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Field of study: European Studies

European Union Artificial Intelligence Regulation: framework and discussion

Magister (MA) Thesis

Thesis written under the supervision of

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Date June 2023

Krakow, Poland

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ABSTRACT

The research aims to examine how and to what extent the media, outlets that are perceived as the most influential by the EU decision-makers in Brussels, translate the European Commission's, the main promoter, discourse on AI regulation. And pertinent question is: *how does the media's discourse relate to the Commission's institutional discourse on AI regulation?* To answer it, the research relies on framing theory to offer an analysis of frames produced and disseminated by the media and the Commission. A comparative study provided not only a description of certain types of frames disseminated by both actors but also explored their relationship and interaction. Overall, it was concluded that even though the Commission's frames are present in the media's discourse, they are not replicated because other factors, including journalists' perspective and caution about powerful and yet mysterious technology, might have influenced significantly their media framing of the AI regulation issue. Thus, the media frame setting process's main logic was illustrated.

Key words: Framing Analysis, AI Regulation, the EU, the Commission, Media

I. RISING IMPORTANCE of ARTIFICIAL INTELLIGENCE

1. Background: the EU Artificial Intelligence Act

An emerging technology[1] - Artificial Intelligence (AI) - has recently attracted increasing attention due to its immense potential to revolutionize every aspect of modern existence (Caruso 2018, Horowitz 2018; Makridakis 2018). Thus, compared with the industrial and digital revolutions, the AI revolution stands out (Makriadakis 2017). As a result, different stakeholders, including scientists, politicians, businessmen, and ordinary citizens, discuss AI's various applications, regulations, benefits, and risks among others (Sun, Zhai, Shen, & Chen, 2020). And, as it is with every emerging technology, a high level of ambiguity surrounds the phenomenon. However, regardless of that, governments are interested to become influential stakeholders in the field because the technology is projected be become a strategic resource because it has shown a significant potential to promote welfare and security (Williams 2006). Thus, global political actors like United Nations, OECD among others, as well as various technologically and economically powerful nation-states, like the US, China, and Japan among others, have been already developing or considering introducing their own AI strategies (Lauterbach 2019; Ossewaarde & Gulenc 2020). And one such political entity is the European Union (EU) which has been actively engaged in forming its AI strategy as well.

According to the European Commission (2018, p.1), the main promoter of regulation legislation, AI is: "systems that display intelligent behavior by analyzing their environment and taking action – with some degree of autonomy – to achieve specific goals". Also: "Artificial Intelligence (AI) systems […] act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information, derived from this data and deciding the best actions to take to achieve the given goal" (The European Commission, 2019, p.6).

[1] An umbrella term that has been developed in academia that includes and describes all the technological innovations that have been invented within the human history

AI's societal implications are vast and complex. AI could be embedded into various technological devices like autonomous vehicles, robots, and drones among others (The European Commission, 2018) Thus, the Commission portrays a regulated and ethically sound AI future as the only way to realize the comparative advantage in Europe's global dominance. Thus in an attempt to produce legislation that regulates AI within the union, in March 2018 the Commission established an AI expert group (The European Commission, 2018). The group's contribution to a common cause has resulted in the formulation of a European proposal for a legal framework on AI – the EU AI Act. The document provides a classification of different AI systems as well as conditions under which they will be managed and regulated (The European Commission, 2023). The final version of the proposal is yet to be issued, but it has already attracted a significant portion of feedback.

Thus, to materialize the future of AI and how stakeholders view it, public support should be mobilized (Bourne, 2019; Gill, 2019). However, regardless of the increasing interest from the government, the general public lacks a clear understanding of the phenomenon (Zhang & Dafoe, 2019). As AI technologies evolve, with their claimed potential to outperform human beings in many fields, people generally tend to get concerned (Vergeer, 2020). There are already talks circulating about the loss of jobs on a tremendous scale due to the automation of many sectors of the economy. Moreover, AI is portrayed in popular culture from both utopian and dystopian perspectives (Brennen, Howard, & Nielsen, 2018). It might worsen the attitudes of the particularly influential part of the public on the issue.

To make AI widely acceptable, particular perceptions of it are introduced through accurately constructed frames (Kostler & Ossewaarde, 2020). Frame interprets events and makes sense of ambiguous information (Goffman, 1974) Thus, framing is exploited to transmit various interpretations of complicated and yet vital issues in an attempt to influence public perception about them (Metze, 2018). Exploring how different stakeholders present authoritative discourses on AI is central to understanding how the public's particular perception of it has formed. Thus examining dominant AI regulation frames in institutional and media discourses help to uncover salient interests and power structures underlying AI regulation (Kostler & Ossewaarde, 2020).

Media content is the space where various interpretations compete to reach the audience because it serves to be the source of information for most individuals. And technologies are a

widely popular topic that attracts attention. As a result, the way media reports technological innovations shapes audiences' perceptions and opinions (Chong & Druckman, 2007) Media can structure and guide discourse on the issue in a certain direction (Sarisakaloglu, 2021). Moreover, particular media coverage may influence the public in various ways: including the formation of demanding or fearful attitudes toward the issue (McCombs & Shaw, 1972). Thus, media content is a significant research subject because it is a space where different stakeholders compete to promote their interpretations of various issues like AI regulation (Hanggli, 2012).

2. Research design

This research aims to examine how and to what extent the media, the most influential traditional media outlets among decision-makers in Brussels such as 'Financial Times', 'Politico', 'Economist', and 'Reuters' (BCW, 2022), translate the European Commission's, the main promoter, discourse on AI regulation. And pertinent question is: *how does the media's discourse relate to the Commission's institutional discourse on AI regulation?* To answer it, the following set of questions is explored:

1. What is the European Commission's stance on AI regulations?
2. What are the most relevant factors according to the Commission?
3. What frames are used by the Commission?
4. What are the frame elements, including unique keywords, actors, and networks, pertaining to the regulation mentioned in the Commission's discourse?

The same set of questions is raised regarding the mentioned media outlets' discourse on AI regulation. As a result, this research offers an analytic study of framing by connecting frames produced and disseminated by media and the Commission. A comparative study of a such kind does not only provide a description of certain types of frames disseminated by both actors but also explores their relationship and interaction (Yahya, 2019).

Research relies on framing analysis theory. By comparing the frames set by the Commission and media, this research focuses on media frame building and evaluates the Commission's influence in it. Media frames are defined as an outcome of the media framing process where journalists, influenced by various factors select certain issues to cover and emphasize particular attributes (Scheufele, 1999). And it is well documented how media framing could be affected by journalistic norms (Graber, 2006; Weaver & Wilhoit, 1991), information sources (Bennet, 1990), accommodation to public preference (Sahr, 1993) profit-oriented strategy (Bennet, 1988), reporters' ideology (Gans, 2004), interest groups (Callaghan & Schnell, 2010). Moreover, private business is one of the major stakeholders that aims to dominate public debates on AI, thus media might uncritically view AI as translating the industry's interests (Brennen, Howard & Nielsen, 2018). Thus, media framing on the AI regulation is conceptualized as a dependent variable, while the Commission's framing is an independent variable. As a result, a comparative analysis of frame-setting by both should inform to what extent the latter influences the former. This stage of the framing process was not studied enough (Hanggli, 2012; Dimitrova & Kostadinova, 2013). And media's autonomy in covering any issues needs further research (Entman, 1991). Moreover, in terms of media-government relations, there are studies (Caruso, 2018; Berendt, 2019) claiming that both government and media construct frames to transmit their visions of AI and how the future looks like with it. In other words, media, whether it produces its autonomous frames or frames influenced by other actors, might play a democratizing role in offering perspectives on the issue different from the government's (Kostler & Ossewaarde, 2021). Thus, relying on pertinent literature it is theorized that:

H1: The Commission's framing is biased in favor of its policies, so its main function is not only to inform but also to persuade.
H2: The Commission's discourse stresses risks more than benefits to justify regulations to the audience.
H3: Media discourse is mostly dominated by societal benefit frames.
H4: The Commission's frames are overwhelmingly present in the media's discourse.
H5: Media frames do not exactly replicate the Commission's frames because there are other influential factors such as journalists' ideologies, media models, and big tech among others.

A comparative research design was used to explore the issue. Precisely, frames in a shorter period are analyzed where a choice of frames depends on independent variables like country of origin, political ideology, and type of media under consideration among others (Rodelo & Muniz, 2019). Within the design of this research, the choice of frames depends on the sources that transmit them – the Commission and the most influential media outlets among the EU decision-makers. National media outlets were not selected because they might be influenced by or target national AI strategies that every EU Member State has been developing. On the Commission's side, data for analysis constituted press releases, communications, reports, fact sheets, speeches, questions, and answers sheets produced between 2018 and 2022. On the media's side, data constituted newspaper articles that contain AI regulation-related keywords published within the same period. 2018 was the first milestone for the EU AI Act where a special committee was established by the Commission that would coordinate all the resources and expertise to make the legislation come alive (The European Commission, 2023). In 2022 last AI regulation-related document was issued before the adoption of the AI Act projected for late 2023 (The European Commission, 2023).

To test the formulated hypotheses and analyze discourses of the Commission and the media on the AI regulation issue, first qualitative content analysis was performed to identify frame attributes classified by Entman (1993), and then hierarchical cluster analysis (Matthes & Kohring, 2008) was carried out to retrieve frames made of coded attributes. As a result, frames generated and disseminated by the Commission and the media were contrasted, and main differences and similarities were highlighted, a network of actors involved, and keywords used were juxtaposed. The analysis illustrates that media can produce and disseminate frames of different kinds where one agrees with the Commission's narrative while the other promotes a competing narrative. In other words, the media does not eliminate the former but amplify the latter. As a result, even though the Commission's pro-regulation stance was mentioned in the media's discourse, it was significantly overshadowed by a critical perspective.

3. Content and Contribution

This research consists of five chapters. The first chapter sets the context, justifies the research, and provides the outline. It claims that the EU AI Act is an unprecedented event that needs to be researched based on new empirics and scarcely researched perspectives. The second chapter provides an overview of the pertinent literature on the framing of emerging technologies. It suggests various framing patterns and makes a case that AI should be considered under the term 'emerging technology' and within the pertinent literature. Also, the chapter analyses the government and media relations in framing issues and sets the scene for further analysis. The third chapter explores the theoretical foundation for the research. It provides a deep analysis of debates about the conceptualization of a frame and framing analysis from the perspective of various experts representing different disciplines. It continues with frame operationalization methods analyzing the strengths and weaknesses of each. The fourth chapter lays out the research design suggested. It justifies the choice of data for the analysis, describes data analysis methodologies, and provides the final results – a set of obtained frames - in detail. Additionally, it emphasizes differences drawn from the analysis of keywords attributed to AI technology, the AI regulation process, and the network of different actors involved in the process. The fifth and final chapter brings together the analysis from the previous parts and concludes the findings. Additionally, it talks on the implications of the study. Finally, limitations of the study are discussed, and directions for further research are provided.

As a result, the research contributes in the following ways. First, pertinent scholarship focuses on AI in general and only in the context of national media outlets, while in some of them, policies and regulations are retrieved as individual frames. However, taking into consideration recent developments in the field, mainly the EU's announced ambitions to become a world leader in the field and as a result its attempts to mobilize resources to produce a regulatory legal framework that will undermine to a certain extent Member States' national strategies on AI, has required a new analysis based on new pieces of evidence and data. Thus, this research focuses specifically on the regulation of AI, and in a broader political and geographical scope – the EU. Thus, instead of national media outlets, European media that are found to be influential among European decision-makers were analyzed. In other words, findings

are based on the original topic where new primary data on the issue were collected and analyzed. Second, the research relies on pertinent literature on media framing on emerging technologies, including AI, as well as on the government-media relationship in the framing process in general, to retrieve hypotheses to test. As a result, based on new pieces of evidence and data collected, the findings partially falsify and confirm already known claims. In other words, the research modifies existing interpretations of the issues in focus. Third, the research contributes to framing conceptualization and operationalization scholarship with new case studies and empirics, as well as to government-media relations with new ideas and potential perspectives to be researched further.

II. ‘EMERGING TECHNOLOGIES’ and POWER of FRAMING

The following chapter provides an analysis of pertinent literature on the framing of technological breakthroughs invented in recent human history by both media and government. In that manner, first, various themes employed in framing emerging technologies are explored. Second, the framing of an involved network of actors in connection to emerging technologies as well as the use of various linguistic tools used to describe certain technological innovations are provided. Lastly, the media and government’s strategies, as the major actors actively involved in producing and disseminating frames to influence the public, are juxtaposed and scrutinized. The chapter situates AI within the literature on framing emerging technology and sets the scene for the analysis performed in the coming chapter.

