shortcomings of the research with the scope of identifying further research avenues on AI as a policy area in the EU.

2. Literature review

This section firstly defines AI, secondly, provides an overview of existing literature on AI regulation, and thirdly, introduces the theoretical framework of MSF and existing debates around it.

2.1 Defining AI

AI is an umbrella term encompassing a variety of technologies used in many sectors (Gasser & Almeida, 2017, p. 2), leading to an array of different definitions of the term. The Commission's White Paper, a document preceding the regulatory proposal on AI, utilizes a definition developed by the High-Level Expert Group on AI (HLEG). The expert group was established in 2018 and consists of representatives from academia, civil society organizations, and the private sector (Larsson, 2020, pp. 2-7). According to them:

“Artificial intelligence (AI) refers to systems that display intelligent behaviour by analysing their environment and taking actions—with some degree of autonomy—to achieve specific goals.” (High-Level Expert Group on AI, 2019, p. 1)

While this definition has been applauded by some authors as accurately encompassing the complexity of AI technologies (Borutta et al., 2020, p. 2), others have pointed out shortcomings in the usefulness of such a definition. According to Larsson (2020), a more multidisciplinary definition is needed (p. 5), while Borruta et al. (2020) point out that this definition needs to be amended to be applicable in a legal context (p. 2). The Commission's proposal for a regulation on AI, published in 2021, utilizes a different definition. For the purposes of this research, the definition used by the regulatory proposal will be accepted at face value, since it is beyond the scope of this essay to evaluate the quality of this definition. According to this definition:

“‘Artificial intelligence system’ (AI system) means software that is developed with one or more of the techniques and approaches listed in Annex I and can, for a given set of human-defined objectives, generate outputs such as content, predictions, recommendations, or decisions influencing the environments they interact with” (European Commission, 2021a, p.

39)

For clarity, Annex I refers to the following techniques and approaches:

“(a) Machine learning approaches, including supervised, unsupervised and reinforcement learning, using a wide variety of methods including deep learning;

(b) Logic- and knowledge-based approaches, including knowledge representation, inductive (logic) programming, knowledge bases, inference and deductive engines, (symbolic) reasoning and expert systems;

(c) Statistical approaches, Bayesian estimation, search and optimization methods.”

(European Commission, 2021a, p. 1).

2.2 Risks of AI as a motive for regulation

To explore the development of AI regulation, it is important to set the ground on why scholars view regulation as a suitable response to the risks posed by AI technologies. As the use of AI expands to more sectors of the economy, increasingly used by advertisers, employers, insurance companies and more, the population that could be affected by its risks also increases (Hacker, 2018, pp. 1144-1171; Larsson, 2020, p. 3). Understanding these risks is the first step to establishing the value of AI regulation, and as such, the relevance of studying the Commission’s approach to creating such regulation, which is the scope of this research.

The first risk posed by AI is the expanding amounts of citizen data collected through the use of the technology, a phenomenon known as datafication, and how this could be used for purposes of surveillance (Katzenbach & Ulbricht, 2019, p. 6). If citizen’s privacy is not adequately protected, this poses a risk to civil and human rights, affecting citizen’s freedom of assembly, freedom of speech, right to privacy, and so on (Katzenbach & Ulbricht, 2019, p. 6).

Secondly, AI poses a risk due to its lack of transparency (Katzenbach & Ulbricht, 2019, p. 6). Namely, humans are not always able to understand the decision-making processes that lead AI technologies to produce certain outputs, making it hard to understand why and where biases may arise (Katzenach & Ulbricht, 2019, p. 6).

Relatedly, the fourth risk is bias and discrimination perpetuated through the use of AI (Katzenbach & Ulbricht, 2019, p. 7). AI poses a threat to marginalized communities due to biases perpetuated through the use of the technology (Hacker, 2018, pp. 1143-1144), which could further reproduce existing inequalities in society (Katzenbach & Ulbricht, 2019, p. 7). For example, AI algorithms used in employment procedures correlated a good candidate with characteristics such as their gender or their race, rather than just their performance (Hacker, 2018, p. 1149). This discrimination occurs because AI technologies do not simply follow pre-

decided rules, but rather learn through the data they are given, which can contain human biases (Hacker, 2018, pp. 1146-1147). This bias is rarely intentional, i.e. biased on purpose by the developer (Hacker, 2018, p. 1152). Most often the bias is not apparent to humans, making it hard to correct (Hacker, 2018, pp. 1146-1149). This, as Hacker (2018) points out, is insufficiently addressed in existing anti-discrimination legislation, and thus requires further regulation (p. 1143).

To address these concerns, regulation is offered as a solution that adequately protects citizens from these risks through legal mechanisms (Larsson, 2020, pp. 11-12; Hacker, 2018, p. 1143). The following section will provide an overview of the literature relating specifically to AI regulation.

