# Disinformation in the European Union

Using systems thinking to assess the impact of current policies to reduce the spread and production of disinformation

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by

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'Nothing travels faster than the speed of light with the possible exception of bad news, which obeys its own special laws.' – **Douglas Adams**[1]

'Education is not preparation for life; education is life itself.' – **John Dewey**[2]

Our species needs, and deserves, a citizenry with minds wide awake and a basic understanding of how the world works. – **Carl Sagan**[3]

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[1] Douglas Adams, *Mostly Harmless* (William Heinemann, 1992), p.9.

[2] Dewey, 1916, p.239

[3] Carl Sagan (2011). "Demon-Haunted World: Science as a Candle in the Dark", p.430, Ballantine Books

# Preface

Writing a master thesis is the final requirement for obtaining the MSc degree in Engineering and Policy Analysis of the Faculty of Technology, Policy and Management at the TU Delft.

This thesis and its subject fit perfectly with my interests and with the skills that I have obtained over the years as a student at the Faculty of TPM. The disinformation problem, which at the beginning, I thought was a 'fake news' problem, is something that needs consideration from a more abstract angle but also from a technical perspective or a multi-actor perspective. It is necessary to ask the question 'What does this concept actually mean?' and 'What actually is the truth'? but also questions such as 'Who are involved?' and 'Who has the power to have a positive influence on this situation?'. Precisely this is what I liked about this subject from the beginning. It also fitted perfectly with the way I am as a person, interested in so many different subjects, from the working of the brain to the political process. Therefore, I started this project with a lot of fresh courage, and the subject still amazes me to this day. What was especially interesting, but also challenging, is the fact that the subject sometimes overtook me while I was working on something. It is so relevant today, and a lot of people are still figuring out what to do with it, I had to be constantly aware of new developments or communications regarding this subject. This, together with the fact that the results can help me and others better understand such a complicated phenomenon is what I like about this thesis.

The process of researching and writing this thesis naturally was not one without any bumps. During this process, I had my ups and downs, but this is also part of doing research I believe. The completion of this work marks the end of a period of seven years that I was a student at the TU Delft. I am proud that this marks my final requirement, and I am excited about what the future will bring.

I hope you enjoy reading this thesis.

Floris van Krimpen

Rotterdam, September 2019

# Acknowledgments

Without the help and guidance of several people, this thesis would not have seen the day of light. Therefore, I would like to thank several people.

Firstly, I would like to thank Gerdien for her guidance and feedback during the whole process. She asked critical questions, gave me new ideas, and gave me little push in another direction every now and then.

Secondly, I would like to thank Els for her guidance and feedback. She helped me extensively with thinking about how to apply systems thinking to the problem at hand. Furthermore, she helped me with thinking about how to put the insights into a coherent story and was critical and helpful.

Also, I would like to thank Hans de Bruijn for his time and effort, especially at the beginning of this project. He helped me go into a specific direction, asked critical questions, and formed the actual committee.

Further, I would also like to thank the TU Delft. This institute has taught me the skills necessary to complete this thesis.

Lastly, I would like to thank my friends, family, and classmates. These people were always available to discuss the thesis, to exchange ideas or just a listening ear for everything I wanted to talk about.

Floris van Krimpen

Rotterdam, September 2019

# Executive summary

Disinformation is a problem that has become more relevant over the past years. Recent elections such as the Brexit referendum and the 2016 United States presidential election are believed to be influenced by disinformation. As such, it poses a threat to our democratic process. The European Commission and responsible commissioners have taken action to tackle this problem in the European Union by implementing the *Action Plan against Disinformation* and the signing of the *Code of Practice* together with responsible companies and associations. Both of these documents contain specific actions to tackle online disinformation. Examples of such actions are investing in fact-checking and investing in actions that increase the media-literacy skills of European citizens. However, the impact of these actions is not clear.

Thus, the purpose of this thesis is to assess the impact of these implemented policies and make recommendations on how they can be improved. Consequentially, policy-makers can understand the phenomenon better and are better equipped to implemented impactful policies. This research does this assessment by taking a systems perspective on disinformation. By clarifying the system of disinformation, it assesses how policies contribute to the reduction of the production and spread of disinformation.

The visualization of this system is done after this research first defines the concept of disinformation by reviewing literature, investigates the stakeholders involved with a stakeholder analysis, and presents the results of interviews that are carried out. These interviews are conducted with several actors that have an interest in this problem. Their statements about the disinformation problem are used as the building blocks of the system model. Statements are translated to variables and the influence these variables have on each other as relationships. All these relationships together are eventually translated to a full system that shows how different variables influence each other, i.e., what the causal relationships between variables are. Then, it can be assessed what variable in the systems model the different policy actions influence and how this eventually influences the spread and production of disinformation.

This investigation has several interesting results that add to the current understanding of how to reduce the spread and production of disinformation in the European Union. Results show that making a distinction between two types of disinformation is necessary since both types results from different causes and producers of both types have different goals that they want to achieve. The study also shows that current policy actions do not focus on the root causes of the production and spread of disinformation. Most policy actions are focused on characteristics related to citizens, who are the interpreters of disinformation. These policy actions focus on improving on their media literacy or the trust these people have in institutions. However, these actions do not necessarily result in a lessened production of disinformation and only have a small and uncertain influence on the spread of disinformation. Whenever measures are focused on root causes, such as the business model of platforms, these actions are self-regulatory and do not have any legal obligations tied to them. Another interesting contribution is the conclusion that from a systems thinking perspective, fact-checking is a solution that is limited in its contribution to tackling the problem and only influences the amount of disinformation to a small extent.

It should be mentioned that it is relevant to ask the question if it is possible to influence some of the causes, such as reducing the production cost of producing disinformation. This

has to do with broader societal trends on which governmental actors only have a limited influence.

From a policy perspective, these findings result in several recommendations. The most important recommendations are:

- The Commission and responsible commissioners should put a stronger focus on regulations that are related to root causes of the problem instead of a focus on soft policy measures. Yes, these soft policy measures, such as organizing a *Media Literacy Week*, contribute to a better understanding of the media and the phenomenon, but these actions alone are not enough. Thus, broaden and deepen the policy mix with regulations or strategies that indirectly influence the business model of platforms or form coalitions with educational actors and journalists to develop and invest in critical-thinking education from an early age onwards.
- Focus on making policies more explicit, at the EU level but also at the level of the member states. Be clear about what policy actions mean in terms of content and make sure that the effects of these policies are measurable against a pre-determined goal.
- Invest in critical thinking education from an early age onwards. Form coalitions with educational actors such as national ministries of education but also journalistic organizations to develop teaching material and monitor and research the effectiveness of this teaching material and the teaching itself.

Naturally, different opportunities for future research are identified since this study also has several limitations. These opportunities are related to the limitations of this study but also come forward based on the policy recommendations. Important opportunities for future research include:

- In the current model, relationships are not yet quantified. This is highly difficult but can benefit from increased empirical research about the appearance of disinformation and research that tries to help to contribute to the quantification of relationships between different variables.
- Research exploring different scenarios under which the assessed policies are simulated. Exploring different scenarios and simulating the effects of policies under different scenarios gives more insight into the effectiveness and robustness of these measures.
- One of the policy recommendations relates to investment in education that increases critical thinking abilities. Research that investigates what the effects are of critical thinking education and research on how critical thinking is best educated can give more insight into the successfulness of this action.
- We need additional interdisciplinary research that focusses on an integration of the different perspectives. Thus, the legal perspective, the psychological perspective, the technological perspective, and more. This is needed to understand disinformation and what we can and cannot do against it.

All these opportunities for future research show how much can still be understood related to this subject. If there is one thing that this research also shows, it is that the situation of disinformation in the European Union is highly complex due to the wide variety of

actors, technological developments, individual psychological mechanisms and the difficulty of defining the concept. This study is yet another step in a better understanding of this phenomenon. It tries to be a contribution to a better understanding of a problem that touches society and democracy in order to better deal with the problem at hand

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# 1 Introduction

Recent years have seen an increase in the usage of the term 'fake news'. More and more researchers perceive fake news as something that could be a threat to democracy. Some believe that fake news enabled the election of Donald Trump during the 2016 United States presidential election. Fake news campaigns have also been influential during the referendum about the United Kingdom leaving the European Union (UK Department for Digital Culture Media and Sport Committee, 2019). These campaigns were instated either by foreign state actors to influence the referendum in a – for them - beneficial way or by Macedonian Teenagers eager to earn money. Fake news that interferes with 'real" news and influences people in what they believe is a societal problem.

This introduction consists of four sections. Section 1.1 focusses on introducing the problem further and explains precisely why and how fake news is a societal problem. The research gaps related to this fake news problem are described in section 1.2. The research gaps, in turn, will lead to research questions that this thesis answers. These questions are formulated in section 1.3. Lastly, section 1.4 introduces the storyline of this thesis and the different chapters that follow.

## 1.1 Societal problem

After the 2016 United States presidential election, the term "fake news" has globally become a topic of interest (Allcott & Gentzkow, 2017). A significant number of U.S. citizens was exposed to fake news before the election, and surveys taken after the election suggest that these citizens believed these stories to be true (Silverman & Singer-Vine, 2016). An example of a well-known story is the Pope's endorsement of Donald Trump's candidacy. Because citizens believed these stories, fake news is increasingly being seen as something that could be a threat to democracy (Syed, 2017). The term has appeared together with the declining importance of traditional news media and the rise of the importance of social networks as an important news source. A study of 2016 claims that Facebook is a news source for 44 percent of Americans (Gaughan, 2017). Research by the Pew Research center carried out in 2016 and 2017 saw an increase in the number of Americans that get news online. They reported that in 2017, even 67% of U.S. adults obtained news from social media (Shearer & Gottfried, 2017) (see figure 1.1). The development of digital media, such as platform products and services like Facebook, have partially enabled the rise of multiple forms of fake news (High-Level Expert Group, 2018) and helped to create the problem that "fake news" is today and has been the past years.

**In 2017, two-thirds of U.S. adults get news from social media**

*% of U.S. adults who get news from social media sites ...*
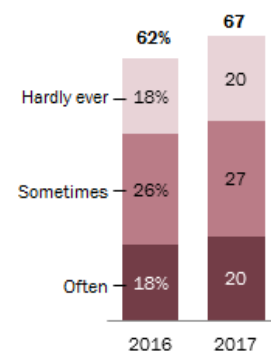
Source: Survey conducted Aug. 8-21, 2017. "News Use Across Social Media Platforms 2017"

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*Figure 1.1: Survey news use across Social Media Platforms*

However, fake is not only something relevant for the past years. Traditional media using inaccurate and eye-catching headlines, which can be partially perceived as fake news as well, has been present throughout the history of information broadcasting. What has changed is the existence of social platforms, personally targeted advertisements, and so-called filter bubbles. These factors influence the reach and the speed at which information

is being spread. Distorted or false information can be spread within a short timeframe and cause a bigger impact than before. It is now possible to reach millions of people around the world with a single message (Figueira & Oliveira, 2017).

Furthermore, online political microtargeting, which involves *'creating finely honed messages targeted at narrow categories of voters' based on data analysis 'garnered from individuals' demographic characteristics and consumer and lifestyle habits'* enables to more effectively influence parts of the audience with a specific message. In this way, every voter can get a personalized message based on her/his characteristics and data-profile. Figure 1.2 offers some insight into this process and shows the steps that are being undertaken in order to micro-target audiences with the right messages. First, demographics or even psychographics are identified for individuals. These can be information about their gender, but also personality traits or buying behavior. Based on this information content that fits these individuals can be created. Then, this content is deployed, i.e., the content is pushed to the right groups. By measuring and analyzing the successfulness of this targeted content, the campaign or targeting is adjusted. This is an ongoing process, which is not only linear but also circular (as figure 1.2 indicates).
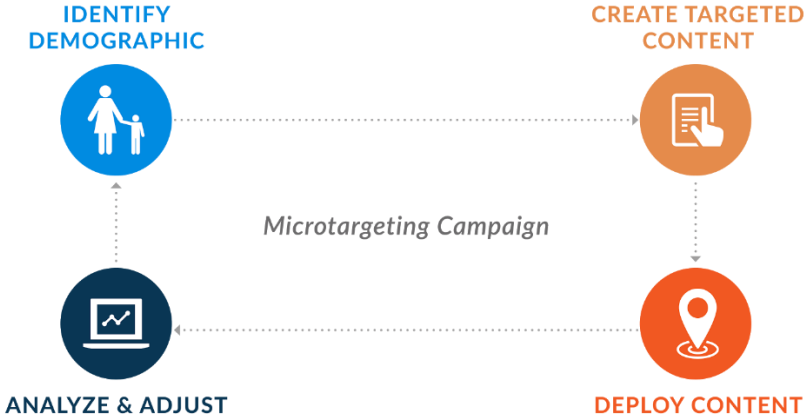


*Figure 1.2: Microtargeting process* (Enveritas Group, n.d.)

What makes fake news dangerous to our society, and possibly democracy, is shown by the research of Lewandowsky and colleagues (2012). The researchers show that when people receive information that is incorrect, corrections are rarely effective. People, despite being corrected and acknowledging this correction, still rely partially on the information they know to be false. This effect is known as the continued influence effect (Lewandowsky et al., 2012). What this effect implies is that feeding people with fake news or disinformation can lead to a continuous partially deformed worldview. This deformed worldview, in turn, is the basis on which they make their decisions and participate in public life and democracy. If voters are not able to make an informed decision, this threatens the whole idea of democracy. Thus, democracy can be threatened by the ease in which fake news about civic issues is allowed to spread and flourish (Gaughan, 2017). Seen from this perspective, it is highly essential to limit the production and spread of fake news. Because when fake news is not around, it cannot have a negative influence.

Because of its growth, detecting fake news has become an important subject of discussion in society. Suggested solutions to fight fake news consist of human involvement to verify information or using algorithms to fight algorithms. An example of human intervention is fact-checking by well-known and respected media organizations such as the Washington Post (Figueira & Oliveira, 2017). This fact-checking entails checking news articles on their truthfulness and making people aware of misleading content by showing the facts. However, media critics have argued that efforts to fight misinformation through fact-checking are ineffective (Levin, 2017). This idea has to do with the research by Lewandowsky and colleagues (2012) mentioned above. Despite being corrected by a fact-check, people still rely on information they know to be false. Other efforts are related to transparency or a change of the incentive-structure within the system of online advertising. An example is explicitly stating who paid for and approved the ad that appears on your screen (IPRI, 2018). However, this is just one measure in what seems to be a problem which is rooted in more than one cause. The European Commission acknowledges this by stating that the issue of fake news is still evolving and is a problem without a single solution or cause, that needs continued research (European Commission, 2018a).

The sections above illustrate that the problem of fake news is multifaceted and that multiple mechanisms are present within "the fake news system". Not only societal mechanisms are at play, but also individual psychological mechanisms, such as confirmation bias, and how social media platforms and advertising have become increasingly integrated into the internet. In general, there is a lack of understanding about effective measures and a lack of understanding of the full fake news system. Furthermore, there is no comprehensive idea about the different mechanisms and causes of the problem. The European Commission started to take this problem more seriously in 2018 with the introduction of the *Code of Practice* and the *Action plan against Disinformation.* However, the policy measures are still very recent, and it is not clear if they can be considered successful. The acknowledgment by the European Commission about the need for more research emphasizes this. Therefore, the objective of this research is to clarify the fake news system to help assess the impact of policies to reduce the production and spread of fake news within the European Union.

## 1.2   Knowledge Gaps

Section 1.1 already briefly highlighted that there are several areas related to fake news where there is a lack of understanding. This section explicitly mentions those knowledge gaps.

Multiple reports requested by the European governing bodies or commissions show that the environment regarding fake news is highly complex and networked. However, there is a lack of understanding of this environment as a whole. The published scientific research focusses mostly on different 'narrow' perspectives. Some published research focuses on psychological mechanisms that have to do with fake news (Lewandowsky et al., 2012; Pennycook & Rand, 2017), while other publications investigate possible public policy response (Tambini, 2017). Also, most of the research is firmly based in the U.S. This is not emphasized enough yet, but is also essential, because it stresses the need for more knowledge about the situation in Europe. Knowledge about the situation in the U.S. can not be translated to the European Union one-on-one because the media environment is different (i.e., more polarized in the U.S.) (Newman, Fletcher, Kalogeropoulos, Levy, &

Nielsen, 2017) and the election system is also different. To illustrate the point about the necessity for more knowledge about the EU; a report prepared for the European Commission puts forward multiple actions but also emphasizes the importance of continued research on the effectiveness of these measures, since the problem of disinformation – the term used in the report – is a multifaceted and continually evolving problem that does not have a single cause or solution (High-Level Expert Group, 2018). Furthermore, another report about tackling disinformation states that despite the efforts done to tackle the problem, the exposure of citizens to disinformation is still a significant challenge for Europe. It adds that continued work within this area is needed (European Commission, 2018c).

A systems perspective could be helpful in coming to an idea about the mechanisms underlying the problem and the multiple levels on which these mechanisms can be influenced. By looking through systems thinking glasses and understanding the mechanisms which take place on all kinds of levels in the system, the usefulness of current European policy actions can be determined. Systems thinking deals with problems of dynamic complexity, of which the disinformation problem is one. Insight into the causes and possible solutions of this problem requires to see interrelationships and the causal relationships between variables (Senge, 1990). This system perspective is currently missing in the literature. The European policy actions are assessed, by using this system perspective, since there is also a lack of understanding of the impact of these policies. Both of the knowledge gaps are formulated more explicit in figure 1.3.
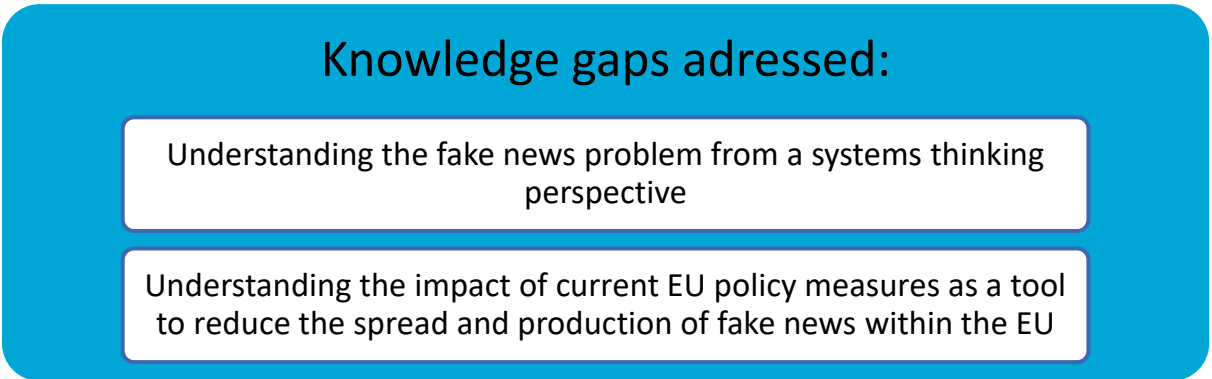


*Figure 1.3: Research gaps addressed*

## 1.3   Research questions

The sections above gave an introduction to the societal problem at hand and focused on identifying research gaps. It is identified that the existing research is mainly focused on the United States and is fragmented. Furthermore, there is a lack of consensus about causes and the effectiveness of policy actions. A systems thinking perspective is not yet used to analyze the problem at hand. Therefore, the main research question, which is then broken down into sub-questions, is as follows:

> **How can the European Commission and responsible commissioners improve policy actions to reduce the production and spread of fake news in the European Union?**

The sub-questions that support the answering of this research question are:

1. *How can fake news be characterized?*
   - *What categories of fake news can be observed?*
   - *In what form does fake news occur?*
   - *What is a useful definition of fake news?*
2. *How do the production and spread of fake news take place, and what does this system look like?*
   - *By whom does fake news gets produced?*
   - *Which actors are involved, and which actors are most influential in the production and spread of fake news?*
   - *What are their motives?*
   - *How does fake news flow between these actors?*
   - *What are the incentives within the system?*
   - *Which systems structure can be identified?*
   - *Which feedback loops best represent the main structures that determine the behavior of the fake news system?*
3. *What policies/tools are used by the European Commission and commissioners, which help to reduce the production and spread of fake news and how and on which level or part of the system do these policies have an influence?*
   - *Which policy actions are implemented by the European Commission and commissioners?*
   - *Which policies have an influence on the structure of the system in a preferable way?*
   - *Which factors of the system do these policies influence?*
4. *Are there other strategies that can help the European Commission and commissioners to reduce the production and spread of fake news?*

## 1.4   Societal relevance

Section 1.2 describes the knowledge gaps that this thesis addresses and section 1.3 the resulting research questions. The identification of these knowledge gaps and questions is strongly related to the societal (and scientific) relevance of the research that will be carried out.

As section 1.1 briefly mentioned, the European Commission acknowledged the necessity for more research since too much is unknown regarding the impact of policies and the problem of fake news in general (European Commission, 2018a). This research contributes to filling this gap in knowledge. The study contributes to a better understanding of the fake news problem as a whole. Furthermore, it increases the amount of knowledge about the impact of implemented policy actions. By assessing these policy actions, policy-makers understand the effects of their actions better. Also, they gain knowledge about new policy directions that could be more successful in addressing the problem. By increasing the understanding not only policy-makers become better equipped to handle this problem, but also citizens become more resistant to the phenomenon of fake news.

## 1.5   Scientific relevance

Besides societal relevance, there is also scientific relevance to this study. The scientific relevance is related to the knowledge gap of understanding the fake news problem from a systems thinking perspective.

This method or perspective is not yet applied. Therefore, this research is scientifically relevant because it adds the application of this method to the existing research. It brings forward the current state of the literature. Furthermore, as the Methodology section will show, by combining different methods (with systems thinking as the most important) into a multi-method research approach a broad foundation of better understanding the fake news phenomenon is put down. Furthermore, the scientific relevance is also that this research, on the contrary to many others, is focused on the European Union instead. This research adds knowledge about the EU to the predominantly United States focused research.

## 1.6  Storyline

From here onwards, this thesis focuses on answering the research questions introduced in section 1.3. This will be done in different phases. These phases identify as defining, executing, and concluding. Figure 1.3 gives an overview of the storyline.

| Part | Part title | Chapter | Chapter title |
|---|---|---|---|
| I | Defining | 2 | Methodology |
| | | 3 | Defining fake news |
| II | Executing | 4 | Stakeholder Analysis |
| | | 5 | Policy Actions |
| | | 6 | An empirical investigation |
| | | 7 | Applying systems thinking: The disinformation system |
| | | 8 | Assessing the impact of policies |
| | | 9 | Additional strategies |
| III | Concluding | 10 | Conclusion and discussion |
| | | 11 | Personal reflection |

*Figure 1.4: Storyline thesis*

The chapters all have a different purpose and describe the execution of different steps of the research:

- In the following chapter, chapter 2: Methodology, I argue why the proposed methods are appropriate to answer the research question and sub-questions.

- Chapter 3 is focused on a brief literature review to come to a definition about the concept of fake news or, as the literature review will show, disinformation.
- Chapter 4 Stakeholder Analysis identifies relevant actors and the different motives and resources that these actors have. The results of this analysis partially serve as input for chapter 5: Policy Actions.
- Chapter 5 focuses on implemented policies. I describe the timeline of different policies that the European Commission implemented. Furthermore, the implemented actions are put forward and shortly analyzed.
- Chapter 6 will describe interviews that are conducted with actors that are related to the problem. The statements that are made in these interviews, in turn, serve as input for the system that will be constructed and visualized within chapter 6.
- Chapter 7 uses the statements from chapter 6. The statements are conceptualized as the relationships between different variables. These relationships together form a model. I construct this model stepwise during the course of this chapter. After the construction, I analyze the model to identify relevant structures and important causes of the presence of disinformation.
- Chapter 8 assesses the impact of the policies specified in chapter 5 based on the insights generated from visualizing the system. I show how implemented policies influence the system and which variables are targeted with these policies.
- The last chapter of the executing-phase, chapter 9, describes additional strategies that can minimize the spread and production of fake news within the EU. The input of interviews and knowledge about the system can be combined to think creatively about these strategies.
- Chapter 10 is the first chapter of the third phase of the research. This part is all about concluding. The chapter concludes and answers the research questions. It also discusses the meaning of these results, the limitations, and the possibilities for future research.
- Finally, chapter 11 will be a reflection about the thesis process and the lessons learned.

# I Defining

# 2 Methodology

The sub-questions formulated in <u>section 1.3</u> will be answered by using different methods. These methods will be discussed here. The four methods used in this thesis are a literature review, stakeholder analysis, semi-structured interviews, and systems thinking. The combination of these methods into this methodology is roughly related to a methodology used by Inam, Adamowski, Halbe, & Prasher (2015). They use a 7-step research approach that starts with a problem definition and stakeholder analysis and continues by using interviews to expose mental models to come to a single systems model. This research starts with a literature review, but after that follows the same order. Figure 2.1 visualizes this. It should be noted that some activities are also undertaken simultaneously or improved iteratively.



*Figure 2.1: Simplified flow of research activities*

## 2.1 Desk research and literature review

Sub-question 1 is *How can fake news be characterized?* Desk research and in particular literature review are used to answer this question. A literature review examines different pieces of literature. Examples are scientific articles, newspaper articles, government reports, and company reports. The review of different types of literature helps in creating a better understanding of the different aspects of the problem at hand. A literature review also synthesizes the information about a subject and presents this in an organized way. Sub-question 1 asks about the characterization of fake news. The literature review is carried out so that different descriptions about the concept be integrated into one definition. This definition is the frame through which fake news can be investigated further.

Sub-question 3 is about available and possible policies. One of the questions that are formulated to answer this sub-question is: *Which policies actions are implemented by the European Commission and commissioners?* This question is answered by reviewing reports and releases by the European Commission and related governing bodies. Doing this gives an overview of the available and implemented policy options.

## 2.2 Stakeholder analysis

A stakeholder analysis is used to help answer sub-question 2. There are many methods and techniques available to help you scan an existing actor-network. These methods and techniques are usually summarized under the method of stakeholder analysis (Hermans & Cunningham, 2018). Several researchers argue that stakeholder analyses are more crucial than ever because of the increasingly interconnected nature of the world. Think about public problems of the current time, such as global warming or economic development, and one can better understand this. Such as the problem of global warming or economic development, disinformation is a problem that encompasses or effects numerous people, groups, and organizations. It is a problem in which no one is entirely in

charge, and there is no single actor that contains the problem. On the contrary, many individuals, groups, or organizations are affected or involved and have a role to play (Bryson, 2004). For those reasons, a stakeholder analysis is highly relevant within this research. Knowing the relevant actors or stakeholders and their general goals and motives is extremely helpful in a problem as complex as this.

The stakeholder analysis is also important because it serves as a first filter about relevant stakeholders that could be interviewed. It narrows down the scope to stakeholders that can actually influence the problem or are highly influenced by its consequences.

The detailed process of stakeholder analysis, i.e., the different steps that have to be undertaken will, are discussed in section 4.1. Generally, the stakeholder analysis conducted is a step-wise approach that shows the values, perceptions, and resources of different actors. This is helpful to show the position of different actors relative to the problem owner.

## 2.3 Semi-structured interviews

Semi-structured interviews are used as a method that supports the answering of sub-question 2. There is a combination of factors that support why semi-structured interviews are helpful.

Firstly, as discussed in section 2.2, there is a wide variety of actors that are involved with fake news: governments that try to regulate the issue, traditional media companies that unknowingly publish fake news and fact-checkers that are trying to contribute to a solution to this problem. However, these actors all have different interests, different goals, and a different idea about the root causes of the problem and possible solutions. Conducting semi-structured interviews with a variety of these actors gives the possibility to capture different perspectives. And semi-structured interviews are well suited for the exploration of perceptions and opinions of respondents regarding complex issues (Barriball & While, 1994). Thus, actors that are related to the fake news problem will be interviewed. Preferably, the interviewees all have different roles related to this problem. They can be an expert, but also someone working at a fact-checking organization. Questions about their own role, the leading causes of the problem and preferred solutions will be asked. The statements collected will be used to make explicit the participant's' mental models about the system and the main variables and mechanisms.

This leads to the second reason why semi-structured interviews are suitable. The problem of fake news in the EU has already been described as a complex problem. This complex problem is partially investigated by means of systems thinking. However, the way the system is perceived is partially subjective and dependent on the idea the researcher has about the system. This research bases the systems model on the different mental models that the interviewed individuals have about reality. By speaking to different actors that are in any way related to fake news, the knowledge about the system and the way it will be visualized becomes the most valid in relation to reality. Causal loop diagrams (CLD's), which will be discussed further in section 2.4, are qualitative illustrations of mental models. They are often developed in a participatory approach. As mentioned, this is not what will be done here. However, the statements that will be made during the interviews can be seen as the raw data on which the systems model is based. Multiple perspectives obtained lead to a common model. In that way, the interviews serve to make explicit the different ideas about the structure of the system.

The interviews are semi-structured. This means that the interview is partially open, and new ideas can be brought up during the interview. There is a general list of themes and some questions that will be asked during every interview, but there is room to elaborate by the interviewee. Furthermore, the interview is informal in tone and also conversational. The interview allows for an open response in the participants' own words instead of a 'yes or no' type of answer (Longhurst, 2010). The semi-structured interview is often used when a researcher wants to delve deeply into a subject and understand thoroughly the answers given (RAND Corporation, 2009). All the characteristics mentioned above show that semi-structured interviews are suited for the type of data that needs to be gathered. Examples of questions that can be used during the interviews are:

- *How has the problem developed over time?*
- *What are the consequences of the problem?*
- *What are the main causes of the problem?*
- *What kind of long-term policies can be adopted to solve this problem?*

All the questions mentioned above are examples as identified by Inam and colleagues (2015). These authors also use a step-wise approach in which they combine a stakeholder analysis and interviewing to develop a conceptual systems model about a problem at hand. These researchers use this approach for a more specific case, namely creating a model to support stakeholder engagement in soil salinity management in agricultural watersheds in developing countries.

Interviews are a useful tool but also have their downsides. A downside of using interviews to identify mechanisms and the system as a whole is the idea that how an expert thinks about the system is also not necessarily valid. There is also the risk that – by using semi-structured interviews – the output of the different interviews is too much different from being used to construct a single model. A more comprehensive description of the interviews and interview process can be found in chapter 5. There, the application of this method will be described.

## 2.4   Systems thinking, CLD's and stock-flow diagrams

The last method described is the concept of systems thinking. This method is used in answering sub-question 2 , 3, and 4.

In our current world, there is a rapid growth of complex systems. These systems are becoming more interconnected and feed into each other to produce complex and hard to predict behaviors and effects. Within this thesis, a system is *an interconnected set of elements that is coherently organized in a way that achieves something*. Thus, many things classify as a system. A football team is a system because it consists of elements such as players and coaches, because it has interconnections such as the player's communications, and because the team has a purpose such as winning games or having fun (Meadows, 2008). Also, a school is a system or a living human being. Systems thinking is an approach or skill set that helps in understanding the roots of the behaviors that follow from systems. Systems thinking can be seen as a tool to help tackle these complex problems (Arnold & Wade, 2015). By making explicit the major interrelationships underlying a problem, systems thinking can lead to new insights into what can be done (Meadows, 2008; Senge, 1990).

Within systems thinking, there is a wide variety of tools and disciplines. Especially causal loop diagrams (CLD's) deserve attention. CLDs are a way to create qualitative visualizations of mental models. These models focus on highlighting causality and feedback loops. Feedback loops can be balancing or reinforcing, and CLDs can help to explain the role of such loops within a model of the system (Williams & Hummelbrunner, 2010). Within this context, mental models are personal and mental representations of external reality that people use to interact with the world around them (Jones, Ross, Lynam, Perez, & Leitch, 2011). Each of us carries models in their head about the world. This mental model is a representation of the actual system that exists in 'the real world' (Forrester, 1971).
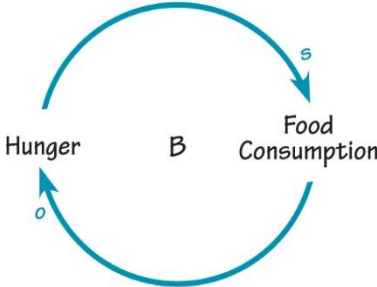


*Figure 2.2: Basic causal loop diagram*

Figure 2.2 shows a basic causal loop diagram. The example shows how when we are hungry, the body sends a signal to our brain that it is time to eat, which appeases the hunger. Two variables that influence each other create a feedback loop that balances itself. The loop is balanced because the increase in hunger causes food consumption, which decreases the hunger that was the cause of the consumption of food. Thus, the consumption of food balances the amount of hunger. The construction of such loops and models to understand the dynamics of a given systems lies at the core of systems thinking.