1. Themes in framing of ‘emerging technologies’

Emerging technologies have become an umbrella term that includes a wide range of technologies that have been invented by human beings (Sun et al., 2020). However, scholars define the term differently and it leads to conceptual vagueness. Thus there is a need for a concrete framework for various technologies to be considered under the term. For instance, instead of classifying all the related technologies as emerging technology, the typology of various technologies like the Internet, video games, and mobile phones among others was provided (Borah, 2017). Additionally, to define technology as an emerging one, the five most significant characteristics, namely ‘radical novelty’, ‘relatively fast rate of growth’, ‘coherence of identity’, ‘prominent impact’, and ‘uncertainty/ambiguity’, were introduced (Rotolo, Hicks & Martin, 2015). Considering these attributes, it was inferred that ‘emerging technologies’ is not a static concept but evolving one. Precisely, any technology is ‘emerging’ as it is introduced to the public and after some time or stages of development and refinement may cease to be considered as one (Sun et al., 2020). Taking all these into consideration, AI is reasonably considered to be under the ‘emerging technologies’ term because while it has been widely diffused to different fields, its full potential and consequences are yet to be observed (Sun et al., 2020).

Media is a powerful cultural institution (Entman, Matthes & Pellicano, 2009). It has gone online and still performs its traditional role as a source of knowledge on various issues (Brossard & Scheufele, 2013). And mass media is the main and most effective institution that can provide information about emerging technologies to the public (Brossard, 2013). As a result, media can bridge emerging technologies with the audience bringing both much closer (Scheufele & Lewenstein 2005). Media's role was found to be crucial in providing an initial framework for the discussion on nanotechnology, for instance, structured by various reference points (Kostler & Ossewaarde, 2021). Moreover, it was observed that the media's negative coverage of particular technological breakthroughs followed by low sales of the product (Anderson, Allan, Petersen & Wilkinson, 2005). Precisely, media can prefer to cover certain topics and events over others – agenda setting, as well as emphasize certain attributes of the preferred subject over others – framing (Strekalova, 2015). Frames are helpful to shape perceptions and provoke emotional responses to an issue under analysis (Strekalova, 2015). As a result, some powerful media attempts to become 'primary definers' of controversial topics and establish a preliminary understanding of them (Hall, 1978). Once it is established as the most credible definition of the issue, it might serve as a departure point for the rest to discuss the issue (Anderson et al., 2005). Thus, the public's hesitant perception of ambiguous and developing technology can be significantly influenced by the media (Chuan, Tsai & Cho, 2019). It was suggested that media frames of the technology exerted a stronger impact on the public rather than just providing factual knowledge (Scheufele & Lewenstein, 2005). Thus, frames play an important role in acceptance by the audience (Vandermoere, Blanchemanche, Bieberstein, Marette, & Roosen, 2011).

Newly emerging technologies have been covered in relation to risk and benefit entailed in regard to different themes like the economy, politics, regulations, and ethics among others (David & Baden, 2017). For instance, early media coverage of then-emerging biotechnology and stem cell research consisted predominantly of frames translating the novelty of the technologies (Nisbet & Huge, 2006). For instance, since 1990 benefits of the technologies started to dominate due to the absence of recorded damages caused (Kohring & Matthes, 2002). However, as the issues caught more attention and consequently more coverage, policy, ethics, and moral issue frames started to dominate (Cacciatore et al., 2012). For instance, with the cloned sheep Doly in 1997, the media started to debate ethics. In general, coverage of the tech was critically benefit-

oriented (Kohring & Matthes, 2002). As the technologies reached their pick of 'popularity', conflict and strategy frames prevailed in the coverage (Cacciatore et al., 2012). US media coverage of biotechnology was majorly positive, emphasizing its scientific importance and economic potential, while issues regarding ethics and public accountability were rarely mentioned (Nisbet & Lewenstin, 2002).

Studies on US media (Laing, 2006; Scheufele & Lewenstein, 2005) illustrated that the coverage of nanotechnology was heavily positive and full of benefit-oriented framing. Between 2000-09, risks were rarely present (Friedman & Egolf, 2011), and gradually critical stance on the technology discussing a need for regulations started to emerge (Weaver, Lively & Bimber, 2009) in addition to risk-oriented framing (Dudo, Dunwoody & Scheufele, 2011). Studies (Anderson, Allan, Peterson & Wilkinson, 2005; Friedman & Egolf, 2005; Kjolberg, 2009; Laing, 2006) conducted in North America and Northern European countries, observed the same pattern where economic and medical benefits of nanotechnology were highlighted the most. Another study (Anderson et al., 2005) of British newspapers coverage of nanotechnology found that the possible benefits of the technology under scrutiny overweighed possible risks. Even though ethics was an important topic of discussion about nanotechnology (Kuiken, 2011), a study (Strekalova, 2015) on nanotechnologies exploited in medicine, in contrast, illustrated that moral issues were least discussed. Themes like governmental regulations and pertinent policies, economy and business, and societal implications were well covered as well in connection to the technology (Dudo, Dunwoody & Scheufele, 2011; Friedman & Egolf, 2011). However, between 2000-08 coverage became quite critical and risks prevailed in the coverage (Donk, Metag, Kohring & Marcinkowski, 2012). Comparative analysis (Metag & Marcinkwski, 2014) of German, Swiss, and Austrian newspapers concluded that nanotechnology was covered mostly positively. Specifically, technology's positive impact on science, medicine, and the economy was stressed, while the risks were mentioned only briefly (Metag & Marcinkwski, 2014). Other parts of the world followed the same pattern. For instance, a study (Kanerva, 2009) conducted in South Asia, South-East Asia, and some African countries, found that references to pertinent risks were uncommon in the local media.

US media coverage of Twitter was studied when the social media had been just getting known to the public between 2006-09. It was noticed that media coverage was majorly benefit-

oriented towards the public in its emerging stage highlighting mostly advantageous novelties like the shortness of the messages and high speed of communication taking place on the platform while disadvantages like information overload and unanticipated outcomes of such a unique way of communication were less frequently mentioned (Arceneaux & Weiss, 2010). Research (Rossler, 2001) conducted on the internet's coverage by German magazines, concluded that deduced frames contained a benefit-oriented perspective stressing the power of technology to emancipate human beings. In contrast, frames portraying dystopian futures were drawn only in 5% of all cases (Rossler, 2001). Media coverage of genetic research in Canada, the US, the UK, and Australia was overly positive (Bubela & Caufield, 2004). Overall, there are studies (Kohring & Matthes, 2002; Donk et al., 2012) that illustrate biased positive and benefit-oriented media coverage of emerging technologies. It was suggested that fascinated with emerging technology in focus, journalists might exaggerate the benefits (O'Connor, Rees & Joffe, 2012). However, critical frames might be overstated too and not match reality (Hughes, Kitzinger & Murdock, 2006). And study (Kepplinger, 1994) revealing critical media coverage of emerging technologies suggested that journalists' ideology could be the main reason.

In the case of AI, analysis (Brennen, Howard & Nielsen, 2018) of British newspapers' coverage revealed frames that in contrast to right-leaning outlets that were mostly concerned with economy and geopolitics, left-leaning ones talked about ethics and discrimination the most. Discussion over 'killer robots' were prevalent too in connection to autonomous or semi-autonomous weapon systems. While a ban on such systems is scarcely observed in the discourse, various dangers were mostly discussed in detail (Brennen et al., 2018). An analysis (Chuan et al., 2019) of US newspapers revealed that coverage of AI ethics and moral issues had increased in recent years. While no in-depth analysis was provided, general concern over issues like privacy was raised. Media framing performed on Turkish newspapers (Sarisakaloglu, 2021) on AI revealed that the ethical concern frame was the least mentioned one. The frame avoids discussions on ethics in-depth but mentioned a couple of ethical issues that might arise where transparency and data privacy were the major ones (Sarisakaloglu, 2021). Analysis (Reinecke, Kokshagina & Karanasios, 2021) of institutional and media discourse in Australia specifically focusing on AI-based technology regulations revealed four sub-topics such as AI warfare, platform regulation, social media regulation, and AI ethics. Moreover, a study (Sun et al., 2020)

on US and UK widely circulated media outlets' coverage of AI revealed an 'international competition' pattern.

2. Network of actors and linguistic tools in framing of 'emerging technologies'

An efficient and ethical AI governance entails the coordination efforts of key actors in the field like government, business, the public, and science (Cath, Wachter, Mittelstadt, Taddeo & Floridi, 2018). Thus, identifying the presence of the main actors involved in the media coverage would help to understand the media's framing of and positioning of AI and to get a clear image of the media's reporting strategies on the technology (Sun et al., 2020). A comparing different stakeholders' views, government, and traditional media in this case, on the emerging technologies could provide a more diverse and sophisticated perception of it by the public.

For instance, a study (Metag & Marcinkowski, 2014) on newspaper coverage of nanotechnology concluded that the most mentioned stakeholders were scientists, economic actors, and journalists. While scientists were dominantly present in the coverage, precisely in 76% of the total studied covers, journalists were least excited about the technology in this group (Metag & Marcinkowski, 2014). In a study (Sun et al., 2020) conducted on well-known traditional media, namely 'USA Today', 'Washington Post', 'New York Times', and 'the Guardian', coverage of AI, it was found that business people were the most mentioned ones among the stakeholders involved in the field. Moreover, a network of nation-states like the US, and China were mentioned the most, followed by Russia, Japan, and South Korea. Additionally, the network of organizations mentioned included Google the most, followed by Facebook, Microsoft, IBM, Amazon, Apple, and similar big-tech representatives from around the world (Sun et al., 2020). Other studies (Anderson, Allan, Peterson & Wilkinson, 2005; Friedman & Egolf, 2005; Laing, 2006; Stephens, 2005) conducted in North America and Northern European countries on nanotechnology coverage by local media revealed scientists were the main actors involved in the stories. Media framing performed on Turkish newspapers on AI revealed that most mentioned actors were academics (Sarisakalooglu, 2021). However, traditional media have

been the subject of severe criticism for prioritizing certain beneficiaries versus others in covering emerging technologies (Brennen et al., 2008). It was suggested that journalists should focus on every social group potentially affected by the technologies (Bonfadelli, 2004).

Lexical cohesion and creative choice of words are a significant part of framing emerging technologies (Koteyko, Thewall & Nerlch, 2010). Thus, main and powerful stakeholders, namely governments, media, and tech corporations employ certain linguistic tools to create metaphors and myths around technologies (Ossewaarde, 2019). Such tools are crucial to shape the perception and significance of technologies (Floridi 2019; Ossewaarde & Gulenc, 2020). For instance, a study (Anderson et al., 2005) of British newspapers coverage of nanotechnology stressed the ambiguity around nanotech thus struggling with a vocabulary appropriate to describe it to the audience. A recent study (Koteyko et al., 2010) has explored the metaphoric component of AI's description by media. For instance, keywords like 'killer' and 'bias' are used in association with AI, and media focuses on the uncertainty and ambiguity around emerging technology (Koteyko et al., 2010). Moreover, a longitudinal study (Sun et al., 2020) of well-known traditional UK and US media outlets' coverage of AI conducted between 1980 and 2019 concludes that reporting on AI was defined as a 'viable solution' to problems pertinent to mundane life-like economic and health among others.

3. Media vis-à-vis Government framing

Media is not the only institution that produces and disseminates frames in general, government engages in frame setting as well with the ultimate goal to influence the public and accumulate political power (Bennet, 2016). Media is generalized here as a metonymy for the group of independent, strong, popular mainstream traditional media institutions of national circulation and influence that project agenda setting and opinion swaying power in significant scales. Juxtaposing government vis-à-vis media framing is an intriguing issue in framing scholarship (Yahya, 2019). Mainly because, media content is a space where different actors, including political agents, contest in an attempt to impose their perspectives on the issue in focus (Hanggli, 2012). This tension is natural given the media's wide reach and power to disseminate

the message and attach a certain meaning to it (Hanggli, 2012). As a result, the media itself takes an active role in framing as well as functions as a channel for other actors to promote and disseminate their frames through its media space and channels (Callaghan & Schnell, 2001). In the formulation of Bennet (2016), media has transformed from a 'one-to-many' to a 'many-to-many' structure of a more interactive communication process. Thus, within the framing process, a political message goes through the media before it reaches the citizens. In other words, according to Scheufele (1999), media frames could be considered dependent variables that are formed by the influence exerted by politics.

However, government and media framing is different in terms following aspects. First, government framing is motivated to facilitate favorable policies and constrain unfavorable ones (Levin, 2005). Consequently, government frames translate the government's preferences and attempt to impose them on the public (Rttinghaus, 2008). In the US context (Glazier & Boydstun, 2012), it was observed that government frames and news frames follow different dynamics: the former prioritizes frames in favor of his/her presidency and attempts to stay consistent to make sure that audience gets the messages, while the latter, in contrast, aims to produce negative frames first, and then stay consistent in disseminating various frames to make an impression of novelty and objectivity. Thus, media frames are constrained by media principles as to how to cover and interpret an issue in focus (Tuchman, 1978). Second, it was observed that media-government relations are mutually beneficial where the former reaches out to the public through the latter as well as serves as a source of information for the latter's news production (Hanggli, 2012). However, most often, politics as a source of information dominate in this relationship (Wolfsfeld, 1997). Some scholars (Callaghan & Schnell, 2010) claim that reporters associated with media are in need to refer to authoritative sources – political agents – consequently found themselves translating political agenda. For instance, within the US context (Bennet, Lance, Gresset & Haltom, 1985; Tuchman, 1978), it is noted that government officials were found to be primary sources of most of the daily media output. Moreover, it was observed that politicians significantly influence media frame-building during campaigns while the reverse dynamic was not observed (Hanggli & Kriesi, 2010) In other words, political processes are the driving force because the media most likely to react to them than to initiate them (Froehlich &

Rudiger, 2006). Thus, political agents and political processes are meaningful in influencing media coverage.