2.3 Existing work on AI regulation in the EU

Existing literature across disciplines, such as computer science, socio-legal analysis, and ethics all highlight the importance of protecting citizens from the above-mentioned risks (see Hacker, 2018; Larsson, 2020; Kullmann, 2018; Katzenbach & Ulbricht, 2019). Authors note that the call for more governance on the issue is a global trend, stretching beyond the EU, though different countries take different approaches (Larsson, 2020, pp. 2-6; Katzenbach & Ulbricht, 2019, pp. 2-3).

There are various forms of governance and regulation that authors put forward. Katzenbach and Ulbricht (2019) focus on “algorithmic governance” on a global scale, which is the idea that AI needs to be regulated by “social ordering and coordination between actors” (p. 2), which can include both soft and hard law. Scholars studying the EU call for variations of legislation to tackle AI risks. Kullmann (2018) calls on “lawyers and companies to intensify debate around algorithms and their impact on gender disparity” (p. 20). Others provide more concrete proposals, such as Hacker (2018) who focuses on strengthening the applicability of existing laws, such as anti-discrimination laws and the General Data Protection Regulation (GDPR), onto issues specific to AI (p. 1184). Larsson’s (2020) work analyses the White Paper on AI published by the Commission in 2020, specifying the need for more robust regulatory solutions (p. 11). From this overview, it could be observed that earlier work, in 2018, focuses on improving existing legislation, whereas the prospect of regulation specific to AI becomes more imaginable in later years such as 2020, explaining the difference in the solutions offered by the authors.

Existing work generally focuses on either deepening knowledge on the nature of the problems AI poses (see Kullman, 2018; Hacker, 2018), or providing specific policy recommendations and solutions to address AI risks (see Larsson, 2020; Vaele, 2019; Hacker, 2019; Katzenbach & Ulbricht, 2019). A socio-legal perspective is often applied to understand the issue (see Larsson, 2020; Koulu, 2020). While there is immense value in this work, due to the contemporaneity of the issue many aspects remain under-researched. As such, existing literature scarcely, if at all, addresses how this issue arrived on the Commission's agenda and which factors have led to the creation of the regulatory proposal in 2021. This research aims to fill the gap in the literature and provide an agenda-setting perspective to the issue of AI regulation in the EU specifically. With this, it contributes to our understanding of when and why policymakers choose to pay attention to the issue of AI, which can further help efforts in developing relevant policies.

2.4 Overview of the Multiple Streams Framework (MSF)

As noted previously, to understand the factors that led to the creation of the regulatory proposal, the Multiple Streams Framework (MSF) theory will be applied. This framework has been subject to extensive literature, especially relating to its applicability to the EU context. As such it is important to highlight debates and potential shortcomings, as well as benefits to using this framework.

MSF is a valuable approach to studying agenda-setting and policymaking processes under uncertain, ambiguous conditions. It was originally developed to apply to the US' policymaking processes (Cairney & Zahariadis, 2016, p. 87). The starting point of the theory assumes that policymakers' rationality is bounded, which means that their decisions are constrained by time, incomplete information, and unclear preferences (Ackrill, Kay & Zahariadis, 2013, pp. 872-873). MSF also rejects the idea that policymaking is a linear process, but rather a messy one, where problems, solutions, and political attention all exist independently and interact in unpredictable ways (Cairney & Zahariadis, 2016, p. 87).

Furthermore, the language of MSF is flexible, and thus deemed applicable to many different political contexts, including the EU (Cairney & Zahariadis, 2016, p. 88). MSF accounts for the complexity of the EU's policymaking process, where power is shared across a multitude of actors and policy outcomes are uncertain (Cairney & Zahariadis, 2016, p. 93). However, its universal and flexible language to explain policy change has also been subject to criticism. Notably, a lot of the elements used in the theory are unclearly defined, which made its

applicability to other systems, like the EU, difficult (Ackrill et al., 2013, p. 879-882). Herweg's (2016) work aims to define functional equivalents of the concepts of MSF applicable to the EU (p. 13). Due to the clarity of Herweg's (2016) theoretical contribution, this research will closely follow her adaptation of the theory in the context of the EU, with some modifications.

MSF consists of five main elements. These are the problem stream, the policy stream, the politics stream, the policy entrepreneur, and the policy window (Ackrill et al., 2013, p. 872). Simply put the following conditions need to be fulfilled for a policy change to occur: the three streams need to be ripe, a policy window needs to open, and there should be a policy entrepreneur that couples the three streams to successfully translate the issue into a policy change (Herweg, 2016, pp. 15-21, Cairney & Zahariadis, 2016, pp. 90-92).

Firstly, the problem stream refers to the moment in which an issue is seen as problematic, and as such deserving of attention by policymakers (Cairney & Zahariadis, 2016, p. 90).

Herweg's (2016) work stipulates that the problem stream is ripe if there is either an indicator, a focusing event, or feedback relating to existing policy programs that signals that the issue at hand requires policy-makers' attention. If either one of these mechanisms succeeds at increasing attention, the problem stream is considered ripe (p. 18).