Stocks are also at the core of any system. They represent the elements of the system that you can count or measure at a point in time. Therefore, a stock is what it sounds like: a quantity or accumulation of material or information that builds up over time (Meadows, 2008). Figure 2.3 clarifies the concept of stocks further. The population of a country is a good example of a stock. The figure visualizes how a population (a stock) changes over time because of births. These births are visualized as a flow that flows into the stock. Thus, these births are filling the stock. In figure 2.3, this stock keeps increasing over time because of a so-called *reinforcing feedback loop*. This is indicated by the + sign. An increasing population leads to more births, which leads to an increased population, which leads to more births etc. The faucet in figure 2.3 clarifies this notion even further and serves to bring across the idea that by influencing the flow flowing into a stock one is able to influence the amount of that stock. Thus, the flow can be seen as a faucet that can be turned open or turned off. The name of the structure in figure 2.3 is that of a stock-flow diagram.
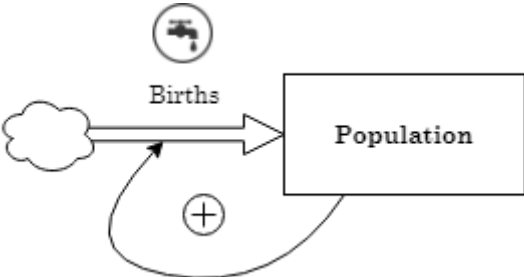


*Figure 2.3: Stock-flow diagram*

A stock-flow diagram is different from a causal loop diagram because stocks and flows take the analysis of the system to a higher level of detail. A CLD does not differentiate between the parts of the system, a stock-flow diagram does. It distinguishes between variables that are stocks and variables that are flows. Generally, stock-flow diagrams contain a higher level of detail and force the modeler to specify important details such as units and relative magnitude of all variables (Aronson & Angelakis, 1999). Section 7.2 shows that the concept of stock and flows is highly applicable to the current situation of the production and spread of fake news.

This research uses a combination of CLD's and stock-flow diagrams. The resulting model is a hybrid form between the two. The most important structures that need further detail are pictured as stock and flows, while the more high-level variables are modeled as variables in a CLD. Section 7.1 will clarify this further.

The approach and methods described will be used to answer sub-questions 2, 3, and 4.

- Sub-question 2 is focused on visualizing the fake news system and the way in which different variables influence each other. There is a lack of empirical data, but also a lack of understanding which mechanisms are actually at the root of the problem. These mechanisms represent the causal chains that can eventually lead to a decrease or increase in a flow or stock. Using causal loop diagrams, stock-flow diagrams, and the idea of systems thinking is highly applicable since it forces to create actual (conceptual) models about the way in which the system behaves and performs. By observing reality and using the input of experts and involved actors, models can be developed, which best visualize the system and its core feedback loops.
- Sub-question 3 is related to policies that help to reduce the production and spread of fake news. The available knowledge about the system and the knowledge about implemented and proposed policies can be leveraged to assess the influence of policies within the modeled fake news system. Like this, the factors that policies influence can be determined, and an idea about the helpfulness is formed.
- Sub-question 4 is related to additional strategies that can help in reducing the production and spread of fake news. By looking at the structure of the system, different factors or places in the system can be identified that could be influenced to reach proposed policy goals.

There is, however, a drawback to the proposed method and tools. In general, the method is based on a lot of assumptions and partially subjective. The modeler is the one who decides what becomes part of the model. Therefore, it is highly essential that the mechanisms and influences of different factors on each other are grounded in literature or by observation, which is why part of this research is the execution of semi-structured interviews and conducting a literature review. By developing a model of a system, the modeler is putting a 'mental model' of what the systems look like to paper. The realization that any model is wrong, but some are useful should be kept in mind.

Table 2.1 shows the relationship between the sub-questions and the methods used.

*Table 2.1: Sub-questions with related methods*

| Sub-question (SQ) | Method |
|---|---|
| SQ1: How can fake news be characterized? | • Literature review and a study into the characterization of fake news and the fake news problem. |
| SQ2: How do the production and spread of fake news take place, and what does this system look like? | • Stakeholder analysis.<br>• Semi-structured interviews.<br>• Conceptual modeling (systems thinking).<br>• Modeling activities to understand the way in which policies are influential (systems thinking). |
| SQ3: What policies/tools are used by the European Commission and commissioners, which help to reduce the production and spread of fake news and how and on which level or part of the system do these policies have an influence? | • Literature review into available policies.<br>• Modeling activities to assess the influence of available policies (systems thinking). |
| SQ4: Are there other strategies that can help the European Commission and Commissioners to reduce the production and spread of fake news? | • Modeling activities to assess the influence of additional strategies (systems thinking).<br>• Integration of insights from different methods. |

## 2.5   Combination of methods

Methods such as a stakeholder analysis and systems thinking both originate from different viewpoints and can be seen as a strange combination used in a research project such as this. However, certain problems cannot be understood without knowledge of both the systems  and the constellation of actors (Bruijn & Herder, 2009). As Elias & Cavana ( 2016) have pointed out, different phases of the systems thinking perspective would benefit from the added insights that can be found with stakeholder analysis. Because it is necessary to not only understand the actors but also to understand the causal chains and factors that lead to the disinformation problem at hand.

# 3  Defining disinformation

[Chapter two](#) clarified the methodology. This chapter focusses on laying a foundation for the following chapters. This is done by clarifying the concept of fake news. Step by step, the concept, its variety of meanings, and a better typology will be formulated. Thus, the purpose of this chapter is to create a better understanding of what the concept means and to present and analyze the necessary information to answer the first research question.

[Section 3.1](#) briefly describes the process and tools used. [Section 3.2](#) highlights the variety of definitions that fake news has. After that, [section 3.3](#) describes disinformation in the EU, after which [section 3.4](#) gives an example. [Section 3.5](#) focusses on the different forms that disinformation can take. Then, [section 3.6](#) brings this all together, to come to a final typology. Finally, [section 3.7](#) formulates conclusions.

## 3.1  Process of literature review

The literature review started by using several keywords to understand how fake news is characterized in the literature. Figure 3.1 shows the keywords used. These keywords were initially entered into Google Scholar and Science Direct. This search resulted in several helpful articles. These include the article by Tandoc, Lim, & Ling (2017), the article by Lazer et al. (2018) and the article by Gaughan (2017). These articles are all cited below. Naturally, these are not the only articles found. The articles are selected by the author based on the criteria of relevance and usefulness. This is done by reading the abstracts. After that, backward snowballing was also applied. This is the selection of relevant literature by looking at the reference list of a starting set of articles (Jalali & Wohlin, 2012). In this case, the starting set of these articles are the three articles mentioned above.

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**Search keywords:**

- fake news
- 'fake news' AND defining
- 'fake news' AND election
- 'fake news' AND threat

---

*Figure 3.1: Keywords*

Not only official scientific literature was used to clarify and describe the fake news concept. Since the concept is and has been highly popular in more mainstream news outlets, also these have been scanned for articles that proved useful to understand the concept better and clarify this here. Examples of these are articles published by *Wired, The Guardian* or *The New York Times.*

Also, [section 1.2](#) clarified that this research focuses on the production and spread of fake news in the European Union. But in order to take a closer look at fake news in the EU, it is necessary to also look at how the European Union (i.e., the European Commission and related governing bodies) define fake news. Otherwise, it is not possible to assess if current policy measures are successful and targeting the right parts of the system. Therefore, also research requested by a variety of European actors, and official documents that describe policy measures are reviewed. These, among others, include the *Action plan Against Disinformation,* the *Code of Practice to fight online disinformation* and *A multi-dimensional approach to disinformation.* The attentive reader has probably noticed that

the titles of these documents do not contain the words 'fake news' but disinformation instead. This term will become more evident in the following sections.

## 3.2    Variety of definitions

'Fake news' is much-used and much-hyped in the so-called 'post-truth' era that we now live in. It trips off the tong easily and has become a real buzz-word (McGonagle, 2017). President Donald Trump of the US has used it to describe US mainstream media that he disagreed with. Figure 3.1 illustrates this. Others have used it to describe information that is misleading, or that is too extreme to be believable.



*Figure 3.2: Cartoon of Donald Trump on the fake news media* (Globe Gazette, n.d.)

The usage of the term for different things has resulted in what 'fake news' actually is has become less clear. The vagueness of the concept, combined with different meanings that have been attached to it, make it difficult to use 'fake news' as a point of reference for research or policy-related activities (McGonagle, Coche, Plaizier, & Klus, 2018). Therefore, the concept is further defined. Which is necessary, since otherwise, it would not be clear to what this study relates when it talks about fake news. Therefore, in the remainder of this study, the term fake news will be dropped, and disinformation will be adopted as that what should be reduced in the European Union.

Syed (2017) states that the term 'fake news' does not have a common definition, while the term is being commonly used. He adds that fake news has always been around in multiple forms such as propaganda and misinformation and therefore needs no new reflection. However, current fake news is not necessarily related to fabricated stories but has more to do with the intentional fabrication of false information that spreads more quickly and effectively than ever before. A definition put forward in an article by Burshtein (2017) supports this claim as it states that *"Fake news is a fictitious report relating to current events which is fabricated, and often titled misleadingly, with the deliberate purpose of*

*deceiving users and motivating them to disseminate the report".* A definition of fake news to be "*fabricated information that mimics news media content in form but not in organizational process or intent*" (Lazer et al., 2018) is more straightforward and overlaps with the term of misinformation (false or misleading information) and disinformation (false information that is purposely spread to deceive people). In general, the term refers to baseless allegations republished in the guise of a genuine news story (Gaughan, 2017). Lewandowsky, Ecker, and Cook (2017) decide to not use the term "fake news" at all and use misinformation instead. They do not narrowly define this term because they think that "*the framing of the current post-truth malaise as "misinformation" that can be corrected or debunked fails to capture the full scope of the problem."* Instead, they argue that the problem is much bigger and in order to understand and solve the problem of the so-called "post-truth world" the analysis of political and societal trends on a bigger scale is necessary. However, the usage of the term 'misinformation' is helpful and is, as we shall see, close to the way in which the European Commission decided to 'frame' the problem.

The most comprehensive study in the actual definition of fake news has been done by Tandoc, Lim, & Ling (2017). By using two different dimensions '*level of facticity*' and '*authors immediate intention to deceive*' they categorize different fake news types. Table 3.1 shows this categorization and is taken from their article. The table shows that also news satire and news parody have been named fake news before. This again illustrates the wide variety of things for which it has been used.

*Table 3.1: A typology of fake news definitions (Tandoc et al., 2017).*

| Level of facticity | Author's immediate intention to deceive | |
|---|---|---|
| | **High** | **Low** |
| High | Native advertising Propaganda | News satire |
| Low | Manipulation Fabrication | News parody |

The two types of fake with the lowest level of facticity and the highest level of authors immediate intention to deceive are most regarded as fake news that poses a threat. It should come as no surprise that these are also the "types" of fake news that are currently most focused on in current definitions. The types are labeled as manipulation and fabrication. Tandoc et al. (2017) add that '*the authors of fabrication and manipulation intend at the point of departure to mislead, without any disclaimer. While ultimately the goal of fabrication and manipulation is to either misinform people or just attract clicks for advertising money, such goals are achieved through the immediate intention of deceiving people that the fake news they see is real.*' What is highly relevant is the emphasis on misinforming and deceiving, which gives a more clear direction and idea about the intentions behind a piece of fake news. The next step in coming to a more precise definition is the research of policy documents or studies, which section 3.3 describes.

## 3.3 Disinformation in the EU

Section 3.2 already briefly touched on the different typologies of fake news and the importance of creating more clarity on the subject. This section will focus on the used definitions in EU Policy documents or related studies. Wardle & Derakhshan (2017) did a study for the Council of Europe in which they try to not use the term 'fake news'. They

place this term in a broader frame of misinformation, disinformation and malinformation. They add that *'it's important to distinguish messages that are true from those that are false, and messages that are created, produced or distributed by "agents" who intend to do harm from those that are not'*. Therefore they make the following categorization:

- Dis-information: Information that is false and deliberately created to harm a person, social group, organization, or country.
- Mis-information: Information that is false, but not created with the intention of causing harm.
- Mal-information: Information that is based on reality, used to inflict harm on a person, organization, or country.

Other studies and reports within the same domain strengthen the choice of this categorization. In general, there seems to be a consensus to drop the usage of 'fake news' and go for 'online disinformation' instead. This term then points to digital content containing untruthful information that is presented by multiple actors within the chain either to inflict harm or to earn a profit (McGonagle et al., 2018). The High-Level Expert Group on fake news and disinformation published its report *A multi-dimensional approach to disinformation* in March 2018. Within this report, they explicitly try to avoid the usage of fake news. They define disinformation as *'all forms of false, inaccurate, or misleading information designed, presented, and promoted to intentionally cause public harm or for profit'*. They further add comments that this does not include defamation, hate speech, and incitement to violence, nor does it cover other sorts of misleading things such as satire and parody (High-Level Expert Group, 2018). Subsequent reports commissioned by the European Commission stick to this definition. The 'fake news' that poses a threat to democracy is actually disinformation. This is also where the focus of policies focus on. Those will be further discussed in chapter 5.

However, to give a more precise idea about what 'disinformation' looks like, it is necessary to show an example. Section 3.4 will do precisely that.

### 3.4 Disinformation: an example

Section 3.3 focused on a short analysis of EU policy documents and research to come to a definition of disinformation. Nevertheless, to strengthen this concept, actual examples will be used. As disinformation producers also know, images or videos can be more convincing than written text (Birdsell & Groarke, 1996).

A tragic but critical incident that triggered the publication of high amounts of disinformation is the MH17-disaster. The MH17-disaster is the name for the tragic event in which flight MH17 by Malaysia Airlines was shot down. As a result, 298 people died. The MH17-disaster did not only mark the beginning of a long geo-political tug of war, but also the beginning of a prominent Russian disinformation campaign focused on pushing the narrative that Ukraine was responsible for shooting down the airplane as a provocation to Russia (van der Noorda & van de Ven, 2019). An example of such a news article is provided below in figure 3.4.

*Figure 3.3: Screenshot of an article of sovsekretno.ru*

The article shows a fabricated Ukrainian document that is supposed to be from the Ukrainian Security Service and contains instruction for destroying MH17 crash-related evidence (Stopfake.org, n.d.). The article seems to be focused on convincing readers that Ukraine was responsible for taking down the airplane, while an investigation by the JIT, a collective of researchers from different nationalities concluded that the missile that took down the airplane was a Russian BUK-missile (van der Noorda & van de Ven, 2019).

## 3.5   Forms of disinformation

Section 3.4 shows an example of disinformation in a mixed form between text and an image. However, the debate around disinformation is mostly framed as a textual issue. This can be considered a problem since disinformation not only takes the form of articles. This focus on text leads to attention flowing away from visual content, such as images, visualizations, or videos (Wardle & Derakhshan, 2017). Attention to these forms of disinformation is needed since visuals can be far more convincing than other forms of communication (Birdsell & Groarke, 1996). The focus on text did not withhold the HLEG from taking on a definition that focusses on all forms of false, inaccurate, or misleading information. However, what these forms can entail is not necessarily apparent to everyone. Therefore, this section shortly described the different forms that disinformation can take, and section 3.6 will connect these forms with the different types of disinformation. The list of forms shown in figure 3.4 is not intended to cover all the possible forms that can appear, as there will always be new techniques or ways to trick the audience. Nevertheless, it is intended to give an idea about the wide variety of forms disinformation can take and to give the reader a broadened perspective on what disinformation can be. Most of the examples in figure 3.5 are based on a list by the Center for European Policy Analysis (CEPA) (Center for European Policy Analysis, n.d.).

| Text-based | Visual-based | Social-based |
|---|---|---|
| • Article on fake website<br>• Platform post that links to article<br>• Comments<br>• Misleading headlines<br>• (Political) advertisement | • Meme<br>• Picture<br>• Visualization<br>• Video<br>• Deep fakes | • Likes<br>• Shares |
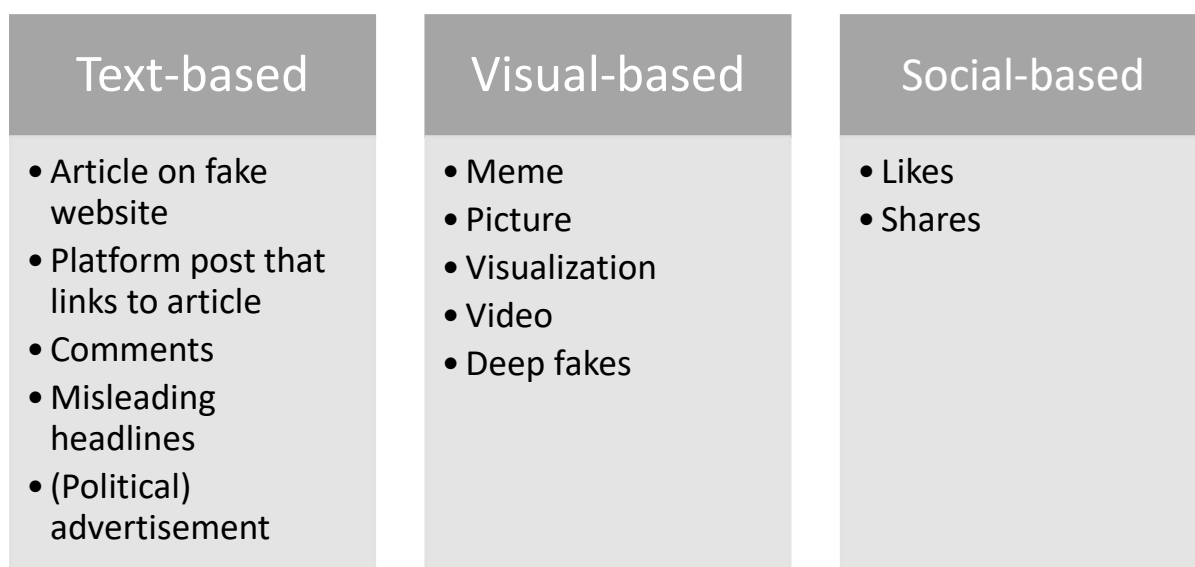
*Figure 3.4: Forms of disinformation*

Figure 3.4 shows that disinformation can come in many shapes or forms. A fake article on a constructed website is a form that fake news takes, but a post on Facebook that links to this article can also be considered 'a piece of disinformation' in itself. Also, comments below fake articles to increase the credibility of this article or to give the appearance that this article is legitimate are also forms of fake disinformation. Just as an intentionally misleading headline above an article can be considered disinformation. In general, the categories that are outlined above, which are *text-based, visual-based,* and *social-based,* are artificial. Nevertheless, this loose categorization helps to understand the phenomenon better. Of course, a picture or visualization can contain words or sentences to bring across the message, such as figure 3.2. Because of the complexity of the concept and the mix of forms, this thesis will not make an effort to split the appearance of disinformation into all the different forms. Nevertheless, section 3.6 will make the argument to split disinformation based on the type, which is more or less dependent on the goal that the producer of disinformation wants to achieve. These types are then connected to the form in which they are most likely to appear.

Lately, extra attention has been put on the so-called deep fakes, which refers to audio or video of real people saying and doing things they never said or did. There has been a fast maturity in technologies that support the altering of images, videos, and audio, or even creating them from out of nowhere. These deep fakes pose even more significant challenges on our societies and policy reactions because it becomes even more difficult to distinguish fake from real. One only needs to think about the example of a fake video depicting an American soldier murdering an innocent civilian in an Afghan village (Chesney & Citron, 2018). This example shows that forms in which disinformation is likely to appear are continually changing. It is credible to state that it is likely that it becomes even more difficult to tell fake from fact, because of the rapid development in all kinds of technologies and ways to make fake things seem more believable.

## 3.6   A final definition and typology

The preceding sections gave a short introduction to the concept of fake news and showed how ambiguous the concept is. Furthermore, it has been proposed to let go of using 'fake news' and use disinformation instead. This is in line with how European institutions have

chosen to demarcate and categorize the different sorts of information. Lastly, an example showed what disinformation looks like, and the forms that disinformation can take have been discussed. This section focusses on putting this all together and proposes a final definition and typology.

Since this thesis purpose is to explain the system of fake news, and to evaluate current EU policy measures, the definitions used by the European institutions are most useful. Therefore within this thesis disinformation is defined as '*verifiably false or misleading information that is created, presented and disseminated for economic gain or to intentionally deceive the public, and may cause public harm*' (European Commission, 2018a). In the *Action Plan against Disinformation,* it is added that public harm includes threats to democratic processes as well as to public goods such as health the environment or security. What is also important is that information that is not entirely false but verifiably misleading is also perceived as disinformation.

The attentive reader should have noticed that the definition includes two different goals that the production and spread of disinformation could serve. In existing literature or within EU Policy documents, there has not yet been made a distinction between types of disinformation. However, as further analysis in this thesis will show, there seem to be partially different mechanisms behind the spread of misinformation with the goal of making money or the goal of intentionally deceiving the public. What should also be noted, is that disinformation that is created to make money is actually also created to intentionally deceive the public, since when this misinformation is not credible, it is harder to earn money with this kind of disinformation. Therefore, it is proposed to divide the definition even further. Within this thesis, it is proposed to talk about disinformation type I and disinformation type II. Both definitions would then be:

- Disinformation type I: verifiably false or misleading information that is created, presented, and disseminated to intentionally deceive the public for economic gain.
- Disinformation type II: verifiably false or misleading information that is created, presented, and disseminated to intentionally deceive the public to cause public harm or influence voting behavior.

By making a distinction between these types of disinformation, it becomes easier to understand which information is being talked about and to come up with solutions tailored to the kind of disinformation. Table 3.2 further summarizes the types of disinformation to provide clarity.

*Table 3.2: Types of disinformation in the EU*

|  | **Disinformation type I** | **Disinformation type II** |
| --- | --- | --- |
| Goal | Earn money | Cause public harm, cause societal polarization, influence voting behavior |
| How? | Deceiving the public | Deceiving the public |

Naturally, categorizing disinformation in type I or type II whenever observed is difficult, since they are both created to deceive the public. However, distinguishing between both types of disinformation will show helpful in the future. Their appearance may be similar (not necessarily), but the goal and even actors behind it can be different. And by taking

them into the analysis as 'separate' forms of disinformation, the system behind disinformation can be described and analyzed in more detail and with more respect to the actual appearance in reality.

## 3.7 Conclusions

The purpose of this chapter was to create a better understanding of the concept 'fake news' and to present and analyze the necessary information to answer the first research question. Preceding sections give a short introduction into the concept of fake news, which can actually better be considered disinformation. Also, the distinction is made between two types of disinformation. However, this is not the only insight obtained. Thus, several conclusions are formulated. These are:

- The term 'fake news' is not the right term to use. Several authors, including this author, argue for the use of disinformation, which is more clear and gives an intention behind the appearance of the disinformation. However, one can be more precise by splitting out disinformation in type I and type II based on the goal that the producers would like to achieve. From a policy perspective, it is expected that this splitting makes it easier to target policy actions at the different types, so that these policy actions are more successful.
- Useful definitions for the different types of disinformation are:
    o *Disinformation type I: verifiably false or misleading information that is created, presented, and disseminated to intentionally deceive the public for economic gain.*
    o *Disinformation type II: verifiably false or misleading information that is created, presented, and disseminated to intentionally deceive the public to cause public harm or influence voting behavior.*
- Disinformation comes in multiple forms. Also, it is likely that new forms come into existence or existing forms develop in such a way that they become more present in daily society. An example is deep fakes, which are becoming easier to make due to recent technological advancements. Thus, keeping a close look at these advancements and the forms of appearance is necessary if one wants to be able to fight disinformation.

These conclusions are the first step in this research into disinformation and ways to tackle the problem. The definition of the concept was necessary. Otherwise, it would not be clear what is meant when talking about reducing disinformation. Thus, a more clear definition is also supportive in answering the main research question, because it makes it easier to be precise about how policies are targeted and on what they are targeted.

Now that the definition is clear, a stakeholder analysis is carried out. In order to understand in which form the different types of disinformation are most likely to appear, it is necessary to understand what the resources and objectives are of the different producers. Also, by understanding the social and institutional landscape strategies to enhance the situation from the perspective of the problem-owner can be introduced.

# II Executing

# 4 Stakeholder analysis

The preceding chapters lied down the main questions to answer, the methodology and helped to come to a more clear idea about the concept of disinformation and the way it is defined within this thesis. The next step within this multi-actor complex system is to analyze the environment and identify the actors that play a vital role in the cause and solution of the problem. To do this, a stakeholder analysis has been carried out. The main purpose of this stakeholder analysis is to develop a strategic view of the stakeholder landscape and the institutions that are present, so that decision-making for future situations can be informed (Hermans & Cunningham, 2018).

The full stakeholder analysis is available in Appendix I. The main findings, process, and conclusions will be presented here. Section 2.2 gave a short introduction to the relevance of a stakeholder analysis. To explain the method in more detail, section 4.1 will discuss the process briefly. Section 4.2 discusses the results. Section 4.3 shows the formal chart. Section 4.4 will conclude, based on the results of the analysis.

## 4.1 Process of stakeholder analysis

The process of stakeholder analysis generally gets carried out in different steps. The steps pictured in figure 4.1 show the different tasks that have to be undertaken to finalize a stakeholder analysis. The full analysis and tables produced can be seen in Appendix I.

The steps in the stakeholder analysis go from 'general' to more specific and step-by-step filter out the most relevant actors based on their objectives, perceptions and resources. This gives information about the importance of these actors relative to the problem-owner and the position (supporting or opposing) of these actors.

1. Step 1 is to identify the problem owner, the perceived gap of this problem owner, the dilemma, and other actors.
2. The next step involves creating a long list of actors. Techniques to do this are brainstorming, asking relevant questions such as *Which actors are influenced by disinformation?* and the reading of relevant literature.
3. Step 3 focusses on listing the objectives, perceptions, and resources. Another step which is usually undertaken is the construction of a formal chart, which clarifies the relationships between actors and the laws and regulations that apply.
4. By using the results of step 3, an overview of the positions of actors is made.
5. Step 5 uses these insights to conclude about the meaning for the problem owner.
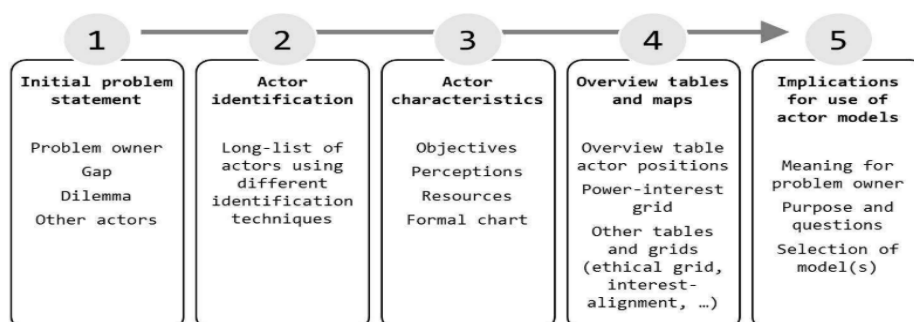


*Figure 4.1: Steps in stakeholder analysis (Hermans & Cunningham, 2018)*

Examples are given by Hermans & Cunningham (2018). Dedicated actors that are supportive and critical can be characterized as 'strong allies' whereas dedicated actors that are opposing and critical can be seen as 'biting dogs'. They have the ability to be potential blockers of certain changes and can be strong critics.

## 4.2   Results of the analysis

Section 4.1 describes that the analysis focuses on identifying the interest and criticality of actors by looking at their objectives and resources. A final result of such an analysis is table 4.1. The table shows all the actors that were taken into the analysis from the start and their classification. The full process of coming to table 4.1 and different steps are described and executed in Appendix I.

*Table 4.1: Overview table of actors and their positions relative to the problem owner*

| | Dedicated actors (high interest) | | Non-dedicated actors (low interest) | |
| --- | --- | --- | --- | --- |
| | Critical actors (important resources) | Non- critical actors | Critical actors (important resources) | Non- critical actors |
| Supportive actors (objectives well aligned) | - European Commission (problem owner)<br>- European Commissioners (problem owner)<br>- National governments/Member States<br>- Fact-checkers<br>- East StratCom Task Force<br>- European External Action Service<br>- EU Hybrid Fusion Cell<br>- European Court of Human Rights (ECHR)<br>- Traditional news media | - European Broadcasting Union (EBU)<br>- Educational actors | | Advertising-free journalistic platforms |
| Opposing actors (conflicting objectives) | - Social media/ platforms<br>- Fake news producers<br>- Advertising companies<br>- Internet Research Agency (IRA)/Federal News Agency (FAN) | Politicians using political microtargeting | - Data-brokers<br>- Ad networks<br>- Web-hosting companies | |

As became clear in section 1.3, the problem owner is the European Commission and the responsible commissioners. The Commission and the European Commissioners collectively are responsible for the tackling of the disinformation problem. The commissioner working on the security of the Union is involved, but also the commissioner for the Digital Economy and Society or the Vice-President for the Digital Single Market. This illustrates that the problem is multifaceted and needs attention from different perspectives.

Applying the classification introduced by Hermans & Cunningham (2018) to the problem at hand shows that national governments, fact-checkers, the European External Action Service, the East StratCom Task Force, the ECHR, the EU Hybrid Cell and traditional news media are 'strong allies'. Social media networks/platforms, fake news producers and advertising companies are powerful critics and potential blockers of certain changes, or so-called 'biting dogs'. Another important category of actors are data-brokers and ad networks, who are so-called 'sleeping dogs'. Those are actors that can be potential blockers but will not act immediately. In general, the most important actors are:

- National governments/Member States
- Fact-checkers/fact-checking organizations
- East StratCom Task Force
- European External Action Service (EEAS)
- EU Hybrid  Fusion Cell
- European Court of Human Rights (ECHR)
- Social media networks/platforms
- Fake news producers (both categories)
- Advertising companies
- Traditional news media

This list of most important actors does not mean that those not on the list are not important. However, it does mean that to realize its goals, the European government and the European Commissioners are not dependent on the resources of actors not on the list. Because the central aspect of their importance lies in their resources and the actual influence, these actors have on the problem.

### 4.2.1   National governments

The relevance of national governments is straightforward since they are the implementors of EU Policy or guidelines and have the legal and institutional power to implement laws and make rules within a country. Clear examples of national governments using this power are France and Germany. In these countries, platforms can receive fines whenever they do not act on deleting disinformation or whenever they do not act on the presence of it. This kind of regulation can, however, be problematic since article 10 of the European Convention on Human Rights gives a certain freedom to expression (Til, 2019). The question, therefore, remains if the mentioned kind of regulation is legitimate. However, this falls out of the scope of this thesis.

### 4.2.2   Fact-checkers

The relevance of fact-checkers and fact-checking organizations could be detested. However, these organizations currently possess skills and workforce that are non-replaceable. The European Commission acknowledges this and supports independent fact-checking organizations. Furthermore, they ask signatories of the *EU Code of Practice on Disinformation* to share data and undertake joint action (European Commission, 2018b).

### 4.2.3   East StratCom Task Force

The East StratCom (Strategic Communication) Task Force is set up by the European Union to address Russia's disinformation campaigns. It has already been set up in 2015, after a meeting of the European Council. The team develops communications and campaigns focused on better explaining EU policies in Eastern Partnership (EaP) countries. The team also supports wider efforts aimed at strengthening the media

environment in that region. Furthermore, the team reports and analyses disinformation trends, explains and corrects disinformation narratives, and raises awareness on disinformation (Rocha, 2018). This actor has clear relevance since it has seen the light especially to tackle disinformation efforts by foreign actors. Furthermore, it has the resources (human resources and official EU Budget) to carry out its tasks.

### 4.2.4    European External Action Service

The European External Action Service (EEAS) is the diplomatic service of the European Union and is responsible for making sure that the voice of the European Union and its people are heard in the world (European External Action Service, 2019b). The East StratCom Task Force, described in section 4.2.3, works closely with the EEAS since the task that the East StratCom Task Force carries out is a specific task which matches with the overall objective of the EEAS.

### 4.2.5    EU Hybrid Fusion Cell

The EU Hybrid Fusion Cell has been set up to analyze hybrid threats affecting the EU and its neighborhood in order to inform the EU's strategic decision-making process. Examples of hybrid threats are  cyberattacks on critical information systems, but also undermining trust in government institutions or exploiting social vulnerabilities by producing and spreading disinformation (European Commission, 2016b). Therefore, the task that this actor carries out is partially overlapping with the EEAS and the East StratCom Task Force.