Hanggli (2012) agrees that political agents are the ones who promote the most important frames in the media. Her research focused on frame 'presence' and 'frequency' in an attempt to identify the main variables that influence frame building. One of the pieces of evidence is 'promoted frames' – frames in media input produced by political actors in a high frequency (Hanggli, 2012). Media input is defined as documents, including press releases, advertisements, and speeches among others, aimed to communicate a message publicly through media to promote the interests and views of a producer - political entities or actors (Rodelo & Muniz, 2019). Hanggli (2012) continues that the frequency of frames in media input impacts the frequency of the media output. As a result, the key variable that determines frame presence is the power of the political entity that disseminates the frame (Hanggli, 2012). Existing scholarship (Entman, 2007; Gans, 2004; Wolfsfeld, 1997) illustrates how the power of political entities positively correlates with media attention paid to the frames produced by the former. Moreover, some studies (Entman, 2007; Hanggli, 2012) also differentiate between political actors that have a different level of influence over frames frequency in media output. It was observed that the media is very responsive to the president's or prime-ministers' frames than other political actors' (Hanggli, 2012). In contrast, even though some studies (Kiousis, Mitrook, Wu & Seltzer, 2006; Wirth et al., 2010) could confirm that the frequency of frames in media input positively correlates with frequency in media output, they concluded that the power of political organization does not influence this frequency. Moreover, regardless of their importance, all frames disseminated by powerful entities deserve a place in media output (Hanggli, 2012).

However, there is a proposition that the media finds a possibility to translate its views (Callaghan & Schnell, 2001). For instance, media, as a conduit between transmitter and receiver, maintains major power to manipulate and influence the message (Bennett, 1990). And generally, the media allows political figures to enjoy media time only if they do not sideline opinion supported by the majority from the discussion of an issue, or if political propriety is not questioned. And under such circumstances, the media prefer to intervene to introduce other voices including academics, analysts, and opposition among others in line with the checks and

balance mechanism (Bennett, 1990). Mainly because the media should ideally watch after political processes and protect the public interest favoring the truth, diversity of opinion, objectivity, and balance among other normative norms (Schudson, 1998; Sparrow, 1999). Moreover, ratings and a market-based environment might push media to manipulate the information to attract attention and compete with other strategic actors making its role quite complex (Bennet, 1996; Sparrow, 1999). Overall, media framing could be affected by journalistic norms (Graber, 2006; Weaver & Wilhoit, 1991), information sources (Bennet, 1990), accommodation to public preference (Sahr, 1993) profit-oriented strategy (Bennet, 1988), reporters' ideology (Gans, 2004), interest groups (Callaghan & Schnell, 2010).

Overall, the following gaps were identified in the pertinent literature. First, mentioned studies only generally focus on emerging technologies, including AI, and only in a national media context. However, recent developments in the field in the European context have required updated analysis. Precisely, the Commission is in the active process to formulate own AI regulation law – AI Act – that will manage all the AI-related systems and services within the European Union (The European Commission, 2023). This means that new laws will be superior to the national strategies actively being adopted by individual Member States. This, as the European Commission contemplates should make the EU one of the leaders in AI. As a result, analyzing AI in general terms, as it was done with various emerging technologies, is not sufficient and needs to be narrowed down to the 'regulation' aspect specifically. Moreover, analysis of national media is not reliable because their framing might be influenced by or might target national AI strategies of a pertinent Member State. As a result, in later chapters, this research specifically focuses on the regulation aspect of AI, thus analyses first the Commission's discourse and second media outlets that focus on EU's policy agenda and which are influential among decision-makers in EU governmental institutions.

III. FRAMING THEORY: FRAMING CONCEPTUALIZATION and OPERATIONALIZATION

Framing analysis has been found useful to explore and understand processes from various academic perspectives. As a result, each discipline has provided its understanding and methods of frame analysis. Thus, the following chapter first starts with an analysis of frame conceptualization particularly debates around frame definition. Second, pertinent literature that identifies the effect of the framing process as well as explores how framing effects are manifested are analyzed. Particularly, since framing analysis has been bridging numerous academic disciplines, this subchapter touches upon insights from communication, behavioral, and cognitive sciences. Third, various ways of frame operationalization are discussed and weak and strong aspects of each are provided. Particularly, frame extractions methods like hermeneutic, linguistic, holistic, computer-assisted, and using already developed frames from the pertinent literature that could be expanded are analyzed.

1. Framing Conceptualization: Definition Debates

Framing has been widely employed in many scientific fields, such as psychology, sociology, and political science among others (Bateson, 1972; Goffman, 1974; Gerhards & Rucht, 1992; Pan & Koosciki, 1993). Accordingly, different interpretations have been developed along the way (Entman, Matthes & Pellicano, 2009). Lippmann (1922) was one of the first who noticed that for the general public, the reality they exist in could be complex to understand because they may lack political knowledge. Thus, media and local elites are the primary sources to get knowledge (Lippmann, 1922). As a result, since these agents serve to be a provider between the public and the complex world, they wield power to form and shape the public's perception, opinions, and behavior on various issues (Entman, Matthes & Pellicano, 2009).

This idea was further developed by Goffman (1977) who claims that a complex event or process may carry a meaning constructed of various frameworks. Thus, a receiver might process

different frameworks simultaneously. Even though individuals might wrongly interpret received frameworks, they, in general, remain confident in their interpretations. This happens because individuals live by frameworks already ingrained in their minds formed through various social experiences they have had (Goffman, 1977). As Scheufele (2004, p.402) claims frames are "…patterns of interpretation through which people classify information to handle it efficiently". Thus, these patterns of interpretation are useful to understand the specific culture or socio-political environment that individuals live in (Goffman, 1977). Reese (2001, p.11) adds that "frames are organizing principles that are socially shared and persistent over time, that work symbolically to meaningfully structure the social world." Such perspectives on framing illuminate in detail how individuals behave symbolically in different circumstances (Goffan, 1977). In an attempt to provide more structure, Entman (1993) proposes that frames could be placed in the communicator, the text, the receiver, and the culture.

Culture, in this context, could be defined as a 'stock of schemas' in the minds of members of a society, as well as a 'stock of frames' ingrained in the text circulating in that society like literature, media, debates and conversations at various levels (Entman, Matthes & Pellicano, 2009). And the text, in this context, is a product of a communicator who deliberately frames communicated text to promote particular interpretations of issues (Entman, Matthes & Pellicano, 2009). In that manner, frames perform various functions. Reese (2007) argues that frames draw boundaries, introduce categories, define ideas, and through which meaning is embedded into the message communicated. According to Pan and Kosicki (1993), frames merge textual messages with contextual background thus making them ontologically different from the topics that the story consists of. Tankard (2001) elaborates that further adding that framing offers more than a simple dichotomy, like pro or contra, in favor or against, negative or positive. It has a layer beneath those attitudes that carry additional deeper meaning (Tankard, 2001). Entman (1993, p.52) proposed that: "To frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described." Snow and Benford (1993) add that successful frames not only define a problem and offer a solution but also call for action. However, more than one of these functions could be performed simultaneously as well as none of them by a single sentence (Entman, 1993). Both,

inclusion as well as exclusion of these functions might be critical in influencing receivers understanding of an issue (Entman, 1993).

Frames are made of various speech elements that in combination produce certain effects. According to Gamson (1992), frames are viewed as a 'signature matrix' that is constructed of various symbols, like metaphors, visual images, and catchphrases among others, and tools essential for communication and cognition, like moral judgment, causality, and drawing consequences among others. Hertog and McLeod (2001, p.140) believe that frames are "structures of meaning made up of a number of concepts and the relations among those concepts." Entman (1991) adds that frames consistently reveal themselves to convey certain 'thematically consonant' ideas while ignoring to a different extent the others. This happens not by getting rid of incongruent parts of the message, but by emphasizing repeatedly certain sets of words and images while reinforcing their interlinks to form and convey a single interpretation that stands out to the receiver (Entman, 1991).

However, all these perspectives, though provide some understanding of what a frame consists of and its aim, still lack precise conditions to identify a frame. Entman (1993), for instance, while praising framing as an essential tool to understand communication, also pointed out conceptual vagueness around the theory. For instance, he (1991) argues that the difference between a frame from the text that surrounds it is that the frame only includes parts of the text message that is crucial to influence information processing, thus 'to frame' is to identify which components of the text message part of the frame and which are not. He continues (1993) that though the concept of framing is exploited in various contexts, it is mostly left to an audience to make sense of it. Indeed, scholars (Entman, Matthes & Pellicano, 2009) employ a mix of inconsistent concepts under the banner of framing in different contexts and types of research. Brosius and Eps (1995) claim that framing is a metaphor that cannot be useful in formulating specific research questions and thus cannot be a generally applicable concept.

As a result, because of extended and inconsistent interpretations of the concept and definitions, framing has been exploited in connection to similar approaches. The framing was used in combination with agenda-setting and priming (Iyengar & Kinder, 2010). Others (McCombs, Shaw, & Weaver, 1997) suggested framing to be a deeper instance of agenda-setting theory and labeled it second-level agenda-setting. Precisely, artificially varied salience of certain

attributes constitutes a second-level agenda-setting process while the first level is the salience of certain issues (McCombs, Shaw, & Weaver, 1997). In contrast, Reese (2007) argues that framing serves to expand the theoretical limitations of agenda setting - while agenda setting points to salience, framing defines content captured in salience. Scheufel (2004) adds that while second-level agenda setting engages with attributes of an object in an isolated manner, it fails to provide an arrangement of these attributes in a particular pattern or form as framing does. Additionally, there is a study (Popkin, 1994) that did not even attempt to differentiate between framing, agenda setting, and other similar approaches.

Thus, framing needs to be differentiated from other theories that intend to explain communication effects (Scheufele, 1999). The existence and development of different paradigms of framing can assist to draw a clear border between various academic disciplines and schools of thought (Ritzer, 1992) Which is a valid point given the multi-disciplinary nature of communication sciences (D'Angelo, 2002). Thus, D'Angelo (2002) argues that there is no need for a single-frame paradigm. Precisely, various developed understanding of frames and framing has contributed to the accumulation of knowledge about the different relationships between frames and framing effects. Thus, a variety of views on the issue do not let isolated research agendas be carried which may lack representativeness (D'Angelo, 2002). And for theories, it is normal to produce conceptual inconsistencies that will serve as a departure point for further academic inquiries (D'Angelo, 2002).

2. Framing Conceptualization: Framing Effect

Despite all the overlapping definitions and concepts, what is clear is that frame analysis explores the various ways individuals make an effort to influence other individuals and processes through employing verbal and nonverbal communication about any particular issue (Goffman, 1997). An analysis of frames provides a clear mechanism for how an individual's consciousness is influenced by a communicated information–framing effect (Entman, 1993). The framing effect consists of three stages (Chong & Druckman, 2007). First, availability is when received information is saved in an individual's memory. Second, accessibility is when that stored

memory information is activated and available for use. Third, applicability is when an individual makes sense of received frames by making connections with those stored in memory frames. As D'Angelo (2002) claims the framing paradigm includes cognitive, constructivist, and critical perspectives. In other words, frames are in constant interaction with the cognitive and social behaviors that were formed as a result of being exposed to the same or similar frames (D'Angelo, 2002). Precisely, in the cognitive process frames may be ingrained as prior knowledge and create a perceptive environment for a receiver to process the received information the frames carry (Rhee, 1997). At the same time, frames ingrained in cognition might be used as a departing point for individuals to talk about issues introduced by the same frames in the first place (Gamson, 1996). As a result, ingrained frames in the cognition - prior knowledge - could serve as a basis to interpret received frames from outside (Crigler, 1992). Or as Entman (1991) puts it, there is a mutual connection between frames in cognition and frames carried by the message received. And the former is influential in the formation of the latter – the framing effect (Entman, 1991).