Secondly, the politics stream relates to whether or not policymakers pay attention to an issue and commit to it (Herweg, 2016, pp. 18-19). According to Cairney and Zahariadis (2016), a change in the 'national mood', feedback from interest groups, or a change in government may provide a motive for the executive government to commit to an issue (pp. 91-92). In the case of the EU, Herweg (2016) proposes adjustments to this concept, since executive power in the EU is shared among the Commission, the Council, and the European Council (p. 18). To adapt this concept to the EU, the politics stream is considered ripe if the Commission commits itself to a policy area (Herweg, 2016, p. 19). Additionally, the idea of a 'national mood' is dropped from the application of MSF to the EU, as Herweg (2016) argues that the EU does not have a public sphere per se, and because the issues dealt with by the EU are often highly technical and may go unnoticed by the public (p. 19).

Thirdly, the policy stream is defined by the existence of a solution (Cairney & Zahariadis, 2016, p. 90). It is important to note that according to Kingdon's conception, solutions are independent from problems and the ripeness of the problem stream (Cairney & Zahariadis, 2016, pp. 90-91). Instead, they are part of an evolving process, where solutions are made in

anticipation of future problems, or constantly modified to be more acceptable and feasible, until there is a moment when they can be used and connected to a specific problem (Cairney & Zahariadis, 2016, pp. 90-91). The policy stream itself is considered ripe, in the context of the EU, when there is at least one solution idea available to a problem that is practically feasible and acceptable at base-level to a variety of actors (Zahariadis 2008, p. 518; Herweg, 2016, p. 21).

Fourthly, a policy window or a 'window of opportunity' refers to moments in time that provide momentum for policy change (Cairney & Zahariadis, 2016, p. 100). According to Herweg (2016), a policy window is open when there is a change in either the problem or the politics stream (p. 19). Moments in which a policy window has the potential to open are: when one of the executive bodies of the EU starts paying attention, signalling a ripening of the politics stream, or when the problem stream ripens signalling that an issue is considered problematic (Herweg, 2016, p. 19). Additionally, whenever a new Commission is sworn in or whenever the Commission's annual working program is published, there is a potential policy window opening (Herweg, 2016, p. 20). During policy windows, the policy entrepreneur has a fleeting chance to couple the streams and create momentum for policy change (Cairney & Zahariadis, 2016, p. 100).

Finally, a policy entrepreneur is an individual or a collective actor looking for the best strategies to translate a problem of interest into policy change (Ackrill et al., 2013, p. 872). This means that the policy entrepreneur finds ways to connect solutions to problems, persuade policymakers to adopt proposals, overcomes opposition, and creates coalitions with the ultimate goal of creating policy change (Cairney & Zahariadis, 2016, p. 101). According to some scholars, the Commission acts as a policy entrepreneur in the EU; however, the concept of policy entrepreneurs has been criticised for its lack of clarity, according to which the line between policymakers and policy entrepreneurs becomes blurry (Ackrill et al., 2013, p. 881). Herweg's (2016) definition of policy entrepreneur suffers a similar shortcoming, as she refers to the Commission as both an executive government relevant in the ripening of the politics stream and a policy entrepreneur. In this sense, Herweg's (2016) contribution does not help clarify the concept. For this reason, a broader definition of policy entrepreneur will be maintained in this research, as suggested by Ackrill et al. (2013) whereby a policy entrepreneur need not be a singular actor but rather can be any actor that exercises specific behaviours (p. 882). These can consist of framing techniques, overcoming opposition on a

topic, and consistently advocating for attention to the issue (Cairney & Zahariadis, 2016, p. 102; Herweg, 2016, p. 18).

With this approach in mind, this research expects that the theory will produce explanatory factors for the creation of the regulatory proposal on AI. As Ackrill et al. (2013) point out, there is an ever-growing number of policy areas in the EU to which MSF can be applied (p. 885). In that sense, this research contributes to literature which aims to test and improve MSF's applicability to EU's policymaking and agenda-setting processes.

3. Methodology

This section explains the methodology used to answer the research question and provides an overview of the research design.

3.1 Process tracing

In order to apply MSF to this research question, the method used will be explaining-outcome process tracing. This qualitative method is case-specific and seeks to explain an outcome by providing a minimally sufficient explanation. A minimally sufficient explanation accounts for a multitude of factors that have contributed to the outcome (Beach and Pedersen, 2013, pp. 18-19), in this case, to the creation of the proposal for a regulation on AI by the European Commission. Kay & Baker (2014) note that process-tracing allows for a rich exploration of causal factors that lead to policy outcomes, taking into account the complex relations between actors and temporality in policy-making processes (pp. 2-18).