### 4.2.6    European Court of Human Rights (ECHR)

The court is responsible for ruling about alleged violations of the civil and political rights set out in the European Convention on Human rights (ECHR, n.d.). With regard to the disinformation problem, they are relevant since their judgment about cases is binding on the countries concerned. Therefore, it can lead to governments altering legislation. Article 10 of the European Convention on Human Rights, mentioned in section 4.2.1. is an article that is interpreted by the Court and therefore, they have the power to tell how this should be interpreted in a particular situation.

### 4.2.7    Social platforms/networks

The critical role of social platforms such as Facebook, Twitter, and Google is widely acknowledged by different researchers, national governments, and the European Commission. It is not surprising that the *EU Code of Practice on Disinformation* is mostly targeted on these platforms. The primary importance is because of the fact that the platforms are the place where most disinformation is spread. This has partially to do with the fact that more and more people get their news on social media. However, these platforms are not only platforms but also publicly traded companies, i.e., shares of this company are freely tradable and can be bought and sold un public stock exchanges by the general public. This gives a certain tension in the incentives these companies experience. For example, Facebook's strategic objective is to *'work to bring the world closer together'* (Appendix I). However, the observable reality also shows that Facebook is publicly traded. Which leads to the situation that they will also experience consistent pressure to make a profit for shareholders and generally to earn money (since Facebook is a commercial company). The resources that Facebook has, its platforms, its user base, the enormous amount of data on individuals are important from the perspective of the European Commissioner but are also the key ingredient in the mission that Facebook has. Here, a conflict of interest emerges, because how Facebook earns its money is also one of the

reasons why disinformation spreads. So minimizing this is not necessarily in the interest of a company such as Facebook. Nevertheless, it should be noted that Facebook is not necessarily pro fake news. Whenever the cost of public negativity about the presence of disinformation on the platform outweighs the profits that can be made from it, also Facebook has the incentive to minimize its presence. The same story more or less applies to platforms such as Twitter, Google, and YouTube.
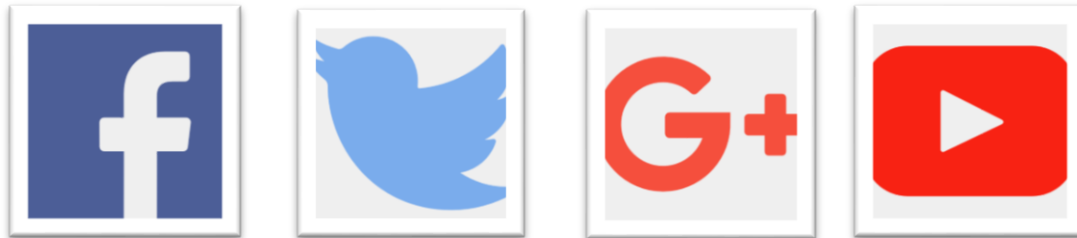


*Figure 4.2: Highly relevant social media platforms: Facebook, Twitter, Google, YouTube*

### 4.2.8   Fake news producers

The relevance of disinformation producers as an important actor is straightforward. But to actually pin down who these actors are is a lot more difficult. Broadly, the identified producers of disinformation fall apart into two categories: actors that are 1) financially motivated and that are 2) motivated by influencing voting behavior or influencing foreign elections. Both try to deceive and can have as a result that election outcomes change, but the reason why is different. Distinguishing between both categories could be seen as unnecessary. However, there is a key difference that is resource related. Financially motivated disinformation producers are in the game to earn money or sustain their livelihood.

A well-known example is ''the town of Macedonian teens' wherein multiple young Macedonians earned amounts of money a multiple of average yearly wages. However, actors that are motivated to influence voting behavior, such as Russia, are not in the game to earn money. In fact, they can do the opposite. They have the resources, namely significant amounts of money, to keep on spending to influence foreign voters.

### 4.2.9   Advertising companies

The importance of advertising companies comes from how companies or politicians want to advertise online and the way publishers can make money. When a company is hired to be concerned with political micro-targeting, the relevance is clear. They construct (misinformative) messages that are precisely targeted to receptive audiences (Cadwalladr, 2018) to influence voters in a preferred way. But regular advertising companies, that help companies with their online advertising also have a role to play. These ad agencies make sure that the ads that their clients want to sell reach the right end-users. They do this by using intermediaries, such as ad networks or platform such as Google or Facebook. However, how they make sure that audiences get to see these ads is often highly automated and is designed to pay small commissions to publishers of these ads. Therefore, an owner of a fake news website generating traffic can earn money by using these platforms or ad-networks to published advertisements and earn a commission (Tambini, 2017).

### 4.2.10 Traditional news media

An actor group which is supporting and critical based on the criteria used during the stakeholder analysis process is the traditional news media. Their role as agents in amplifying (intentionally or not) fabricated or misleading content is crucial (Wardle & Derakhshan, 2017). These media are under pressure and also rely more and more on the social web for story ideas and content. Thus, this can results in these news media, instead of being critical, actually amplifying messages that are classified as disinformation. However, these actors are critical because these actors also possess important skills and resources, such as practices related to high-quality investigative journalism and editorial knowledge.

### 4.2.11 Internet Research Agency (IRA)/Federal News Agency (FAN)

The Internet Research Agency (IRA) is a Russian marketing agency that engaged/engages in influence operations. During the lead up to the 2016 US election, they heavily targeted American citizens to influence their vote. Although their operations focused on the EU, there are reasons to believe that they also played a role in the Brexit-vote (Diresta et al., 2018; UK Department for Digital Culture Media and Sport Committee, 2019). The activities of this agency are well documented by Adrian Chen (n.d.). Documents indicate that the IRA had an operational budget of $12.2 million in 2017 alone. The IRA, which now seems to be renamed to Federal News Agency (FAN), shows to be a highly relevant actor. It mainly seems to be a state-sponsored influence operation. They have the resources (money, men power and knowledge) to influence voters anywhere around the world.

### 4.2.12 Data-brokers, ad networks and web-hosting companies

Data-brokers, ad networks and web-hosting companies also deserve special attention. Table 4.1 showed that they are categorized as 'sleeping dogs', which means that these actors can be potential blockers, but will not act immediately. These actors are not necessarily interested in the disinformation problem. Their main goal is the be profitable and serve clients best interest. However, their role seems to be vital in the spread and presence of fake news. Therefore, potential regulation could be focused on their field, and this can influence the way they operate. They have the resources (such as specialized knowledge about how to link advertisements to the right publishers) that can be vital to the European Commissioner and Commissioner to act on the problem. Therefore, these actors are important. They are not yet influential, but could potentially be.

## 4.3 Formal chart

Section 4.1 clarifies the process of stakeholder analysis. Step 3 in this process includes the construction of a formal chart.

The formal chart is a network diagram that summarizes results from an investigation into formal laws and regulations that apply to the disinformation problem. However, the study of the legal perspective of disinformation is still evolving. Many laws and regulations could potentially apply. Also, it is difficult to assess what applies since current laws cannot keep up with technology (Wadhwa, 2014). Therefore, the researcher has made a choice to only do a brief exploratory investigation into these laws and regulations. Doing a thorough investigation is difficult and falls outside the scope of this research. Figure 4.3 shows the constructed formal chart.
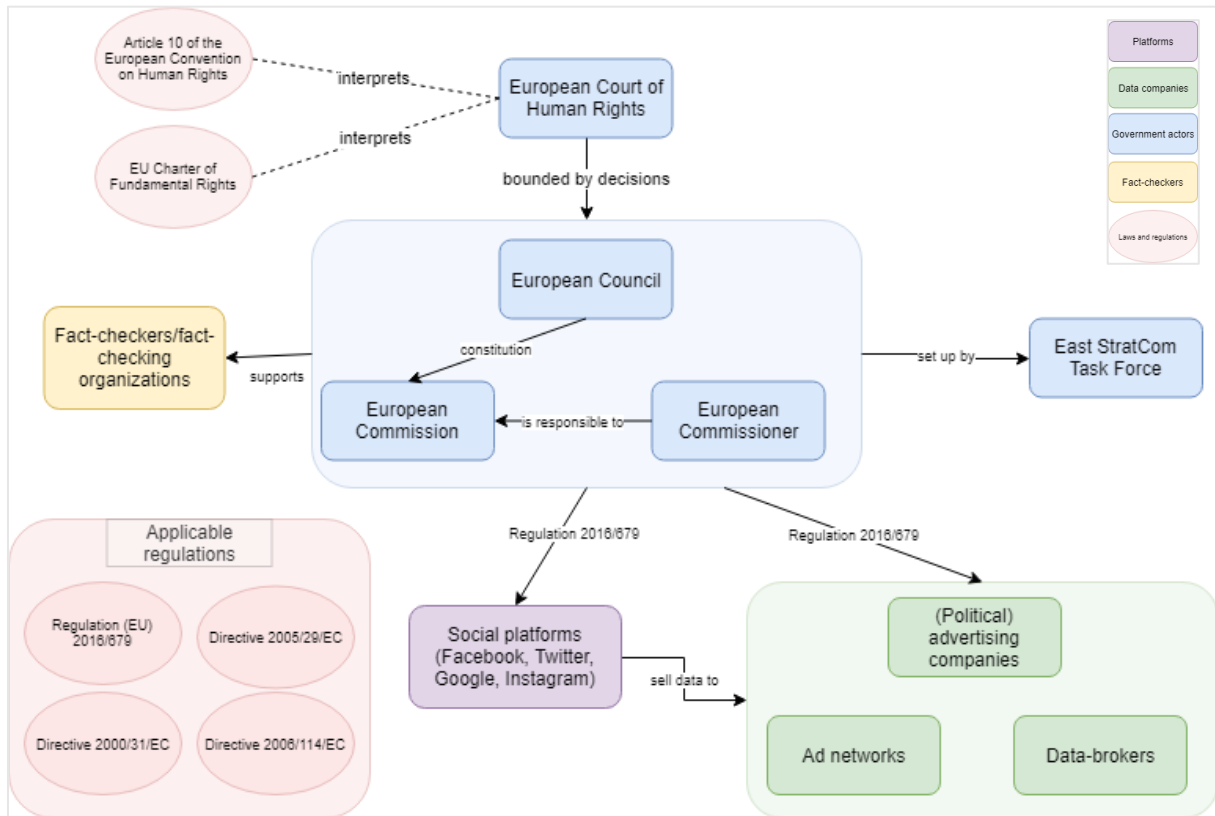
*Figure 4.3: Formal chart disinformation in the European Union*

Figure 4.3 brings forward several applicable laws and regulations. These laws and regulations include (European Commission, 2018b):

- The EU Charter of Fundamental Rights
- The European Convention on Human Rights
- Directive 2000/31/EC, with particular reference to Articles 12 to 15, which shall apply to any obligation of this Code targeting or assumed by mere conduits, caching providers, or hosting providers such as providers of network, search engines, browsers, online blogging platforms, online forums, video-sharing platforms, social media, etc.
- Regulation (EU) 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data;
- Directive 2005/29/EC concerning unfair business-to-consumer commercial practices in the internal market
- Directive 2006/114/EC concerning misleading and comparative advertising
- The case-law of the CJEU and ECHR on the proportionality of measures designed to limit access to and circulation of harmful content.

As figure 4.3 indicates, especially regulation 2016/679 is important since this relates to the protection of natural persons with regard to the processing of personal data and the free movement of such data (European Commission, 2018b). This regulation is known by many as the General Data Protection Regulation (GDPR). However, also the European Convention on Human Rights (especially Article 10) is applicable. Article 10 of the European Convention on Human rights is the article that guarantees the freedom of

expression, and the article is not only limited to the protection of truthful information. An important actor related to this problem is the European Court of Human Rights, which judged that the spread of untruthful information is not prohibited, even in the case of severe doubt about its truthfulness. However, when there is a clear intention to influence public debate and misinform, then there is no protection by law. Therefore, disinformation, as described and defined in chapter 3 is most likely to be illegitimate (Mcgonagle, 2018). These examples and the regulations listed above indicate that disinformation within the EU is a problem that is difficult to regulate because of the nature of the problem and the way it relates to laws concerning freedom of expression or protection of personal data.

The European Commission, the European Commissioner, and the European Council form the main European governmental actors that are focused or interested in the situation. As a regulatory measure, the East StratCom Task Force was introduced. The Taskforce answers to these other governmental actors.

These actors, in turn, lay the 'boundaries' in which national governments can operate. Figure 4.3 is designed to indicate that there are several laws and regulations possible, but that there are momentarily not many in place that entirely relate to the production and spread of disinformation.

## 4.4   Conclusions

The main purpose of this stakeholder analysis is to develop a strategic view of the stakeholder landscape and the institutions that are around. Also, to clarify relationships between these stakeholders and the issues that are most important to them. The models used above structure existing knowledge and evidence in a way that helps to inform decision making for future situations (Hermans & Cunningham, 2018). Thus, based on this analysis, several meaningful conclusions can be drawn. These conclusions partially serve as an input for chapters that follow and contribute to understanding the landscape and the expected resistance or possible coalitions.

Conclusions are:

- The role of platforms and advertising companies is highly important. These platforms/companies have resources that partially enable the actual existence of disinformation. The platform business model is built on data-collection, selling access to this data and selling services related to targeted advertising based on this collected personal data. Also, data-brokers and companies specified in targeted advertising make money based on this data. Therefore, these stakeholders can be expected to form a coalition that is opposed to regulatory legal actions, since it threatens them in their reason of existence.
- Forming coalitions with traditional news media and educational actors can be a useful strategy to better cope with the problem at hand. Traditional news media possess skills and resources that are scarce, and their interest is well aligned with the problem owner. Educational actors, although not classified as critical, possess skills that can be useful in contributing to a solution. With these coalitions, governmental actors should bear in mind that it is not possible to directly fund news media, is this goes against the independence of this media and laws relating to the freedom of speech.

- The European Commission and national governments deal with a situation in which the possibility for regulation is limited. Countries are already experimenting with fines if platforms do not act on disinformation within 24 hours after they have been introduced to the existence of this disinformation. However, these kinds of regulations can be problematic since article 10 of the European Convention on Human Rights gives a certain freedom to expression (Til, 2019). Therefore, there seems to be a certain tension between regulation to influence to problem and laws that have to do with this regulation. Strategically speaking, regulation is still a difficult subject and should first be investigated further. Also, because multiple laws and regulations are applicable to the situation, which regulation applies in which situation is not necessarily clear. The regulations are sometimes difficult to apply. The GDPR deals with online advertising, but microtargeting with political messages is a special form, which is sometimes more disinformation than actual advertising. The question if targeting with ambiguous political messages is actually permitted under these laws is something that has not been answered yet (Marsden & Meyer, 2019).
- Disinformation producers roughly fall apart into two categories. Producers that produce type II disinformation have the resources to produce and spread fake disinformation on a large scale because they are government-backed and have to goal to influence voting behavior to destabilize or polarize foreign democracies. They can spend money to reach their goals. Producers of type I want to earn money. These producers leverage Facebook and ad platforms such as Google AdSense to generate traffic to their websites. They publish automatically linked ads to their website, which generates income when visitors of their disinformation website sees or clicks on the published ad. That disinformation producers fall apart into categories means that there are potentially different ways to change their behavior by putting in different incentives. An example, state-backed actors are more difficult to influence by 'changing' the advertising infrastructure, since they are not there to make money but to spend it. Thus, these actual producers are difficult to target from a regulatory perspective. Forming an alliance with platforms can be beneficial from a policy-perspective. However, the interests of platforms and the problem owner are not fully aligned. The problem-owner is dependent on these platforms for reaching their goals and can expect difficulty in working together.
- The stakeholder landscape is difficult and consists of many parties that all have different objectives and slightly different resources or ideas about the problem at hand. It is expected that the best way to deal with this situation is to not focus on a few actors alone but on the actor environment as a whole. A good strategy can be to bring all actors together and created a shared understanding and goal about why it is important to tackle the problem of disinformation. By trying to align the incentives of the actors involved, every stakeholder works with the same goal in mind.

These conclusions, especially the conclusion related to the difficulty of regulation, bring forward the question of what is being undertaken to tackle the problem of disinformation in the European Union. Chapter 5 clarifies this. It shows what the problem owners (the European Commission and responsible commissioners) undertake to solve the problem.

# 5   Policy Actions

Chapter 4 describes the stakeholder analysis. The analysis resulted in conclusions about the role of platforms, the categories of disinformation producers that exist, and the difficulty to tackle the problem for the European Commission and responsible commissioners. However, several actions have been undertaken to influence the disinformation problem in the European Union. This chapter will investigate these policy actions by the European Commission and responsible commissioners. These actions are listed because this thesis assesses the impact of these actions on the system. Therefore, it is necessary to specify what these actions involve.

Section 5.1 starts with a brief description of the timeline related to disinformation. Section 5.2 describes on the actual policy actions that are carried out. After, section 5.3 concludes based on the preceding paragraphs.

## 5.1   EU disinformation timeline

This Section focusses on showing the timeline of disinformation within the EU. Figure 5.1, which is part of the report on progress (European Commission, 2019) that was published in May, shortly sums up different important moments that contributed to the current policies in chronological order.
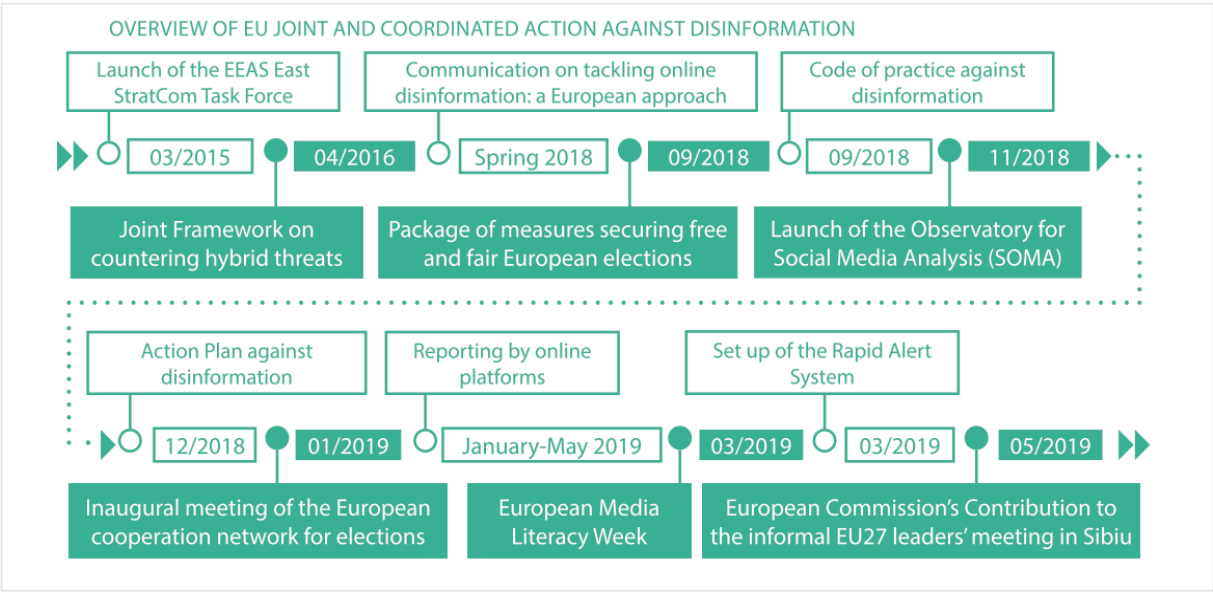


*Figure 5.1: Chronological overview of policy responses (European Commission, 2019)*

The introduction of the East StratCom Task Force in 2015 has already been described in section 4.2.3. Nevertheless, the introduction of this task force marks an interesting moment since it is the first official act that shows the acknowledgment by European governmental actors of the presence of disinformation. After that, the Joint Framework on countering hybrid threats was taken into action, of which the forming of the EU Hybrid Fusion Cell (section 4.2.5) was a part. The appointment of a new Commissioner for the Digital Economy and Society is also important, however not shown in figure 5.1. Therefore, this event could be seen as relatively unimportant. However, in the mission letter to Mariya Gabriel that was written by Jean-Claude Juncker, the president of the European Commission, it is explicitly mentioned that the new commissioner should *'look into the challenges the online platforms create for our democracies as regards the spreading of fake*

*information and initiate a reflection on what would be needed at EU level to protect our citizens'* (Juncker, 2017). This illustrates the heightened awareness for what potentially could be a threat in that moment of time. Especially, after what became apparent after the 2016 U.S. presidential election, this marks a point in which the EU started to take disinformation even more seriously. Mariya Gabriel instated a commission called the High-Level expert (HLEG) Group on Fake News and Online Disinformation, which researched the phenomenon. Based on recommendations done by the HLEG the European Commission and involved European actors (such as Mariya Gabriel) started to think about a potential industry Code of Practice. The Code of Practice eventually was published in September of 2018. Furthermore, they organized a Multi-stakeholder forum on disinformation. This forum included actors from all different spheres related to the problem, such as the platforms but also journalists. The insights obtained during workshops and meetings served as input for the Code of Practice to fight online Disinformation and the Action plan against Disinformation. However, it seems that Google and Facebook pressured and "arm-wrestled" with policy-makers to weaken European guidelines on online disinformation and fake news, according to statements from insiders (Schmidt & Dupont-Nivet, 2019). This means that the actual policy actions that resulted from this process and are part of the Action Plan against Disinformation are not strong enough to help to minimize the production and spread of disinformation. What followed, based on the *Code* and the *Action plan*, is the implementation of these measures, which are discussed in section 5.2, and the monitoring of the results of these measures. Two important moments that were highlighted by the European Commission, as can be seen in figure 5.2, is the first ever European Media Literacy Week and the setting up of the Rapid Alert System.

## 5.2  EU Policy Actions

The preceding Section focused on the timeline that resulted in the Action plan Against Disinformation and the Code of Practice to fight online disinformation. This Section will describe the actual policy measures that are described within these documents, and thus, the policy measures that are introduced to fight disinformation in the EU.

The Action Plan Against disinformation was introduced as: '*A set of actions presented in December 2018 to build up capabilities and strengthen cooperation between Member States and EU institutions to proactively address disinformation* (European Commission, 2018a).' These actions fall apart into four categories. That are shown in figure 5.2 (European External Action Service, 2019a).



*Figure 5.2: Set of actions Action Plan against Disinformation* (European External Action Service, 2019a)

These categories and the actual policy actions that are presented within the Action plan are listed below. The actions are intentionally formulated more concise than in the Action Plan for clarity.

- Improve detection, analysis, and exposure of disinformation.
    - o Action 1: Strengthen the Strategic Communication Task Forces and Union delegations through additional staff and new tools which are necessary to detect, analyze, and expose disinformation activities.
    - o Action 2: Reviewing the mandates of the Strategic Communication Task Forces for Western Balkans and South to enable them to address disinformation effectively in these regions.
- Stronger cooperation and joint responses to disinformation.
    - o Action 3: Establish a Rapid Alert System for addressing disinformation campaigns, working closely with existing networks, the European Parliament as well as the North Atlantic Treaty Organization and G7's Rapid Response Mechanism.
    - o Action 4: Step up communication efforts on Union values and policies.
    - o Action 5: Strengthen strategic communications in the Union's neighborhood.
- Mobilize private sector to tackle disinformation.
    - o Action 6: Close and continuous monitoring of the implementation of the Code of Practice. The Commission will push for rapid and effective compliance. The Commission will carry out a comprehensive assessment 12 months after the signing of the Code.
- Raise awareness and improve societal resilience.
    - o Action 7: Organize targeted campaigns for the public and trainings for media and public opinion shapers in the Union and its neighborhood to raise awareness of the negative effects of disinformation. Efforts to support the work of independent media and quality journalism, as well as the research into disinformation, will be continued in order to provide a comprehensive response to this phenomenon.
    - o Action 8: Support the creation of teams of multi-disciplinary independent fact-checkers and researchers with specific knowledge of local information environments to detect and expose disinformation campaigns across different social networks and digital media.
    - o Action 9: Support cross-border cooperation amongst media literacy practitioners as well as the launch of practical tools for the promotion of media literacy for the public. Member States should also rapidly implement the provisions of the Audio-visual Media Services Directive, which deal with media literacy.
    - o Action 10: Member States should ensure effective follow-up of the Elections Package, notably the Recommendation. The Commission will closely monitor how the Package is implemented and where appropriate, provide relevant support and advice.

The actions mentioned above are the concrete steps that the European Commission and related governing bodies decided to undertake to tackle the problem of disinformation.

However, one could have noticed that action 6 is related to the monitoring of the implementation of the Code of Practice. This Code of Practice contains several actions that the signatories agree to implement to increase transparency and to protect citizens against disinformation (Til, 2019). The code states that large platforms should immediately:

> *'(i) ensure scrutiny of ad placement and transparency of political advertising, based on effective due diligence checks of the identity of the sponsors*
>
> *(ii) close down fake accounts active on their services and*
>
> *(iii) identify automated bots and label them accordingly.*
>
> *Online platforms should also cooperate with the national audio-visual regulators and with independent fact-checkers and researchers to detect and flag disinformation campaigns in particular during election periods and to make fact-checked content more visible and widespread (European Commission, 2018b).'*

The actions stated above immediately received heavy criticism from multiple parties, one of which was the Sounding Board of the Forum on Disinformation. They stated that: '*the "Code of practice" as presented by the working group contains no common approach, no clear and meaningful commitments, no measurable objectives or KPIs, hence no possibility to monitor process, and no compliance or enforcement tool: it is by no means self-regulation, and therefore the Platforms, despite their efforts, have not delivered a Code of Practice* (Sounding board Multi-stakeholder forum on Disinformation, 2018).' This is heavy criticism. However, it does contain concrete actions that can be undertaken. Therefore, the policy actions, as identified above, will be taken into account in the analysis of how the policies have an influence in the disinformation system. They will be labeled as action 11 to 14.

## 5.3    Conclusions

The aim of this chapter is to clarify the actions that are being undertaken the impact the disinformation problem. Without this specification is not possible to make an assessment of these policies from a systems thinking perspective. However, based on the paragraphs above, also several conclusions can be drawn about the nature of the policy actions and the timeline in which they have been carried out. The following conclusions can be drawn:

- The measures that the European Commission has introduced and that are being undertaken over time are directed at a wide variety of actors and relate to different areas. They are measures that relate to improved detection and analysis, but also to the improvement of societal resilience. Current knowledge about the situation supports this strategy since it shows the various areas that the subject touches. Thus,
- Most measures can be considered soft measures, which are characterized by being voluntary and non-coercive (Borrás & Edquist, 2013). The most straightforward example of this is the *Code of Practice*. There are no legal obligations, and the actions stated in this document are carried out by platforms on their own. Other clear soft measures are campaigns (such as the European Media Literacy Week) and supportive actions to mobilize different actors to share knowledge.
- Due to the soft nature of most policy measures, the European Commission puts a big responsibility on private actors and mainly platforms. As already put forward

in [section 4.4](#), the regulation of this particular field is complicated since it needs a constant juggling of important and delicate values such as freedom of expression and the integrity of democracy. However, by using soft measures and putting the responsibility of what can and cannot be said at private actors, that can have commercials goals and motives, the commission essentially puts the weighing of these values in their hands. The question is whether that is a preferred situation and if these actors can be trusted with such an important task. Thus, there is a big opportunity to work closely together with these platforms or introduced regulation, so that important societal values are safeguarded.

- The majority of the actions is rather vague and cannot be measured against KPIs or clearly specified goals. These actions are formulated vaguely and do not describe more than the importance of knowledge-sharing and cooperation and the stimulation that will be done. However, in what form this stimulation will take place or how the effects will be measured are unclear. There are opportunities in describing more extensively how policies are implemented. This forces to think those policies through and what goal they should achieve.

These conclusions and the formulated policy actions will be further used in [chapter 8](#). There the assessment of the impact of the policy actions is presented.

# 6 An empirical investigation

To gain more insight into how different actors see the problem, an empirical investigation will be carried out. Using semi-structured interviews, the different perspectives about the causes of the problem and solutions will be made visible. The statements collected during the interviews, serve as the data on which the relationships in the system model are based. Thus, this chapter serves to understand different perspectives about the problem so that these can be conceptualized into relationships.

Section 6.1 briefly focuses on the interviewees. Section 6.2 focuses on the interview design and process. Section 6.3 presents results based on the conducted interviews. Finally, section 6.4 will conclude based on these results. These results and conclusions will then be used to come to a comprehensive system diagram of disinformation in chapter 7.

## 6.1 Interviewees

The stakeholder analysis summarized in chapter 4 gave valuable input about actors connected to the problem. Based on this list of actors, different persons were approached about the possibility to conduct an interview. In total, fifteen people have been approached. Table 6.1 sums up the people that have been interviewed. Unfortunately, interviewing several important actors (such as actual commissioners or employees of platforms) turned out to be complicated.

*Table 6.1: Persons interviewed*

| # | Function | Type | Date |
|---|---|---|---|
| A | Fact-checker | Skype | 27-5-2019 |
| B | Investigative journalist | Telephone | 28-5-2019 |
| C | Fact-checker | Telephone | 7-6-2019 |
| D | Researcher | Skype | 25-7-2019 |
| E | Researcher | By email | Not applicable |

As table 6.1 shows, five persons have been interviewed. These interviewees are all marked with a different letter. These letters will be used in section 6.3 to connect the results of the interview with the person responsible for these results. It is preferred to interview people in all categories related to the problem because this generates a most valid picture based on different perspectives. So not only fact-checkers or researchers, but also investigative journalists or people working at platforms such as Facebook. However, some of the people approached did not respond to the request. Unfortunately, this is one of the limitations of the conducted interviews. The group of people that were interviewed can be considered not totally representative when looking at the group of actors that are classified as critical. Actually, only the fact-checkers can be considered critical. At the same time, this is also an advantage. The perspectives that were given by investigative journalists or researchers are less dependent on the problem and are in that way potentially less biased in the way they look at the system and the root of the problem.

## 6.2 Interview process and design

As discussed, the interviews that were undertaken were semi-structured. The loose structure that was used is visualized in figure 6.1. Three interviews were conducted via phone, one interview via Skype, and another interview via email. Different modes of interviewing were dependent on the preferences of the person interviewed, and the distance and time constraints.



*Figure 6.1: Flow of interview*

Figure 6.1 shows that a short introduction about the interview is followed up by a question related to the role of the interviewee with the disinformation problem. The themes that will be focused on after are the viewpoint of the interviewee about the main causes of the problem and the solutions and effectiveness. After that, a question related to the most important actors to tackle this problem is asked. The interview ends with a short repetition of the most relevant answers and a conclusion. The participant will be thanked for their time and efforts. Table 6.2 connects the different phases with potential questions asked and probes. It should be noted that the potential questions here are formulated in English. However, most of the participants were Dutch-speaking. Therefore, these questions were initially asked in Dutch.

*Table 6.2: Phase, purpose and related questions*

| Phase | Purpose | Potential questions |
|---|---|---|
| **Introduction** | 1. Warm up the participant. 2. Introduction of interviewer and interview. | |
| **Role of actor** | Establish the goals and perspective of the participant about the role related to the problem. | • How are you connected to this problem? <br> • Which contribution do you have to the problem and potential solutions? <br> • What are your goals related to disinformation in the EU? <br> • Do you experience incentives related to the disinformation problem? If yes, which? |

| The main cause of the problem | Identifying causes and important behavior driving feedback mechanisms. | • What is the main cause of the disinformation problem in the EU?<br>• What mechanisms enable the spread of disinformation within the EU? |
|---|---|---|
| Solutions and effectiveness | Identifying solutions and effectiveness of solutions. | • What do you think of current EU policy measures, are those effective?<br>• What would be effective long-term solutions? |
| Vital actors/roles | Identifying the perspective of the participant about the most important actors and the roles they play. | • Which actors play a vital role in the solution of this problem?<br>• Which role do they play? |
| Conclusion | Summarizing main findings in the interview. | |
| Word of thanks | Thanking participants, giving room for questions. | |

The interviews, except the interview that was conducted by email, are all recorded as video or audio-file and are available in the 4TU Research database. They can be accessed after a request to the researcher. The video-file was recorded by using the recording tool in the Skype software package. Phone calls were recorded using the Tape-a-call application installed on an iPhone.

To derive insights from the interviews, thematic analysis was used. There are a number of techniques available for synthesizing qualitative data into a structured thematic analysis. The primary technique is coding (Boyatzis, 2009). Generally, the researcher used a basic three-step structure.