And there are two types of framing effects – equivalency and emphasis framing effects. Equivalency framing, once exposed to individuals, makes them alter their preferences when they are faced with a verbally different but logically equal message (Entman, Matthes & Pellicano, 2009). For instance, people might prefer a less dramatically constructed one between logically equally constructed messages. In the case of messages about the disease, people would prefer the one where saved people are described than the dead people, while both messages deliver the same news (Kahneman & Tversky, 1984). The emphasis framing effect takes place when people prefer a message that is constructed to emphasize something appealing over the one that stresses the less appealing, while both lead to the same results. For instance, they prefer a message where a necessity of government spending is framed as a way to help the poor, rather than when it is framed as an increase in taxes (Sniderman & Theriault 2004). Media framing of stem cell funding was constructed in terms of benefit and as a result, public support was mobilized, while the support was much lower among those who were exposed to ethics frames (Shen, 2004) Thus, framing initiates psychological inquiries like whether reality empirically exists or socially constructed (Reese, 2007). As a result, regardless of the topics included in the story, frames are

powerful tools able to influence cognition (Rhee, 1997), the formation of the public's understanding (Entman, 1993), and achieve certain goals (Gitlin, 1980).

Regardless of its aim, Entman (1993) claims that frames bring the power to influence the communicated message. According to Entman, Matthes, and Pellicano (2009, p.177), "frames function to promote an interpretation of a problematic situation or an actor and implicit or explicit support of a desirable response, often along with a moral judgment that provides an emotional charge." Because frames represent a deep-seated pre-knowledge that individuals have stored in their brains, repeating frames over time, for example, causes mental connections in citizens for future application. (Entman, Matthes & Pellicano, 2009). This process reveals the 'diachronic' nature of frames meaning that by being exposed now they induce particular expected reactions in the future while excluding or minimizing the influence of competing but relevant themes (Entman, Matthes & Pellicano, 2009). As a result, once a frequently appearing frame is stored in individuals' minds it serves to provide associated understanding or perception without being reminded or exposed like in the case of '9/11' or 'Berlin Wall' (Entman, Matthes & Pellicano, 2009). In contrast, if a communicated message does not employ a high frequency of repeated words, symbols, and associations amongst others, in connection to a cultural association of individuals, then it is not a frame or does not carry any frames (Entman, Matthes & Pellicano, 2009). As a result, frames and framing construct and shape public debates about various issues (D'Angelo, 2002). Thus, it is significant to underline the political ramifications that certain frames and the way they were constructed might bring. In other words, it is crucial that frames transmit accurate and complete messages because they might be consumed as the only source of valuable information (Andsager & Powers, 1999).

Framing, while being a part of individuals' cognitive process, it is simultaneously a political strategic tool. Framing occurs widely and extensively in political discourse than it is recognized (Entman, Matthes & Pellicano, 2009). Frames are intentionally constructed by a framer with a political strategy in mind (Reese, 2007). In news production frames are actively utilized. And, frame analysis identifies politically significant aspects of the message concerning the political context that surrounds the message (Entman, 1991). As a result, mass media employ a set of various frames of reference that are used by the public to interpret focused issues

(Tuchman, 1987). As a result, they are designed to induce favorable reactions from the public (Entman, 1991). Thus, in political communication, framing should be understood as a device crucial for social constructivism (Scheufele, 1999) thus effective persuasion. Journalists, for instance, are keen to support information that positively correlates with their journalistic frames – pre-knowledge (Scheufele, 2006). Consequently, incoming information that is in sound with their frames is ingrained into the news report while the rest is ignored or left to be less salient unless. However, major events and topics might transform or even replace those frames (Scheufele, 2006; Broisius & Eps, 1995).

As a result, in the real world public might be exposed to multiple frames to different degrees simultaneously. The strength and high occurrence of frames determine the degree of impact caused to a receiver (Lim & Seo, 2009). Competition complicates the effect of framing (Entman, Matthes & Pellicano, 2009). Studies (Entman, Matthes & Pellicano, 2009) on the issue conclude that framing effects manifested differently when the public is exposed to several competing frames in comparison to when there is only one dominating frame. Thus, politicians are in constant competition with the media over having their frames dominate the public discourse (Entman, 1989). Journalists, in turn, often challenge the official institutional discourse (Entman, 1991). Thus, framing, in this context, is crucial to project political power while frames in the media product register manifestation of that power by verbally or visually focusing on certain entities or person or interests they might have (Entman, 1993).

3. Framing Operationalization: Frames and Frame Attributes

Frame analysis, on its own, has become a widely used and discussed methodology in social sciences. In essence, analysis of frames attempts to point out the selection and prominence of certain aspect of a focused issue by closely examining visuals, stereotypes, metaphors present in the message (Entman, Matthes & Pellicano, 2009). Given the evolvement of the framing as a distinct theory and its closeness to similar communication effect theories like, as it was discussed above, agenda setting, priming, and the issue of reliability and validity were raised by pertinent scholarship (Scheufele, 1999; Tankard, 2001). These concerns come from the observation that

frame is an abstract concept thus inducing complexities in capturing them from the text. In other words, it is highly interpretive thus increasing the possibility of the researcher's subjective involvement in the analysis (van Gorp, 2005). Simultaneously, content analysis methodology, without being guided by framing analysis, might end up labeling all negative or positive utterances equally salient and thus impactful (Entman, 1993). There is no measurement of salient objects themselves thus made inferences on such analysis will lack identification of most salient clusters ingrained – frames (Entman, 1993). Consequently, misrepresentation of media messages that influence the public's understanding is most likely to take place (Entman, 1993). Thus, there is a need for a firm methodological framework to be developed to address adequately the issues of frame capturing, its reliability, and validity.

A number of frame extraction methods have been developed with their own strengths and weaknesses. Precisely, pertinent scholarship on media framing has focused on five major methodologies of capturing frames from the text which are not mutually exclusive and open to be used in combination (Matthes & Kohring, 2008). First, the hermeneutic approach heavily relies on the interpretation of the text under analysis taking into account the broader cultural environment in which it is transmitted (Downs, 2002; Boni, 2002). Texts are divided into smaller chunks that translate the content on the issue qualitatively. Even though studies employing this methodology are well documented, they still lack a clear explanation of how final frames were determined (Matthes & Kohring, 2008). For instance, different commentaries support these findings like frames "emerged from the analysis" (Hanson, 1995, p.384), "news frames were found" (Haller & Ralph, 2001, p.412), analysis "informed the authors of the emergent frames" (Coleman & Dysart, 2005, p.13). Such state-of-the-art leads to the selection and robustness of the frames retrieved being questioned because the process itself could be random (Tankard, 2001). This only confirms the potential dominant influence of the researcher's both conscious and unconscious involvement in the analysis (Matthes & Kohring, 2008). As a result, Downs (2002) suggests providing a careful description of frames obtained as the only option. However, it still hardly solves the reliability issue because the analysis of frames still will differ across researchers (Matthes & Kohring, 2008).

Second, a linguistic approach to frame analysis relies on the choice, arrangement, and construction of certain words and sentences in a paragraph (Pan & Kosicki, 1993; Entman,

1991). Thus, these words and sentences are the essences of retrieved frames (Entman, 1993). Linguistic elements that are the focus of the approach include syntax, script, theme, and rhetoric (Pan & Kosicki, 1993). A major advantage of the approach is that a deep analysis of a single unit is provided by deconstructing it linguistically (Matthes & Kohring, 2008). However, the complexity of such analysis might suit studies analyzing huge amounts of data (Esser & D'Angelo, 2003). Moreover, it remains unclear how exactly all the linguistic attributes are eventually assembled to form a specific frame (Matthes & Kohring, 2008).

Third, a holistic approach consists of two major steps where first, frames are retrieved through a qualitative analysis of the texts, and second, obtained frames are coded as holistic elements qualitatively or quantitatively (Simon & Xenos, 2000; Meyer, 1995). Similar to the hermeneutic approach, the researcher's and coder's conscious or unconscious involvement is high thus raising the issue of reliability of the final obtained frames (Matthes & Kohring, 2008). For instance, studying complex social issues like health care, and terrorism among others, runs a high risk of the researcher's judgment being involved significantly (Matthes & Kohring, 2008). The two-step approach that the method offers, is problematic in itself because it was observed that once major frames were obtained as a result of the first step, it is difficult to identify other frames during the second step (Wirth, 2001).

Fourth, the computer-assisted approach was designed to streamline the process of retrieving frames. For instance, 'frame mapping' is a quantitative method that is constructed by various software where a specific set of words that appear in combination in a high frequency is obtained with the help of cluster algorithms and form the basis for the specific frame (Miller, 1997; Miller, Andsager & Reichert, 1998). One of the critiques of this method is that researcher's subjective involvement is eliminated because frames are not 'found' but 'computed' (Matthes & Kohring, 2008). In other words, the whole analysis is reduced to a cluster of words where some highly occurring words may not carry central or important meaning pertinent to the frame while in contrast, some less occurred words and thus ignored by the algorithm, may be as important (Hertog & McLeod, 2001). Thus, the role of the researcher here is to note that issue, provide those clusters with meaning and interpret the logic of the connection between the words in a single cluster.

An improved computer-assisted approach exists that introduced syntactical rules (Shah, Watts, Domke, & Fan, 2002). In comparison to words highly occurring in combination – a cluster of specific words, the approach exploits certain categories and specific pertinent words that should reveal an essential meaning that those categories carry. Then, those revealed categories, as a result of the high occurrence of pertinent words, bind together through criteria set beforehand to form more complex meanings (Shah, Watts, Doomke, & Fan, 2002). The advantage is that while frames are 'formed' not 'found', it still supervised by a researcher to make sure that validity of collected specific words is relevant to the analysis because connections between words and categories are set by the researcher beforehand (Matthes & Kohring, 2008). However, the approach still has a similar problem that all computer-involved methodologies have – words and phrases may not have exactly similar meanings in every context (Matthes & Kohring, 2008). Computers are still not capable to comprehend the richness and complexity of human language (Simon, 2001). Moreover, those rules that are set beforehand are still subject to a researcher's subjective judgment – reliability issue.

Finally, a researcher may rely on frames that are already obtained and well-developed in pertinent literature (Igartua, Cheng, & Muniz 2005; Dimitrova, Kalid, Williams & Trammel, 2005). Ordinary content analysis is performed and results are sorted into those frames. The major disadvantage is that already existing frames may not fit to cover a new issue and there is a possibility to leave new frames unnoticed (Matthes & Kohring, 2008). However, many studies bypass this issue by integrating an inductive approach at some level of the analysis too (Matthes & Kohring, 2008). And taking into account all the advantages and disadvantages of the widely used methodologies mentioned, Matthes and Kohring (2008) outlines a quantitative approach for the accurate retrieval of frames. They (2008) propose to retrieve frames by identifying single elements of a frame and then clustering the most salient ones to form emerging frames. In other words, a frame should be perceived as a pattern in a communicated text that can be deconstructed into different parts. Consequently, instead of attempting to identify a whole frame within the text, it is suggested to perform a content analysis on smaller parts of the frame. Then, clustering of these parts should reveal emerging frames (Kohring & Matthes, 2002).

First, smaller parts that are to form a whole emerging frame, need to be precisely defined to ensure clear operationalization of them. Entman's (1993, p.52) of frame definition was found

to be the most suitable among all widely circulating: “To frame is to select some aspects of a perceived reality and make them more salient in a communicating context, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described.” In other words, these defined attributes, namely a ‘problem definition’, ‘a causal interpretation’, ‘a moral evaluation’, and 'a treatment recommendation’ are frame elements. These elements might have categories that should be revealed as a result of performing the content analysis (Matthes & Kohring, 2008). At least two frame elements have to emerge to form a whole frame (Matthes, 2007). In this manner, neither frames are retrieved beforehand nor coded as a single unit. Thus, a researcher cannot know which frames are being coded exactly at the time of the process, consequently significantly minimizing a human bias (Matthes & Kohring, 2008). Moreover, newly emerging frames can be captured as a result of the coding process (Matthes & Kohring, 2008).

IV. FRAMING ANALYSIS

The following chapter provides a frame analysis. First, an outline of the procedure is described, justification for data collection is provided, and procedures performed are laid out. Second, a detailed description of retrieved frames disseminated by the Commission is provided. Third, retrieved frames produced by the media are discussed in depth.

1. An outline of the procedure suggested

First, all official textual documents and news articles discussing AI regulation were collected through specific keywords: 'AI Regulation,' 'AI Standards,' 'AI Rules,' 'AI Ethics,' 'AI Law,' and 'AI Act.' On the government side, textual data are specified for press releases, communications, reports, fact sheets, speeches, questions, and answers sheets all produced by the European Commission. A complete list of articles retrieved is available in digital form on the European Commission and European Parliament official websites. Overall, 18 out of 24 items were collected. These documents provide valuable insights into how the EU visions the future where AI is regulated and the steps that have to be taken to realize such a scenario. The ones left out were highly technical documents describing the legal aspect of the coming AI Act.

On the media side, textual data are specified to news articles published digitally by Financial Times, Politico, Economist, and Reuters. Overall, 53 items were collected. Digital formats of mentioned news outlets were used to retrieve articles because consumption of online news in Europe rises continuously where, as of 2021, 89% of EU citizens aged between 16-74 years used the internet for reading online news among others (Eurostat, 2022). Stated outlets were mentioned to be the most influential by European decision-makers according to polls that have been taken since 2016 (BCW, 2022). Politicians claimed to rely on them while making their decisions. National news outlets were not chosen because their coverage of the issue might have been influenced by national AI strategies which every Member State has been developing individually.