3.2 Research design

To collect data, this paper analysed 20 primary and secondary data sources. Of these eleven are media articles and blog posts, chosen because they directly comment on the EU's approach to AI regulation in the timeframe 2018-2021. The articles come from media outlets commenting on politics or technology, such as Euractiv, The Economist, Politico EU, Computer Weekly, and PhysOrg, among others. Four commission documents directly related to AI were used, namely the Coordinated Plan on AI (European Commission, 2018), the White Paper on Artificial Intelligence (European Commission, 2020), the regulatory proposal on AI (European Commission, 2021a), and the revised Coordinated Plan on AI (European Commission, 2021b). Other EU documents were used, such as the Ethics Guidelines published by the High-Level Expert Group on AI (2018), a speech by former Commission president Jean-Claude Juncker (2018), as well as the political guidelines for the incoming Commission by Leyen (2019). Two peer-reviewed articles were also used - Larsson (2020) and Benkler (2019), chosen because they are published in renowned journals and provide an in-depth analysis on AI regulation in the EU. Lastly, one policy brief from a European think-tank is part of the analysis - Franke & Sartori (2019). The full list of sources can be found in Appendix 1.

This range of data allows for an analysis of the elements of MSF over time. The timeframe analysed is between 2018, the year in which the High-Level Expert Group on AI (hereafter HLEG) was appointed, and April 2021, when the proposal for a regulation on AI was

published. This timeframe allows for a process analysis of the evolution of AI policy over time.

The collected data is analysed by identifying the presence of each of MSF's five elements, such as the ripeness of each of the three streams, the presence of a policy entrepreneur, and an opening of a policy window. As such, the following section summarizes how each element of MSF is operationalized for the purposes of this research.

3.3 Operationalization of MSF's elements

MSF element	Indicators
Problem stream	Ripe if: <ul style="list-style-type: none"> • Indicators, such as statistics, signal increasing severity and presence of an issue. • Focusing event(s) or crises render the issue visible and increase attention by policymakers. • Feedback on existing policy - an existing policy is failing to address an issue or further exacerbates it, or an existing policy requires a review after a certain period of time (Cairney & Zahariadis, pp. 97-98).
Politics stream	Ripe if: <ul style="list-style-type: none"> • The European Commission, specifically referring to the College of Commissioners, commits itself to an issue, for example through the publishing of the annual working plan or defining its political priorities (Herweg, 2016, p. 19).
Policy stream	Ripe if: <ul style="list-style-type: none"> • There is at least one available solution, which is feasible (implementable) and acceptable to relevant actors (Zahariadis, 2008, p. 518; Herweg, 2016, p. 21).
Policy entrepreneur	Actor that: <ul style="list-style-type: none"> • Frames the issue, • Consistently advocates for attention to be brought to the issue, • Overcomes opposition through negotiation and compromise (Cairney & Zahariadis, 2016, p. 102; Herweg, 2016, p. 18).
Policy window	Opened by: <ul style="list-style-type: none"> • Ripening of the politics stream, i.e. the Commission paying attention to an issue, a new Commission being sworn in, or the Commission's working program being published, all of which provide an opportunity for new priorities and attention to new issues (Herweg, 2016, pp. 19-20). • Ripening of the problem stream, as issues seen as problematic create calls for action (Herweg, 2016, p. 19).

Table 1. Operationalization of the five elements of MSF.

4. Qualitative analysis

4.1 Problem stream

As noted previously, the problem stream is characterised as ripe if *indicators, focusing events, or feedback on existing policy* point to the problematic nature of a certain issue (Herweg, 2016, p. 19). In the analysed documents we can observe the ripening of the problem stream in the timeframe from 2018 to 2021.

Documents by the Commission, specifically the Coordinated Plan on AI in 2018 and the White Paper on AI in 2020 put great emphasis on the presence of AI in our everyday society and various sectors, such as healthcare, farming, climate change mitigation, production systems and security (European Commission, 2020, p. 1; European Commission, 2018, p. 1). The documents emphasize both the value of AI as a technology and its risks – limiting citizen's freedom of thought, gender-based discrimination, violation of privacy, and the use of AI for criminal purposes (European Commission, 2020, p. 1).

"[AI] will change our lives by improving healthcare (...), increasing the efficiency of farming, contributing to climate change mitigation and adaptation, (...) and in many other ways that we can only begin to imagine. At the same time, Artificial Intelligence (AI) entails a number of potential risks, such as opaque decision-making, gender-based or other kinds of discrimination, intrusion in our private lives or being used for criminal purposes." (European Commission, 2020, p. 1)

This is notable because it signals that the Commission uses existing research in order to frame the use of AI as a potentially dangerous phenomenon. That is to say, it relies on indicators from existing research to frame the issue as problematic. As such, it puts forward the view that the use of AI is not neutral, and may have consequences for EU citizens. By specifically mentioning discrimination, privacy, and crime, the Commission signals that AI technologies affect citizens in ways that require action by public institutions. Public institutions are the ones that ensure non-discrimination, citizen's privacy, and security, and the EU already legislates these areas. Therefore, framing the issue in terms of precisely these risks implies a responsibility by the EU to take action on the problem.

Furthermore, the problematic nature of AI is reiterated time and time again by researchers and media. Media has made reference to focusing events as a way to emphasize the risks of AI, notably, scandals such as Cambridge Analytica, which raised concerns about online privacy and misuse of user's data, or civilian deaths caused by driverless cars using AI

technology (Sloane, 2018). These events have created public attention and awareness of the issues surrounding AI, but it is unclear to what extent they have contributed to the ripening of the problem stream in the EU, as the documents analysed do not make specific reference to these focusing events.