1. Review of interview audio and notes
2. Analysis of statements
3. Synthesis of statements

The interviews have been listened to, to gain a deeper understanding of what respondents actually described. Also, during the interviews, notes were taken continuously about essential subjects and statements that were indicated as important by the interviewee. The listening combined with notes helped to understand underlying themes. The notes and most important statements were then coded based on the underlying theme. An example is 'business model of platforms'. Several statements made during different interviews had this underlying theme. These statements were marked/coded as such. It should be noted that it is an iterative process, where the research starts to form an idea about the underlying theme and is confirmed or unconfirmed after analyzing more

interviews. After the second step of analysis and coding, the third step is undertaken. Statements across different interviews that are related to the same theme were grouped. Consequently, insights about different themes and understanding about common perceptions and differences between interviews can be obtained.

## 6.3   Results

This section is focused on the results of the interviews. As the preceding sections have put forward, the interviews focused mainly on four different subjects: the role of the actor and goals related to disinformation, the main causes of the problem, the solutions and effectiveness, and the most important actors and roles of those actors. However, due to the way the interviews were structured, more subjects came up during the interviews. Therefore the results are categorized based on the coding that has been carried out after analysis of the interviews.

The full results are more or less formulated as statements that have come forward during the interviews or statements that became clear because of what has been said. These statements were all made in Dutch. Therefore, they have been translated by the researcher. Full results and statements are listed in Appendix II.  These statements all have brackets behind them that contain one or more letters from A to E. These correspond to the letters that were given to the different interviewees in section 6.2. In this way, statements that were made during the interviews are linked to interviewees that made them. Also, the statements are numbered from *a* to *dd*. This will become helpful in chapter 7 the show how different statements have been conceptualized in the systems model.

Table 6.3 lists the different themes that came to the surface, the most important statement (which most interviewees agreed on) and the interviewees that agreed.

*Table 6.3: Summary of results*

| Theme | Results | Interviewees |
|---|---|---|
| Role of fact-checker | The role of a fact-checker is to provide information about the untruthfulness of information. It is to make sure that 'the right info' is there. | A,C |
| Business model platforms | The business model of platforms, and in particular, Facebook, is built around selling access to this data to advertisers and other third parties. This data can be used to construct personalized political messages (disinformation) or personalized advertisements. This personalization, however, is also the reason people click and engage with content. However, in general, this business model is one of the reasons we are experiencing the issue of disinformation | A, B, C, D |
| The business model of journalism and the role of journalism | The rise of social media and the role of platforms as the 'new gatekeepers of information' has had a big influence on the business model of journalism and the way it currently operates. | B, C, D. E |

| Defining disinformation | The way disinformation is defined as a concept influences how it is analyzed and which policies are used to tackle the problem. | D, E |
|---|---|---|
| Internal disinformation | Within the European Union, there is a strong focus on external disinformation. This is disinformation that is produced by Russia or actors that want to earn money. However, there should be a stronger focus on internal disinformation. | B, C |
| Fact-checking | Fact-checking can also be helpful by being transparent about the way in which fact-checks are carried out and the sources that are being used. By showing this stepwise approach, "the public' can get educated about how fact-checking works and how they could do it themselves. From this perspective, fact-checking also has an educational purpose. | A, C |
| Effectiveness of EU policies and self-regulation of platforms | Coming up with effective policies is extremely difficult. When governments are directly determining what can and cannot be said, then this is censorship. This comes close to a totalitarian state, which is highly undesirable. | A, B, C, D |
| Psychological mechanisms | Fact-checkers acknowledge that the best filter against disinformation 'is between the ears' | A, C |
| Additional insights | 1. The problem of disinformation is not a problem that is caused by one thing. It is a highly complex problem that is driven by multiple factors that are intertwined and act on different levels. 2. Several mechanisms determine whether disinformation that is present is problematic or not. If disinformation is present but non-believed, then that is mostly not a problem. Only when disinformation is believed it is dangerous. | A, B, C, D, E |

## 6.4  Conclusions

The aim of this chapter is to understand the problem from different perspectives so that these perspectives and statements can be conceptualized into a model of the disinformation system. This section will focus on the conclusions that can be drawn based on the interviews and the results obtained during these interviews. The conclusions try to narrow further down the results summed up in section 6.3. The focus is on showing where interviewed actors agree (or disagree) and to gain insight into the different mechanisms

that are important in the conceptualization that will be focused on in . Conclusions are:

- There is a clear consensus about the role that platforms such as Facebook and their business model play in the disinformation problem in the European Union. The business model is built around selling access to data. This data can be used to construct personalized political messages (disinformation) or personalized advertisements. Also, the algorithms behind the platform encourage personalization of users timelines. From the perspective of Facebook, this drives interactions and time on the platform, which results in more data to be collected. The user of a platform is the most valuable asset.

- Multiple interviewees agree about the critical role of journalism and the media environment. High-quality journalism can be seen as an antidote to power. By making sure that there is a pluriform media environment and a wide diversity of coverage, the influence that disinformation has can be minimized. This conclusion can be seen as preaching the choir, especially when it comes from a group of interviewees that also contains an investigative journalist and fact-checkers. However, reports by the European Commission support this claim.

- Fact-checkers are aware of research about psychological mechanisms that can contribute to the ineffectiveness of fact-checking. However, fact-checkers try to make sure that information that shows the untruthfulness of fake news is available to whoever is looking for it. In this way, whenever someone is skeptical about the news they consume, they can find information online that debunks the disinformation. Also, fact-checkers see also an educational function of fact-checking. By being transparent about the fact-checking process and sources consulted, readers of these checks are themselves learning about how to investigate the truthfulness of articles and messages. In this way, they become more critical about the news they consume and have more knowledge about how to verify the information that comes to them.

- There is a consensus about the role that the rise of social media and the presence of social media platforms has done for the state of journalism today. Platforms have become 'the new gatekeepers of information'. These gatekeepers used to be media outlets such as newspapers. These findings are congruent with findings by different researchers. Vos (2015) mentions that a handful of large companies—social media sites and search engines— have disrupted the old model of gatekeeping by traditional organizations. Social media platforms and search engines control their algorithm and thus, to some extent, control the news that gets circulated.

- Interviewees agree that coming up with regulations and solutions to tackle the disinformation problem is really difficult. Regulations that limit free speech in any way are unfavorable as this kind of regulation is essentially state censorship. However, also self-regulation is difficult and possibly ineffective because actors are then deciding for themselves how to regulate and governments possibly do not have enough insight into the effectiveness and actual measures. Also, if governments chose to regulate, the regulations should be measurable, this seems to be lacking in current regulations.

These conclusions will be conceptualized in the next chapter into a model of the disinformation system.

# 7 Applying systems thinking: the disinformation system

Up until now, this thesis has focused on a definition for disinformation, an analysis of the stakeholders involved, an investigation into the implemented policies and an empirical investigation into the most important causes of the disinformation problem in the European Union. All these parts are the pieces of the puzzle to visualize and show the disinformation system. This chapter will combine the information from the preceding chapters, and most importantly, the results of the interviews presented in section 6.4 to visualize the disinformation system in the EU.

However, the construction of such a model is complicated. Ideally, a stepwise approach will be used to create a model of the system (Wolstenholme, 1992). Section 7.1 describes the process and purpose. Section 7.2 shows the results of the application of this process. Section 7.3 presents conclusions.

## 7.1 Process and purpose of creating the systems model

Section 2.4 discusses why systems thinking, and the visualization of the system by using causal loop diagrams and stock-flow diagrams is a useful method to answer some of the research questions. This section focuses on explaining the different steps that led to the creation of a systems model and the purpose of this model.

### 7.1.1 Process

The steps undertaken by the researcher are listed below:

1. Statements to variables
2. Variables to relationships
3. Construction of the loops
4. Adding relationships from research
5. Formalizing the structure
6. Implementation in Vensim (software used to sketch system)

The interviews resulted in several statements and conclusions. These statements often contain descriptions about the causes of a problem. An example of such a statement is: *A pluralistic media landscape with a wide variety of independent journalistic outlets is a condition that makes it difficult for disinformation to be successful.* The nouns in such a statement, like *variety of independent journalistic outlets,* serve as the first indication for the conceptualization from a statement to variables. The statement mentioned above (in combination with the knowledge obtained by other statements) is conceptualized in the systems model, as indicated in figure 7.1. The example can be read as follows: an increase in the *amount of quality journalism* causes the *diversity of media coverage* to increase. In turn, an increase in the *diversity of media coverage* causes an increase in *exposure diversity*.

| amount of quality journalism | → | diversity of media coverage + | → | exposure diversity + |
|---|---|---|---|---|

*Figure 7.1: Conceptualization example*

What this relationship conceptualizes is that a higher amount of quality journalism has a positive influence on the diversity of the different subjects that the media covers. And when the media covers a more diverse set of subjects, people are exposed to more different subjects and perspectives. This is an example that serves to clarify the six-step approach mentioned above. By using the same technique as above, the different statements are conceptualized as relationships between variables. Connecting all these different variables eventually leads to a model structure. However, also, several assumptions have been made to complete the system structure. These assumptions are listed in Appendix III.

It is important to mention that these steps were not followed blindly, but that the process itself is also iteratively. Several sketches (on paper) have been made of a model, after which new statements were conceptualized (or conceptualized differently) so that the model changed. Only when the conceptualization became more and more complete, the system structure was made on with a software program. Also, several mechanisms from literature, have been added to the model, to make it more complete. Section 7.2 substantively describes the results of this process.

### 7.1.2 Purpose

The purpose of the construction of the model is briefly mentioned in section 2.4. Generally, it is necessary to understand the current problems concerning the presence of disinformation in the European Union from a systems thinking perspective. In that way, the usefulness of implemented policy measures can be assessed, and alternative strategies can be developed. Explicitly, the model serves to clarify the mechanisms that lead to the production and spread (i.e., presence) of disinformation. It is an object that tries to make clear what variables cause this presence so that it can be assessed if current EU policies are doing what they are supposed to do and how they could be improved. What makes the construction of a systems model also helpful is the representation of the system with stocks and flows. As section 2.4 puts forward, these flows are what make the stock increase or decrease. By analyzing what variables have an influence on the actual flow, one is better able to turn the faucet (by influencing the variables) and influence the size of the flow. Thus, one is better able to understand how policy actions eventually influence the flow and how these policy actions can contribute to reducing the stock of disinformation.

### 7.2 Results: the systems model

The final result of the application of systems thinking  is a systems model that visualizes the variables and the influence that these have on each other. However, as section 7.1 also highlights, one comes to this final system model by taking small iterative steps. Therefore, the results of this process are also presented step-by-step.

### 7.2.1 Variable of interest

Figure 7.2 visualizes the results of systems thinking when a highly simplified display of reality is taken. Here it serves to clarify how disinformation is conceptualized and to
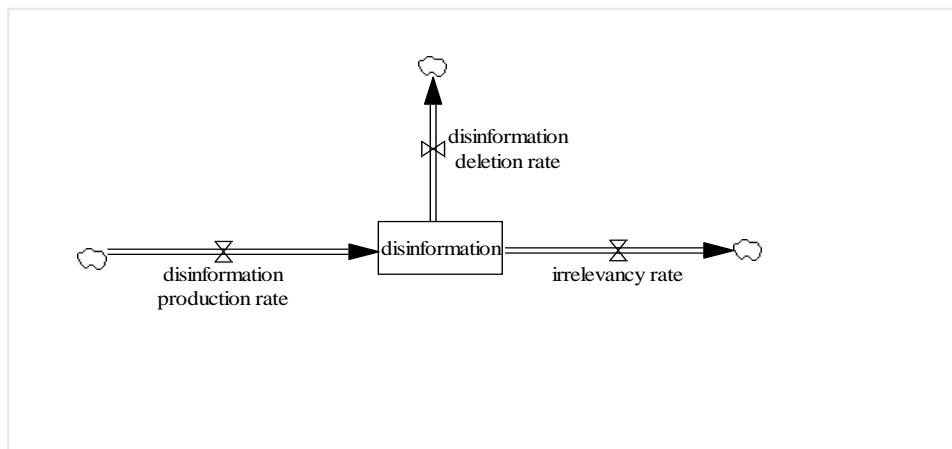


*Figure 7.2: Stock of disinformation*

explain the notion of a variable of interest. The figure visualizes the presence of disinformation as a stock of disinformation. The inflow is named the *disinformation production rate*. The flows that result in disinformation flowing out of the stock are the *disinformation deletion rate* or the *irrelevancy rate*. The deletion rate is about the deletion of disinformation; thus, it is removed from platforms or the internet. The irrelevancy rate is related to the idea that disinformation becomes less relevant over time. A useful metaphor to explain this concept is that of a bathtub. A bath filled with water represents the stock of disinformation. The production rate is the faucet that fills the tub. The streams flowing out of the stock are similar to water flowing out of a bath.

Section 7.1.2 briefly discusses the purpose of the creation of this model. What is essential from a system modeling perspective is the presence of a so-called variable of interest. Ultimately, this study focusses on the presence of disinformation in the European Union. Disinformation is conceptualized as a stock of units of disinformation. The goal is to influence this stock of disinformation so that it is reduced. Therefore, the so-called *variable of interest* is the stock of *disinformation*.

The next step in this stepwise approach is to expand the conceptual model.

### 7.2.2 Uninfluential to influential disinformation

Section 3.6 discussed the distinction between two types of disinformation, namely disinformation type I and disinformation (disinfo) type II. The conclusion presented in section 6.4 that disinformation can be present but not necessarily influential expands this distinction even further. There is a distinction between *uninfluential disinformation* and *influential disinformation*. Disinformation as a phenomenon present in society should not necessarily be a problem. However, when this disinformation influences what people believe about the world, it becomes a topic of much more relevancy. Influential disinformation is information that is believed to be true by the people targeted with this information. With this distinction, the mechanisms and factors that contribute to disinformation actually being of any influence can be put forward.

Figure 7.3 shows an extended version of figure 7.2. This figure mentions disinfo type 1. The 'chain' is similar for disinformation type II, although different variables influence the chain. The stock of *uninfluential disinfo* has an inflow of *disinfo type production rate.* Outflows are either because of the *deletion rate* or the *disinfo type I pick up rate.* This flow that is also an inflow to *influential disinfo* symbolizes how units of disinformation can become influential.
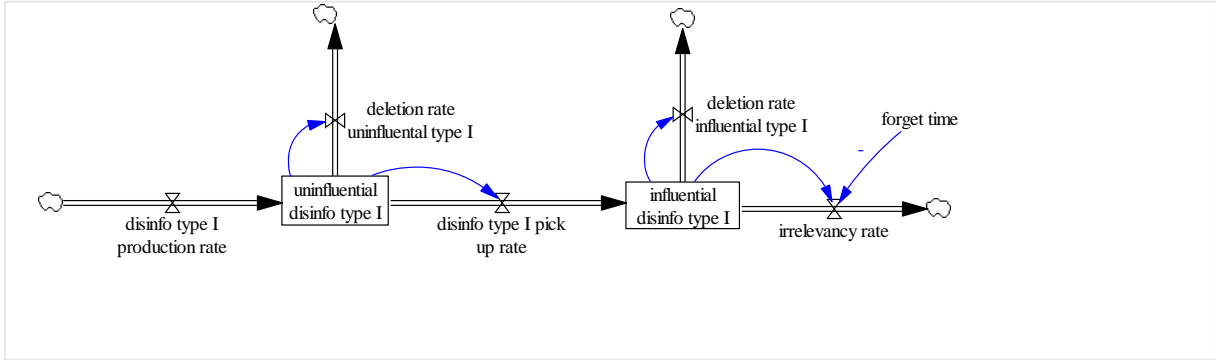


*Figure 7.3: From uninfluential to influential disinformation*

Also, influential disinformation can flow out of the stock based on the irrelevancy rate. Which is dependent on the *forget time.* The idea is related to the fact that disinformation becomes less relevant over time. In the current 24-hour news cycles disinformation quickly loses its influence and in that way flows out of the model, as it is disinformation that is not influential anymore.

### 7.2.3 Debunked disinformation

Another aspect which has been discussed in section 6.4 is the presence of fact-checkers and the activity of fact-checking. Section 6.4 concluded that fact-checking actually produces a new stock of disinfo, but then disinformation that is debunked. The resulting system is pictured in figure 7.4.
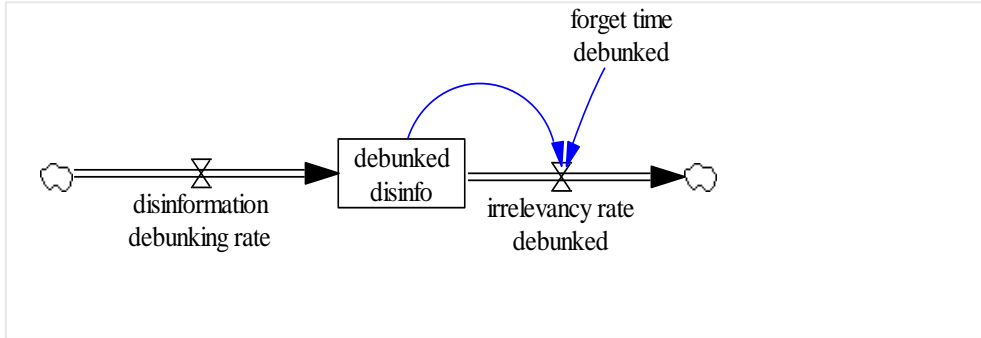


*Figure 7.4: Stock of debunked disinformation*

This stock builds over time due to the *disinformation debunking rate.* Also, the same mechanisms, as shown in figure 7.2 and figure 7.3, is present. In this case, the stock of debunked disinfo becomes smaller due to it becoming irrelevant.

### 7.2.4 A chain of disinformation

The preceding sections focus on the main stocks that are part of the systems model. Here the focus shifts to the variables that are part of the systems model. Interview statements are further translated to variables.

The first result of this expansion is figure 7.5. Section 6.4 concluded that a part of why disinformation is getting produced is the reason that there is money to be made. The incentive to produce disinformation for economic gain (which is disinfo type I) becomes even higher when expected profits are higher. This means that the *expected profit* influences the *production rate*. When the *expected profit* is higher, also the *production rate* increases.
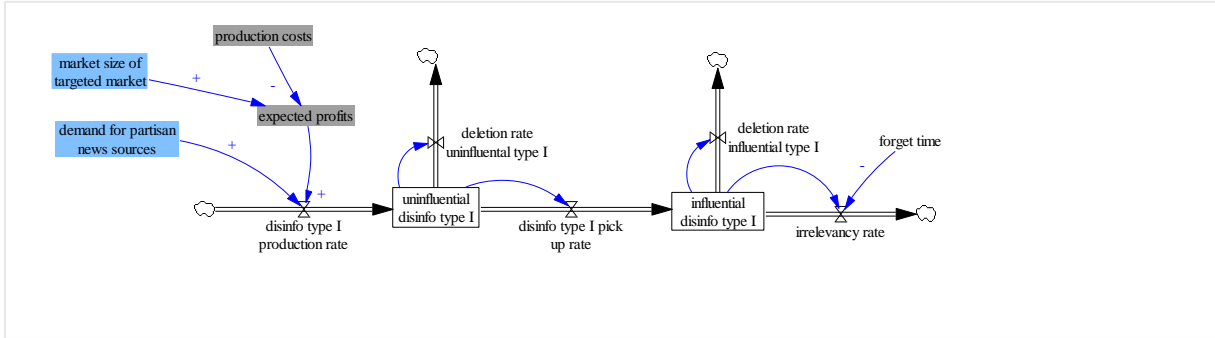


*Figure 7.5: Factors driving production disinfo type I*

Figure 7.5 shows that the disinfo type 1 production rate is also caused by the *demand for partisan news sources*. The factor *expected profits* is influenced by *market size of targeted market* and *production costs*. These results are the conceptualization of statement e (Appendix II) that emphasized that producers of disinformation for economic gain have a greater incentive to produce disinformation when *expected profits* are higher. The + and – signs indicate that an increase in the *market size of the targeted market* has the effect that the *expected profits* are also higher.

The factors that (indirectly) influence the *production rate* are colored differently (blue or gray). Different colors are used to show that these factors belong to different categories. The categorization that is being used is based on three distinctive elements related to information disorder. These elements are *the agent, the message,* and the *interpreter* (Wardle & Derakhshan, 2017). The colors given to the factors are linked to the elements in table 7.1. What this categorization means can be illustrated by an example. The factor *expected profits* is colored grey, which means that the factor has to do with the agent. This factor is something related to the agent since the agent producing disinformation produces this with the expected profits in mind. In contrast, *demand for partisan news sources* can be seen as a characteristic of the society in which disinformation is present. This 'society' and the consumers of disinformation are the interpreters of the disinformation.

*Table 7.1: Elements of information disorder and corresponding color in the systems model*

| Element | Color |
|---|---|
| Agent | |
| Message | |
| Interpreter | |

The process of systems thinking results in almost the same figure for disinfo type II. Nevertheless, the figure is a little bit different. Section 3.6 put forward that disinfo type II is produced to cause public harm, cause societal polarization, or influence voting behavior. In general, disinformation that tries to do this is targeted and focusses on exploiting specific emotions or fears of small voter groups. Disinfo type II is not necessarily limited to being targeted information and can also be a general and untargeted news article, but is less likely to be. Therefore disinformation type II broadly can be identified as politically microtargeted advertisements or messages. Figure 7.6 shows the part of the system that visualizes this idea.
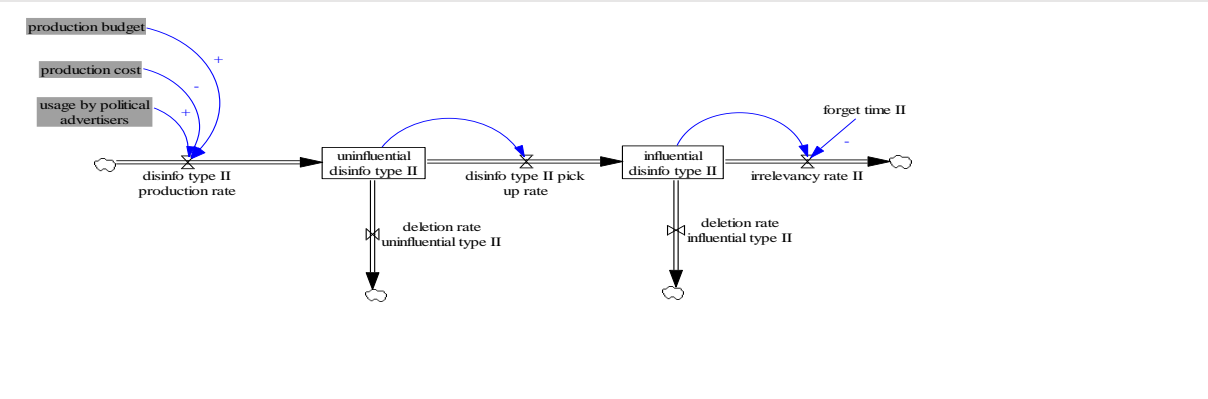


Figure 7.6: Factors driving production disinfo type II

Figure 7.6 shows the results of translating the results of preceding chapters to systems thinking. The *disinfo type II production rate* is caused/influenced by *production budget, production cost,* and *usage by political advertisers*. The last variable is part of a structure that will be elaborated on below. The figure shows that in contrary to disinfo type I the production is also dependent on the usage by political advertisers and the production budget. This idea partially comes forward in the stakeholder analysis (chapter 4). To produce targeted messages based on personal data is costly and is not done to earn money. Therefore, this production rate is not driven by *expected profits* but by the actual *production budget* that is available to construct personalized messages and target the right people with it. Obviously, a higher budget has a 'positive' effect on the production, whereas heightened production cost influence how much disinformation can be produced with the same budget.

## 7.2.5 The business model of platforms

Section 7.2.4 focused on the chain of disinformation and the identified factors that influence production rates. Here the structure of which *usage by political advertisers* is a part will be elaborated. The structure is shown below in figure 7.7.
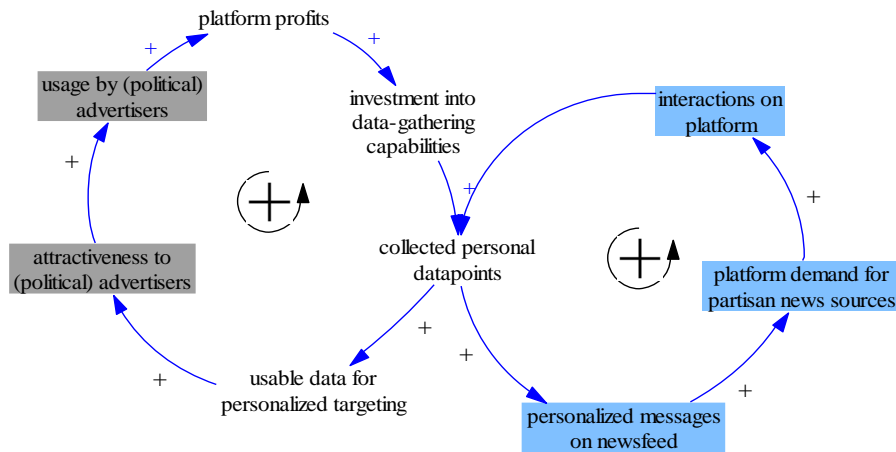


*Figure 7.7: Feedback loop platforms*

The structure is the result of conceptualizing the statements about the importance of the business model of platforms such as Facebook. It consists of two reinforcing feedback loops, which is indicated by the + signs in these loops. A reinforcing loop means that the loop amplifies the value of the variables over time. More input is generated to something that is already there (Meadows, 2008).

The loops essentially show the business model of (mainly) Facebook (and related platforms) and the way in which personalization takes place on such a platform. The right loop shows how *collected personal datapoints* enables to show more *personalized messages on newsfeed*. This personalization (and confirmation of own beliefs) leads to higher *platform demand for partisan news sources*. This loop depicts that when users get more personalized messages, their beliefs strengthen and therefore, their on-platform demand for partisan news sources grows. This, in turn, leads to more *interactions on platform* due to the increased personalization. More interactions lead to more possibilities to collect data about users, which leads to more *collected personal data points*.

The left loop is somewhat similar but is not about the personalization on the platform itself, but more about what happens because of the collection of data points. The collection of datapoints influences how many data can be used for personalized targeting. The more data a platform such as Facebook has available, the more access to this data is attractive to political advertisers. This is a somewhat forgotten notion by users of these platforms, but Facebook can only exist by leveraging and selling access to the personal data, that they collect. A well-known phrase that captures this idea is: '*If you're not paying, you're the product*' (Phys.org, 2018). Users of the platforms sometimes seem to forget that they are not the client, but the product that is being sold. This increased attractiveness leads to more *usage by (political) advertisers*. By increasing profits and investing in more ways to collect data, the loops are closed. What is essential here is to link between *usage by (political) advertisers* and the *disinfo type 2 production rate* that can be seen in figure 7.6.

Basically, this shows that the production of type II disinformation is partially driven by the way in which platforms operate.

### 7.2.6    Factors influencing the pick-up rates

The main factors that drive the production of both of the types of disinformation have been put forward. The next step is to show results when system thinking also takes into account variables that influence the pick-up rate of both of the types of disinformation.

The conclusions from section 6.4 and statements in Appendix II resulted in figure 7.8. Especially statements *l, u, aa* and *gg* are helpful.
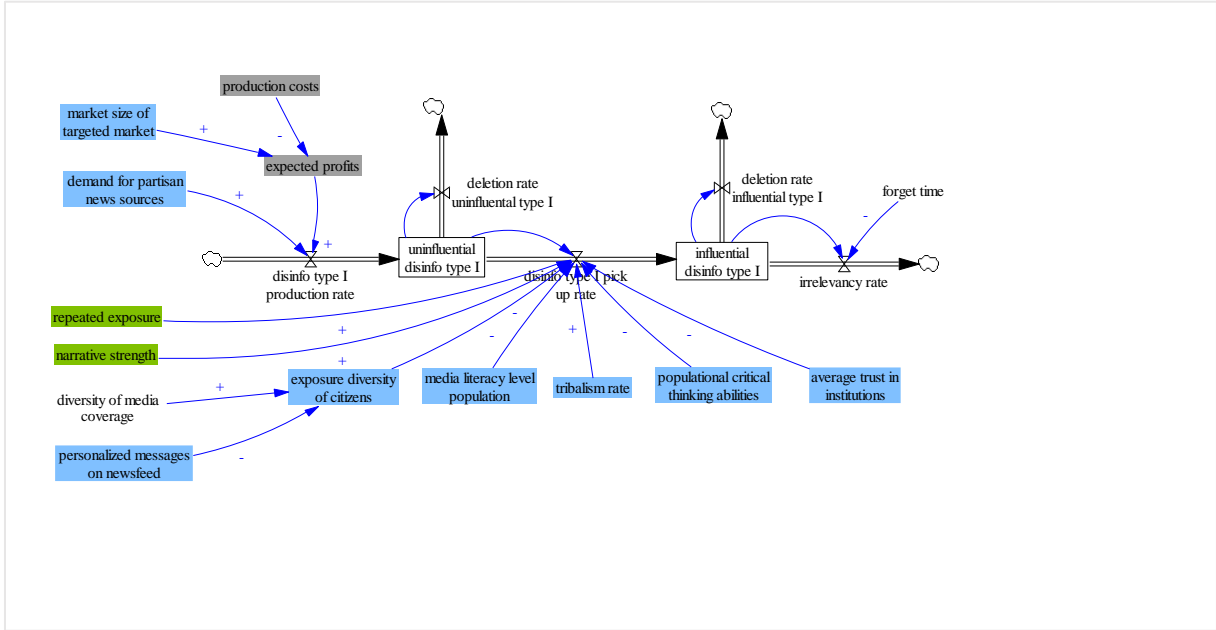


*Figure 7.8: Factors influencing pick-up rates*

Figure 7.8 shows the 'chain of disinformation', including variables influencing the pick-up rate. Figure 7.8 shows the chain for disinfo type I, but the factors *repeated exposure, narrative strength, exposure diversity of citizens, media literacy level population, tribalism rate, populational critical thinking abilities* and *average trust in institutions* also influence the *disinfo type II pick-up rate*. Section 7.1 discussed that certain variables were added based on additional info from literature and not only statements. These are further clarified below.

- The relation between exposure diversity and the pick-up rate is based on the idea that when people get their news about the world from multiple sources, they are less likely to be in a so-called 'filter bubble' and because of this, disinformation is less likely to be believed and become influential (IViR, 2019).
- The second factor that influences the pick-up rate is *media literacy level population*. Statement *aa* in section 5.4 supports this relation. This statement also already shortly mentions the importance of *populational critical thinking abilities* and the importance that critical thinking has in making people more resistant to disinformation. This notion is strengthened by research done by Pennycook and Rand (2017), who also conclude about the vital role that analytical thinking plays in recognition of disinformation.

- Another factor that influences of disinformation can get picked up is the tribalism (or polarization) rate. Research has shown that polarization or tribalism actually fuels fake news, whereas there is a broad assumption that fake news exacerbates polarization (Calvert, 2017).
- That average trust in institutions has an influence on the disinformation pick-up rate is a relationship that is conceptualized based on statement *gg*.
- Two other factors that are related to the message are *repeated exposure* and *narrative strength*. These factors are colored green, which indicates that they are related to the message. With *repeated exposure,* this is a bit ambiguous since it is a consumer (or interpreter) who needs to consume the disinformation repeatedly for it to become influential. However, it is also a property of the message that it is being consumed repeatedly by the same individual.
- The relationship made between *repeated exposure* and the *pick-up rate* is based on research, that shows that single exposure to news increases subsequent perceptions of accuracy (Pennycook, Cannon, & Rand, 2017).
- *Narrative strength* is a property of the message that is being produced and spread. Whenever the narrative strength is higher, i.e., if the content of the message is more believable and fits into a broader story, then the message has a higher probability of becoming influential and influence the consumer/interpreter.