The period under consideration is between 2018-2022. Precisely, in March 2018, an expert group on Artificial Intelligence was set up by the European Commission (The European Commission, 2018). The expert group's main task is to collect expertise and organize coordination between various stakeholders in addition to the preparation of a proposal for guidelines of AI ethics. This was the first significant milestone in the European proposal for a legal framework for AI. And in September 2022, a white paper 'Liability Rules for AI' was published which is the last document issued as of now before the final version of the AI Act should be released in mid-2023.

To develop an understanding of how frames are constructed by both government and media, a content analysis was performed. Frames operationalization (Matthes & Kohring, 2008) consisted of four frame elements developed by Entman (1993) was carried. Precisely, each textual data item was manually coded following a concept-driven approach. The concepts or frame attributes are: 'problem definition', 'cause diagnosis', 'moral evaluation', suggested solution'. To respect unidimensionality and mutual exclusiveness definitions were assigned to every attribute beforehand. The coding was carried out by the researcher and revised within two weeks' interval. As a result of two rounds, any discrepancies revealed were reconsidered and attributed to appropriate concepts.

As a result, frame attributes were defined and coded as it is illustrated in Table 1. Precisely, the frame attribute 'Problem Definition' describes what makes the Commission initiate AI's regulation. This attribute has two sub-categories: 'opportunities' and 'challenges'. Any opportunities and benefits in any field that AI technologies can bring or already brought were assigned to the sub-category of 'opportunities'. Following the same logic, any challenges and risks caused by AI were assigned to the sub-category 'challenges'. As preliminary screening illustrated, collected data might manifest both sub-categories simultaneously. Cause Diagnosis' attribute includes the sources of those 'opportunities' and 'challenges'. Three sub-categories were identified: 'technological advancements' – rapidly evolving computing capacities and increasing data among others which triggers AI development and deployment; 'international competition' – other global players aiming to lead in the AI sector thus triggering the EU to act; 'big tech companies' – the increasing power of transnational tech corporations and their hunger for profit and data make the EU to protect own interests. The 'Moral Evaluation' attribute

translates a perspective ingrained in a textual document/article with respect to the regulation of AI. It consists of three stances: 'desirable' – in favor of regulation; 'probable' – could be considered, but certain extra measures are needed to be taken before regulation; 'undesirable' – against regulation. 'Suggested Solution' includes any alternative actions to be taken in case of 'probable' and 'undesirable' moral evaluation, or any additional actions to be taken in case of 'desirable' moral evaluation. It includes sub-categories like: 'investments' – any investments including in economy, infrastructure, and education; 'collaboration' – any partnership between experts and sectors, Member States and EU institutions and organizations, international partners and International Organizations; 'further development' – any aspects of regulatory guidelines that are vague, might potentially create issues of various sorts, and/or lead to negative consequences.

Table 1. Adapted frame attributes

Problem Definition	Cause Diagnosis	Moral Evaluation	Suggested Solutions
Opportunities	Technological advancements	Desirable	Investments
Challenges	International competition	Probable	Collaboration
	Big Tech companies	Undesirable	Further developments

After: Entman (1993); Matthes and Kohring (2008)

As all the attributes were coded, inspired by a study conducted by Matthes and Kohring (2008), hierarchical cluster analysis was conducted to retrieve frames made of provided frame attributes. As a result, institutional discourse on AI regulation was framed in three ways as illustrated in Table 2. Additionally, a set of keywords attributed to the discourses network of actors involved are provided as illustrated in Table 3. And media discourse on the issue was framed in four ways as illustrated in Table 4. Additionally, a set of keywords attributed to the discourses network of actors involved are provided as illustrated in Table 5.

Table 2. Frames obtained from the Commission's discourse on AI regulation

	Frame N1 (28%)	Frame N2 (28%)	Frame N3 (44%)
Problem Definition	AI benefits and risks	AI benefits and risk	AI benefits
Cause Diagnosis	International competition	Technological developments	Technology development
Moral Evaluation	Desirable	Desirable	Desirable
Suggested Solutions	Investments and cooperation	Cooperation	Investments and cooperation

Source: Tolepbergen (2023)

Table 3. Keywords associated and networks involved in the Commission's framing of AI regulation

AI technology	'one of the most strategic technologies of the 21st cent.', cyber-attack, climate change, social benefits, natural resources, pollution, traffic death, COVID-19, liability, discrimination, European values, human rights, public's trust, single market fragmentation, legal issues, ethics, bias, human control, personal data, big data, robotics, chips, high-performance computers, data repositories, computing power, cloud computing, digital skills
AI regulation	compliance, feasibility, consumer protection, unfair commercial practices, transparency, traceability, proportionate and risk-based approach, public and private investment, common rules, talents, global challenges, Paris Climate agreement, the UN Sustainable Development Goals
Countries and regions	EU Member States, Singapore, Canada, Japan, US, China, Japan, Canada, Asia, North America
IOs and international platforms	European Fund for Strategic Investments, the European AI Alliance, European Parliament, the European Economic and Social Committee, the Committee of the Regions, International Organizations, OECD, G20, Council of Europe
Sectors and experts	health-care, academia, farming, industry, business

Source: Tolepbergen (2023)

Table 4. Frames obtained from the media's discourse on AI regulation

	Frame N1 (19%)	Frame N2 (11%)	Frame N3 (30%)	Frame N4 (40%)
Problem Definition	Unintended negative consequences	AI benefits and unintended negative consequences	Unintended negative consequences	Unintended negative consequences
Cause Diagnosis	Technological developments, global competition, big tech companies	Technological developments and big tech companies	Technological developments	Technological developments
Moral Evaluation	Probable	Desirable	Probable	Desirable
Suggested Solutions	Cooperation	Investments and cooperation	Cooperation	Cooperation

Source: Tolepbergen (2023)

Table 5. Keywords associated and networks involved in the media's framing of AI regulation

AI technology	phishing, plagiarism, facial recognition, discrimination, 'black box', transparency, robustness, inaccuracy, identity fraud, surveillance, algorithmic bias, societal bias, race, gender, culture, biometrics, political orientation, sexual orientation
AI regulation	'heavy-handed', 'innovation-killing', 'competitive advantage', 'high-risk' AI, over-regulation, stifle innovation, classification vagueness, inconsistencies, fairness and diversity, temporary moratorium, robust law, 'responsible and human-centric development and use', 'technological superpower', self-regulation, heavy fines, transparency, bureaucracy, national regulatory frameworks, budget allocation, collaboration, 'low and fragmented investment levels'
Countries and regions	Australia, Japan, Canada, Singapore, South Korea, Mexico, India, Slovenia, US, China, Global South, France, Denmark, UK

IOs and international platforms	OECD, Global Partnership on Artificial Intelligence (GPAI), G7, Emerging Technology Coalition, US National Security Commission on AI (NSCAI), Council of Ad Hoc Committee on AI, the European Data Protection Board (EDPB), European Data Protection Supervisor (EDPS), Centre for Data Ethics and Innovation (CDEI), Internet Engineering Task Force, UN's International Telecommunication Union, NHS
Sectors and experts	banking, finance, insurance, advertisement, healthcare, law, police, academia
Big tech companies	Google, Amazon, Alibaba, Microsoft, DeepMind

Source: Tolepbergen (2023)

2. Analysis results: The Commission's framing

2.1. Frame 1 (N5, 28%): AI's benefits and risks trigger a global race, thus EU needs to regulate, invest in the economy, infrastructure, and training, and collaborate within Europe and internationally

AI is "one of the most strategic technologies of the 21st century" (The European Commission, 2018a). AI systems not only organize day-to-day chores, but also assist to tackle today's biggest challenges, including treating illnesses, fighting climate change, and protecting from cyber-attacks (The European Commission, 2018a). European farming sector are already using AI-powered technologies for tracking movement, temperature, and food consumption of the stock. Such technologies significantly free the farmers from the manual labor and provide all the necessary for the farms and stocks welfare (The European Commission, 2018). As a result, AI integrated solutions in many sectors will lead to significant economic growth and societal benefits that, in turn, will put the EU in a stronger position globally (The European Commission, 2021a).

However, there are various kinds of AI systems causing varying levels of threats and risks. While most of them could be labeled as low to no risk, certain AI-powered products potentially

create high risks and should be addressed immediately (The European Commission, 2021a). For instance, AI may raise potential liability and discrimination issues undermining European values (The European Commission, 2018a). And lack of transparency in AI decision-making algorithmic will cause unwanted friction that will slow the effective enforcement of legislation on human safety and rights. This will lead to the loss of the public's trust in technologies, hamper their deployment by businesses, chaotic regulation attempts by individual governments, and ultimately to fragmentation of the European Single Market (The European Commission, 2021a). Thus, to make AI systems reliable and secure, which is necessary for societies' widespread acceptance of them, a coordinated strategy should be framed to incentivize the development of AI which respects fundamental rights and ethical rules (The European Commission, 2018c).

The EU wants to acquire leadership positions globally in the field (The European Commission, 2018a). However, even though the block is one of the global leaders in vital sectors like healthcare, transport, and manufacturing among others, local companies have to integrate AI solutions to stay competitive. Fierce international competition demands coordination in the AI sector (The European Commission, 2018a). Global players have adopted approaches to the field based on their own values and socio-political realities (The European Commission, 2018). For instance, countries like the US, China, Japan, and Canada have adopted national AI strategies and are very active in the field. Their companies are heavily investing in AI and aggregating increasing amounts of data (The European Commission, 2018). And only a small number of European companies have already integrated digital technologies and small and medium-sized enterprises should keep up (The European Commission, 2018). Thus, the Commission aims to stimulate innovation in AI development across all industries and all of Europe (The European Commission, 2021b).

However, it will require major investments where Europe lags behind its competitors. For instance, the EU invested between EUR 2.4 and EUR 3.2 billion in AI in 2016, compared to EUR 6.5 to EUR 9.7 and EUR 12.1 to EUR 18.6 in Asia and North America, respectively (The European Commission, 2018). As a result, the Commission is boosting its funding under the Horizon 2020 research and innovation initiative from EUR 1 billion to EUR 1.5 billion for the years 2018 to 2020. This initiation should attract an additional EUR 2.5 billion from public-

private partnerships on big data and robotics (The European Commission, 2018a). Additionally, the European Fund for Strategic Investments will be involved to mobilize an additional EUR 500 million in total investments by 2020 to support local companies and start-ups working across key sectors (The European Commission, 2018a). Research and investments in areas such as health, agriculture, manufacturing, energy, security, and public administration will be supported and provided (The European Commission, 2018). Moreover, essential sectors for AI development, including the development of electronic components, chips, high-performance computers, and quantum technologies, will be funded as well (The European Commission, 2018a).

Generous funding will not boost Europe's AI economy alone, common regulations are required to streamline AI development and make it more efficient. Decision-makers should make sure that companies, SMEs in particular, are capable to integrate AI solutions (The European Commission, 2018). Data aggregated in industrial, research, and public sectors should be accessible to train AI systems. Data-sharing, in general, should be easier (The European Commission, 2018). Common regulations on the free exchange of data and its protection will incentivize businesses to operate internationally and actively attract investments (The European Commission, 2018).

In order to give all users a single access point to pertinent AI resources, such as expertise, data repositories, computing capacity, clouds, and different algorithmic models, the creation of an "AI-on-demand platform" is essential (The European Commission, 2018). Moreover, developing a network of AI research centers - European AI excellence centers – will support AI development through the exchange of experts and expertise (The European Commission, 2018c).

In regards to expertise, education, and training in AI solutions should be provided as well. The dawn of the AI age will transform labor thus new skills are required to adapt. Thus, the Commission will support cooperation between business and education to support the STEM field and entrepreneurship and create a favorable environment for talents to come and stay in Europe (The European Commission, 2018a). The local population should have all the opportunities to get educated and skilled in the digital field. Member States should prioritize the modernization of education systems (The European Commission, 2018). The Commission and Member States will provide scholarships to get advanced degrees in AI. Particularly, representatives of the most

vulnerable professions should be provided with life-long education opportunities. Moreover, it is important to include AI in education programs such as law (The European Commission, 2018c).

However, these strategies are not fully reachable without cooperation at all levels. Thus, the creation of a platform - the European AI Alliance – where all the involved stakeholders, including industry, business, academia, civil society, and public services, will be created to collaborate on all aspects of AI. Moreover, Member States, various EU institutions, and various International Organizations will be involved as well (The European Commission, 2018). The exchange of expertise and best practices will amplify the effect of investments drawn. Thus, the EU will be able to avoid fragmentation of the single market, incentivize local start-ups, and thus compete globally (The European Commission, 2018). At the international stage, the EU plans to continue to initiate discussions on AI to promote its numerous benefits in solving global issues, implementation of the Paris Climate Agreement, and achieving the UN Sustainable Development Goals based on democratic values and fundamental rights (The European Commission, 2018). Therefore, the EU aims to join forces with partners like Japan, the US, and India, as well as multilateral and regional organizations like OECD, G20, and Council of Europe among others (The European Commission, 2021a).