The ripeness of the problem stream is affirmed in the proposal for a regulation on AI, which is the focus of this research. Namely, a section of the proposal lists fourteen rights of EU citizens, as encoded in the EU Charter of Fundamental Rights, which would be strengthened if AI is regulated by the EU (European Commission, 2021, p. 11). Read inversely, this signals that these rights are harmed by the status quo in which AI is not regulated. Therefore, the Commission frames AI as a problematic issue because it undermines existing legislation that serves to ensure the rights of EU citizens. In so doing, the Commission provides feedback to existing policy, which indicates the ripeness of the problem stream.

“The use of AI (...) can adversely affect a number of fundamental rights enshrined in the EU Charter of Fundamental Rights. (...) the proposal will enhance and promote the protection of the rights protected by the Charter (...).” (European Commission, 2021, p. 11)

Ultimately, it is clear that at the point at which the proposal was published, the problem stream was ripe. The Commission, in reference to indicators and feedback to existing legislation, but not necessarily focusing events, has successfully framed the issue of AI use as problematic.

4.2 Politics stream

The politics stream is considered ripe if the European Commission commits to an issue (Herweg, 2016, p. 19). The analysis of the data points to the fact that the Commission has dedicated itself to AI as a policy issue by explicitly prioritising AI regulation and setting timeframes for the development of strategies and policies targeting this issue. This is most visible in the approach towards AI of the incoming Commission in 2019.

Firstly, in 2018 the former Commission appointed the High-level Expert Group for Artificial Intelligence (HLEG), tasked with creating ethics guidelines and policy proposals on the use of AI, based on epistemic knowledge. The Commission appointing a specific body that would serve as a policy advisor on the topic of AI can be interpreted as a ripening of the politics stream. This is because it signals an intention of the Commission to utilize these policy recommendations in the future development of policy or legislation on AI.

Secondly, with the incoming of the new Commission in 2019, it could be argued that the politics stream became evidently ripe. This is because the Commission set out to create legislation on AI as one of its goals in the political guidelines (Leyen, 2019, p. 13). In doing so, it defined the issue of AI as a priority and set specific timeframes in which development of policy can be expected. This is clear evidence of commitment by the Commission, further strengthened by the fact that the statement was made by the president of the Commission, von der Leyen.

"In my first 100 days in office, I will put forward legislation for a coordinated European approach on the human and ethical implications of Artificial Intelligence." (Leyen, 2019, p. 13).

Thirdly, the commitment towards regulation was further clarified with the publication of the White Paper on AI in 2020. White papers by the Commission are by definition documents that encourage action by the EU on a specific issue ("Glossary of summaries", n.d.). Therefore, with the sole publishing of the White Paper on AI, the Commission signalled a clear commitment to act on the issue of AI. In the White Paper, the Commission emphasized its dedication to upholding the rights of citizens while reaping the benefits of new technologies (European Commission, 2020, p. 1).

Ultimately, the politics stream could be considered ripe since the swearing-in of the Commission in 2019, because of the clear prioritisation of AI in the political guidelines, further re-affirmed by the White Paper and the subsequent publication of the regulatory proposal.

4.3 Policy stream

To reiterate the operationalization of this concept, the policy stream is ripe when there is at least one available solution, which is feasible and acceptable to the relevant stakeholders (Herweg, 2016, p. 21). The policy stream can be seen as ripe because the Commission has proposed a specific idea in response to the issue. However, this section will attempt to show the complexities of the ripening of the policy stream, especially in terms of the condition of acceptability of the policy idea to relevant stakeholders (Herweg, 2016, p. 21).

In the regulatory proposal, the European Commission notes that it assessed four policy options to address concerns related to AI use (2021, p. 9). Out of these, a preferred one was chosen according to a set of socio-economic standards (European Commission, 2021, p. 9). This signals that according to the Commission, there were four possible solutions, out of

which one was deemed most robust and feasible. While this shows that there was more than one policy idea available, and thus that the policy stream is ripe, the sources analysed make it difficult to establish the acceptability of this idea to the wide array of relevant stakeholders. Sources point to divergent views, especially between businesses and civil society actors, in response to the Commission's approach to regulating AI.

Civil society actors are represented in the AI expert group HLEG, with representatives from groups such as Access Now, ANEC, and BEUC (Larsson, 2020, p. 7). They have also been part of the consultations leading up to the regulatory proposal in 2021, with 160 civil society organisations submitting their feedback on the White Paper on AI (European Commission, 2021, p. 8). Due to their involvement in the process, it is important whether the solution put forward by the Commission is acceptable to civil society actors. The main criticisms of civil society organizations were that the EU's approach is "lukewarm" and "vague" (Metzinger, 2019), and allows the industry to influence the development of regulation (Benkler, 2019). The regulatory proposal, published in April 2021, was received positively by some actors, who applauded the choice to treat AI under a separate regulation, as is the case with other unique technologies such as nuclear or airline technologies (Humphreys, 2021). However, criticisms remained. Human rights advocates criticised the vagueness and potential loopholes in the proposal, signalling that perhaps the policy solution proposed is not acceptable to a part of the civil society ("The EU wants to become the world's super-regulator in AI", 2021).