### 7.2.7 Expanding debunked disinformation

Section 7.2.3 discussed the results of the conceptualization of fact-checking and the resulting stock of debunked disinformation. Here variables that influence the inflow are added, after which section 7.2.8 will present the resulting full system structure.
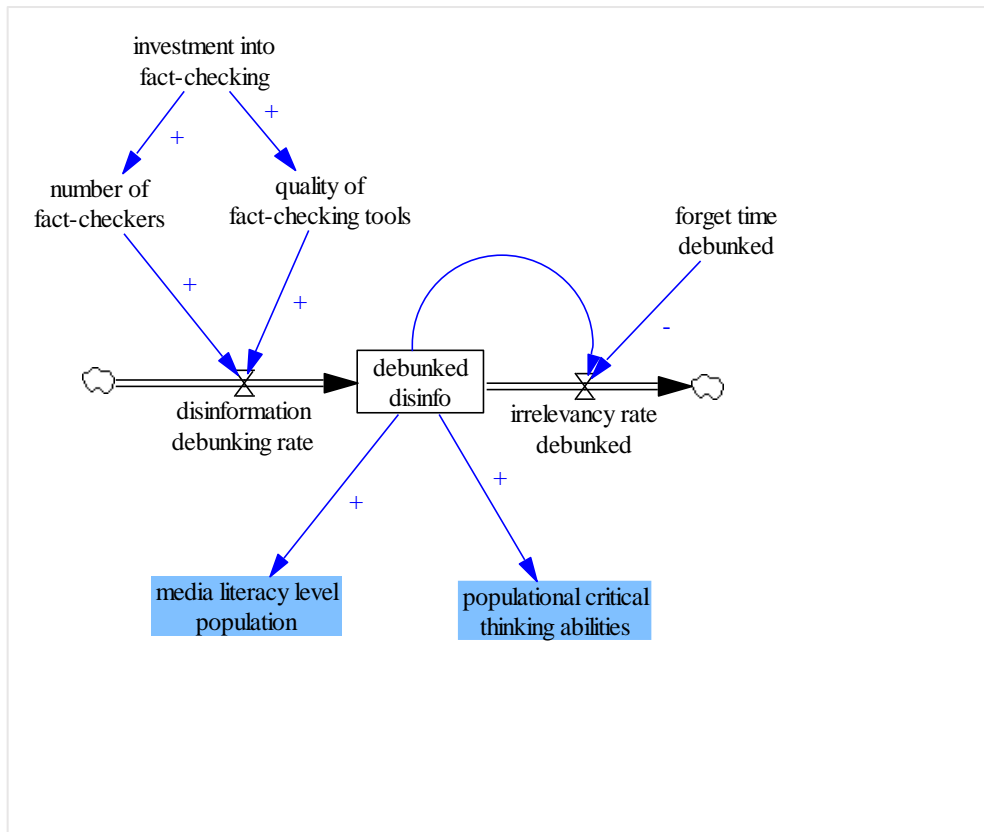
*Figure 7.9: Expansion of debunked disinfo*

Figure 7.9 is the resulting structure after conceptualizing statements about fact-checking (Appendix II). The disinformation debunking rate, which stands for how much debunked disinformation can be produced is influenced by the *number of fact-checkers* and *quality of fact-checking tools*. These factors both positively influence the disinformation debunking rate, which means that an increase in either of those leads to an increase in the *disinformation debunking rate*. Both these factors are influenced by the *investment into fact-checking*. The reason that *debunked disinfo* is conceptualized as a separate stock, which seems unrelated to the chain of disinformation comes from statement *c*. The statement puts forward that fact-checking is an activity that produces information about information. Fact-checkers analyze information online, recognize disinformation, and create articles or additional information that shows that an apparently legitimate piece of information is in fact disinformation. The same mechanisms as before apply, namely that debunked disinformation becomes irrelevant over time and therefore flows out of the stock. What is a more interesting relationship is the relation between the stock of *debunked disinfo* and *media literacy level population* and *populational critical thinking abilities*. Statement *u* is the basis of this conceptualization. The statement is about the idea that fact-checking also has an educational purpose. By being transparent about the methods and tools that fact-checkers use to check the legitimacy of articles, they can teach readers how to do it themselves. In that way, readers of these articles that debunk disinformation gain critical thinking skills and become more media literate.

### 7.2.8 Coming to a full system's structure

The preceding sections described different parts of the model that resulted from conceptualizing statements and additional sources. Here, these parts are brought together. The relationships and variables that are responsible for the links between the

presented parts will be described thoroughly. Figure 7.10 is a full visualization of this conceptual model of the system and is shown on the following page. However, it is easier to follow descriptions about the visualized model what the model at hand. Therefore, a copy of figure 7.10 is shown in Appendix IV.

Factors that have not been widely discussed yet are factors related to journalism and the media environment. Figure 7.8 showed the presence of *exposure diversity,* which has an influence on the *pick-up rates*, but variables influencing this are not yet discussed. Figure 6.10 shows that *exposure diversity* is positively influenced by *diversity of media coverage.* This relationship is partially based on statement *l,* which discusses that a pluralistic media landscape is a condition which makes it hard for disinformation to be successful. This *diversity of media coverage* is influenced by the *amount of quality journalism.* The idea that quality journalism influences the diversity and in that way, the diversity of information that people are exposed to is further strengthened by Bittner (2019) in a report written for the European Federation of Journalists. An interesting relationship, namely the influence of *amount of quality journalism* on *market size of targeted market*, is based on statement *e.* If there is more quality journalism that covers a wide variety of different subjects on the full political spectrum, the market for disinformation becomes smaller. There is less room for ambiguous or false messages about a subject which is not being covered within the mainstream media.

The factors that are of influence on *repeated exposure* are *troll usage* and *bot usage*, which in turn are both influenced by *operating costs*. The idea that *repeated exposure* is influenced by those factors is based on the fact that the usage of social or political bots enables to amplify messages (Bayer et al., 2019). The same goes for trolls, which are – in this context- essentially paid individuals who try to make disinformation more believable by commenting on articles or publishing disinformation themselves. These trolls and bots are often Russian state-sponsored account (Diresta et al., 2018). If the operating cost of running these operations reduces and the budget is the same, this has the effect that more trolls and bots can be used, which leads to a heightened *repeated exposure*.

Other factors not yet discussed are the purple colored factors in figure 7.10. These are related to detection by either platforms or governmental actors. *Detection rate* is a factor that is influenced by *detection staff, number of detection methods,* and *level of sophistication detection methods.* In turn, these are all influenced by *investment in disinfo detection.* The relationship between the *detection rate* and the different *deletion rates* is based on the idea that a heightened detection of disinformation enables to let more disinformation disappear. In the *Code of Practice,* platforms committed to closing down fake accounts. These fake accounts can be responsible for the publishing of disinformation. (European Commission, 2018b). In that sense, heightened detection leads to a higher *deletion rate.* However, actually deleting a single piece of disinformation can be considered extremely difficult. What is an additional function of this detection (for example done by the East StratCom Task Force mentioned in section 4.2.3) is the heightened *visibility of disinformation,* which indirectly leads more *debunked disinfo.*
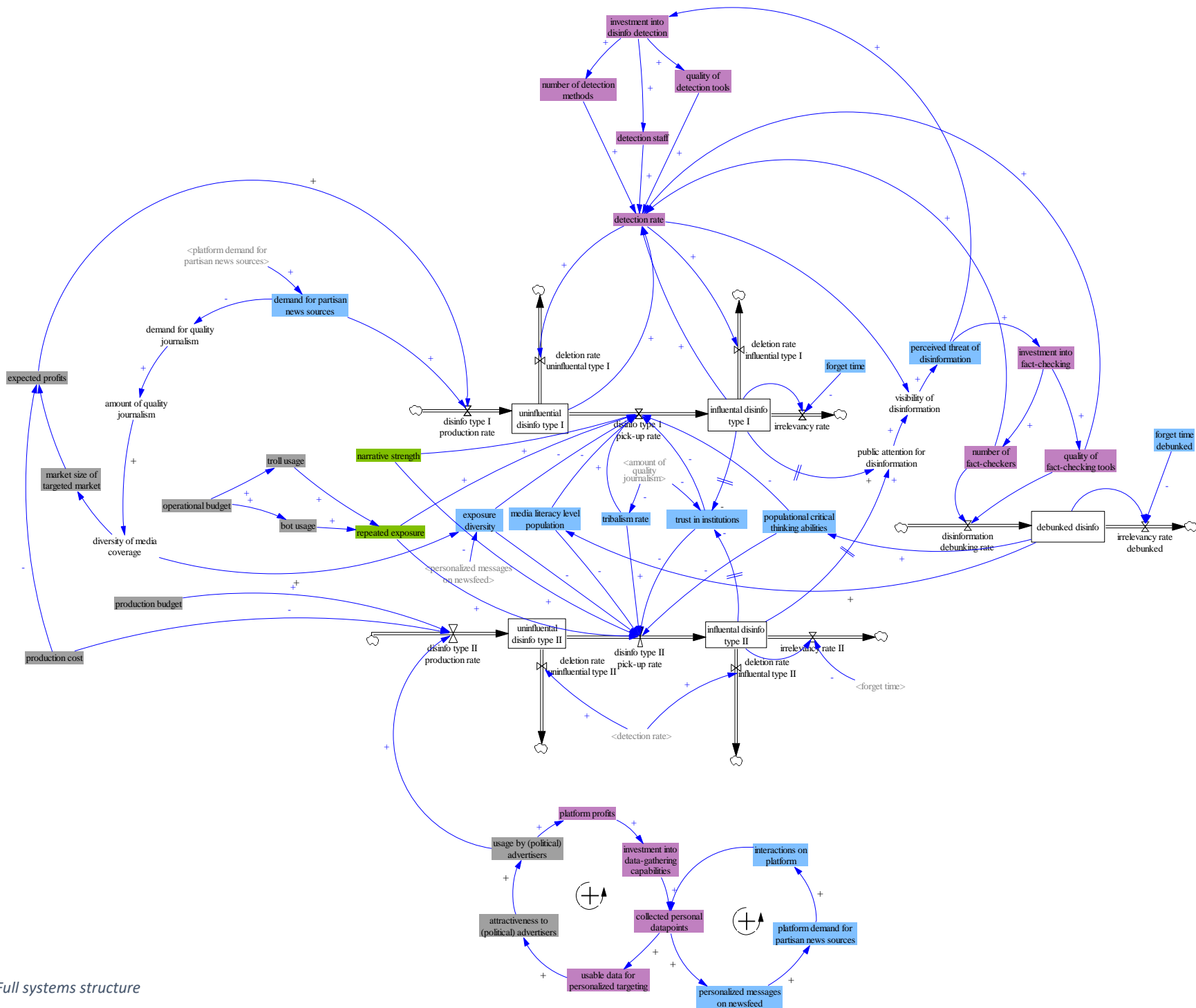
Figure 7.10: Full systems structure

The full system's structure that results from conceptualizing the statements and doing additional research is shown in figure 7.10. Section 7.3 bases conclusions on this structure.

## 7.3   Conclusions

The preceding sections focused on the process of developing the systems model and the application of this process to conceptualize statements into the actual model. Based on this conceptualization and analysis, several conclusions can be drawn. These conclusions are listed below:

- There is a wide variety of causes that influence the pick-up rates of both chains of disinformation, these causes are similar for both types of disinformation and are about if disinformation that is present will be influential or not.
- The system is highly complex and consists of multiple complex relations between variables. As a consequence, a significant amount of feedback loops can be identified (80+). Therefore, it is difficult to be sure about the effects of the feedback loops on the behavior of variables of interest, such as the amount of *influential disinfo type I* or *type II*.
- The production rates of both types of disinformation are not part of feedback loops. However, they are dependent on factors that are part of reinforcing feedback loops. Therefore, over time, the production of both types of disinformation can be expected to grow other factors being equal. Thus, acting on these drivers can be considered the strategy with the most potential in tackling the problem.
- An increased amount of influential disinformation also gets balanced out by increased attention and eventually increased abilities in the public to think critically and understand disinformation. However, the strength of these relationships is uncertain. Therefore, it can be questioned whether the increased attention and visibility will eventually lead to more critical thinking abilities and media literacy, which will lead to a lower pick-up rate.
- The production of disinformation is driven mainly by the business model that lies behind a company such as Facebook and the way the platform is designed to increase the number of interactions. By personalizing the messages that one receives, one spends more time on a platform. More time and interactions on this platform yield more data points. These data points are used for personalization of the timeline. Datapoints are also used as the product sold to advertisers. These advertisers (political or commercial) can use the extensive data on individuals to target them very specifically with (political) messages tailored to their preferences. This mechanism influences the production of type I disinformation since these extremely tailored messages are often intended to influence voting behavior or cause societal polarization while being not necessarily truthful. Also, the mechanisms to personalize your timeline can cause individuals to be in a so-called filter bubble (Pariser, 2011). As a consequence, they want to rely more and more on information that is partisan and confirms their worldview (confirmation bias (Nickerson, 1998)), which increases type II disinformation production. For mentioned reasons above the platform structure and business model is a significant driver of online disinformation.

# 8 Assessing the impact of policies

Chapter 5 explains the different policy actions that are implemented by the European Commission. These include actions that they have formulated for themselves and related parties such as fact-checkers, platforms, and investigative journalists. The result of applying systems thinking, i.e., the systems model is depicted in chapter 7. The combination of these findings is what this chapter focusses on. Section 8.1 explains the steps undertaken to do this assessment. Section 8.2 discusses the results of this application and categorizes policy actions. Section 8.3 sums up what can be concluded after the analysis of the impact of policies.

## 8.1 Purpose and process of assessing the impact of policies

In order to assess the impact of policies, several steps have to be undertaken. These steps are listed below. However, briefly, it is argued why this assessment is carried out, i.e., what the purpose of this assessment is.

This thesis generally has built op towards this section. The stakeholder analysis, literature review, and description of implemented policies all served to clarify the problem area even further and what is being done about disinformation in the EU. The empirical investigation focusses on collecting statements about the causes of the problem and the quality of solutions. Statements from the interviews are used, and systems thinking is applied to explore and visualize the structure of the system. The resulting model clarifies what the relationship is between variables, how they influence each other, and how the policy actions that chapter 5 clarifies influence the spread and production of disinformation. The purpose of this assessment is to increase the understanding of the impact of these policies and show how these policies have an influence on the flows of disinformation and the stocks of disinformation. By increasing the understanding and visualizing the causal chains, one is able to improve these actions so that they better contribute to a reduction in the spread and production of disinformation.

With this purpose in mind, the policies that are implemented can be analyzed. That process is taken care of here. The steps to assess the impact of a policy are the following:

1. Determine impacted variable
2. Visualize the chain to variables of interest
3. Identify the impact on variables of interest
4. Implications

The first step concerns the identification of which variable a particular policy influences. For example, one of the policies described in chapter 5 is related to supporting the work of independent media. The researcher then conceptualizes this policy to have an influence on *amount of quality journalism* (in the model of the system). Thus, that is the variable that is directly impacted by this policy. This variable is the starting point of a causal chain that leads to an influence on *(un)influential disinfo type I* or *type II,* which are the variables of interest. By taking into account the strength and direction of the relationships and causal chains, the impact can be identified. The assessment of these policies has implications because the assessment may result in the conclusion that a policy is not impactful and should be targeted differently.

The results of the application of this process are listed in a table (section 8.2). An example is given here to clarify. Chapter 5 discusses the implemented actions. This includes *Action 4: Step up communication efforts on Union values and policies.*

1.  First, the impacted variable has to be determined. The action, which is not further elaborated on by the European Commission, appears to be focused on making people aware of union values and policies that are used. In that sense, it is an effort to influence their trust in the institutions. Therefore in the systems model, this policy influences *trust in institutions.*
2.  The next step is to visualize the chain of variables of interest. This can be explained best by referring back to figure 7.10 and figure 8.1 below. Figure 7.10 shows that an increase in trust in institutions results in a decrease in the pick-up rate. A lower pick-up rate means that less disinfo flows from uninfluential to influential. Therefore, it lowers the amount of influential disinformation (which is what we are interested in). Figure 8.1 visualizes this by taking this relationship out of the context of the model.



*Figure 8.1: Example of a chain of influence*

3.  The variables of interest that are influenced by the disinfo pick-up rate are both uninfluential and influential disinfo (type I and type II). The impact of a decreased pick-uprate leads to a decreased amount of influential disinfo (all else being equal) and an increased uninfluential disinfo (all else being equal).
4.  The implications of *Action 4* are more uninfluential disinformation but less influential information. Due to an increased trust in institutions, less disinformation flows to the influential stock. Thus, there is less disinformation that actually is believed and poses a threat to the democratic process.

The application of this process, as the example above indicates, is carried out for every policy action that was formulated in chapter 5. Section 8.2 shows the results of the application.
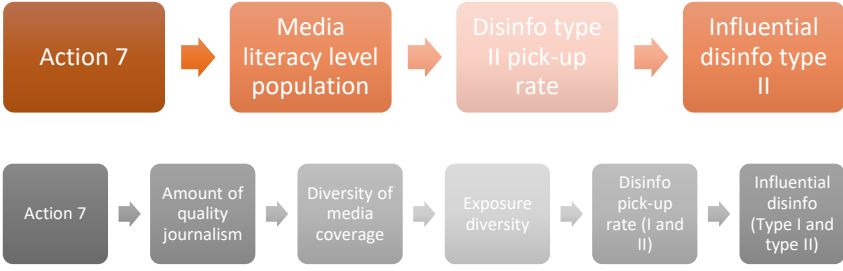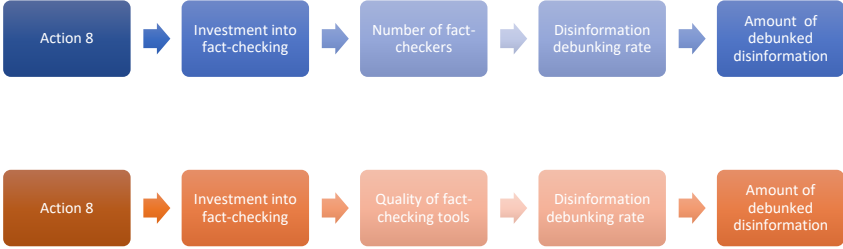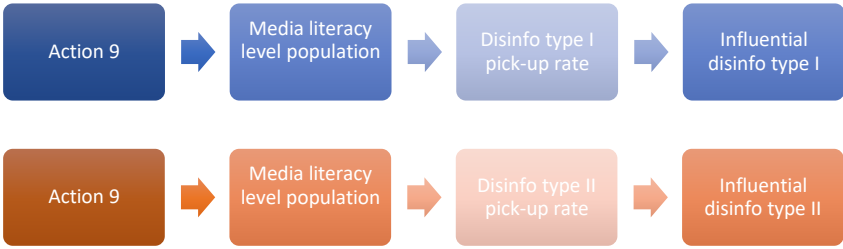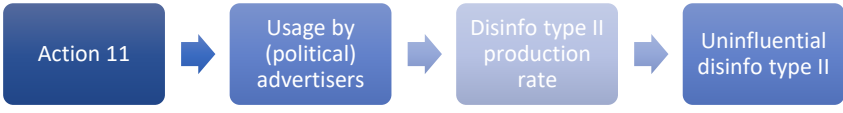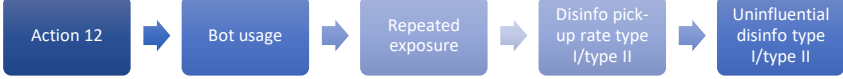
## 8.2   Results: the impact of policies on the system

Table 8.1 shows the action and the chain of influence of these policies (the last column). The first factor after the action indicates the first variable that is impacted by this action. The column shows how the causal mechanisms lead to an actual influence on one of the variables of interest (stocks of disinformation).

The empty boxes in the chain of influence column indicate that the action in that particular row does not have a real influence on any of the variables in the developed systems model.

*Table 8.1: Assessment of the influence of policies on the system*

| # | Action | Chain of influence |
|---|--------|---------------------|
| 1 | Strengthen the Strategic Communication Task Forces and Union delegations through additional staff and new tools which are necessary to detect, analyze, and expose disinformation activities. | Action 1 → Investment into disinfo detection → Detection staff/tools/methods → Detection rate → Deletion rate → (Un)influential disinfo type I/type II<br><br>Action 1 → Investment into disinfo detection → Detection staff/tools/methods → Detection rate → Visibility → Perceived threat → Investment into fact-checking → Debunked disinfo |
| 2 | Reviewing the mandates of the Strategic Communication Task Forces for Western Balkans and South to enable them to address disinformation effectively in these regions. | |
| 3 | A Establish a Rapid Alert System for addressing disinformation campaigns, working closely with existing networks, the European Parliament as well as the North Atlantic Treaty Organization and G7's Rapid Response Mechanism. | Action 3 → Detection methods → Detection rate → Deletion rate → (Un)influential disinfo type I/type II |
| 4 | Step up communication efforts on Union values and policies. | Action 4 → Trust in institutions → Disinfo type I/type II pick-up rate → Influential disinfo type I/type II |
| 5 | Strengthen strategic communications in the Union's neighborhood. | Action 5 → Trust in institutions → Disinfo type I/type II pick-up rate → Influential disinfo type I/type II |
| 6 | Close and continuous monitoring of the implementation of the Code of Practice. The Commission will push for rapid and effective compliance. The Commission will carry out a comprehensive assessment 12 months after the signing of the Code. | |
| 7 | Organize targeted campaigns for the public and trainings for media and public opinion shapers in the Union and its neighborhood to raise awareness of the negative | Action 7 → Media literacy level population → Disinfo type I pick-up rate → Influential disinfo type I |

| | | |
|---|---|---|
| | effects of disinformation. Efforts to support the work of independent media and quality journalism as well as the research into disinformation will be continued in order to provide a comprehensive response to this phenomenon. | **Action 7** → **Media literacy level population** → **Disinfo type II pick-up rate** → **Influential disinfo type II**<br><br>Action 7 → Amount of quality journalism → Diversity of media coverage → Exposure diversity → Disinfo pick-up rate (I and II) → Influential disinfo (Type I and type II) |
| 8 | Support the creation of teams of multi-disciplinary independent fact-checkers and researchers with specific knowledge of local information environments to detect and expose disinformation campaigns across different social networks and digital media. | Action 8 → Investment into fact-checking → Number of fact-checkers → Disinformation debunking rate → Amount of debunked disinformation<br><br>Action 8 → Investment into fact-checking → Quality of fact-checking tools → Disinformation debunking rate → Amount of debunked disinformation |
| 9 | Support cross-border cooperation amongst media literacy practitioners as well as the launch of practical tools for the promotion of media literacy for the public. Member States should also rapidly implement the provisions of the Audio-visual Media Services Directive, which deal with media literacy. | Action 9 → Media literacy level population → Disinfo type I pick-up rate → Influential disinfo type I<br><br>Action 9 → Media literacy level population → Disinfo type II pick-up rate → Influential disinfo type II |
| 10 | Member States should ensure effective follow-up of the Elections Package, notably the Recommendation. The Commission will closely monitor how the Package is implemented and where appropriate, provide relevant support and advice. | |
| 11 | Ensure scrutiny of ad placement and transparency of political advertising, based on effective due diligence checks of the identity of the sponsors. | Action 11 → Usage by (political) advertisers → Disinfo type II production rate → Uninfluential disinfo type II |
| 12 | Close down fake accounts active on their services. | Action 12 → Bot usage → Repeated exposure → Disinfo pick-up rate type I/type II → Uninfluential disinfo type I/type II |

| 13 | Identify automated bots and label them accordingly, | Action 12 → Bot usage → Repeated exposure → Disinfo pick-up rate type I/type II → Uninfluential disinfo type I/type II |
|---|---|---|
| 14 | Online platforms should also cooperate with the national audio-visual regulators and with independent fact-checkers and researchers to detect and flag disinformation campaigns in particular during election periods and to make fact-checked content more visible and widespread. | Action 14 → Quality of fact-checking tools → Disinformation debunking rate → Debunked disinfo<br><br>Action 14 → Quality of fact-checking tools → Detection rate → (un)influential disinfo type I/type II |

The overview of how policies indirectly have an influence on disinformation in the European Union is shown in table 8.1. To policy-makers, this visualization is useful, since it shows how their policy contributes to the reduction of the production and spread of disinformation. They gain an understanding of how direct or indirect some policies are, or if their policies even have the potential to contribute.

When these policy actions are grouped based on the variables they influence, a completer picture emerges. This is indicated in table 8.2.

*Table 8.2: Overview of influenced factors and influencing policies*

| Factor | Actions |
|---|---|
| Media literacy level population | 1. Action 7<br>2. Action 9 |
| Trust in institutions | 3. Action 4<br>4. Action 5 |
| Fact-checking | 5. Action 8<br>6. Action 14 |
| Investment into detection/detection methods | 7. Action 1<br>8. Action 3 |
| Bot usage/troll usage | 9. Action 12<br>10. Action 13 |
| Usage by political advertisers | 11. Action 11 |
| Quality journalism | 12. Action 7 |

The sections below describe the effects of the different implemented actions.

### 8.2.1 Media literacy level population

When the factor *media literacy level population* increases, this has a negative influence on the pick-up rates. Negative in the sense that this pick-up rates will decrease. Thus, from a policy perspective, this is a positive influence. Both Action 7 and Action 9 influence this factor. Action 7 does this by organizing targeted campaigns for the public and by increasing understanding through research. Action 9 does this by supporting international

cooperation between media literacy practitioners and launching tools to strengthen media literacy in member states. Since media literacy level is categorized as a factor that relates to the *interpreter* (based on the classification by Wardle & Derakhshan (2017)), it can be argued that action 7 and 9 are mostly focused on this aspect of the disinformation chain. The aspect of the people who consume the information, and strengthening their understanding, so that disinformation will not become influential.

### 8.2.2 Trust in institutions

An increase in the factor *trust in institutions* leads to a decrease in both of the *pick-up rates*. Action 4 focusses on influencing this trust, by stepping up communication on the Union's values and policies. Just as Action 7 and 9, Action 4 influences a factor that has to do with the *interpreter*. By trying to influence the trust that Europeans have in their institutions, the Commission tries to decrease the flow between uninfluential and influential disinformation. The concept behind this action is that when there is a heightened *trust in institutions,* people who encounter disinformation are less likely to believe it. The probability of a piece of disinformation becoming influential is lower because there is less breeding ground for this information to be successful. Also, action 5 is focused on trust in institutions by increasing strategic communications. It follows the same logic as described above.

### 8.2.3 Fact-checking

Action 8 and 14 are both related to factors that have to do with fact-checking. Action 8 is an action specified by the Commission and also undertaken by the commission and related governing bodies. Action 14 is an action that is part of the *Code of Practice* and is carried out by signatories of the *Code* and especially platforms. Action 8 increases the *investment into fact-checking* which influences the *quality of fact-checking tools* and *amount of fact-checkers*, this causes an increase in the *disinfo debunking rate* which eventually leads to an increase in the *amount of debunked disinfo*. Therefore, Action 8 can be seen as targeted on showing the presence of disinformation and increasing the stock of the counterpart. Action 14 is more related to the collaboration that platforms are expected to undertake with fact-checkers, in that way *quality of fact-checking* tools increases and via the same route as described above, leads to an increase in the *amount of debunked disinfo*. However, fact-checkers also work with platforms to make sure that disinformation that is coming onto the platform is detected and (potentially) deleted so that it flows out of the stock.

### 8.2.4 Bot usage & troll usage

*Bot usage* and *troll usage* are both factors that have an increasing effect on *repeated exposure* and in that way, influence the pick-up rates of both types of disinformation. Action 12 and Action 13 are both specified in the *Code of Practice;* thus, they are self-regulatory actions. Closing down fake accounts that post and try to amplify disinformation and bots that share and like messages to make them more relevant are actions that need to be undertaken by platforms themselves.

### 8.2.5 Detection

Action 1 is focused on strengthening the task forces, such as the East StratCom Task Force (section 4.2.3.), and other Union delegations. The Commission is doing this through additional staff and new tools. These are necessary to detect, analyze, and expose disinformation activities. In essence, the action entails influencing the *investment into disinfo detection,* which increases the *number of detection methods, detection staff,* and *level of sophistication of detection methods*. This eventually has an influence on the

*detection rate*. Which can lead to a higher *deletion rate* and also increased *visibility of disinformation*. Action 3, the setting up of the Rapid Alert System, also has an influence on the variables related to the detection.

### 8.2.6 Usage by political advertisers

*Usage by political advertisers* is a factor that is part of one of the loops described in section 8.1. Action 11, just like action 12,13 and 14 is part of the *Code of Practice* and thus a self-regulatory action that can be undertaken under the own responsibility of platforms. By ensuring scrutiny of ad placement and being transparent about political advertising, the usage of political advertisers decreases, which has a positive influence on the production rate of type II disinformation. Also, the reinforcing effect of the loops that this factor is a part of gets weakened.

### 8.2.7 Amount of quality journalism

The factor *amount of quality journalism positively* influences the *diversity of media coverage*. This causes an increase in *exposure diversity,* which causes the pick-up rates of both types of disinformation to decrease. The policy action the factor *amount of quality journalism* is influenced by Action 7, which among other things, focusses on supporting the work of independent media and quality journalism. However, more direct and concrete ways in how these efforts are put into practice are not clear.

## 8.3 Conclusions

Preceding sections focused on showing the 'chains of influence' of policies in the systems model. Furthermore, section 8.2 describes the influenced variables and the actions that have an influence on these variables. This section is focused on concluding based on this analysis. The aim of this analysis was to increase the understanding of how different policy actions impact the system and to visualize the causal chains in the model in order to conclude about improvements to this set of policy actions.

Thus, conclusions are:

- Multiple actions focus on impacting factors that are of influence on the pick-up rates for the two types of disinformation. These factors are categorized as a characteristic of the interpreters. These factors include, among others, *media literacy level population* and *trust in institutions*. Targeting these factors has a direct influence on the flow from *uninfluential* to *influential disinfo,* which is preferable. However, the relationship between these variables and the effect on the flow is uncertain and how EU policies influence these particular variables is not clearly described. Therefore, there is room for improvement in being more precise about how (for example) *media literacy level population* is increased.
- Not many actions are focused on the beginning of the chain, i.e., targeting the inflow into *uninfluential disinfo*. Whenever these actions focus on the beginning of the chain (Action 11, Ensure scrutiny of ad placement and transparency of political advertising, based on effective due diligence checks of the identity of the sponsors.), these actions are self-regulatory. The self-regulatory nature of this action means that it is challenging to make sure that these actions are fully implemented. The responsibility for how this action is implemented lies with private actors who can only be trusted to do as they say. Therefore, the expectation is that these actions are not as impactful as they could be. Being more clear about the nature of these

actions or the obligations that come with them makes this action better and puts a stronger focus on the actual flow of produced disinformation. Focusing on closer collaboration and finding a shared goal can help in tackling the issue better.

- Some actions focus on parts of the system that can even be considered not part of the actual chain. An example of such an action is action 8, which has an indirect influence on fact-checking and the amount of debunked disinfo. What is meant explicitly is that fact-checking or building of a stock of debunked disinformation does not change that disinformation is present and only builds up a stock that is a counterpart of the stock of disinformation. Thus, this action has a relatively small impact and should not be the strongest point of focus.

- Most actions lack a clear direction or KPI to be measured against. This is a conclusion which is also formulated in section 7.3 but is repeated because it has more consequences and can be expanded based on the insights obtained by the current analysis. The actions undertaken, which actually influence a factor in the system, lack clear direction. Therefore, it is questionable what their influence will be. Obviously, an analysis of the chain of influence can be done, and it can be argued that specific policy actions influence stocks of interest in a preferred way. However, the relationships between certain factors are already questionable or soft themselves. When efforts to strengthen journalism are proposed, but it is not sure how much effects this will have on the *amount of quality journalism*. And when it is not clear what the commission actually wants to achieve with strengthening journalism, then the actions' effectivity and implementation can be questioned. Thus, strategies to improve current policies can be to make them more explicit and clearly identify the goal that one wants to reach with a policy. Communicate these goals transparently and make sure that one can be held accountable for achieving these goals.

The conclusions presented above are based on the assessment of the current policies and how they impact the system model. However, by looking at the system more critically also, additional strategies can be found to influence the production and spread of disinformation in the European Union. These additional strategies are presented in the following chapter.

# 9   Additional strategies

Chapter 8 focuses on the assessment of currently implemented policies by the relevant European governing bodies and member states. It assesses wherein the model the policies have an influence, i.e., what factors they influence, and what the chain of influence is. This chapter focuses on additional strategies that can be considered to contribute to the solution of the disinformation problem.

These additional strategies are considered based on the different methods used during this thesis. Thus additional strategies come forward based on comments made during the conducted interviews (chapter 6), reviewing the relevant literature, taking into account the stakeholder analysis (chapter 4), and most importantly a closer examination of the system model (chapter 7 and chapter 8). For example, a closer look at the model shows that certain variables are not targeted with any kind of policy. Thus additional strategies to target these variables are possible.

This chapter is an exploration of possibilities and not necessarily a description of the best solution or as a list of all additional strategies possible. Also, due to time and scope constraints, the description of possible additional strategies will not be as extensive as possible. Section 9.1 describes the process that led to several of these strategies. Sections after that focus on these strategies.