2.2. Frame 2 (N5, 28%): AI's benefits and risks make the EU regulate through cooperation within Europe and internationally

AI algorithms are increasingly embedded in everyday life decision-making (The European Commission, 2018e). And they have the potential to transform the world for the better as did the invention of electricity and automation (Jourova, 2019). Precisely, AI technologies can improve healthcare, energy consumption, traffic, use of natural resources, management of finances and pertinent risks, prediction of environmental and climate change, and fighting cybersecurity threats and crime in general (The European Commission, 2019a). Even though it can benefit the whole society, it also brings new challenges and raises legal and ethical issues (The European Commission, 2019a). The main challenge is that AI systems 'learn' and make decisions without humans in the loop. Thus, machines, 'feed' by bias and incomplete thus unreliable data, might

make wrong decisions leading to problematic results as well as loss of public trust (The European Commission, 2019a).

Thus, the EU AI strategy prioritizes trust in AI systems to ensure a human-centric approach: "AI is not an end in itself, but a tool that has to serve people with the ultimate aim of increasing human well-being" (The European Commission, 2019a). European values need to be fully integrated into AI design (The European Commission, 2019a). Such approach to the technology will cultivate public's trust as well as build a competitive advantage for local companies and businesses (The European Commission, 2019a). However, how to create a system that complies with local norms of ethics and judiciary and ensure continuing trust in AI and its widespread deployment (Jourova, 2019)? Individual differences must be taken into account in AI design soo technologies respect human rights. (The European Commission, 2019a). And AI's potential can only be realized if it can be ensured that pertinent risks can be mitigated timely and properly. Thus, a proportionate and risk-based approach is preferred where the level of risks AI can cause positively correlates with the strictness of regulations (Vestager, 2021). Moreover, a regulatory framework should be created that gives the public more control over AI governance (Jourova, 2019a). And, only those regulations should be realized that are feasible and can be enforced (Vestager, 2021). Overall, people should be at the center of AI development, not profit (Jourova, 2019).

Coordination between experts from various fields is essential to ensure the development of human-centric AI. The Commission plans to assist individual Member States to establish a network of AI research excellence centers across Europe that will initiate an exchange of expertise and experts and joint projects (The European Commission, 2018e). Concerning new challenges pertinent to the AI age, the involvement of various parties, including businesses, academia, trade unions, politics, and civil society is essential (The European Commission, 2018e). Moreover, an international partnership is important too. Taking into consideration the interconnectedness of the world in terms of data exchange, AI research, and investments, the EU will continue to insist on a human-centric approach on the global stage to build a consensus on common standards (The European Commission, 2019a). Therefore, the Commission needs to closely cooperate with like-minded international allies and develop a common ethical framework with Japan, Canada, Singapore, and relevant international organizations. The Commission should

initiate discussions, and bilateral and multilateral meetings, to promote its vision of ethical AI (The European Commission, 2019a). It is believed to be the right moment to build a global coalition to tackle Chinese ambitions as well as powerful tech giants in the field (Jourova, 2019a). And the EU can lead in setting global standards for in ethical approach to AI (The European Commission, 2019a).

2.3.Frame 3 (N8, 44%): To realize AI's full potential EU needs to regulate, invest in the economy, infrastructure, and education, and cooperate across sectors and Europe

The potential of AI to transform every sector of modern living for the better is great. AI is embedded in various vital sectors assisting in treating humans, fighting climate change, and providing cyber security (The European Commission, 2018a). By managing an increasing amount of data, AI systems can offer efficient strategies for businesses to improve their products, processes, and models in all economic sectors (The European Commission, 2018d). AI can help to minimize pollution, traffic accidents, and death, and assist disabled individuals and older persons (The European Commission, 2021). AI technologies proved to be vital in fighting pandemics like COVID-19 by predicting the geographical spread of the disease and diagnosing the infection (The European Commission, 2021). Thus, the technologies should be regulated with ethics in mind to amplify the benefits they can bring. In other words, to build trust in AI technologies and cultivate its further deployment, strict regulations to provide consumer protection, address unfair commercial practices, and ensure the protection of personal data and privacy, continue to apply (Jourova, 2020). In vital fields like health care, security and policing, and transport, embedded AI systems should allow human oversight and thus be transparent and traceable (Jourova, 2020). Used data should be checked for bias by authorities. Under such circumstances, any AI-powered technologies and services are welcome in the European single market (Jourova, 2020).

However, to be able to build secure and trustful AI it is essential to invest in the economy, infrastructure, and education as well. Currently, the EU is behind the private investments in AI (The European Commission, 2018d). While it is important to increase investments, it is also vital to remove all the obstacles and avoid market fragmentation. Precisely, a single market should be

strengthened by setting common standards and fast communication to further boost investments (The European Commission, 2018d). Thus, as of 2018, over the next ten years, the EU is planning to expand public and private investments (The European Commission, 2019b). Moreover, in 2020 about EUR 100 million will be available in support of local start-ups and companies operating in the field (The European Commission, 2018d). These investments will only grow with the involvement of the European Fund for Strategic Investments (EFSI) and the European Investment Fund (EIF) (The European Commission, 2018f). Such generous funding opportunities should incentivize private sector investments (The European Commission, 2018f).

From 2019, it is planned to establish networks of AI research excellence centers, and digital innovation hubs, and develop secure infrastructure for data sharing (The European Commission, 2019b). These facilities will collect data and make them available for training AI systems. They will be a valuable resource for local entrepreneurs (The European Commission, 2018f). Simultaneously, proper training and education will be provided to avoid employment disruptions due to automation and rapid technological shift in many sectors. For instance, starting in 2020, the Commission plans to make available EUR 700 million in fund programs teaching advanced skills, including AI, supercomputing, and cybersecurity among others (The European Commission, 2018f). Moreover, scholarships for students will be provided to participate in such programs (The European Commission, 2018f). Moreover, Master's and Ph.D. programs in AI-related education and training will be conducted in an interdisciplinary manner in collaboration with mentioned AI research excellence centers. Moreover, pertinent digital skills should be trained in local education institutions of various kind (The European Commission, 2018d).

Thus, coordinated actions by Member States and the Commission are essential to exploit the opportunities the AI age offers (The European Commission, 2018f). Particularly, AI-powered technologies are helpful to improve public services making them more efficient for citizens to use. To make that happen, peer learning and feedback sharing between Member States and the Commission are important to increase efficiency of the public sector (The European Commission, 2018f). Moreover, independent experts with different backgrounds are needed to test the resilience of ethical guidelines framed by the Commission. Mainly, representatives of business, academia, and civil society should work together (The European Commission, 2019b).

Such partnership is essential to define priorities in addition to the needs of the market, and initiate cross-sectoral and cross-border exchange (The European Commission, 2018d). Such efforts will be directed to initiate international discussions on ethical AI too (The European Commission, 2019b).

3. Analysis results: the media's framing

3.1. Frame 1 (N10, 19%): AI brings many challenges. Thus fast pace of technological developments, global race, and powerful transnational tech corporations make the EU act. However, regulations should not be rushed and be well-planned. EU needs to cooperate internationally

Recent technological developments in computing and the availability of enormous online data have made AI-future a reality (Delcker, 2018). However, AI technologies still have many issues in their design. Although the accuracy of facial recognition has been attracting criticism for being inaccurate in identifying faces of non-white ethnicities, governments around the keep acquiring and relying on them (The Financial Times, 2020). Emotional recognition technologies, more complex systems, are causing even more inaccuracies. However, they are already being used by some border agencies to 'identify' nervous passengers (The Financial Times, 2020). Moreover, algorithmic bias and discrimination in AI design are widespread. Big data used to 'feed' AI systems should not be biased because they might reinforce prejudices when used for making decisions. And major issues are that it can be quite difficult to detect biased data in the AI system (Khan & Murgia, 2019). Mainly because these technologies are 'black boxes' and it is not possible to comprehend what is going on inside and how decisions are made (Delcker, 2020a). Thus, greater transparency and robustness of AI systems are required (The Financial Times, 2019a).

Big tech companies, being popular and powerful, complicate things enormously. Today's cutting-edge expertise in AI development remains in the hands of a small club of US and Chinese tech corporations, including Google, Amazon, and Alibaba among others (Delcker,

2018). EU's attempts to ban facial recognition in public places, for instance, will not stop big tech developing such technologies in other parts of the world and offering their services to other governments (The Financial Times, 2020). And main issue is that rules that exist out there have largely been developed by tech giants themselves. These players possess impressive AI research, the largest reserves of data, and increasing sources of that data – users (Delcker, 2020a). Google, for instance, plans to gather vast amounts of healthcare data from millions of users through sensors in wearables, mattresses, and even toilet seats just to stay competitive vis-à-vis other competitors in the market (The Financial Times, 2020). Microsoft's cooperation with Chinese military-affiliated universities on AI research has caused alarm (The Financial Times, 2019a). And for the EU to impose restrictions on US and Chinese companies dominating the market it has to have domestic champions respecting European values and ethics. The Chinese government did it with US companies operating in the Chinese market. However, there is a lack of such companies who could stand up against foreign giants, thus weakening EU's standard-setting capabilities (Colin, 2018).

Consequently, in a global race for AI Europe is lagging as US and Chinese tech giants compete to dominate the field. As of now, US's long leadership in technology is being contested by China which has enormously increased its financing AI industry (Delcker, 2018). Avoiding over-regulation measures, US's leadership is underpinned by a 'flexible and light touch policy environment' that encourages innovation and competition (Murgia & Shrikanth, 2019). The US considers the EU's approach 'heavy-handed' and 'innovation-killing' (Delcker, 2020a). While, US giants, like Google and Microsoft, prefer self-regulation and rapid technological development, other major players, like China, the UK, and the EU, prefer a government-led approach focused on regulations (Murgia & Shrikanth, 2019). The UK, for instance, compared to other European countries, is quite far ahead. Its Centre for Data Ethics and Innovation and the Office for AI were the first to assist local government in AI governance. Singapore's "human-centric" approach is underway while India's AI strategy is seen as a tool to tackle the country's pressing social issues. The latter, being cautious about over-regulation, prefer to focus on funding academic and commercial research (Murgia & Shrikanth, 2019). And EU wants to make sure that it develops a coherent approach to a global AI arms race while US and China are rushing to establish their own (Delcker, 2018). Thus, EU's regulation legislation will incentivize develop AI with ethics ingrained in design and thus gain a competitive advantage (Delcker,

2018). The EU hopes to safeguard Europeans from misuse, increase consumer confidence in European AI, and provide the sector with a long-term competitive edge. (Delcker, 2020a). Thus, transparency should be stressed while introducing new AI systems (Delcker, 2018).

However, experts expressed their concerns about AI regulation legislation pointing at weak points that will have negative consequences. For instance, over-regulation might stifle innovation (Espinoza & Murgia, 2020). Regulations focus on high-risk AI and its potential harm too much. Moreover, some systems and applications might be mistakenly classified as 'high-risk' and be banned. The definition of 'high-risk' is vague itself thus causing a lot of confusion and inconsistencies. Moreover, legislation forces AI systems to use only EU-generate data which leads to many issues. European data is not 'sufficiently representative' and thus might danger fairness and diversity benchmarks (Espinoza & Murgia, 2020). Thus a temporary moratorium would be timely to allow AI developers to improve the technology and minimize the negative consequences of systems' faults. Moreover, it would allow decision-makers to coordinate their actions and improve their policies regarding highly debated face recognition for instance. While the use of the technology could be justified under the pretext of national security, it causes questions when it is used in retail business for instance. Thus, human rights should not be violated in a rush to invent the next ground-breaking product (The Financial Times, 2020).

However, for the EU to set global AI standards based on ethics and democratic values it is not enough to develop robust laws, but also to cooperate with like-minded international partners. China's ambitions in the field have caused concerns because it has been influencing international organizations influential in setting global norms in cyber space in an attempt to right global rules for AI (Delcker, 2020a). Given the Chinese perspective on human rights and surveillance governance, the EU's attempts to emphasize ethics and values in AI design have attracted attention from like-minded partners around the world including Australia, Japan, Canada, and Singapore (Khan & Murgia, 2019). There are various international platforms for partners to cooperate and set global AI standards. OECD, for instance, could be one of such spaces mobilized to respond to Chinese ambitions in the field. In 2019 the organization released its guidelines on AI systems' exploitation and integration (Delcker, 2020a). GPAI – Global Partnership on Artificial Intelligence including G7 members + Australia, South Korea,

Singapore, Mexico, India, Slovenia, and the EU, is another platform aimed to support the ethical development of AI systems to face Chinese threat (Delcker, 2020a).