The private sector has also been represented in the discussion on AI, with representatives from companies such as Google, Zalando, and Bosch in the HLEG (Larsson, 2020, p. 7). While the business sector has not opposed the Commission's commitment to AI regulation, business representatives have allegedly lobbied in favour of softer and less binding language in documents published by HLEG (Metzinger, 2019). Upon the publication of the regulatory proposal in April 2021, business groups criticised the regulatory burden and limitations in how they use AI technologies ("The EU wants", 2021). Considering that AI technologies are immensely valuable financially, and stricter regulation may have economic costs (Heikkilä, 2021), it is important whether the policy ideas put forward by the Commission are acceptable to businesses and companies.

The disagreements between civil society and business representatives may lead to the impression that the policy stream is not ripe because the proposal is not accepted by all stakeholders. However, it is important to distinguish between a lack of consensus among

stakeholders and a lack of base-level acceptability. Ultimately, the proposal for legislation will be reviewed, amended, and changed in consultation with all the relevant stakeholders over a few years, including bodies within the EU such as the Parliament and Council (“The EU wants to become the world’s super-regulator in AI”, 2021). The fact that not all stakeholders agree on all parts of the proposal does not necessarily indicate that the policy stream is not ripe. At a base level, stakeholders agree on the importance of AI regulation and engage with the documents published by the Commission in an attempt to improve them according to their interests. This means that base acceptability is present among the multitude of actors, despite the disagreements on specific aspects of the regulation. Most importantly, there is a feasible policy solution available presented by the Commission. As such, the policy stream can be considered ripe despite the ongoing discussions between stakeholders.

4.4 Policy entrepreneur

A policy entrepreneur ensures that an issue receives consistent attention, policy windows are utilized, and that opposition is overcome through compromise (Ackrill et al., 2013, p. 882; Ciarney & Zahariadis, 2016, p. 102). The sources analysed point to the Commission as the policy entrepreneur in the case of AI regulation.

The Commission’s influence is visible by the pace with which the Commission has been developing policy initiatives on AI since 2018. HLEG, appointed in early 2018, was tasked with creating ethics guidelines on the use of AI, which were subsequently published in December 2018. One of HLEG’s members noted that the Commission set strict deadlines for the publication of these guidelines and encouraged a fast pace of HLEG’s work (Teffer, 2018). One way to look at this is that the ethics guidelines served as a basis for future work on AI regulation, and it was important that they were published before the opening of a policy window opened by the swearing-in of the new Commission in 2019. This is precisely a type of behaviour associated with policy entrepreneurs, who anticipate policy windows and seek to make the most of them (Ackrill et al., 2013, p. 882).

Furthermore, the Commission’s role as an initiator of legislation but also a technocratic body of the EU puts it in a favourable position to advocate for the regulation of AI. As one author points out, the Commission is the only body that could set “red lines” for AI (Metzinger, 2019). These “red lines” refer to unacceptable uses of AI, based on the severity of the consequences they have on citizen’s rights, and have been subject to controversy and disagreement particularly by business representatives (Metzinger, 2019). The author refers to

the incoming Commission of 2019 as the only body which could exercise a level of advocacy that can supersede the interests of companies. According to him, other groups such as HLEG have to compromise based on the interests of various representatives, among which are business representatives, and thus have less leeway to advocate for robust legislation. The Commission is therefore described as a body that has the ability to overcome opposition, and resist it if necessary, further contributing to the idea that the Commission takes on the role of policy entrepreneur.

“Given this situation, who could now develop ethically convincing “Red Lines” for AI? Realistically, it looks as if it can only be done by the new EU Commission that starts its work after the summer.” (Metzinger, 2019)

Furthermore, the Commission can be seen as a policy entrepreneur because of the strategic approach to framing the issue of AI regulation. The Commission does not only frame the issue of AI as a response to ethical risks, but also in terms of global competition in the use of AI technology. This framing attracts more attention from various institutional bodies within the EU and external stakeholders, sustaining high attention to the issue of AI on the agenda. Since the leaders in the industrial development and use of AI are the US and China, the EU is also trying to assert its role in this global race (Martinkenaite, 2018; Metzinger, 2019). The Commission’s advocacy for policies regarding AI aims to establish the EU as a global pioneer in setting standards for the ethical use of AI (Engström, 2018). As such the work of the Commission can also be analysed outside the EU’s borders, in terms of how the development of EU regulation affects the global discourse on AI and the EU’s position in it. From here, we can view the Commission as a policy entrepreneur because it strategically chooses the framing of the issue that would bring the most attention from most stakeholders. In the case of AI, framing the issue in terms of both the EU citizen’s rights, but also EU’s importance as a global actor leads to higher attention on the agenda, making the Commission’s approach entrepreneurial.