## 9.1   Finding additional strategies

In *Thinking in Systems: A Primer* Donella Meadows (Meadows, 2008) discusses so-called leverage points in a system. Stated in a more understandable way, these are places in a system where a small change could lead to a large shift in behavior. Several (for this study) relevant leverage points include:

- Delays
- Reinforcing feedback loops
- Information flows
- Rules
- Numbers

Looking for these leverage points in the model (figure 7.10) is a starting point for the formulation of additional strategies. By (potentially) leveraging these points, the system's behavior can be changed. For example, variables in reinforcing feedback loops can be influenced in such a way that the feedback loop is weakened or ceases to exist. Also, additional structures can be introduced, such as an information loop, that gives information about the system at hand.

Taking a closer look at the system structure and the results from chapter 7 and chapter 8 show that the disinformation systems shows several places where one could potentially intervene. Examples are:

- The reinforcing feedback loop that drives the production of type II disinformation and the reinforcing feedback loop that strengthens the personalization of timelines and demand for partisan news sources.

- Numbers (or variables) that have an (in)direct influence on the flow between *uninfluential* and *influential* disinformation. Increasing these numbers can reduce the flow from the first to the latter.
- Rules related to the relationship between certain variables. If certain relationships are legally not possible anymore, this can change the relationship or strength of the relationship between those variables.

The examples mentioned above come forward by looking at the systems model. However, the implementation of these additional strategies is also dependent on the social context. Furthermore, the question '*What do these additional strategies mean in terms of content?*' cannot be answered solely by looking at the model. Additional literature and the results of the preliminary analysis have to be taken into account. Thus, the strategies that the following sections describe are the results of a closer look at the model and the combination of this closer examination with the insights obtained in the preliminary analysis.

## 9.2 Breaking the reinforcing loop business model platforms

Chapter 6 already shortly gave insight into the business model of platforms. Especially the loop of *collected personal data points*. Figure 9.1 shows this relationship again. This feedback loop and the accompanying loop at the right is at the core of the disinformation problem when looked at from a systems perspective.
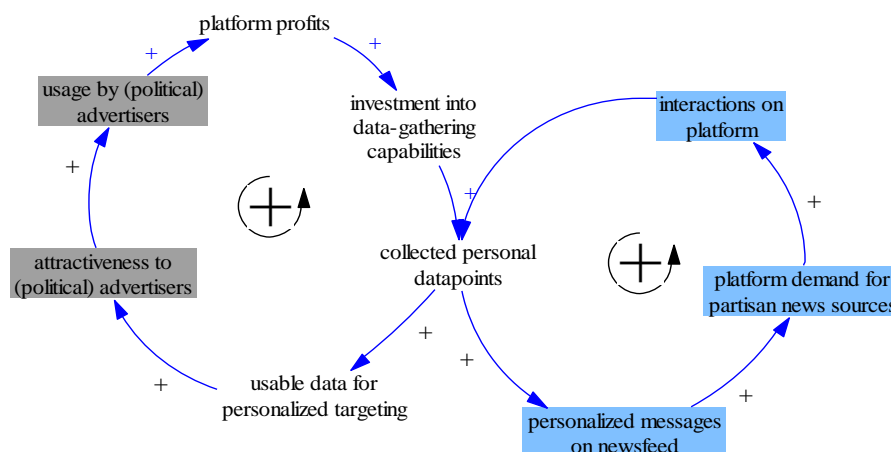


*Figure 9.1: Feedback loop business model platforms*

Therefore, breaking or weakening this loop could be a key leverage point in this system. What is at the core of this loop is the development of the current data-driven economy, in which personal data of individuals represents monetary value (Malgieri & Custers, 2018). A problematic aspect of this situation is that individuals are often not aware of the monetary value of their personal data and are inclined to underestimate their economic power within the data market (Zuiderveen Borgesius, 2015). What primarily happens in the 'transaction' between a user of Facebook and the platform is that the platform offers a digital service and as a payment to use the service the user gives away his/her personal data (Malgieri & Custers, 2018).

Figure 9.1 shows (just as in <u>chapter 6</u>) the importance of the collected personal data points as a means to personalize timelines and to earn money by selling access to this data to third parties. An interesting alternative strategy that deals with the relationship between these collected data points and the platforms way of making money with them is to legally change the nature of what data is. In his book, *Who owns the future?,* Lanier (2013) arguments that the information sources of the big data economy, namely the users, should receive income for them being the informational source. Obviously, there are plenty of problems with this idea, and it is not within the scope of this research the extensively discuss this, but the concept itself is useful to think about different strategies. If the citizens of Europe by default are the owner of digital personal data, unless they make a choice to sell this data, the relationship between a platform such as Facebook monetizing this data to earn profits disappears. Figure 9.2 indicates this changing relationship.



*Figure 9.2: Changing relationship*

Instead of a platform selling access to data, so that individuals can be microtargeted, now the individual itself can choose to sell access to his/her personal data. Then, the decision of how much and what information individuals are willing to disclose becomes a trade-off between the benefit of disclosing personal information and the lack of privacy that is likely to results (Prince, 2018). Thus, in the loop from figure 9.1, there is a break between the collected datapoints and these datapoints being usable for targeting. What the introduction of this strategy does, is that it removes one of the leading 'automatic' drivers of disinformation and makes the possibility to be influenced by micro-targeted disinformation a choice made by the individual itself. Because an individual has to make a conscious choice about what happens with their data, they also become increasingly aware of what actually happens when they decide to sell access to their data. So not only does this strategy could actually influence one driver of production, but it also strengthens the understanding of individuals how disinformation comes into play. Furthermore, they are potentially better at spotting it, because they are aware that this is something that is a cause of them giving access to their personal data.

## 9.3   Introducing a right for data subjects to know the value of their personal data

Another leverage point in this system is the adding of information flows. Missing information flows is one of the most common causes of system malfunction (Meadows, 2008). Thus, adding or restoring information can be a powerful intervention.

This second intervention is also related to the business model of platforms, but then in a different way. Namely, by introducing a right for data subjects to know the value of their personal data. Instead of monetizing it, this idea creates an additional information flow in the system, which is about informing consumers about prices that are or can be paid for their personal data by, for example, advertisers. This could increase consumers' awareness about what happens with their data. Consequentially, people may change their behavior when properly informed (Malgieri & Custers, 2018). More specifically, this could mean that users of platforms will have fewer interactions on the platform because of the

information they have received about the worth of their data. This, in turn, leads to less collected data points. Thus, this additional information flow balances the reinforcing feedback loop. Figure 9.3 visualizes this strategy and shows that by giving access to personal data, individuals will receive information about these prices from the platforms they apply to, which make the transaction more balanced.
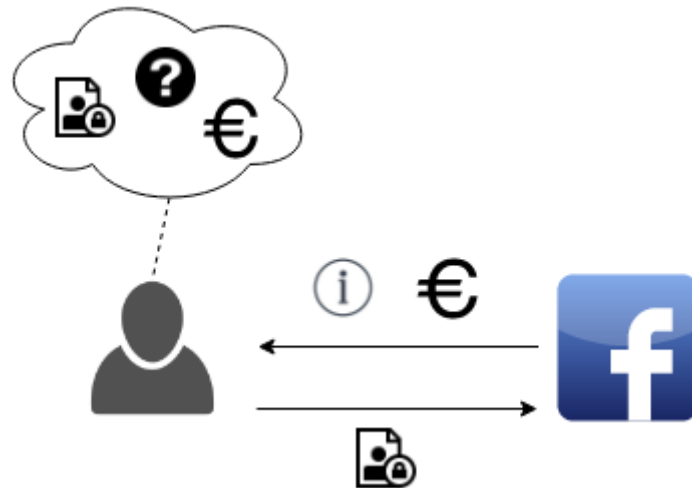


Figure 9.3: Information flow from the platform to the user

However, this strategy does also relates to the rules that the systems apply to. A right for data subjects to know the value of their data is something that is specified in the law. The General Data Protection Regulation (GDPR) that the European Union implemented already includes the right to data portability, but can be a first step in the direction of data subjects knowing the value of their data. Also, which is related to section 9.2.1, this right to data portability is the first step towards default ownership of personal data by data subjects (De Hert, Papakonstantinou, Malgieri, Beslay, & Sanchez, 2018). This indicates that also, the rules can be a great leverage point to steer the behavior of the systems in the right direction. Nevertheless, an in-depth investigation of these laws and possible regulations is outside the scope of this thesis.

## 9.4   Independent clearing houses

An additional strategy that comes forward after taking a closer look at the systems model and taking into account the interviews is that of 'independent clearing houses'. This is a strategy that was mentioned by one of the interviewees (Appendix II, statement ee). These clearinghouses are related to the variable *amount of quality journalism*. This variable is interesting since it indirectly influences the flow between *uninfluential* and *influential* disinformation (via *exposure diversity)*, but also the flow that symbolizes the production rate because a higher *amount of quality journalism* increases the *diversity of media coverage.* This decreases the *market size of targeted market*, which finally influences the *expected profit* and finally, the *production rate type I disinfo.*

Put more clearly, increasing the amount of quality journalism increases what spectrum and topics of the political discourse are covered by the media. This makes it harder for

producers of disinformation to monetize their message in the already full media landscape. How the concept of clearinghouses works is pictured in figure 9.3.
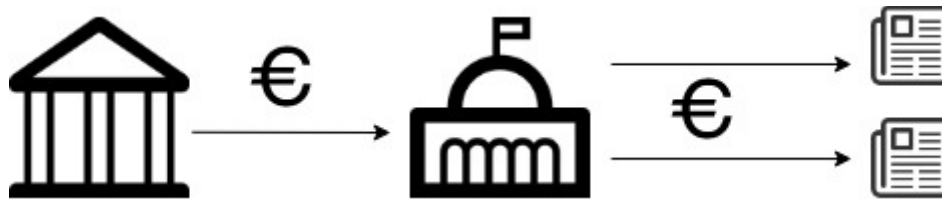


*Figure 9.4: Independent clearing houses*

The figure visualizes that the government invests money into an independent institution. This institution is a non-governmental actor, and its purpose is to invest in high-quality journalism. Thus, this institution makes decisions to invest in journalistic projects based on criteria that they decide on independently from the government. This way of promoting journalism is a new way to make quality journalism more sustainable so that it can fulfill its important democratic function (Bittner, 2019). It does not interfere with freedom of expression regulation since the European governmental actors are not the actors deciding what can and cannot be said. There is a lot of questioning about the future sustainability of quality journalism (Newman, Fletcher, Kalogeropoulos, & Kleis Nielsen, 2019), but this strategy is also helpful in facilitating a future for journalism and removing pressure on the business models.

## 9.5 Improve critical thinking with educational actors

Another leverage point within this system, or at least in influencing the flow from *uninfluential* to *influential* is the variable *critical-thinking abilities*. Section 7.2.6 briefly indicates research that shows the vital role that critical thinking plays in recognition of disinformation (Pennycook & Rand, 2017). Thus, there lies an opportunity to strengthening these abilities so that citizens become more resistant to disinformation. Other authors also make recommendations that support this idea, such as the teaching of critical media literacy skills. But this study argues for taking this even further, and focus on critical thinking abilities in general. This necessity is not new, but the situation in which there is a confusing and overwhelming information world is. In our education system, we should also focus on teaching a combination of techniques and knowledge, such as how to verify sources, how the digital world works, and how our own psychological biases and irrationalities work (Bartlett, 2018).

The possibilities to work together with educational actors are there, as the stakeholder analysis shows. The goals of educational actors align with the problem owners goals. Thus there are possibilities to form governmental-educational coalitions to strengthen the critical thinking abilities from a young age. Even coalitions that also include traditional news media or new journalistic initiatives are possible. These coalitions possess even more skills and resources that can contribute to heightened critical thinking abilities. Traditional news media have years of experience in investigating facts and being critical, to inform the public as veracious as possible.

Other possible strategies to influence critical thinking abilities within society is to subsidize companies or start-ups that develop products that support critical thinking abilities. In that way, there is an incentive also for the private sector to focus on

innovations and new products that can be helpful in strengthening these abilities population-wide.

## 9.6 Update election campaign laws

Another leverage point is related to an update of election campaign laws (Bartlett, 2018).

As indicated at the beginning of this thesis, several elections are believed to be influenced by disinformation. An example: the referendum about a possibly Brexit was believed to be influenced by disinformation (UK Department for Digital Culture Media and Sport Committee, 2019). This is an example that shows that disinformation is especially relevant during times of elections. This is the moment that voting behavior can be influenced or the normal democratic order can be disrupted (Bennett & Livingston, 2018).

Thus, updating election laws to the current time can be a strategy to deal for a part with the disinformation problem. Examples are: requiring that social media spending on political advertisements during election times are all shared transparently, requiring political parties to publish databases about their targeting techniques, used data points and advertisements (Bartlett, 2018).

Naturally, it takes time to introduce legislation, as mentioned above. However, by making all the ways in which people are influenced online more transparent, hopefully, these people can become less influenceable, and the source of the production can be exposed and consequentially reduced.

## 9.7 Conclusions

The aim of this chapter was to bring forward additional strategies to reduce the spread and production of disinformation in the EU. These additional strategies are obtained by taking a closer look at the systems model and combining this closer look with the results from previous chapters. The additional strategies discussed serve to clarify how current policies can be improved and what alternative options are available. In that way, the European Commission and commissioners can be advised about how to tackle this problem further in the future.

Several conclusions can be made, such as:

- The feedback loop representing the business model of platforms and time personalization contains several points of leverage. These leverage points are related to introducing extra information flows (knowing the value of data), breaking the loop by changing the default nature of personal data (legal changes), or changing election campaign laws (legal changes). It is expected that these strategies are opposed by these platforms since it threatens their existence. Thus, working together with platforms can be a better option. Nevertheless, aligning the goals and creating incentives that support this cooperation is difficult.
- There are opportunities to improve critical thinking abilities. The relationship between an individual's critical thinking abilities and the ability to better recognize disinformation is present. Thus, improving critical thinking is a way of influencing the size of the flow from *uninfluential* to *influential*. Forming coalitions with educational actors and traditional news media to develop methods of teaching critical thinking is a way in which critical thinking can be enlarged.

- High-quality journalism is still expected to play an important role in the countering of disinformation because it (indirectly) contributes to the reduction of two flows. Traditional journalism has been struggling for multiple years, but the solution to invest via independent clearing houses contributes to the sustainability of high-quality journalism. In that way, it can keep practicing its important democratic function.

The conclusions put forward show that there is still room for improvement looking at the current policy mix. There are several areas and leverage points that are not considered yet. These conclusions and strategies give direction to policy recommendations. This chapter marks the final chapter of the executing section. The following part of this thesis (Part III) is about concluding and reflecting. Thus, the insights obtained here and in the preceding chapters, are combined to answer the main research questions and come to a coherent set of policy recommendations and possibilities for further research.

# III Concluding

# 10 Conclusion and discussion

This chapter is the place in this thesis, where all the conducted research and asked questions come together. Here, conclusions are presented, and the results are discussed.

Section 10.1 answers the main research question and related sub-questions. Section focusses on the limitations of this study and of the results. Then, section 10.3 describes several possibilities for future research based on these limitations and other directions identified within this thesis. Section 10.4 describes the significance of this study and how it adds to existing literature. Then, section 10.5 shows how this study is connected to the EPA program. Finally, section 10.6 makes several policy recommendations.

## 10.1 Answering the research questions

Section 1.3 introduced the main research question, sub-questions, and questions to answer the sub-questions. By combining desk research, a stakeholder analysis, semi-structured interviews, and systems thinking a vast amount of information is collected, and different exciting insights have been obtained. Here this information and these insights will be used to answer the main research question and related sub-questions. The main research question that this thesis has put forward is:

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**How can the European Commission and responsible commissioners improve policy actions to reduce the production and spread of fake news in the European Union?**

---

This research question is supported by several sub-questions. First, these sub-questions will be answered one by one. After, the main research question is answered. However, chapter 3 concluded that using the term 'fake news' creates confusion. The High-Level Expert Group published a report in which they explicitly advise to drop the term 'fake news' and use disinformation instead. Thus, disinformation was introduced as the term used in this report. Therefore, the research questions will also carry 'disinformation' instead of 'fake news'.

The first sub-question is:

---

*How can disinformation be characterized?*

- *What categories of disinformation can be observed?*
- *In what form does disinformation occur?*
- *What is a useful definition?*

---

The questions above first focused on the concept of 'fake news', of which many categories can be observed. However, this research concludes that also disinformation can be observed as different categories. These categories are labeled disinformation type I or

disinformation type II. At first, glance, distinguishing between the appearance of these categories is challenging. However, the goal that producers with a particular piece of disinformation want to achieve is different. Thus, this distinction is justified based on the goal that produces want to achieve.

The High-Level Expert group defines disinformation as: '*all forms of false, inaccurate, or misleading information designed, presented and promoted to intentionally cause public harm or for profit*'. This definition almost answers the questions related to the form in which disinformation occurs and also a useful definition. Nevertheless, the definition of the HLEG mentions *all forms*, which is still not a sufficient answer to the question. Luckily, section 3.5 discusses forms of disinformation and shows that there are many ways in which disinformation can come. For example, this can be as a visualization, an article, an advertisement, a meme, or an image. Also, a comment beneath a fake article, which has been placed by an individual paid to do this to increase the legitimacy of this article, can be considered a form of disinformation. The most important aspect of the definition is the part that mentions that disinformation is about information that is designed, presented, and promoted to intentionally cause public harm or for profit. This definition is beneficial since it shows the necessity of intent and a specific goal that one wants to reach with the actual disinformation. This thesis and especially section 3.6 build further on this definition and showed that it can be even more helpful to split the definition into two types of disinformation, namely type I: *verifiably false or misleading information that is created, presented and disseminated to intentionally deceive the public for economic gain* or type II: *verifiably false or misleading information that is created, presented and disseminated to intentionally deceive the public to cause public harm or influence voting behavior.*

These definitions are most useful since they split out types of disinformation based on the final goal that one wants to reach with disinformation. The incentives behind both types are different.

The following question that section 1.3 put forward is:

> *How do the production and spread of disinformation take place, and what does this system look like?*
>
> - *By whom does disinformation gets produced?*
> - *Which actors are involved, and which actors are most influential in the production and spread of disinformation?*
> - *What are their motives?*
> - *How does disinformation flow between these actors?*
> - *What are the incentives within the system?*
> - *Which systems structure can be identified?*
> - *Which feedback loops best represent the main structures that determine the behavior of the disinformation system?*

Again, the main question is not something which is answered quickly. Therefore, several sub-questions to this sub-question were formulated. The first three questions are answered by using the results of the stakeholder analysis from chapter 4.

Generally, disinformation is produced by actors that are interested in earning money with the production or by actors that are more interested in influencing voting behavior or causing polarization or exploiting existing polarization. An actor that is frequently mentioned to do the latter is the Russian government. Specifically, this means that they create agencies such as the Internet Research Agency (IRA). These agencies employ individuals who are paid to comment on disinformation stories, create these stories, disseminate disinformation, and increase the credibility of untruthful information. Actors that are important to this process are platform companies such as Facebook and advertising companies that specialize in targeting the right people. Also, ad-networks that enable an individual to host advertisement in his/her website. In that way, visits to a fake website can be monetized by the person who created the website. In that sense, disinformation flows from production actors through platforms owned by other actors, to the actors that are targeted with it.

Chapter 7 identified the system structure based on the statements made in chapter 6. This structure's most important parts are the different stocks of disinformation and the stock of debunked disinformation. Other parts of the structure that are essential are the feedback loops that drive the production of disinformation and drive the demand for personalized and partisan news sources. This structure is mostly related to platforms such as Facebook. This platform uses human biases, such as confirmation bias, to create a partially different reality for everyone else, and monetizes the data points they collect by personalizing their service.

> *What policies/tools are used by the European Commission and commissioners, which help to reduce the production and spread of disinformation and how and on which level or part of the system do these policies have an influence?*
>
> - *Which policies actions are implemented by the European Commission and commissioners?*
> - *Which policies have an influence in the systems structure in a preferable way?*
> - *Which factors of the system do these policies influence?*

The policy actions that are implemented by the European Commissions and commissioners fall apart into four categories. Chapter 5 lists specific actions. Most important actions are the self-regulation of platforms by the signing of the *Code of Practice*, the investment into fact-checking, and the increased attention for media literacy. A self-regulatory measure such as the *Code of Practice* is preferred by important stakeholders such as platforms because there is no real incentive to tackle disinformation. Disinformation or selling access to the data they have collected about users brings profits to these platforms and no substantive liability. The policies mentioned above can all be considered to influence the system and especially the amount of disinformation in a preferable way. However, the findings also suggest that current policy actions by the European Commission and involved commissioners are not focused on the root causes of the problem and do not take into account the different types of disinformation that exist. Most policy actions are focused on characteristics of citizens , such as their *media literacy* or *trust in institutions,* or activities such as *fact-checking*. These can be considered actions on a micro-level. Also, several actions do not have a clear goal or KPI to be measured against.

Figure 10.1 visualizes the targeting of policy actions. With the systems thinking perspective in mind, the policy actions can be seen as attempts to influence the size of the flows or, with the metaphor of a bathtub in mind, turning the faucets of these flows. As mentioned above, the findings suggest that currently, most of the policy actions are (in)directly focused on the pick-up rate, while the production rate is being influenced less. Thus, some actions are focused more on treating symptoms than treating the actual disease, since the focus on the pick-up rate does not change that disinformation is present. A more extensive description of the chains of influence can be found in chapter 8.
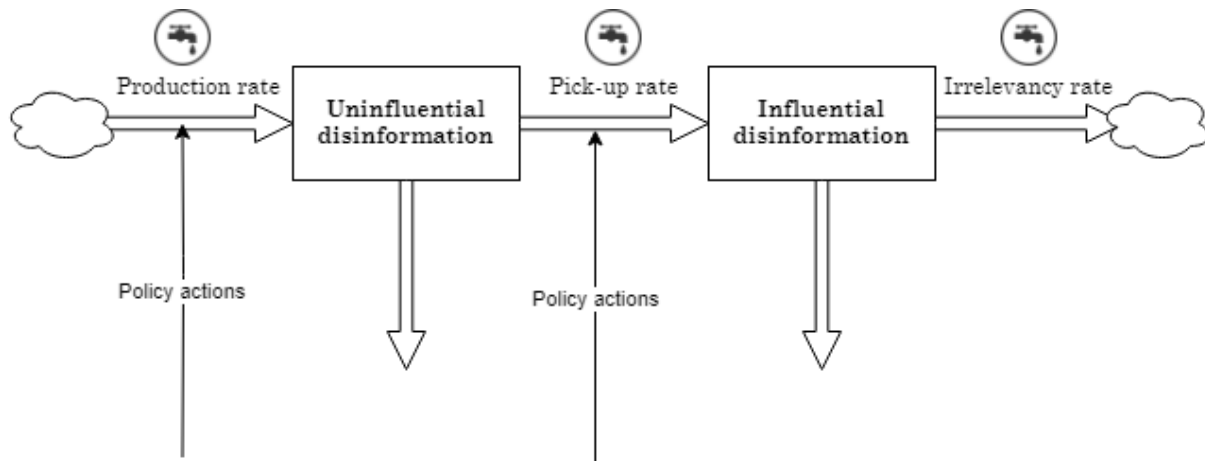


*Figure 10.1: Visualization of the influence of policy actions*

It should be mentioned that it is challenging to turn the faucet of the production rate. Influencing factors such as the *production cost* and *usage by political advertisers* is difficult. It is even relevant to ask: is it possible to directly influence the causes of the production of disinformation in the European Union? Answering this question is not part of the scope of this research. However, it is possible to try to answer this question. Factors such as the *production cost* or *expected profits* are challenging to influence. These variables partially have to do with bigger societal trends that are extremely hard to influence. An example, a part of the reason that expected profits are high and production costs are low is that there are many inexpensive technological tools available that make the production very cheap and easy. Also, there has been a big trend towards globalization, which increased market sizes concerning many different 'products' or things. This also applies the market size that one can reach with a single message of disinformation. Trends such as globalization are trends that a government or the European Union does not easily change.

The last question is:

> *Are there other strategies that can help the European Commission and commissioners to reduce the production and spread of disinformation?*

This answer to this question was explored by taking the leverage points mentioned by Meadows (2008) and applying these to the systems model. Combining these leverage

points with the results of other chapters shows a set of additional strategies presented in chapter 9. An important strategy can be the decoupling of the link between 'giving away' personal data and the profits companies can obtain from this. This decoupling can be done by making personal data points by default the property of individuals and only sellable by a consensual monetary transaction. The individuals themselves then have more ownership over their data. Other additional strategies are more focus on critical thinking in education and introducing legislative initiatives regarding election campaigns.

The answers to these sub-questions then can be combined to answer the main question:

> **How can the European Commission and responsible commissioners improve policy actions to reduce the production and spread of disinformation in the European Union?**

Generally, the European Commission and responsible commissioners can improve policy actions by making current policy actions more specific and measurable against a pre-determined goal. Furthermore, the mix of policy actions should be extended and not only contain soft measures. Regulatory actions or co-regulatory actions focusing on the business model of platforms is preferable to the current situation of self-regulation through the *Code of Practice*. However, hard regulation is probably tricky, since this will also result in increased resistance by actors such as data-brokers and ad-networks. To further improve policies, there are opportunities to work closer together with actors that focus on education to increase critical thinking education. Policy actions can also be improved by focusing on more alternative strategies, such as indirectly investing in high-quality journalism and introducing legislative initiatives that focus on giving citizens the right to know the value of their data or initiatives that change to default ownership of personal data.

The developed model or a simplified visualization of this model, such as figure 10.1, can be helpful in thinking more critically about these policy actions and the nature of the problem. It can be considered how a particular action impacts the model and which causal chain leads to a change in the variable of interest. The model or simplified visualization can serve as a *boundary object*, which is a tangible artefact that can be shared and around which persons can interact about a problem situation of concern (Franco, 2013). Policymakers that think differently about the problem can come together and use the model as a tool to bring to light unaligned or conflicting ideas, dependencies, and points of overlap (Black & Andersen, 2012). The model or visualization can depersonalize issues and facilitate the process of coming to a shared understanding and a shared plan of action to tackle this complex problem.

Precisely the complexity of this problem should also be mentioned again. This thesis presents several firm conclusions and will also make several policy recommendations in section 10.6. However, if there is one thing that this research also shows, it is that the situation of disinformation in the European Union is highly complex due to the wide variety of actors, technological developments, individual psychological mechanisms and the difficulty of defining the concept. The conclusions and recommendations come forward based on the combination of research methods used in this thesis. But, this thesis does not propagate to tell the one and only truth about disinformation. It tries to be a contribution

to a better understanding of a problem that touches society and democracy in order to better deal with the problem at hand.

The research question and related sub-questions have been answered concisely. However, this research also has several limitations. These are discussed in section 10.2.

## 10.2 Limitations of study and results

Section 10.1 discusses the answers to the research questions and how the model can be used in the future. However, the results, the study, and the model also have several limitations. These are discussed below.

- **The validity of the constructed model:** One of the main limitations of this research is related to the validity of the constructed model. The model is based on statements, and these statements are translated to variables and relationships by the researcher. Therefore the personal interpretation of the researcher about how to conceptualize the statements comes into play (researcher bias). Also, the number of interviews and the non-variety of the backgrounds of the actors do not contribute to the validity. Furthermore, the model has not been validated by experts after the construction.
- **Quantitative effects:** These results do not give information about the quantitative effects of the policies. Since the model is not formalized, thus not translated from the conceptual model to a model expressed in mathematical relationships, it is not possible to say that 'increasing the trust in institutions leads to a ten percent drop in the flow from uninfluential to influential disinformation. However, this was also not within the scope of the proposed research and is extremely difficult, since quantifying these kinds of relationships is difficult due to the complexity of the world in which we live.
- **No simulation of scenarios:** The results also do not tell us anything about the scenarios under which these policies are impactful or not. No simulation has been carried out. Therefore quantitative data about the behavior of certain variables under different scenarios is not available. Therefore, it is not possible to make comments about the quantitative effects of policies in different instances of the future. Also, this point has to with the difficulty of quantifying several relationships between variables. This also will show to be a significant opportunity for future research.
- **Limited legal perspective:** One of the main limitations of this research is related to the legal complications of the disinformation problem. Main findings of a need for more focus on the root causes of the problem are not placed within a broader legal framework. This was not within the scope of this research, but it is essential to consider in what way it can actually be possible to regulate platforms. In what way these regulations are not in violation of fundamental human rights and European laws. Naturally, section 4.3 briefly discussed several applicable laws and regulations. However, this was more exploratory than reviewing.
- **Interdisciplinarity:** Another limitation of the conducted research is the lack of interdisciplinarity and the fact that the research is carried out alone. Disinformation as a problem is something that is complex and touches so many different fields of knowledge, such as the law, specific psychological mechanisms,

technical infrastructures, and much more. Therefore, research that is carried out across borders of disciplines and in multi-disciplinary teams is recommended to understand better everything there is to know about disinformation and how it can be tackled not only from a modeling perspective but also from a legal perspective or a psychological perspective.

In conclusion, this thesis and its results are partially an analytical review of the impact of policies but are also an exploratory study into what the system looks like and what strategies are possible. The results built further on existing research, but also show the necessity for even more research into this particular angle from different perspectives and disciplines. Section 10.3 will discuss several possibilities for future research based on the identified limitations.

## 10.3  Possibilities for future research

Section 10.2 discusses the limitations of this study. However, these limitations also give opportunities for future research. These are discussed below:

- **Participatory modeling:** Constructing a systems model together with the actors (participatory model building or group model building) is a strong future possibility for research. Also, to integrate the perspective of more actors from different backgrounds. Building a model together could increase the chances of the model becoming a boundary object (Franco, 2013) and heightens the validity. The current model can serve as a starting point for this process or already as a communication tool.
- **Quantitative data-driven approach:** The systems model developed is based on statements made during interviews and only focusses on qualitative relationships. Thus, there is an opportunity in doing more empirical research about the appearance of disinformation and research that tries to help to contribute to the quantification of relationships between different variables . This can help to better understand the effects of policy actions on the actual number of different 'units' of disinformation.
- **Scenario exploration (simulation):** Future possibilities for research are the exploration of different scenarios under which these policies are simulated. Exploring different scenarios and simulating the effects of policies under different scenarios gives more insight into the effectiveness and robustness of these measures. An approach that can be used is multi-objective robust decision-making (Hamarat, Kwakkel, Pruyt, & Loonen, 2014).
- **Legal perspective:** Research that further investigates this legal dimension of the problem and focusses on what can and cannot actually be done under the current or future legal conditions is necessary.
- **Technical ways of monetizing personal data:** Research into ways to protect personal data or automatically monetize this data. Investigate how the current technological advancements such as blockchain could be of service in such a transition.
- **Effects of efforts to increase critical thinking:** There is a future possibility for research  into the effects of increased educational efforts to increase critical thinking abilities and increased personal awareness of psychological biases.

- **Technological advancements and the impact of deep fakes:** There is a future possibility for research that investigates the development in the form that disinformation takes. Technological advancements make it possible to develop forms of disinformation that are even more difficult to recognize. Investigate how these forms affect people and in what way they can be counteracted.

## 10.4 Significance of study and added value to the existing literature

Section 1.5 and section 1.6 describe the relevancy of this study from a societal and scientific point of view. After the study has been carried out, it is possible to extend this notion of relevance and talks about the significance of the study and results and how they add to the existing literature.

Generally, the significance or importance of this study is that it tries to understand a problem that concerns all of us. Furthermore, it also adds to this understanding the assessment of policy actions that try to influence this problem and make recommendations on how these policies can be improved. Thus, this study and its results add value by making an actual assessment of the impact of policies on the problem at hand. This study shows which 'societal variables' are influenced by these policy actions and show trough, which causal chain the amount of uninfluential or influential disinformation is affected. Furthermore, as section 1.5 indicates, this study adds value by applying systems thinking to the current literature. It expands the concept of disinformation even further by showing the possibility of splitting it up in different types. Also, it questions the current value that has been given to fact-checking as an important solution. Especially taking into account research about the effectiveness of fact-checking and correcting wrong information

Previous studies have focused on an investigation into public policy responses or studied these possible responses from a legal perspective (McGonagle et al., 2018; Renda, 2018; Tambini & Goodman, 2017). These studies result in a list of recommended policy actions or categorize these actions (for example) into preventive actions, restrictive actions and others. However, what these studies lack is the assessment of these policies from a modeling perspective.

Other studies focused on psychological mechanisms (Lewandowsky et al., 2017, 2012; Silverman & Singer-Vine, 2016), technical ways of countering disinformation (Alaphilippe, Gizikis, Hanot, & Bontcheva, 2019) or measuring the reach of disinformation (Fletcher, Cornia, Graves, & Nielsen, 2018). However, not on the application of systems thinking. The tangible results of applying this way of thinking is an actual model of the system. Naturally, this model can be improved, and several limitations are discussed in section 10.2. However, the exploration of the problem from this perspective and the developed model is a result in itself. A model is an object that is helpful in further clarifying disinformation as a problem and is a starting point for further expansion. It adds a visual representation of the system at hand to the literature or even the policy arena. The model can potentially serve as a boundary object if it is able to transcend syntactic, semantic, and pragmatic boundaries (Franco, 2013).