3.2. Frame 2 (N6, 11%): AI could be beneficial. However, the fast pace of technological developments and powerful transnational tech corporations that what makes EU to regulate. Cooperation and investment could be beneficial

Different AI-powered systems and applications, like distributed-ledger technologies that underpin cryptocurrencies such as bitcoin, are actively exploited in the finance sector. They might be useful to inform business decisions, make transactions more efficient, calculate premiums by insurers, and clear properties using blockchain technologies to make the settlement of securities and derivatives quicker and cheaper (Binham, 2018). However, while these technologies bring efficiency they also carry new risks (Binham, 2018). And big tech's involvement is getting more visible. Financial regulators, while struggling to set benchmarks to supervise all these new ways of doing business, also expressed their concerns about the involvement of big tech companies, likely Microsoft, Amazon, and Google, who dominate cloud provision for the world's biggest banks and insurers (Binham, 2018). Moreover, Amazon offers payment services and loans online, while Facebook recently secured an electronic money license in Ireland. Big tech companies' reach and popularity mean they can "monetize on insight with speed and scale" (Binham, 2018). As a result, according to representatives of the banking sector, big tech companies can target 'best' clients. Open banking, initiated by the EU, makes that real because it forces lenders to provide access to the accounts of customers (Binham, 2018). As big tech giants extend their influence in various vital sectors, they should clarify their business models and relationships with third parties (Ram & Waters, 2018). Mainly because data protection laws might be breached when profit-aimed technological companies target personal data. For instance, 1.6m patients' records were given to DeepMind by NHS as a result of breaching the data protection laws (Ram & Waters, 2018).

The Center for Data Innovation perceives a lack faith in AI from the Europeans as main obstacle for the EU as a whole (Barber, 2021). Such sentiments are shared by individual member

states too. For instance, the French national strategy on AI warns that the EU and France should "avoid becoming just 'digital colonies' of the Chinese and American giants". The Danish plan also stresses that Europe and Denmark shouldn't imitate China or the US. Both nations are making significant investments in AI, but with little consideration for accountability, morality, or privacy. (Barber, 2021). Both documents hint at regulation.

Regulation measures cannot be possible without cooperation and investments. Regarding the concerns expressed on AI's introduction to financing, it is suggested that banks, big tech companies, and regulators should join forces to find ways of addressing risks emanating from the technology (Binham, 2018). Because the EU is "low and fragmented investment levels" in the sector, it cannot be considered a global leader in setting AI standards (Barber, 2021).

3.3. Frame 3 (N21, 40%): EU should consider regulating because of the fast pace of technological developments. However, regulations should be well-planned, cooperation could be beneficial

According to the European Commission, face recognition is imperfect and can be used to violate privacy rules and commit identity theft. (Espinoza & Murgia, 2020a). AI systems built for human interaction are used for surveillance and thus should be obligated to be transparent (Reuters, 2023). Moreover, healthcare is another vital sector that might be in danger. Experts admit that AI has great potential in healthcare because such technologies could perform research and complete time-consuming clerical work thus cutting costs. However, without proper oversight and regulations, negative consequences might follow (The Financial Times, 2019). For instance, data like diagnoses might be targeted by various insuring and advertising companies. Cases of stolen personal data might only get widespread as data-rich AI systems become more prevalent in healthcare (The Financial Times, 2019). There is also the danger of algorithmic bias based on the availability of white samples in contrast to other ethnicities thus might lead to embedded bias in AI systems used in healthcare (The Financial Times, 2019). What is worst is that when users are convinced that they were harmed by AI-powered technologies, there is no way for them to identify the 'culprit' and authorities cannot help either (Delcker, 2020). As a

result, protection of individual civil liberties and human rights are traded for high profit (Espinoza & Murgia, 2020a).

Thus AI should be regulated. EU's initiation to regulate AI systems should "put the EU back in the game" (Espinoza & Murgia, 2021). EU aims to become more of a "technological superpower" that can compete with other global actors in the field - China and the US – not giving up its values and protection of fundamental rights. At the same time, the EU also set an environment where start-ups could continue to innovate (Espinoza & Murgia, 2021). However, the proposed AI Act does little to mitigate the risks (Delcker, 2020). One of the most discussed issues is the classification of AI systems and compliance. For instance, there is still ongoing discussion by stakeholders whether generative AI models like Chat GTP should be classified as 'high risk', which are banned right away, and what will be the consequences for the companies and market in general (Reuters, 2023). Moreover, a draft of the AI regulation Act has set fines up to 30 million EUR or 6% of global profits whichever is higher (Reuters, 2023). However, the authors themselves are not sure yet how to make companies comply with the law (Delcker, 2020c). Soft law alternatives, such as self-regulation, voluntary labeling, and other voluntary behaviors, were recommended as a replacement. (Delcker, 2020c). Moreover, smaller businesses might be pushed out of the market in case of a violation because the legislation promotes heavy fines (Espinoza & Murgia, 2021). All these measures, according to industry representatives, will stifle innovation (Espinoza & Murgia, 2021). As a result, while it is still hotly debated how to achieve 'robustness' or 'transparency' in AI systems design, it causes even more head-ache how to enforce them by law (The Economist, 2021).

Other minor bureaucratic hurdles were discussed as well. For instance, it was also claimed that AI regulation measures would lead to "heavy bureaucracy" (Delcker, 2020). For instance, the process of the facial recognition technologies ban has been taking a while and most likely Commission will be scrutinizing case-by-case as complaints emerge. Simultaneously, it is expected that individual member states will continue to introduce their regulatory frameworks at a national level (Espinoza & Murgia, 2020a). Moreover, the legislation might limit the areas in which the AI approach might be needed (The Economist, 2021). The legislation might take a while until it becomes a law, and even after EU most likely have harder time imposing them globally (The Economist, 2021). Moreover, even at the stage of development, it was noticed that

more budget allocation is required to realize the policymakers' ambitious agenda on AI (Espinoza & Murgia, 2020a). And proposal itself had never been seriously discussed between the Commission's different services (Espinoza & Murgia, 2020a).

Regulation will require coordination between various experts and fields. For instance, the UK's Centre for Data Ethics and Innovation (CDEI) should collaborate with the NHS to establish a common benchmark against which AI-powered technologies will be evaluated (The Financial Times, 2019). Moreover, both should aim for an understanding of algorithmic bias within the medical community, and consider measures to increase the representativeness of sample populations. Additionally, violations of data privacy stemming from AI companies should be investigated and addressed (The Financial Times, 2019). On an international stage, the EU hopes that its initiation will attract the attention of the other global actors and they will follow. For instance, Japan and Canada are observing closely the EU's regulation proposals (Espinoza & Murgia, 2021). Moreover, EU-US partnership in the field is potentially fruitful where both sides see huge benefits from collaboration (Scott, 2022).

3.4.Frame 4 (N16, 30%): EU needs to regulate because of the fast pace of technological developments. Cooperation could be beneficial

AI-powered technologies, including various online applications available to the public for free, have enormous potential to cause great harm. For instance, Europol - the EU police force – is on alert due to the potential misuse of the ChatGTP online application. AI-powered products can be utilized in phishing, disseminating disinformation, and committing cybercrimes of various sorts (Chee, 2023). ChatGTP has also been involved in plagiarism cases in Higher Education. The application can generate articles, essays, jokes, and even poetry according to prompts inserted by the user. Thus, French Sciences Po for instance aims to ban the use of the mentioned application in producing course assignments (Chee, 2023).

Europe is concerned about what AI-powered technologies are capable of without proper regulations (Heikkila, 2021). AI can perpetuate societal biases like those around race, gender,

and culture (Dave, 2022). Facial recognition aimed to be used in dealing with terror attacks and serious crimes might facilitate discrimination and surveillance by governments and companies (Chee, 2021). Also because it is not possible to explain AI's automated decisions. And even applications, that are getting very popular recently in Silicon Valley, that are designed to explain every decision made by autonomous AI-powered technologies cannot be fully reliable simply it still is not good enough (Dave, 2022). Overall, in the hands of criminals, with little respect for human rights, the consequences of misuse of such a powerful technology are hard to imagine (Fleming, 2021).

Regulations are necessary. EU industry chief Breton claims the new proposed AI Act, aimed to regulate AI-powered technologies and services within the EU region, will aim to tackle concerns about the risks of the technology (Mukherjee & Chee, 2023). Private agencies – the European Data Protection Board (EDPB) and European Data Protection Supervisor (EDPS), also concerned with possible AI-related risk issues, are against any collection of identification of individuals in public places by the technology (Chee, 2021). Particularly, they are against of any use of AI for automated recognition of faces, fingerprints, DNA, voice, keystrokes, and biometrics because they might serve to discriminate individuals based personal characteristics and beliefs. Additionally, emotion recognition and social scoring must be prohibited too (Chee, 2021). Overall, AI design and its implementation in Europe must clearly show that the EU is serious about ethics, inclusion, and democratic values (Fleming, 2021). Moreover, AI development and the field in general will reach its full potential only the potential risks are taken care of as of now thus would convey the public that AI is trustworthy and brings a lot of benefits to humankind (Thornhill, 2018).

AI regulation requires coordination between EU member states as well as lawyers to become a law (Chee, 2021). Regarding the facial recognition ban in public places, for instance, a hybrid approach is needed where the basic implementation is performed at the national level by local regulators, and certain applications and certain impacts are left to European Commission to deal with (Chee, 2021). Moreover, on the international level, like-minded partners US and the EU must work together to address the risks. One of the transatlantic platforms for allies to join forces is the "Emerging Technology Coalition" initiated by US National Security Commission on AI (NSCAI). Other coalitions, such as the Council of Europe's Ad Hoc Committee on AI,

which is working on an AI treaty, are welcome to join too (Heikkila, 2021). The main goal is to provide financial support to those AI projects that respect democratic values and ethical norms (Heikkila, 2021).

V. HOW DOES the MEDIA'S DISCOURSE RELATE to the COMMISSION'S INSTITUTIONAL DISCOURSE on AI REGULATION?

1. Conclusion and Discussion

As a result of government framing practices, it is clear that the European Commission is in favor of regulation and all of the three retrieved frames not only illustrate that but also aim to convince that regulations are necessary. Thus, the first hypothesis applies which states that: The Commission's framing is biased in favor of its policies, so its main function is not only to inform but also to persuade. However, the Commission's initiative stems from different reasons. For instance, the first frame focuses on AI's benefits and risks that have triggered a global race in the field, and the regulation of AI applications is necessary to obtain the EU's comparative advantage on the global stage. Thus, in addition to a legal framework, investments in AI economy, infrastructure, and training, as well as collaboration within Europe and globally to promote the European vision of ethical AI, and set global standards based on their legislation are necessary. The second frame focuses only on AI's benefits and risks to the general public as well as to various sectors of the economy as a cause for the Commission to initiate regulation measures through cooperation across fields, EU institutions, and member nations. The Commission also needs to join forces with international like-minded allies to set its standards for AI application. The third frame focuses only on benefits as a trigger for the European decision-makers to regulate AI. This needs to be taken in parallel with investing into the AI economy, infrastructure, and training in the field. Moreover, the Commission needs to collaborate with different experts, institutions, and member states. AI's risks and international partners are not included. As a result, given that the third frame is the most present among all three, and all of them include AI's benefits, the second hypothesis, inferred from logical reasoning, does not apply, which claims that: Government discourse stresses risks more than benefits to justify regulations to the audience.

And regarding the media, outlets that are perceived as the most influential by the EU decision-makers, discourse on the issue, a hypothesis that was inferred from the pertinent literature on the media framing of emerging technologies does not apply and states that: Media discourse is mostly dominated by frames conveying the technology's benefits to the public although critical assessment of the risks entailed is present as well but to a lesser extent because emerging technology fascinates at first. Precisely, the first frame explicitly focuses on the challenges of AI mainly because of the fast pace of technological developments such as computing power and mounting data. Thus, the global race in the field, as well as powerful profit-hungry corporations, are already imposing their standards which pushes the EU to react. However, the Commission should not rush and well plan regulation measures. Otherwise, it might lead to various unintended consequences like stifling innovation which might hurt the European industry significantly given that there is a lack of regional champions who would stand up against US and Chinese tech giants. Additionally, the Commission needs to cooperate with like-minded international partners to impose its vision of human-centric AI. The second frame carefully translates an assessment of AI's benefits, however fast pace of technological developments is focused as a factor that pushes the Commission to regulate AI because it might quickly start causing unintended troubles without a proper and timely approach. Moreover, the increasing power of transnational tech corporations poses a threat as well. The Commission could consider investing in the AI economy as well as cooperating across sectors. The third frame focuses on a fast pace of technological developments that might lead to unintended negative consequences and thus needs regulating measures. However, the Commission should not rush and plan well because it might lead to unintended negative consequences as well. The Commission might consider cooperating with like-minded international partners. The last frame follows a similar argument and portrays the fast pace of technological developments as a source of potential risks. However, the Commission needs to act timely and need not take long. The Commission also might consider cooperation within Europe as well as internationally. As a result, only one frame, that is least appearing among all four, emphasizes the possible benefits that AI might bring which is not enough to confirm the stated hypothesis.