4.5 Policy window

Finally, the policy entrepreneur serves to make use of a policy window opening and advance policy change. A policy window opening is triggered by the ripening of the problem stream or the ripening of the politics stream (Herweg, 2016, pp. 19-20). In the case of AI, we could argue that the policy entrepreneur has successfully used policy window openings to sustain attention given to the issue.

As the use of AI is becoming more and more widespread, there is an increasingly global discourse around how to regulate the use of this technology (Sloane, 2018). This can be seen as a window for policy change within the EU which benefits the Union on an international level. As noted previously, the US and China are seen as the two leaders in the development and use of AI (Martinkenaite, 2018). In this context of international competition, the Commission has assumed the role of advancing the EU as a leader in setting standards for the use of AI (Engström, 2018). In his speech, Jean-Claude Juncker, the president of the former Commission noted that:

“It is because of our single market – the largest in the world – that we can set standards for big data, artificial intelligence, and automation. And that we are able to uphold Europeans’ values, rights and identities in doing so. But we can only do so if we stand united.” (Juncker, 2018, p. 5)

Globally, there is a lack of robust legislation on the ethical standards in the use of AI. Neither the US nor China has encoded such standards in law (Metzinger, 2019). Therefore, the EU sees this as an opportunity to increase its global influence in digital governance and set an example for other countries. The Commission’s advocacy in the area of AI regulation corresponds with this window of opportunity, triggered by the ripeness of the problem stream. Namely, the indicators point to the widespread use of AI in many sectors, and the potential risks this creates, which remain unaddressed. This has led to a global discourse on setting ethical standards, opening a window of opportunity for policy change that would be beneficial to the EU’s position internationally. As such, this window of opportunity has been utilized by the Commission to promote the development of regulation for the use of AI.

Furthermore, it could be argued that a window of opportunity was opened by the appointment of the new Commission in 2019. As one source shows, the issue of AI received more attention and more direct action upon the swearing-in of the new Commission of von der Leyen (Wihl & Paisner, 2020). As noted in section 4.4, Metzinger (2019) also emphasized the importance of the incoming Commission in the creation of truly robust regulation on AI. It could be argued that this policy window was utilized to produce the early documents leading up to the regulatory proposal, such as the White Paper on AI, published in 2020. The value of these early documents is that they further contributed to the ripening of the problem stream. Namely, the Commission had started a process of policy initiation and was required to continue reviewing previous documents. This led to the opening of new policy windows

later on. The White Paper in 2020 was followed by public consultations with over 1200 actors (European Commission, 2021, p. 7). This then created the need for feedback by the Commission on the received responses, opening a window of opportunity for a regulatory proposal to be created.

As such, the Commission as a policy entrepreneur coupled the problem and policy streams in order to utilize open policy windows. This has led to the creation of a regulatory proposal in April 2021, signalling the initial stage of policy change in the use of AI technologies in the EU.

5. Conclusion

5.1 Summary of findings

The focus of this research was understanding the factors that led to the creation of the regulatory proposal on artificial intelligence, published by the Commission in 2021. As such this thesis aimed to answer the following research question: *What factors explain the creation of the Commission's proposal for a regulation on artificial intelligence, according to the Multiple Streams Framework?* The question was explored through primary and secondary data using process tracing as a method. The data was analysed through the lens of MSF, by analysing each of its five elements. Ultimately, the findings show that between 2018 and 2021 there was a gradual process of agenda-setting, led by the Commission as a policy entrepreneur, which ultimately led to the creation of the regulatory proposal.

The theory generated a number of explanatory factors, among which the most influential one is found to be the Commission's commitment to AI as a policy area, established in the priorities of the incoming Commission of von der Leyen in 2019. This is a key factor that contributed to the creation of the regulatory proposal, as the Commission served as a policy entrepreneur considering its continuous efforts to bring AI into a policy area of interest for the EU. Other factors, such as focusing events were found to have had a lesser impact on the increasing agenda attention given to AI. The Commission did use indicators to frame the risks posed by AI as problematic and affecting citizen's rights embedded in the European Charter of Human Rights. Since 2018, the Commission alongside HLEG worked on potential solution ideas to address the issue. The latest product of this work – the proposal for a regulation, signalled that the policy stream is ripe. With all three streams ripe, the research showed how the policy entrepreneur successfully used policy windows, such as the incoming of a new Commission or the global discourse on AI, to increase and sustain attention. This ultimately paved the way towards a regulatory proposal.

The research showed the value of MSF in studying the EU agenda-setting process as it allows for an analysis of a multiplicity of factors that contribute to high attention given to an issue. More generally for EU agenda-setting, the research exemplifies the importance of the Commission in policy initiation. The proposal for a regulation relied largely on the policy entrepreneurship of the Commission, which pushed for rapid and efficient work on the issue and made use of policy windows. As such, the Commission's commitment and attention is invaluable to policy change, raising questions about how the Commission as a body could be compared to a government on the national level, considering its influence.