## 10.5 Relation to study program

This study has taken a broad and integrated perspective combining different techniques such as stakeholder analysis, interviews, and the application of systems thinking., which is this thesis most valuable asset. Thus, this thesis combines techniques learned during multiple courses, for example, EPA1341 Advanced System Dynamics, EPA1101

Understanding International Grand Challenges, EPA7030 Interviewing Techniques, and EPA1144 Actor and Strategy Models. Precisely the combination of these techniques and the investigation into policies is what this makes this study so fitted to the EPA curriculum.

The Engineering and Policy Analysis (EPA) brochure emphasizes that students will be equipped with more than just engineering skills after the completion of this program. EPA is a program that focusses on the Grand Challenges of our time, problems in which there is an interaction between nature, society, and technology. Within the program, a multi-actor systems modeling approach to real-world problems is applied so that the quality of decision making can be improved (TU Delft, 2019).

As indicated above, the subject and the different methods used are exemplary for the EPA program. Disinformation as a problem is highly complex and takes place in a multi-actor environment. One of the techniques that take this reality into account and analyzes it is the stakeholder analysis that was carried out. Furthermore, the modeling approach, in which reality is perceived or modeled as a system is one of the spearheads of the program. Also this perspective was used to approach the disinformation problem.

What is also important within the EPA program is that it tries to focus on analyzing the impact of policy decisions on natural and technical systems. That is essentially what this research focused on. First, the situation was analyzed (defining of the concept, stakeholder analysis, policy actions), then this situation was modeled from a systems perspective (empirical investigation, systems thinking) and after that implemented policy actions were assessed based on their usefulness and impact (assessing the impact). The question was asked: Are these policy decisions tackling the problem at the root cause? Can these policy actions be improved, and how?

## 10.6 Policy recommendations

A thesis that assesses the impact of policy actions on a societal problem is not complete without making policy recommendations. Section 10.1 briefly discussed the answers to the research questions and gave a brief introduction to the meaning of the results from a policy perspective. Here this discussion is expanded. Conclusions from preceding chapters and implications are combined to come to a set of policy recommendations. These recommendations relate to policies that intervene on all policy levels. Thus, on micro, meso, and macro-level. The policy recommendations are listed below:

- The European Commission and responsible commissioners should put a stronger focus on regulations that are related to root causes of the problem instead of a focus on soft policy measures. Yes, these soft policy measures, such as organizing a *Media Literacy Week*, contribute to a better understanding of the media and the phenomenon, but these actions alone are not enough. Thus, broaden and deepen this mix.
- Deepen the mix, for example, with policies focused on increasing the critical thinking abilities in society and changing the default nature of personal data. Putting more focus on critical thinking in education is possible by forming coalitions with education and investigative journalists. Make sure that from early age onwards, children and people are educated to think critically about the information that they are presented with. Also, stimulate the private sector to

develop tools to strengthen critical thinking by subsidizing these companies in a particular way.

- Take into account the different types of disinformation that exist in reality, in the implementation of policy actions. The targeting with politically motivated advertisements uses different mechanisms than someone who wants to make money. Making a distinction supports to be more explicit about on what type of disinformation a policy is targeted and can make them more effective, i.e., where in the system they intervene and how they influence impacted variables.

- Focus on making policies more explicit, at the EU level but also at the level of the member states. Be clear about policy what directions mean in terms of content and make sure that the effects of these policies are measurable against a pre-determined goal. Do not state that you want to strengthen the media environment, but describe how. For example, by setting up independent clearinghouses that invest into investigate journalists.

- Focus on making people more aware of their biases, such as the bias to seek out information that confirms pre-existing beliefs. Making people aware of these biases can contribute to people becoming less influenced by them.

- Also, focus on pushing a more positive narrative about the state of the world. Disinformation and polarizing messages often give the wrong idea about the state of the world. However, in many ways, every day, the world is doing better than the day before (Pinker, 2018; Rosling, Rosling, & Ronnlund, 2018). By making this narrative available, people become more aware of the truth. It helps to create less breeding ground for disinformation to be successful. It increases the trust in institutions because it shows that these are actually doing better than people are aware of. Pushing this narrative is legitimized since it is based on sound scientific reasoning and not aimed at provoking emotion but on a better understanding. Thus, make sure that this knowledge is available to everyone. This can be done by investing in campaigns or also make this a part of critical thinking teaching material.

- Work towards a situation in which personal data becomes a personal commodity that individuals can choose to monetize. This new situation can make individuals more aware of what they are giving away when selling access to their personal data and what the consequences can be if they decide to do so. Furthermore, this changes the link between the increasing amount of data that private companies and platforms collect and the profits they obtain from it. Thus, introduce legislative initiatives that support the change from the current situation to the one introduced above.

- Invest heavily in more multidisciplinary and interdisciplinary research into disinformation. Make sure that all policy research is framed from within the legal framework. Make sure that scientists from multiple disciplines come together. This can be done by organizing specialized conferences about disinformation or by making scholarships for interdisciplinary research available.

In order to communicate these policy recommendations more clearly, figure 10.2 (the following page) summarizes these policies briefly and how they affect a simplified system.

Furthermore, figure 10.3 shows an infographic that shortly introduces this recommendations in a more appealing way.
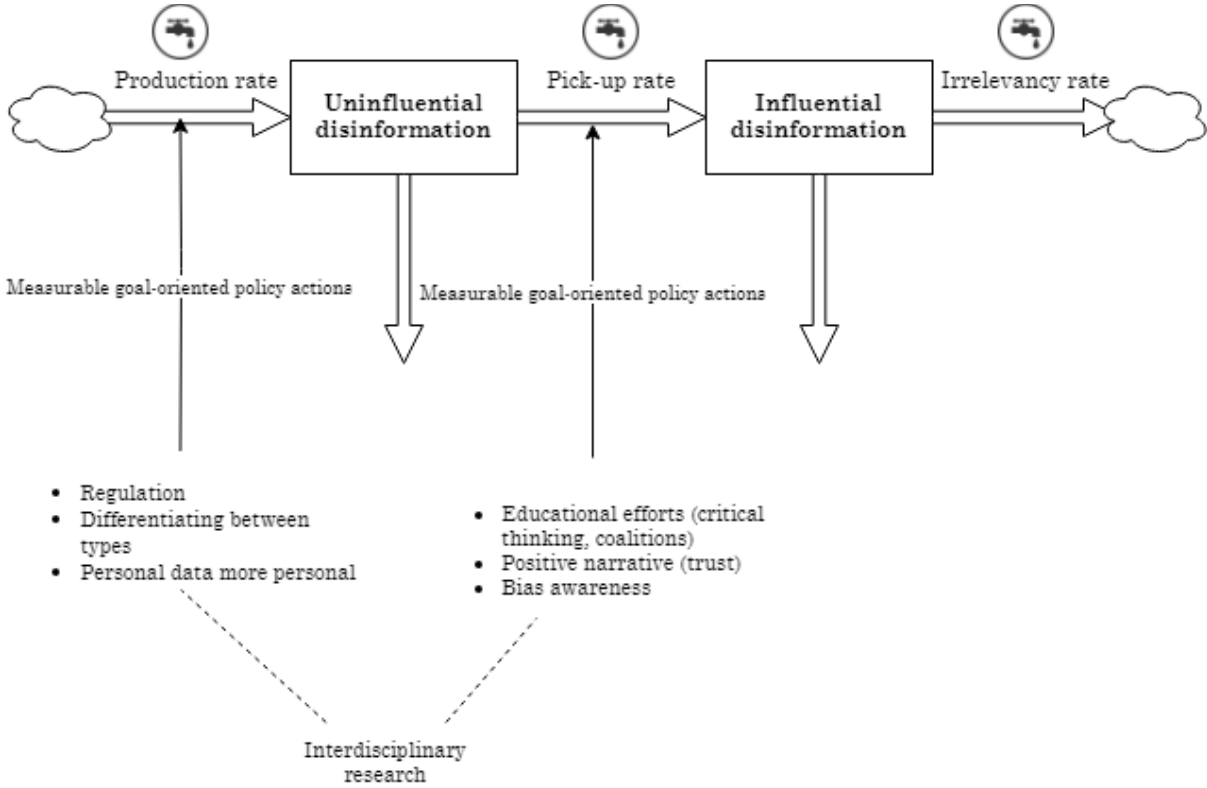


*Figure 10.2: Policy recommendations influence on simplified system*

The figure shows on which flow the recommendations are targeted. Furthermore, it adds the necessity for interdisciplinary research that supports and studies these recommendations. Also, the necessity for clarity about the content of these policies and the goal they need to achieve is emphasized.

These figures and an even more simplified version (figure 10.1, earlier in this chapter) can be used by policymakers or looked at by people interested in a short summary of these recommendations and how these influence the spread and production of disinformation. However, it is necessary to mention that this infographic shows simplified recommendations. In practice, these recommendations are often more challenging to implement than appears on first sight. Also, the reality in which they are implemented is more complex and unpredictable than these recommendations bring forward.

# TACKLING DISINFORMATION IN THE EU

## POLICY RECOMMENDATIONS

### REGULATE PLATFORMS

**FIND A WAY TO INFLUENCE THE BUSINESS MODEL OF PLATFORMS**

Influence one of the root causes of the disinformation problem. Co-regulation or hard regulation can be more succesful than current self-regulation..

### INVEST IN EDUCATION

**FORM COALITIONS TO IMPROVE CRITICAL THINKING**

Critical thinking abilities are essential in the recognition of disinformation. Focus on strenghtening these skills from a young age by forming coalitions with educational institutions and skilled journalists.

### MAKE POLICIES MORE EXPLICIT

**WHAT DOES IT MEAN IN TERMS OF CONTENT & HOW CAN IT BE MEASURED**

Describing how policies are implemented forces to be more explicit about the content and the goal that should be achieved. It makes it also more easy to change course or hold one accountable.

### PUSH A POSITIVE NARRATIVE

**PUSH A MORE POSITIVE SCIENCE-BASED WORLDVIEW**

Push a science-backed realistic view of the world. Make people aware that in many ways the world is doing better everyday.

### CHANGE THE NATURE OF PERSONAL DATA

**MORE OWNERSHIP BY DEFAULTT**

Make sure that citizens have the choice to monetize their data. Then they more aware of the consequences are when they decide to sell access to their personal data.

### INVEST IN CONTINUED INTERDISCIPLINARY RESEARCH

**KNOW MORE ABOUT THE PROBLEM**

The problem of disinformation is still really complex and not fully understood.. Interdisciplinary research that combines differnt perspectives to the problem is needed to understand it better.

*Figure 10.3 Infographic policy recommendations*

# 11 Personal reflection

Doing this research and writing a master thesis is a difficult task and process. Many steps have to be taken and executed in order to come to the final result. This chapter, in contrary to the others, is a more personal one and is written in the first-person perspective. Section 12.1 discuss the reflection on the process, and section 12.2 discusses the lessons learned.

## 11.1 Research process

The second point of reflection on the research process. Generally, the full process and timeline can be summarized as in figure 12.1. Generally, the process unfolded itself in the way figure 12.1 visualizes.



*Figure 11.1: Full research process*

Especially at the beginning of this process, I was searching for the right direction and a question and approach. Obviously, this approach crystallized itself a bit more as I proceeded with the research.

Generally, I think I managed the process quite well. I tried to really carry out the research in different phases and to use the insights from one phase as the starting point of the other. Obviously, the activities do not follow each other directly and coming back from one phase to the other happens regularly, but the mainline set out before the beginning of the research was followed quite well.

Also, concerning the communication with supervisors and interviewees, I think the process was appropriately managed. Communication with supervisors was direct, and to the point and before meetings, I thought clearly about the most important questions to be answered and the general purpose of the meeting at hand.

## 11.2 Lessons learned

The preceding section discusses the reflections related to the research process. Here, the lessons learned are discussed. They are summarized below:

- One of the most important lessons is that as much as it is crucial to carry out research activities correctly, it is evenly vital to be able to communicate these activities in an understandable way to others. If you are not able to explain in an understandable way what you have done and what you mean by something, the research loses value. Something that might be perfectly understandable to you might be incomprehensible to someone else.

- The research process usually does not follow the initial planning. There are always things that go different than expected. Examples are much fewer reactions to interview requests as expected, or the necessity to change certain research activities as you go. At the start of the research, you should be aware of this. Also, flexibility to be able to deal with these changes and unexpected events is necessary.

- Another lesson is that carrying out research, in this case, writing a master thesis, does not always lead to grand results or 'big insights'. Researching itself is an uncertain undertaking, and results can also be uncertain or small. Nevertheless, there is also value in gaining only a little bit of additional insight or seeing even more clearly how complex the investigated issue is. Every little contribution to understanding something as welcome, even if it is minimal.
- Excellent communication with the people involved with the research is essential. Not only with supervisors but also people that are interviewed or that are in any way related to the problem.
- It is highly recommendable to demarcate clearly what it is you are doing or what it is you are trying to answer and how you will do this. Otherwise, you stay in uncertainty and have difficulties carrying out your research, since you are not sure yourself, it is what you are actually doing. As a researcher, you should be aware that you cannot 'research everything'.

# References

Acxiom. (n.d.). About Acxiom. Retrieved August 7, 2019, from
https://www.acxiom.com/about-us/

AdSupply. (n.d.). About. Retrieved August 7, 2019, from
https://www.adsupply.com/about/

Alaphilippe, A., Gizikis, A., Hanot, C., & Bontcheva, K. (2019). *Automated tackling of disinformation*. Brussel. https://doi.org/10.2861/368879

Allcott, H., & Gentzkow, M. (2017). Social Media and Fake News in the 2016 Election. *Journal of Economic Perspectives*, *31*(2), 211–236. https://doi.org/10.1257/jep.31.2.211

Arnold, R. D., & Wade, J. P. (2015). A definition of systems thinking: A systems approach. In *Procedia Computer Science* (Vol. 44, pp. 669–678). https://doi.org/10.1016/j.procs.2015.03.050

Aronson, D., & Angelakis, D. (1999). Step-By-Step Stocks and Flows: Improving the Rigor of Your Thinking. *The Systems Thinker*, *10*. Retrieved from https://thesystemsthinker.com/step-by-step-stocks-and-flows-improving-the-rigor-of-your-thinking/

Barriball, K. L., & While, A. (1994). Collecting data using a semi-structured interview: a discussion paper. *Journal of Advanced Nursing*, *19*(2), 328–335. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/8188965

Bartlett, J. (2018). *The People Vs Tech: How the internet is killing democracy (and how we save it)*. London: Ebury Publishing. Retrieved from https://books.google.nl/books?id=lQI_DwAAQBAJ

Bayer, J., Bitiukova, N., Bárd, P., Szakács, J., Alemanno, A., & Uszkiewicz, E. (2019). *Disinformation and propaganda-impact on the functioning of the rule of law in the EU and its Member States*. Retrieved from http://aei.pitt.edu/97042/1/disinformation_and_propaganda.pdf

Bennett, W. L., & Livingston, S. (2018). The disinformation order: Disruptive communication and the decline of democratic institutions. *European Journal of Communication*, *33*(2), 122–139. https://doi.org/10.1177/0267323118760317

Birdsell, D. S., & Groarke, L. (1996). Toward a theory of visual argument. *Argumentation and Advocacy*, *33*(1), 1–10. Retrieved from https://public.wsu.edu/~ericsson/birdandgroar.pdf

Bittner, A. K. (2019). *Digital Journalism and New Business Models*. Retrieved from https://europeanjournalists.org/wp-content/uploads/2019/02/EFJ-Report-Digital-Journalism-and-New-Business-Models-02-2019-light-1.pdf

Black, L. J., & Andersen, D. F. (2012). Using visual representations as boundary objects to resolve conflict in collaborative model-building approaches. *Systems Research and Behavioral Science*, *29*(2), 194–208. https://doi.org/10.1002/sres.2106

Borrás, S., & Edquist, C. (2013). The choice of innovation policy instruments. *Technological Forecasting and Social Change*, *80*(8), 1513–1522. https://doi.org/10.1016/j.techfore.2013.03.002

Boyatzis, R. E. (2009). Competencies as a behavioral approach to emotional intelligence. *Journal of Management Development*, *28*(9), 749–770. https://doi.org/10.1108/02621710910987647

Bruijn, H. De, & Herder, P. M. (2009). System and Actor Perspectives on Sociotechnical Systems. *IEEE Transactions on Systems, Man, and Cybernetics - Part A: Systems and Humans*, *39*(5), 981–992. https://doi.org/10.1109/TSMCA.2009.2025452

Bryson, J. M. (2004). What to do when Stakeholders matter. *Public Management Review*, *6*(1), 21–53. https://doi.org/10.1080/14719030410001675722

Burshtein, S. (2017). The True Story on Fake News. *Intellectual Property Journal*, *29*(3), 1–51. Retrieved from https://search.proquest.com/openview/0d484e35abb3757ec10f48c872c2015c/1?pq-origsite=gscholar&cbl=46743

Cadwalladr, C. (2018). 'I made Steve Bannon's psychological warfare tool': meet the data war whistleblower | News | The Guardian. Retrieved March 18, 2019, from https://www.theguardian.com/news/2018/mar/17/data-war-whistleblower-christopher-wylie-faceook-nix-bannon-trump

Calvert, D. (2017, September 4). The psychology behind fake news. https://doi.org/10.1108/LHTN-07-2017-0054

Center for European Policy Analysis. (n.d.). Disinformation Techniques. Retrieved July 25, 2019, from https://www.cepa.org/disinfo-techniques

Chen, A. (n.d.). The Agency. Retrieved from https://www.nytimes.com/2015/06/07/magazine/the-agency.html

Chesney, R., & Citron, D. K. (2018). Deep Fakes: A Looming Challenge for Privacy, Democracy, and National Security. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3213954

De Correspondent. (n.d.). Manifest - De Correspondent. Retrieved August 7, 2019, from https://decorrespondent.nl/manifest

De Hert, P., Papakonstantinou, V., Malgieri, G., Beslay, L., & Sanchez, I. (2018). The right to data portability in the GDPR: Towards user-centric interoperability of digital services. *Computer Law and Security Review*, *34*(2), 193–203. https://doi.org/10.1016/j.clsr.2017.10.003

Diresta, R., Shaffer, K., Ruppel, B., Sullivan, D., Matney, R., Fox, R., … Johnson, B. (2018). *The Tactics & Tropes of the Internet Research Agency*. Retrieved from https://disinformationreport.blob.core.windows.net/disinformation-report/NewKnowledge-Disinformation-Report-Whitepaper-121718.pdf

DROG. (n.d.). Wat is DROG? Retrieved from https://wijzijndrog.nl/

ECHR. (n.d.). The Court in Brief. Retrieved August 19, 2019, from www.echr.coe.int

Elias, A. A., & Cavana, R. Y. (2016). Stakeholder Analysis for Systems Thinking and Modelling, (October 2011).

Enveritas Group. (n.d.). Social Media Advertising Through Microtargeting. Retrieved August 21, 2019, from https://enveritasgroup.com/en/content-services/microtargeting/

EUfactcheck.eu. (n.d.). About us. Retrieved August 7, 2019, from https://eufactcheck.eu/about-us/

European Broadcasting Union. (n.d.). EBU - About. Retrieved August 7, 2019, from https://www.ebu.ch/about

European Commission. (2016a). FAQ: Joint Framework on countering hybrid threats. Retrieved August 7, 2019, from https://europa.eu/rapid/press-release_MEMO-16-1250_en.htm

European Commission. (2016b). Press release - Joint Framework on countering hybrid threats. Retrieved July 19, 2019, from http://europa.eu/rapid/press-release_MEMO-16-1250_en.htm

European Commission. (2018a). *Action Plan against Disinformation*. Retrieved from https://eeas.europa.eu/sites/eeas/files/action_plan_against_disinformation.pdf

European Commission. (2018b). *EU Code of Practice on Disinformation*.

European Commission. (2018c). *Tackling online disinformation: a European Approach*. Brussels. Retrieved from http://ec.europa.eu/commfrontoffice/publicopinion/index.cfm/survey/getsurveydetail/instruments/flash/

European Commission. (2019). *Action plan against disinformation; Report on progress*. https://doi.org/10.2775/351646

European External Action Service. (n.d.). What we do. Retrieved from https://eeas.europa.eu/headquarters/headquarters-homepage/65034/what-we-do_en

European External Action Service. (2019a). EU reports on progress in fighting disinformation. Retrieved July 16, 2019, from https://eeas.europa.eu/topics/countering-disinformation/64486/eu-reports-progress-fighting-disinformation_en

European External Action Service. (2019b). What we do - European External Action Service. Retrieved July 17, 2019, from https://eeas.europa.eu/headquarters/headquarters-homepage/65034/what-we-do_en

Experian. (n.d.). About Us. Retrieved August 7, 2019, from http://www.experian.nl/en/about-us/index.html

Figueira, Á., & Oliveira, L. (2017). The current state of fake news: Challenges and opportunities. *Procedia Computer Science*, *121*, 817–825. https://doi.org/10.1016/j.procs.2017.11.106

Fletcher, R., Cornia, E., Graves, L., & Nielsen, R. K. (2018). *Measuring the reach of "fake*

*news" and online disinformation in Europe*. *Reuters Institute for the Study of Journalism* (Vol. 60). Retrieved from http://attivissimo.blogspot.co.uk/p/about-me.html.

Forrester, J. W. (1971). Counterintuitive behavior of social systems. *Technological Forecasting and Social Change*, *3*, 1–22. https://doi.org/10.1016/S0040-1625(71)80001-X

Franco, L. A. (2013). Rethinking soft OR interventions: Models as boundary objects. *European Journal of Operational Research*, *231*(3), 720–733. https://doi.org/10.1016/j.ejor.2013.06.033

Gaughan, A. J. (2017). *Illiberal Democracy: The Toxic Mix of Fake News, Hyperpolarization, and Partisan Election Administration*. *Duke Journal of Constitutional Law & Public Policy* (Vol. 12).

Globe Gazette. (n.d.). Political cartoons: Facts, fake news, Flynn, immigration, Trump. Retrieved August 8, 2019, from https://globegazette.com/news/opinion/columns/political-cartoons-facts-fake-news-flynn-immigration-trump/collection_4d1fbcbc-2def-58bf-ad14-41f585167c3a.html

Hamarat, C., Kwakkel, J. H., Pruyt, E., & Loonen, E. T. (2014). An exploratory approach for adaptive policymaking by using multi-objective robust optimization. *Simulation Modelling Practice and Theory*, *46*, 25–39. https://doi.org/10.1016/j.simpat.2014.02.008

Hermans, H. M., & Cunningham, S. W. (2018). *Actor and Strategy Models: Practical Applications and Step-wise Approaches*. Hoboken, NJ: John Wiley & Sons, Ltd.

High Level Expert Group. (2018). *A multi-dimensional approach to disinformation*. https://doi.org/10.2759/0156

Host Department. (n.d.). Mission Statement. Retrieved August 7, 2019, from https://www.hostdepartment.com/mission-statement.php

Inam, A., Adamowski, J., Halbe, J., & Prasher, S. (2015). Using causal loop diagrams for the initialization of stakeholder engagement in soil salinity management in agricultural watersheds in developing countries: A case study in the Rechna Doab watershed, Pakistan. *Journal of Environmental Management*, *152*, 251–267. https://doi.org/10.1016/j.jenvman.2015.01.052

IPRI. (2018). Dealing with Fake News : Policy and Technical Measures Key issues and solution areas, 1–13. Retrieved from https://www.propublica.org/article/facebook-enabled-advertisers-to-reach-jew-haters

IViR. (2019). *Filterbubbels in Nederland*. Retrieved from https://www.cvdm.nl/wp-content/uploads/2019/05/Rapport-Filterbubbels-in-Nederland.pdf

Jalali, S., & Wohlin, C. (2012). Systematic Literature Studies: Database Searches vs. Backward Snowballing. In *6th ACM-IEEE International Symposium on Empirical Software Engineering and Measurement, ESEM*. Lund. Retrieved from http://scholar.google.com/intl/en/scholar/about.html

Jones, N. A., Ross, H., Lynam, T., Perez, P., & Leitch, A. (2011). Mental Models: An

Interdisciplinary Synthesis of Theory and Methods. *Ecology and Society*, *16*(1), art46. https://doi.org/10.5751/ES-03802-160146

Juncker, J.-C. (2017). *Mission Letter Mariya Gabriel*. Brussel. Retrieved from https://ec.europa.eu/commission/commissioners/sites/cwt/files/commissioner_mission _letters/mission-letter-mariya-gabriel.pdf

Lanier, J. (2013). *Who Owns the Future?* SIMON &amp; SCHUSTER.

Lazer, D. M. J., Baum, M. A., Benkler, Y., Berinsky, A. J., Greenhill, K. M., Menczer, F., … Zittrain, J. L. (2018). The science of fake news. *Science*, *359*(6380), 1094 LP – 1096. Retrieved from http://science.sciencemag.org/content/359/6380/1094.abstract

Levin, S. (2017). Facebook promised to tackle fake news. But the evidence shows it's not working | Technology | The Guardian. Retrieved September 23, 2018, from https://www.theguardian.com/technology/2017/may/16/facebook-fake-news-tools-not-working

Lewandowsky, S., Ecker, U. K. H., & Cook, J. (2017). Beyond Misinformation: Understanding and Coping with the "Post-Truth" Era. *Journal of Applied Research in Memory and Cognition*, *6*(4), 353–369. https://doi.org/10.1016/j.jarmac.2017.07.008

Lewandowsky, S., Ecker, U. K. H., Seifert, C. M., Schwarz, N., & Cook, J. (2012). Misinformation and Its Correction: Continued Influence and Successful Debiasing. *Psychological Science in the Public Interest, Supplement*, *13*(3), 106–131. https://doi.org/10.1177/1529100612451018

Longhurst, R. (2010). Semi-structured interviews and focus groups. In *Key Methods in Geography*. London: SAGE Publications Ltd. Retrieved from https://is.muni.cz/el/1431/jaro2015/Z0132/um/54979481/_Nicholas_Clifford__Gill_Va lentine__Key_Methods_in_BookFi.org_.pdf#page=126

Malgieri, G., & Custers, B. (2018). Pricing privacy – the right to know the value of your personal data. *Computer Law & Security Review*, *34*(2), 289–303. https://doi.org/10.1016/J.CLSR.2017.08.006

Marsden, C., & Meyer, T. (2019). *Regulating disinformation with artificial intelligence*. Brussels. https://doi.org/10.2861/003689

Mcgonagle, T. (2018). De Raad van Europa en online desinformatie : laveren tussen zorgen en zorgplichten ? *MediaForum*, *6*, 180–184.

McGonagle, T. (2017). "Fake news": False fears or real concerns? *Netherlands Quarterly of Human Rights*. https://doi.org/10.1177/0924051917738685

McGonagle, T., Coche, E., Plaizier, C., & Klus, M. (2018). *Inventarisatie methodes om "'nepnieuws'" tegen te gaan*. Retrieved from www.ivir.nl

Meadows, D. H. (2008). *Thinking in Systems: A primer*. (D. Wright, Ed.). White River Junction, VT: Chelsea Green Publishing.

Mortera-Martinez, C. (2019). What is Europe doing to fight disinformation? *CER Bulletin*, (123). Retrieved from

https://cer.eu/sites/default/files/bulletin_123_cmm_article3-4.pdf

Newman, N., Fletcher, R., Kalogeropoulos, A., & Kleis Nielsen, R. (2019). *Reuters Institute Digital News Report 2019.* Retrieved from https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2019-06/DNR_2019_FINAL_1.pdf

Newman, N., Fletcher, R., Kalogeropoulos, A., Levy, D., & Nielsen, R. K. (2017). *Reuters Institute Digital News Report 2017.* https://doi.org/10.1017/CBO9781107415324.004

Nickerson, R. S. (1998). *Confirmation bias: a ubiquitous phenomenon in many guises. Review of General Psychology* (Vol. 2). Retrieved from http://doi.apa.org/journals/gpr/2/2/175.html

NOS. (n.d.). Over de NOS - About NOS. Retrieved August 7, 2019, from https://over.nos.nl/organisatie/about-nos

Pariser, E. (2011). *The Filter Bubble: What the Internet Is Hiding from You.* New York: Penguin Press.

Pennycook, G., Cannon, T. D., & Rand, D. G. (2017). Prior Exposure Increases Perceived Accuracy of Fake News. *Journal of Experimental Psychology: General*, *147*(12), 1865–1880. https://doi.org/10.1037/xge0000465

Pennycook, G., & Rand, D. G. (2017). Who Falls for Fake News? The Roles of Analytic Thinking, Motivated Reasoning, Political Ideology, and Bullshit Receptivity. *SSRN Electronic Journal.* https://doi.org/10.2139/ssrn.3023545

Phys.org. (2018). You're the product: Facebook's business model explained. Retrieved June 13, 2019, from https://phys.org/news/2018-03-youre-product-facebook-business.html

Pinker, S. (2018). *Enlightenment Now: The Case for Reason, Science, Humanism, and Progress.* Viking.

Prince, C. (2018). Do consumers want to control their personal data? Empirical evidence. *International Journal of Human Computer Studies*, *110*(March 2016), 21–32. https://doi.org/10.1016/j.ijhcs.2017.10.003

RAND Corporation. (2009). *Data Collection Methods. Semi-Structured Interviews and Focus Groups.* Santa Monica. Retrieved from www.rand.org

Renda, A. (2018). *The legal framework to address "fake news": possible policy actions at the EU level.* https://doi.org/10.2861/468200

Rocha, F. (2018). East StratCom Task Force. Retrieved May 14, 2019, from https://www.europeansources.info/record/east-stratcom-task-force/

Rosling, H., Rosling, O., & Ronnlund, A. R. (2018). *Factfulness : ten reasons we're wrong about the world - and why things are better than you think.*

Schmidt, N., & Dupont-Nivet, D. (2019). Facebook and Google pressured EU experts to soften fake news regulations, say insiders | openDemocracy. Retrieved May 28, 2019, from https://www.opendemocracy.net/en/facebook-and-google-pressured-eu-

experts-soften-fake-news-regulations-say-insiders/

Senge, P. M. (1990). *The fifth discipline : the art and practice of the learning organization*. New York: Doubleday/Currency. Retrieved from https://adams.marmot.org/Record/.b11407712

Shearer, E., & Gottfried, J. (2017). *News use across social media platforms*. *Pew Research Center*. Retrieved from https://www.journalism.org/2017/09/07/news-use-across-social-media-platforms-2017/

Silverman, C., & Singer-Vine, J. (2016). Most Americans Who See Fake News Believe It, New Survey Says. *Buzzfeed*, 1–14. Retrieved from https://www.buzzfeednews.com/article/craigsilverman/fake-news-survey

Sounding board Multi-stakeholder forum on Disinformation. (2018). *The Sounding Board's unanimous final opinion on the so-called code of practice*. Retrieved from https://www.beuc.eu/documents/files/3OpinionoftheSoundingboard.pdf

Stopfake.org. (n.d.). Fake: Ukraine's Security Service Orders Destruction of MH17 Crash Evidence. Retrieved May 24, 2019, from https://www.stopfake.org/en/fake-ukraine-s-security-service-orders-destruction-of-mh17-crash-evidence/

Syed, N. (2017). Real Talk about Fake News: Towards a Better Theory for Platform Governance. *Yale Law Journal Forum*, *127*, 337–357.

Tambini, D. (2017). Fake News: Public Policy Responses. *LSE Media Policy Project*, 20. Retrieved from http://eprints.lse.ac.uk/73015/1/LSE MPP Policy Brief 20 - Fake news_final.pdf

Tambini, D., & Goodman, E. (2017). *Media Policy Brief 20 Fake News: Public Policy Responses*. London. Retrieved from http://eprints.lse.ac.uk/73015/1/LSE MPP Policy Brief 20 - Fake news_final.pdf

Tandoc, E. C., Lim, Z. W., & Ling, R. (2017). Defining "Fake News." *Digital Journalism*, *6*(2), 137–153. https://doi.org/10.1080/21670811.2017.1360143

Til, G. Van. (2019). Zelfregulering door - online platforms : een waar wonder - middel tegen online. *MediaForum*, *1*(december 2018), 2–13.