And regarding the government-media relationship in framing the hypothesis referred from existing literature does not hold, which claims: The Commission's frames, as the most powerful political agent in this case, are overwhelmingly present in media framing. Precisely, the

Commission's frames emphasized AI's benefits to the general public and various sectors of the economy all the time and pertinent risks to a lesser extent. A global competition that is unfolding is framed as a trigger only nearly one-fourth of the time. And all of the frames stress a need to regulate through cooperation at different levels. And, investments, as an important process that needs to be taken in parallel with producing regulation legislation, are stressed nearly three fourth of the time. As a result, according to the government, to embrace AI's benefits and constrain its risks, regulation is needed in parallel to certain cooperation and investments to a lesser extent.

In contrast, media framing stresses the fast pace of technological innovations as the biggest threat. Increasing power of big tech corporations is seen as a bigger trigger, nearly one-third of the time, than other globally ambitious countries in the field, almost one-fifth of the time. Thus, all of the frames translate a favorable attitude towards the regulation. However, half of the time media emphasizes that the Commission should not rush and that regulating laws should be well-planned to limit unintended consequences. In parallel to that, frames emphasize cooperation could be helpful, but not necessarily, while investing in the field is not considered a viable action, only about one-tenth of the time. Thus, the last hypothesis applies which states that: Media frames do not exactly replicate the Commission's frames because it is not the only one that can influence the frame-building by journalists, especially regarding emerging technologies, where journalists' ideologies and media models, other stakeholders like big tech corporations also might influence the process. Overall, it could be concluded that the media offers a more diverse and complex perspective on the issue than does the Commission. While the Commission stays very subjective refusing to discuss possible negative outcomes of the AI regulation, the media admits that the Commission's haste to safeguard Europeans' rights first might leave it behind, in contradiction to the Commission's ambitions, in the global competition for dominance in the field.

The difference in the Commission and media framing is also manifested in keywords and networks attributed to both discourses. For instance, the government frames AI as 'one of the most strategic technologies of the 21st century' which certainly emphasizes the importance the EU attaches to the technology. Moreover, AI was associated with 'European values', 'human rights', 'trust', 'ethics', 'bias', and 'human control' among others. In contrast, the media frames

AI as a 'black box' which illustrates a critical stance towards the technology. Moreover, AI was associated with 'discrimination', 'surveillance', 'algorithmic bias', 'societal bias', 'identity fraud', and 'transparency' among others. Aligning a set of keywords illustrate that both discourses are focused on potential AI consequences, however from different perspectives as it as illustrated above. The Commission's perspective on regulation was associated with keywords like 'compliance', 'feasibility', 'consumer protection', 'proportionate and risk-based approach', 'common rules', and 'global challenges'. And media's perspective was associated with 'heavy-handed', 'innovation-killing', 'over-regulation', 'classification vagueness', 'inconsistencies', 'fairness and diversity', and 'robust law'. Comparing the two, the government's advocacy of regulations could be seen, while the media's critical evaluation is contrasted in response.

Regarding networks involved, media discourse involves a more diverse set of actors and sectors pertinent to the issue than does the government discourse. For instance, while healthcare, academia, and industry sectors are common for both, the media additionally talks about insurance, advertisement, law, and police. In terms of international actors, except for powerful countries in the tech field like the US, China, Japan, Canada, and Singapore, which are equally covered by both, the media also talks about Australia, Mexico, India, South Korea, Slovenia, and Denmark. Regarding International Organizations and platforms as potential frameworks for AI partnership, government, and media opinions diverge significantly where media offer more options. Finally, Media covers big tech corporations like Google, Amazon, Alibaba, and Microsoft among others, while Commission does not mention them specifically. As a result, it could be concluded that media offers a more diverse and complex perspective on the issue than does the Commission.

Overall, the media, outlets that are perceived as the most influential by the EU decision-makers, frame setting process's main logic was illustrated. Precisely, media produces homogenous frames at one level of analysis, and simultaneously competing frames at another (Entman, 1993). While framing does not neutralize challenging ideas to the main storyline, it attempts to overshadow them by diminishing their salience in the message (Entman, 1991). Media, while considering regulation of AI as a viable measure, it suggests that the Commission should not rush and consider all the unintended negative outcomes like stifling innovation in the field. This argument, as it was illustrated, is not found in the Commission's discourse on the

issue. Thus, it could be concluded that such framing is influenced by other factors that are more influential regarding AI regulation than the government. Relying on analysis, it could be proposed that journalists' stance and caution about powerful and yet mysterious technology influenced the most their media framing of the AI regulation issue.

2. Research limitations and further research

While this research focused on frame-building – a transition of frames from politicians to media representatives where frames, within the media's output, are the dependent variable. Precisely, a comparative analysis of frame-setting by government and media informed to what extent government framing influences media framing. Such conceptualization of the issue has contributed to understanding media's autonomy, particularly in the framing of AI regulation. However, there are various frameworks explaining frame formation. First, there are studies conceptualizing media frames as independent variables (Pan & Kosicki, 1993; Entman, 1993). Then what kind of media or political frames influence the public's perception of an issue in focus? Second, there are studies conceptualizing individual frames – frames ingrained in cognition as a pre-knowledge - as dependent variables (Iyengar, 1991). Then, which factors influence the formation of individual frames, and to what extent do they replicate media or political frames? Or, do competing frames lead to formation resisting individual frames? Finally, there are studies conceptualizing individual frames – frames ingrained in cognition as a pre-knowledge - as independent variables (Entman & Rojecki, 1993). Then, how do individual frames or competing frames influence individuals' formation of the perception of the issue? All these questions are worth exploring in regard to the framing of AI regulation.

Moreover, two research designs can be differentiated from existing scholarship on frames: longitudinal (Dimitrova & Kostadinova, 2013) and comparative (Dimitrova & Stromback, 2012). The former analyses a change of frames over a longer period and are explained by contextual or organizational variables. Latter analyses frames in a shorter period where a choice of frames depends on independent variables like country of origin, political ideology, and type of media under consideration among others (Rodelo & Muniz, 2019). Thus, this research focused on

comparative design, as AI Act will be released and start to regulate all AI systems functioning in the EU, longitudinal design could be conducted to track how its performance is framed over a longer time.

In terms of limitations of the research, the operationalization of frames might cause reliability issues. Precisely, regardless of the techniques employed to retrieve frames, it eventually comes to coding and interpretation of its results. While automated and computer-assisted coding is not accurate enough to recognize the richness and diversity of human language, manual coding is influenced by the subjective evaluation of the coder. Even though all the available measurements are taken, like pre-defined definitions of codes and frame attributes, inter-coder reliability, and re-coding of discrepancies after thorough discussion, there is still a chance of subjective perspectives and knowledge influencing the outcome. Moreover, the human factor should be taken into account where the coder might be prone to inconsistency due to various factors like lack of focus, tiredness, and state of mood among others. In that sense, replication of this study employing computer-assisted coding technics must attract academic interest.

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ACKNOWLEDGEMENTS

The author would like to thank Prof. dr. hab. Jacek Kołodziej for his thought-provoking and critical feedback, support, and supervision in private sessions and communications, as well as during the group seminars which were crucial to conduct this research.

The author also would like to thank his family – Ratai and Guldana – whose support were important to stay focused and dedicated along the way.

The author also wants to express his gratitude to a good friend – Temirlan – the very first person who blessed and supported the author to take this academically enriching journey.

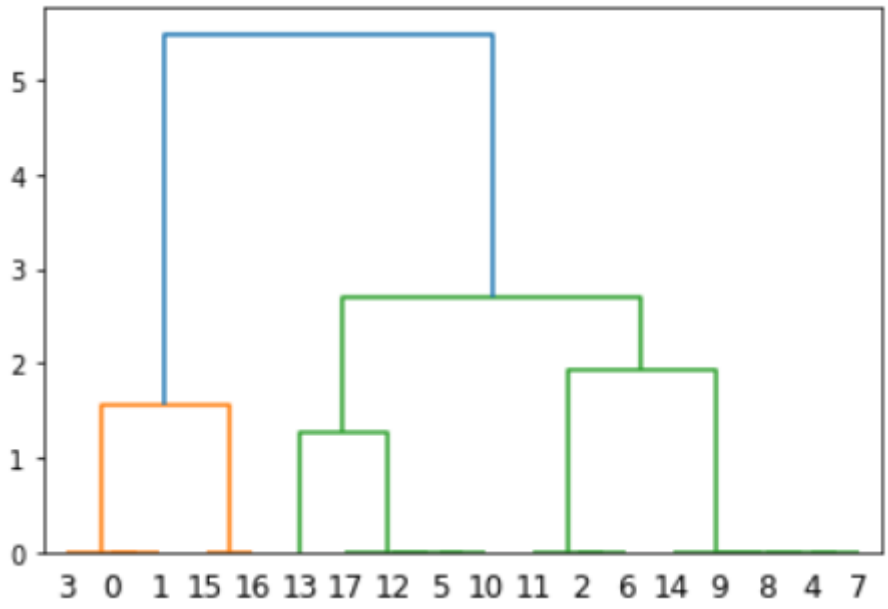
APPENDIX

Graph 1. Hierarchical Cluster Analysis algorithm model performed on Python

```
In [2]:  import numpy as np
         import matplotlib.pyplot as plt
         from scipy.cluster.hierarchy import dendrogram, linkage

In [3]:  x0 = [1,3,1,3]
         x1 = [1,3,1,3]
         x2 = [2,1,1,3]
         x3 = [1,3,1,3]
         x4 = [1,1,1,3]
         x5 = [2,1,1,2]
         x6 = [2,1,1,3]
         x7 = [1,1,1,3]
         x8 = [1,1,1,3]
         x9 = [1,1,1,3]
         x10 = [2,1,1,2]
         x11 = [2,1,1,3]
         x12 = [2,1,1,2]
         x13 = [1,1,1,2]
         x14 = [1,1,1,3]
         x15 = [2,3,1,3]
         x16 = [2,3,1,3]
         x17 = [2,1,1,2]

         data = (x0, x1, x2, x3, x4, x5, x6, x7, x8, x9, x10, x11, x12, x13, x14, x15, x16, x17)
         data
         linkage_data = linkage(data, method='ward', metric='euclidean')
         dendrogram(linkage_data)

         plt.show()
```

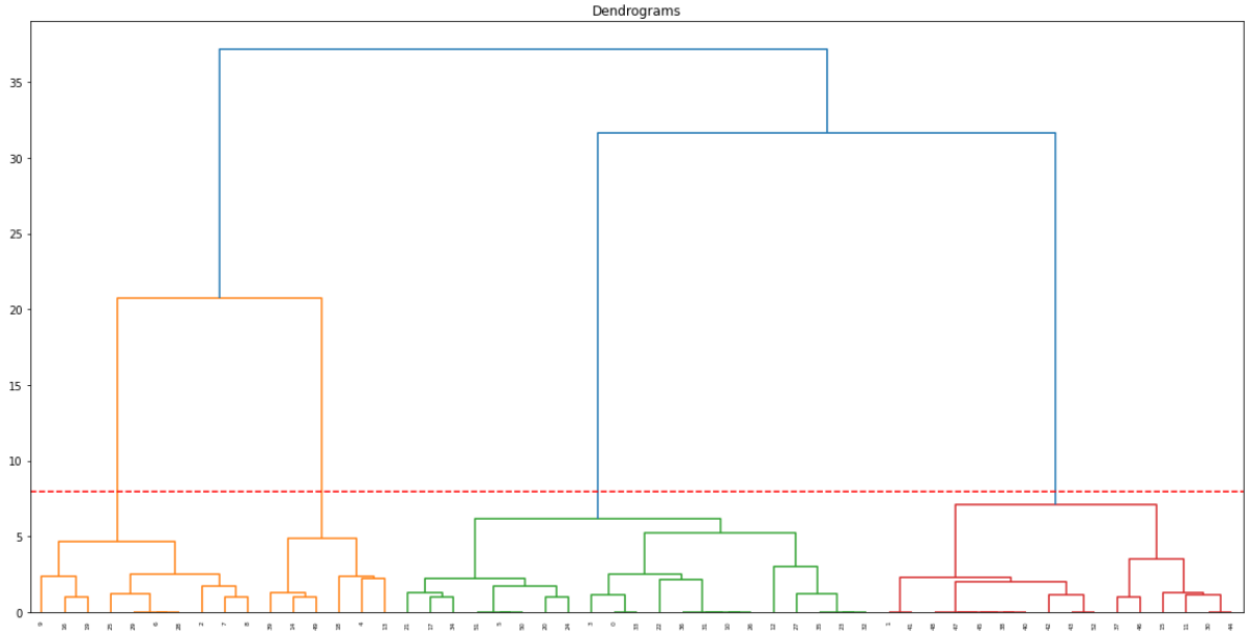
Source: Tolepbergen (2023)

Graph 2. Hierarchical Cluster Analysis results: The Commission's discourse



Source: Tolepbergen (2023)

Graph 3. Hierarchical Cluster Analysis results: The Media's discourse



Source: Tolepbergen (2023)