5.2 Reflection and further research

The main strength of the research is in its scope, aiming to fill a notable gap in the research on AI regulation in the EU – researching the agenda-setting process which brought about high attention to this issue. This contributes to understanding which factors increase attention given to AI risks and dangers, a growing topic of interest for governments and international organizations alike. Through the application of MSF, the research also attempts to provide a well-rounded picture of the multiple factors that have led to the creation of a regulatory proposal. As such, it places the regulatory proposal in a wider context of competing interests of a multitude of stakeholders in regards to a rapidly developing technology.

The main shortcoming of this research is that, due to the attempt to factor in as many potential influences as possible, it results in a relatively surface-level exploration of each of those factors. More systemic studies, which would explore in-depth how each factor affected the creation of the regulatory proposal are indeed important.

Questions remain, as do alleys for further research. Notably, this research does not address the agendas of other EU bodies, such as the Council or the Parliament, and how this affects attention given to AI regulation, which is an important aspect of EU's overall policymaking process. Further research could look into how the Parliament and the Council received the proposal, and how that can affect future legislation. Similarly, lobbying and interest groups remain an essential part of the creation of legislation on digital technologies, especially considering the interests of powerful multinational companies. There are valuable questions to be asked about the impact these interest groups have on the robustness of EU legislation on AI, and how they may alter the process of policymaking in this policy area following the proposal. As technologies rapidly evolve and policymakers attempt to catch up, we could only expect that regulating the digital sphere will remain a relevant and exciting area of research.

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Appendix 1

Table of sources used in qualitative analysis

Date	Subject	Type of source	Retrieved from
6 July 2018	Making artificial intelligence socially just: Why the current focus on ethics is not enough	Blog post	https://blogs.lse.ac.uk/politicsandpolicy/artificial-intelligence-and-society-ethics/
16 July 2018	Digital age ‘desperately’ needs ethical and legal guidelines	Media	https://phys.org/news/2018-07-digital-age-desperately-ethical-legal.html
24 September 2018	Europe should lead in greening digitalisation and AI	Media	https://www.euractiv.com/section/climate-environment/opinion/europe-should-lead-in-greening-digitalisation-and-ai/
26 October 2018	Dual EU ‘expert groups’ on AI risk duplication	Media	https://euobserver.com/science/143155
26 November 2018	Exploring the unexplored: ideas for building European leadership in AI	Media	https://www.politico.eu/sponsored-content/exploring-the-unexplored-ideas-for-building-european-leadership-in-ai/
7 December 2018	Coordinated Plan on Artificial Intelligence	COM document	https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2018:795:FIN
08 April 2019	<i>Ethics Guidelines for Trustworthy AI</i>	HLEG document	https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=60419

08 April 2019	Ethics washing made in Europe	Media	https://www.tagesspiegel.de/politik/eu-guidelines-ethics-washing-made-in-europe/24195496.html
July 2019	Machine politics: Europe and the AI revolution	Policy brief	https://ecfr.eu/publication/machine_politics_europe_and_the_ai_revolution/
27 November 2019	EU warned over fast-tracking facial recognition	Media	https://euobserver.com/science/146732
2019	A Union that strives for more. My agenda for Europe: Political guidelines for the next European Commission 2019-2024	Political guidelines European Commission	https://ec.europa.eu/info/sites/default/files/political-guidelines-next-commission_en_0.pdf
2019	Don't let industry write the rules for AI	Peer-reviewed article	https://doi.org/10.1038/d41586-019-01413-1
19 February 2020	White Paper on Artificial Intelligence	COM document, White Paper	https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0065&qid=1621156130173
3 May 2020	EC published approach to human and ethical implications of AI, but what will UK do?	Media	https://www.computerweekly.com/opinion/EC-publishes-approach-to-human-and-ethical-implications-of-AI-but-what-will-UK-do
2020	On the Governance of Artificial	Peer-reviewed article	https://doi.org/10.1017/als.2020.19

	Intelligence through Ethics Guidelines		
16 February 2021	European Union: European Commission shares insights on new draft AI laws	Media	https://www.mondaq.com/uk/new-technology/1036526/european-commission-shares-insights-on-new-draft-ai-laws
14 April 2021	Europe eyes strict rules for artificial intelligence	Media	https://www.politico.eu/article/europe-strict-rules-artificial-intelligence/
20 April 2021	AI regulations: “The starting package” – AI & EU, one year after the white paper – towards a harmonized framework	Media	https://www.jdsupra.com/legal-news/ai-regulations-the-starting-package-ai-4422964/
21 April 2021	Proposal for a regulation of the European Parliament and of the Council laying down harmonised rules on artificial intelligence (artificial intelligence act) and amending certain union legislative acts	COM document	https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0206&qid=1621156290457
21 April 2021	Communication from the commission to the European parliament, the	COM document	https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0206&qid=1621156290457

council, the
European economic
and social committee
and the committee of
the regions, fostering
a European approach
to artificial
intelligence

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24 April 2021

The EU wants to
become the world's
super-regulator in AI

Media

<https://www.economist.com/europe/2021/04/24/the-eu-wants-to-become-the-worlds-super-regulator-in-ai>