TU Delft. (2019). *Engineering and Policy Analysis*. Retrieved from https://d1rkab7tlqy5f1.cloudfront.net/TUDelft/Onderwijs/Opleidingen/Master/Brochures/TBM_EngineeringPolicyAnalysis-MSc.pdf

UK Department for Digital Culture Media and Sport Committee. (2019). *Disinformation and "fake news": Final Report*. Retrieved from https://publications.parliament.uk/pa/cm201719/cmselect/cmcumeds/1791/1791.pdf

van der Noorda, R., & van de Ven, C. (2019). Nepnieuws uit Sint-Petersburg. Retrieved May 24, 2019, from https://www.groene.nl/artikel/nepnieuws-uit-sint-petersburg

Vos, T. P. (2015). Revisiting Gatekeeping Theory During a Time of Transition. *Gatekeeping in Transition*, 3–24.

Wadhwa, V. (2014, April 15). Laws and Ethics Can't Keep Pace with Technology. *MIT*

*Technology Review*. Retrieved from
https://www.technologyreview.com/s/526401/laws-and-ethics-cant-keep-pace-with-technology/

Wardle, C., & Derakhshan, H. (2017). *Information Disorder: Toward an interdisciplinary framework for research and policy making. Report to the Council of Europe*. Retrieved from www.coe.int

Williams, B., & Hummelbrunner, R. (2010). *Systems Concepts in Action: A Practitioner's Toolkit*. Stanford, CA: Stanford University Press.

Wolstenholme, E. F. (1992). The definition and application of a stepwise approach to model conceptualisation and analysis. *European Journal of Operational Research*, *59*(1), 123–136. https://doi.org/10.1016/0377-2217(92)90010-7

Zuckerberg, M. (2017). Bringing the World Closer Together. Retrieved August 7, 2019, from https://www.facebook.com/notes/mark-zuckerberg/bringing-the-world-closer-together/10154944663901634/

Zuiderveen Borgesius, F. (2015). Behavioural Sciences and the Regulation of Privacy on the Internet. In *Nudging in Europe: What can EU Law learn from Behavioural Sciences?* (pp. 179–208). Oxford: Hart.

# Appendix I

This appendix contains the full stakeholder analysis. The process and precise steps that have to be undertaken are described in section 4.1. Results based on this stakeholder analysis and conclusions can be found in section 4.2 and section 4.3. Here, step-wise the approach described by Hermans & Cunningham (2018) will be followed. The way in which every step is carried out will be  described. Figure I.1 shows this process.
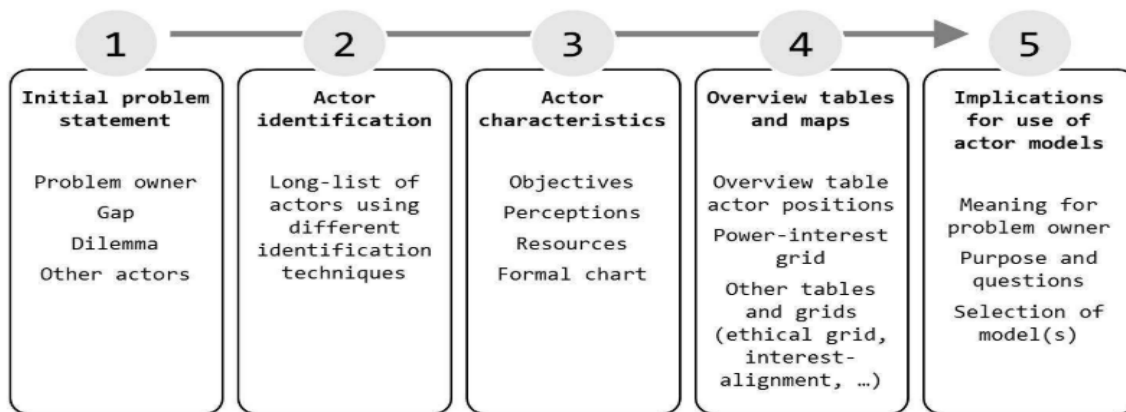


*Figure I.0.1 Stakeholder analysis process*

**Step 1: Initial problem statement**

The method of stakeholder analysis needs a initial problem statement and problem owner. Since the research question focuses on the European Commission and related Commissioners these are the problem owners in this particular situation.

> *Problem owner*: European Commission/European Commissioner
> *Gap*: Reduce the production and spread of fake news within the European Union (as soon as possible).
> *Dilemma*: Should specific regulation be in place or should the situation be kept as it is. Regulating could be against 'freedom of speech'. Is the problem actually as big as is being perceived or is it not necessary to try and influence it. Should the government sit down with/regulate social networks and advertising agencies or is this not necessary. Should the Commissioner leave the solution to the market or is a central response necessary?
> *Other actors:* Platforms, fake news producers, traditional news media

With respect to the first step, the identification of other actors is more a short identification based on actors that come to mind and seem to be important. The next step will focus on identifying more actors.

**Step 2: Actor identification**

Here a long-list of actors that are relevant with respect to disinformation problem will be presented. The list of actors is obtained by brainstorming, taking a specific perspective, such as the instrumental perspective, and asking relevant questions. Examples of such

questions are: Which actors provide key resources? Which actors have to do with the causes of the problem? Which actors could potentially contribute to a solution?

The list of actors is depicted below. The actors are placed into different categories such as governmental actors or educational actors.

*European governmental actors:*
- European Commissioner  for the Digital Economy and Society Mariya Gabriel
- High Representative/Vice-President Federica Mogherini
- Vice-President for the Digital Single Market Andrus Ansip
- European Commissioner for Justice, Consumers and Gender Equality Vera Jourová
- European Commissioner for the Security Union Julian King
- European Commission
- European Parliament
- European Court of Human Rights (ECHR)
- East StratCom Task Force
- European Court of Human Rights
- European External Action Service

*National governmental actors:*
- Ministries with responsibility for fighting fake news
- Member states
- Politicians running for (re-)election
- Politicians using political micro-targeting
- Internet Research Agency (IRA)/Federal News Agency (FAN)

*Business actors:*
- Social media networks/platforms (Twitter, Facebook, Instagram, YouTube, Google)
- Data-brokers (Acxiom, Oracle, Experian)
- Traditional news media (BBC, NRC, ARD, ZDF)
- Ad-tech companies (Criteo, Quantcast, Tapad)
- Fake news producers (Macedonian teens, foreign state actors)
- Website designers
- Ad-networks (Google AdWords)
- Algorithm designers
- Political microtargeting companies (Cambridge Analytica, Aristotle, Acxiom, Nielsen)
- Independent journalistic platforms (De Correspondent)
- Website hosting companies
- Influencers/influential politicians

*Knowledge and research actors:*
- Research institutes (Reuters)
- Educational actors (DROG)
- Fact-checkers (Factcheckers.EU,fullfact.org)
- Fake news researchers (UVA, TU Delft)

*Interest groups and civil society actors:*
- European Broadcasting Union (EBU)

The list also contains multiple 'categories of actors' rather than actual actors themselves. These includes *social media networks/platforms* or *ad-tech companies*. In such a situation the question emerges to what extent these categories need to be decomposed into smaller units. This is something of choice by the researcher, In this particular situation the choice is made to not further decompose these categories, because the actors that actually fall into these categories more or less have the same goals and resources. Since the list of actors is already quite extensive, splitting up these composite actors will not contribute to a better overview. Instead, examples of actors that fall into these categories are mentioned. An example is the mentioning of Acxiom, Oracle and Experian at the data-brokers category.

## Step 3: Mapping actor characteristics and network context

In this step, we take a first look at the key characteristics that help understand the behavior of strategic actors: their values, perceptions, resources and the network context within which they operate (Hermans & Cunningham, 2018). First, a table that sums up the values is introduced, then a table summing up the perceptions is presented, after a table presenting resources is shown. The choice has been made to group the different European Commissioners and Vice-Presidents under a category of actors, namely *European Commissioners.* The strategic objectives are al referenced. Based on these strategic objectives problem specific objectives have been formulated by the researcher based on the same source. Then these problem specific objectives are judged as either of high, medium or low interest.

*Table I.1: Actor values*

| Actors | Strategic objectives | Problem specific objectives | Interest in problem (high-medium-low) |
|---|---|---|---|
| **Ad-networks** | To maximize profit and to provide solutions for a better digital marketing world (AdSupply, n.d.). | Helping clients grow and reach business goals through leveraging of personal data and linking the right adds to the right publishers. | Medium |
| **Advertising companies (Acxiom, Cambridge Analytica etc.)** | Acxiom is dedicated to helping marketers achieve superior business results by creating experiences that deepen customer connections (Acxiom, n.d.). | Helping companies to advertise as efficient as possible, helping them target the right people, with the right message on the right moment. | Medium |
| **Data-brokers (Experian)** | We work to turn that data into something meaningful. We gather, analyse, combine and process it to help people and organizations achieve their goals – whether that means planning for a secure future or getting to know your customers better (Experian, n.d.). | Legally brokering and analyzing data, helping clients as good as possible with the best data available. | Medium |
| **European Court of Human Rights (ECHR)** | Ruling on individual or State applications alleging violations of the civil and political rights set out in the European Convention on Human Rights. | Interpreting the articles of the European Convention on | Medium |

| | | Human Rights related to disinformation. | |
|---|---|---|---|
| **East StratCom Task Force** | Address Russia's ongoing disinformation campaigns (European External Action Service, 2019b). | Develop communication products and campaigns focused on better explaining EU policies in the Eastern Partnership countries; support EU efforts aimed at strengthening the media environment in the Eastern Partnership region; report on and analyse disinformation trends, explain and exposes disinformation narratives, and raise awareness of disinformation coming from Russian State, Russian sources and spread in the Eastern neighborhood media space. | High |
| **Educational actors (DROG)** | Minimize polarization and deception by fake news (DROG, n.d.). | Educate as many people as possible about the dangers of fake news and immunize them. | High |
| **EU Hybrid Fusion Cell** | Receive, analyse and share classified and open source information from different stakeholders within the EEAS, the Commission and Member States specifically relating to indicators and warnings concerning hybrid threats. Analyse external aspects of hybrid threats, affecting the EU and its neighborhood, in order to rapidly analyse relevant incidents and inform the EU's strategic decision-making processes, including by providing inputs to the security risk assessments carried out at EU level. The Cell would enhance awareness and provide inputs to security risk assessment processes which support policy-making at national and EU levels (European Commission, 2016a). | Reduce the production and spread of fake news | High |
| **European Broadcasting Union (EBU)** | We support and strengthen public service media, provide first-class media services and offer our Members a center for learning and sharing (European Broadcasting Union, n.d.). | Strengthen position of public service media, heighten the quality of news-coverage, minimize publication of fake news. | Medium |
| **European Commissioners** | Make Europe trusted and secure online, create digital single market. | Reduce the production and spread of fake news | High |
| **European External Action Service** | Its role is to make sure the voice of the European Union and its people are heard in the world (European External Action Service, n.d.) | Develop communication products and | High |

| | | campaigns focused on better explaining EU policies; | |
|---|---|---|---|
| **Fact-checkers** | To grow a deeper insight and interest in democratic processes, both on national and European level. EU Factcheck wishes to motivate fact-based debate in the EU and to stimulate media and information literacy (EUfactcheck.eu, n.d.). | Debunking/checking news stories and correcting mistakes. | Medium |
| **Fake news producers (influence)** | Influencing foreign elections; causing polarization. | Producing fake news to influence voting behavior. | High |
| **Fake news producers (money)** | Influencing foreign elections; sustaining livelihood. | Earning money | High |
| **Independent journalistic platforms (De Correspondent)** | Provide readers with articles about the structural developments in daily society (De Correspondent, n.d.). | Heighten the quality of coverage about the state of the world, minimize the production of 'fake news' on own platforms. | Medium |
| **Internet Research Agency (IRA)/ Federal News Agency (FAN)** | To influence foreign voters; to influence foreign elections in a preferred way (van der Noorda & van de Ven, 2019). | Create polarization; influence voting behavior; exploit existing gaps in society. | High |
| **National governments** | Contribute to a livable and prosperous country. | Minimize the production and spread of fake news/disinformation. | High |
| **Politicians using political-microtargeting** | Contributing to the governing of their subject of interest; being part of elected government. | Getting (re-) elected | High |
| **Social media /platforms** | Making profit for shareholders; work to bring the world closer together (Zuckerberg, 2017). | Increasing advertising income, increasing userbase. | Medium |
| **Traditional news media** | Inform the public about the state of the world; provide objective coverage of news, sports and (inter)national events on all available media for all inhabitants of EU (or own country) (NOS, n.d.) | Inform public as veracious as possible, preserve/increase reader base. Preserve important societal role. | Medium |
| **Web hosting providers** | Provide trouble-free, customer-focused, reliable, and affordable web hosting services (Host Department, n.d.). | Helping clients host there website in the best way possible. | Low |

Table I.1 showed different actors, their strategic objectives and their problem specific objectives. Based on this information the researcher indicated the interest of the actor into the problem at hand. The last column indicates this by mentioning low, medium or high. Table I.2 shows the perceptions of actors related to the problem. The table sums up the gap that this particular actor experiences, the causes that are at the root of this gap and favored solutions from the perspective of the actors. Lastly, the alignment with the problem owner is indicated. This alignment tells if the actor is either supportive, neutral or opposing. This is important information for the problem owner, since it gives an indication of what could possibly be expected by different actors.

*Table I.2: Perceptions*

| Actors | Existing or expected situation and gap | Causes | Favored solutions | Alignment with problem owner? (support, neutral, opposition) |
|---|---|---|---|---|
| **Ad-networks** | Pressure on business model and profitability | Possible regulation that restricts data-processing, brokering, and personalized advertising. | Regulations/solutions that target individuals, solutions that do not influence online advertising system. | Opposition |
| **Advertising companies (Acxiom)** | Pressure on business model and profitability. | Possible regulation that restricts data-processing, brokering, and personalized advertising. | Regulations/solutions that target individuals, solutions that do not influence online advertising system. | Opposition |
| **Advertising free journalistic platforms (De Correspondent)** | | | | Support |
| **Data-brokers (Experian)** | Pressure on business model and profitability. | Possible regulation that restricts data-processing, brokering, and personalized advertising. | Regulations/solutions that target individuals, solutions that do not influence online advertising system. | Opposition |
| **European Court of Human Rights (ECHR)** | Illegitimate actions or solutions in relation to the European Convention on Human Rights. | Regulations in violation of Article 10 (or other articles). | Implementation of legitimate regulation instruments. | Neutral |
| **East StratCom Task Force** | Minimize the production and spread of fake news within the Eastern neighborhood, | An increase in the amount of disinformation campaigns | explain and promote the European Union's policies in the Eastern Neighborhood. It also identifies and exposes disinformation. | Support |
| **Educational actors (DROG)** | Increase of the presence of fake news in public landscape and the influence on individuals. | An increase in the amount of fake news that gets produced and spreads. | Regulation that influences ability to produce and spread fake news, increased funding and support for non-profit organizations trying to increase societal resilience against fake news, | Support |
| **European Broadcasting Union (EBU)** | Decrease in amount of readers and decrease of importance in public landscape of traditional news media/members. | Rise of social media news usage and news consumption via social media. | Regulation of social media platforms, making fake news production punishable | Support |
| **European Commissioners** | Minimize the production and spread of fake news within the European Union. | An increase in the amount of fake news that gets produced and spreads. | (Self)-Regulation of platforms that enable spread of fake news, provide support to independent actors informing the public about dangers of fake news or independent fact-checkers, | Support (problem-owner) |

| | | | strengthen population's media literacy; set code of conduct. | |
|---|---|---|---|---|
| **Fact-checkers** | Minimize the production and spread of fake news, minimize the necessity to debunk and fact-check. | An increase in the amount of fake news that gets produced and spreads, increase in the societal impact of fake news. | Regulation that influences ability to produce and spread fake news, increased funding and support for fact-checking organizations. | Support |
| **Fake news producers (influence)** | Higher difficulty in influencing (foreign) political landscape. | Regulation by governments, technical measures by platforms and ad platforms. | Solution that do not influence the ability to target influenceable voters by fake news. | Opposition |
| **Fake news producers (money)** | Pressure on income source, higher difficulty to earn money. | Regulation by governments, technical measures by platforms and ad platforms. | Solutions that do not influence the ability to make money on the production (and spread) of fake news. | Opposition |
| **National governments** | Minimize the production and spread of fake news within the European Union. | An increase in the amount of fake news that gets produced and spreads | (self)-Regulation of platforms that enable spread of fake news, provide support to independent actors informing the public about dangers of fake news or independent fact-checkers, strengthen population's media literacy; set code of conduct. | Support |
| **Politicians using political-microtargeting** | Decline in the ability to reach voters via political microtargeting. | Regulation that targets/minimizes political microtargeting. | Regulation that does not target political microtargeting possibilities. | Neutral |
| **Social media/platforms** | Increased pressure on business model and profitability. | Possible regulation that restricts data-processing, brokering and personalized advertising. | Solutions that place responsibility with platforms, solution that are not legally enforceable, technical solutions that require technical knowhow. | Opposition/neutral |
| **Traditional news media** | Decrease in amount of readers and decrease of importance in public landscape. | Rise of social media news usage and news consumption via social media. | Regulation of social media platforms, making fake news production punishable; solutions that make traditional news media less dependent on generating enough income. | Support |
| **Web hosting providers** | Pressure to business model. | Increased due diligence cost due to regulation. | Solutions that do not put an extra effort on hosting providers. | Neutral |

Table I.2 showed the perceptions of involved actors. Table I.3 presents the actors resources. This is important, because the problem owner not only depends on actors with the resources to support problem solving, but he also depends on actors with resources to hinder or to prevent the successful implementation of a solution. These resources are assessed based on their replaceability and the dependency the problem owner has on these resources to contribute to a solution to the problem of the problem-owner. If these resources not replaceable and the problem owner is highly dependent on the particular resources, the actors that has these resources is indicated as a critical actor in the last column.

*Table I.3 Assessment of criticality based on resources*

| Actors | Important resources | Replaceability | Dependency? | Critical actor Yes/No |
|---|---|---|---|---|
| **Ad-networks** | Advertising infrastructure, platforms to match supply and demand of advertisements, knowledge about the advertising process | Low | High | Yes |
| **Advertising companies (Acxiom, Cambridge Analytica etc.)** | Technical knowledge about micro-targeting process, technical knowledge about the advertising process | Low | High | Yes |
| **Advertising free journalistic platforms (De Correspondent)** | knowledge about journalistic best practices and investigative journalism | Low | Low | No |
| **Data-brokers (Experian)** | Power based on their place in advertising system, technical knowhow about data-collection | Low | High | Yes |
| **ECHR** | Knowledge about interpretation of law; power to make legal judgments. | Low | High | Yes |
| **East StratCom Task Force** | Specialized and dedicated staff, EU budget, | Low | High | Yes |
| **Educational actors (DROG)** | Knowledge about educational methods to teach about fake news | High | Medium | No |
| **European Broadcasting Union (EBU)** | Lobbying power, mobilization power | High | Low | No |
| **European Commissioners** | Regulatory power about what platforms, data brokers etc. are able to do with their data, regulatory power related to privacy. | Low | High | Yes |
| **Fact-checkers** | Knowledge about truthfulness of journalism, knowledge about methods to research news articles on truthfulness | Low | Medium | Yes |
| **Fake news producers (influence)** | Knowledge about fake news production, technical knowhow | Low | High | Yes |
| **Fake news producers (money)** | Knowledge about fake news production, technical knowhow | Low | High | Yes |
| **National governments** | National regulatory power | Low | High | Yes |

| Politicians using political-microtargeting | Substantive knowledge about political process, place in network. | High | High | ? |
|---|---|---|---|---|
| **Social media/platforms** | Platforms (assets), technical knowhow, knowledge about data processing, power of userbase/place in society | Low | High | Yes |
| **Traditional news media** | Respected place in society, knowledge about journalistic best practices and investigative journalism | Low | Medium | Yes |
| **Web hosting providers** | Knowledge about web hosting best practices | Low | Low | No |

## Step 4: Summarize findings in tables and diagrams

The next step in this stepwise stakeholder analysis is to summarize the findings an overview table. This overview helps to assess implications and allows for the identification of patterns. Table I.4 shows that the problem owner has different critical supportive actors. However, these are mainly highly logical actors, such as national governments of member states and governing bodies that are actually instated by the Commission with the specific goal of tackling challenges related to disinformation or related subjects. The only 'external' critical actors are fact-checkers. Critical opposing actors are social media platforms and advertising companies. This overview exposes the main important mechanisms behind this problem; that the presence and spread of disinformation is also something beneficial for these opposing actors. Their business model is actually build and the notion of the value of data collection and using this to personalize timelines and advertisements.

*Table I.4: Overview table*

| | Dedicated actors (high interest) | | Non-dedicated actors (low interest) | |
|---|---|---|---|---|
| | Critical actors (important resources) | Non- critical actors | Critical actors (important resources) | Non-critical actors |
| Supportive actors (objectives well aligned) | - European Commission (problem owner)<br>- European Commissioners (problem owner)<br>- National governments/Member States<br>- Fact-checkers<br>- East StratCom Task Force<br>- European External Action Service<br>- EU Hybrid Fusion Cell<br>- ECHR | - Traditional news media<br>- European Broadcasting Union (EBU)<br>- Educational actors | | Advertising free journalistic platforms |

| Opposing actors (conflicting objectives) | - Social media/ platforms <br> - Fake news producers <br> - Advertising companies <br> - Internet Research Agency (IRA)/Federal News Agency (FAN) | Politicians using political microtargeting | - Data-brokers <br> - Ad networks <br> - Web-hosting companies | |

**Step 5: Meaning for problem owner**

Step 5 consists of identifying the meaning for the problem owner. Table I.4 above helps identifying this meaning. This table is also presented in the main text in chapter 4. There, the last step is also carried out, thus the meaning for the problem owner is summarized by formulating conclusions in section 4.4.

# Appendix II

This appendix contains the results of the interviews. The statements are categorized based on the underlying theme. These themes have been identified by the process that is described in section 6.3. These statements all have brackets behind them that contain one or more letters from A to E. These correspond to the letters that were given to the different interviewees in section 6.2. These letters behind statements indicate that the interviewees that are mentioned agree on the statement, or have all mentioned this statement themselves.

**Role of fact-checkers, actors and goals**

This section focusses on the results related to the role of different actors. These insights are also based on what participants have said about the motives of other actors.

a. The role of investigative journalists is not only to investigate and show reality as close as possible but also to hold accountable parties that cause the problem or have the ability to act on the problem. [B]
b. Fact-checkers can also have commercial motives. Articles that show that other articles are not right are generating traffic to a fact-checking website. [A]
c. The role of a fact-checker is to provide information about the untruthfulness of information. It is to make sure that 'the right info' is there. [A,C]
d. Russian actors such as the Internet Research Agency are not necessarily interested in pushing a specific narrative, but a narrative that helps to destabilize and create commotion. Any commotion whatsoever is beneficial for Russia. [A]
e. Producers of disinformation that do this for economic gain do not want to push a specific narrative, they are simply publishing what earns them the most money. Markets that are bigger, are commercially more attractive. An example of such a big market is the market for right-wing news in the United States. Since there was a lack of coverage by mainstream media, this was an opportunity for disinformation producers to target this market. [A]

**Business model platforms**

This section focusses on the results related to the business models of platforms on which disinformation circulates.

f. A change in the algorithms behind advertising revenue caused higher earnings for political advertisements. This heightened the amount of money to be made. [A]
g. The business model of platforms, and in particular Facebook, is built around selling access to this data to advertisers and other third parties. This data can be used to construct personalized political messages (disinformation) or personalized advertisements. This personalization, however, is also the reason people click and engage with content. However, in general this business model is one of the reasons we are experiencing the issue of disinformation. [A,B,C,D]
h. A part of the business model of platforms (such as Facebook) is that they are the new gatekeepers of information. Although platforms for a long time said that they were not responsible for the content on their platforms, do actually do make

'publishing choices'. Because the algorithms that decide what a person will see has to be programmed in a certain way and based on a choice. [B,D]

**Business model of journalism and the role of journalism**

This section focusses on the results related to the business model/revenue model of journalism.

i. The rise of social media and the role of platforms as the 'new gatekeepers of information' has had a big influence on the business model of journalism and the way it currently operates. [B,C,D,E]
j. New business models for journalism are needed if it wants to stay relevant and a strong societal force which fulfills its function as an antidote to power. [B,C,D]
k. Clearinghouses (also mentioned at section 5.4.9) are a way to strengthen the position of journalism. [B]
l. A pluralistic media landscape with a wide variety of independent journalistic outlets is a condition that makes it difficult for disinformation to be successful. [B,C]

**Defining disinformation**

This section focusses on the results related to the definition of disinformation.

m. The definition of disinformation is still highly disputable and needs continued research and consideration. [D]
n. The way disinformation is defined as a concept influences how it is analyzed and which policies are used to tackle the problem. [D,E]

**Internal disinformation**

This section focusses on the results related to the concept of internal disinformation.

o. Within the European Union, there is a strong focus on external disinformation. This is disinformation that is produced by Russia or actors that want to earn money. However, there should be a stronger focus on internal disinformation. [B,C]
p. Internal disinformation is disinformation that comes from within the European Union. Examples of this kind of disinformation are campaigns and stories that circulated around the signing of the Pact of Marrakech. Right-wing activists and politicians such as Austrian Martin Sellner spread incorrect information about this pact to push their own worldview. [B]
q. Disinformation sometimes 'starts flying' due to the sharing of these messages by influential political actors or activists. These actors are sometimes unaware of the untruthfulness of these messages. They share these because they are a confirmation of their worldview (confirmation bias). [B,C]

**Fact-checking**

This section focusses on the results related to fact-checking.

r.  Most fact-checkers are investigative journalists but are not necessarily skilled in technical ways of fact-checking. [A]

s.  Fact-checking can be done technically by collecting advertising tags, IP addresses, and Google tags. This collection of information and the writing of correcting articles can be automized which fastens the fact-checking process. [A]

t.  The technical monitoring of fact-checks on platforms such as Facebook shows that engagement with articles that are corrected by fact-checkers that work together with Facebook substantially decreases. [A]

u.  Fact-checking can also be helpful by being transparent about the way in which fact-checks are carried out and the sources that are being used. By showing this stepwise approach "the public' can get educated about how fact-checking works and how they could do it themselves. From this perspective, fact-checking also has an educational purpose. [A,C]

## Effectiveness of EU policies and self-regulation of platforms

This section focusses on the results related to EU policies and the self-regulatory measures that have been carried out.

v.  EU policies are partially missing the goal because they are not necessarily targeted at the right people or in the right direction. [A,C]

w.  Coming up with effective policies is extremely difficult. When governments are directly determining what can and cannot be said, then this is censorship. This comes close to a totalitarian state, which is highly undesirable. [A,B,C,D]

x.  The self-regulatory actions (without any actual legal obligations) as described in the Action Plan against Disinformation and the signing of the Code of Practice are too soft measures. Insiders, that were involved in the process, are critical about the obligations. The process seems to be partially steered by platforms, who threatened to walk away if the European institutions seriously considered hard regulatory measures. [B]

y.  EU policies are not explicit and measurable enough. [B,D]

z.  A possible danger of current regulation and situation is a situation of privatized censorship. In which the European Commission uses a private actor to serve a public goal. Furthermore, by letting a private actor, such as Facebook, interpret and decide what can and cannot be on the platform there can also be too much censorship. Since the platforms want to keep the situation of self-regulation out of fear of fines or other reasons, they maybe disallow too much. Which goes against the Freedom of Expression. [D,E]

aa. Media literacy and critical thinking are an essential part of the solution for disinformation. By making sure that people understand what the business model of platforms is, what terms such as 'behavioral targeting' and 'profiling' mean and how news on their newsfeed gets selected they become more critical about what they see. [E]

## Psychological mechanisms

This section focusses on the results related to psychological mechanisms.

bb. Fact-checkers are aware of the psychological mechanisms that make it difficult to change how people think about certain statements. An example of one of these mechanisms is confirmation bias, which essentially means that people are more inclined to interpret and seek evidence and information that is consistent with existing beliefs or hypothesis (Nickerson, 1998). [A,C]

cc. Fact-checkers acknowledge that the best filter against disinformation 'is between the ears'. [A,C]

## Additional insights

This section focusses on the results about several single insights.

dd. The issue of disinformation is an issue about the public space. And public space is inherently something about which we should all have something to say. This is not just an issue that has to do with platforms, but also an issue about the individual and our citizens. [D]

ee. Independent clearing houses that invest in investigative and high quality journalism could be a way to strengthen the media landscape and ensure diversity within this media landscape. [B]

ff. The problem of disinformation is not a problem that is caused by one thing. It is a highly complex problem that is driven by multiple factors that are intertwined and act on different levels. [A, B,C,D,E]

gg. When people have more trust in the institutions around them, they are less inclined to believe things that are extreme and highly challenging to those institutions. [B]

hh. Several mechanisms determine whether disinformation that is present is problematic or not. If disinformation is present, but non-believed then that is essentially not a problem. Only when disinformation is believed it is dangerous. [A,B,C,D,E]

# Appendix III

This appendix lists the assumptions that the systems model that is developed in chapter 7 is partially based on. The assumptions relate to different relationships that are conceptualized within this model. Not all relationships visualized in this model are based on statements from the interviews but are assumptions (based on literature) or considered common sense. These assumptions are listed below.

- The relation between *platform profits* and *investment into data-gathering capabilities* is assumed. Since the stakeholder analysis and chapter 6 showed that the business model of Facebook is to monetize data that they collect about users, the assumption have been made that increased profits lead to an increased investment into data-gathering.

- The relationship between *demand for partisan news sources* and *demand for quality journalism* is assumed. The assumption has been made that a growth in the demand for partisan news sources (i.e., news sources that only cover specific viewpoints or are heavily biased to one side) leads to a decrease in the *demand for quality journalism.*

- The assumption has been made that *investment into fact-checking* only causes an increase in the *number of fact-checkers* and *quality of fact-checking tools.* This means that the investment is allocated only to new fact-checkers and new tools and not to different things.

- The assumption has been made that *investment into disinfo detection* only causes an increase in the *number of detection methods*, *detection staff* and *quality of detection tools*. This means that the investment is allocate only to new staff, methods or the quality of tools and not to other things.

- The assumption has been made that the outflows of *disinfo type II* and *debunked disinfo,* thus the *irrelevancy rates* are influenced by a forget time. This forget time symbolizes the average time it takes for a unit of disinformation or debunked disinformation to become irrelevant. Therefore, if the *forget time* increases, thus the average time a piece of disinformation becomes irrelevant increases, the irrelevancy rate decreases. The outflow of the stock becomes smaller and it takes more time for the same amount of disinformation or debunked disinformation to flow out of the stock.

- The delay between the stocks of *influential disinfo* and *trust in institutions* is assumed. The assumption has been made that the presence of disinformation not directly has an influence on the trust but that this effect is delayed. The presence of influential disinformation slowly erodes the trust that citizens have in their institutions. So whenever an individual encounters disinformation this individual does not directly have a lowered trust in institutions. However, over time their trust in institutions declines.

- The delay between the stocks of *influential disinfo* and *public attention for disinformation* is assumed. The assumption has been made that the presence of disinformation not directly has an influence on public attention but that this effect is delayed. When more disinformation is present, after some delay, attention starts to grow.

# Appendix IV

investment into disinfo detection

number of detection methods

quality of detection tools

detection staff

detection rate

<platform demand for partisan news sources>

demand for partisan news sources

demand for quality journalism

amount of quality journalism

expected profits

market size of targeted market

diversity of media coverage

production budget

production cost

operational budget

troll usage

bot usage

repeated exposure

narrative strength

exposure diversity

media literacy level population

<amount of quality journalism>

tribalism rate

trust in institutions

populational critical thinking abilities

<personalized messages on newsfeed>

disinfo type I production rate

deletion rate uninfluental type I

uninfluental disinfo type I

disinfo type I pick-up rate

deletion rate influental type I

influental disinfo type I

forget time

irrelevancy rate

perceived threat of disinformation

visibility of disinformation

public attention for disinformation

investment into fact-checking

number of fact-checkers

quality of fact-checking tools

forget time debunked

disinformation debunking rate

debunked disinfo

irrelevancy rate debunked

disinfo type II production rate

deletion rate uninfluental type II

uninfluental disinfo type II

disinfo type II pick-up rate

deletion rate influental type II

influental disinfo type II

irrelevancy rate II

<forget time>

<detection rate>

usage by (political) advertisers

platform profits

investment into data-gathering capabilities

interactions on platform

attractiveness to (political) advertisers

collected personal datapoints

platform demand for partisan news sources

usable data for personalized targeting

personalized messages on newsfeed