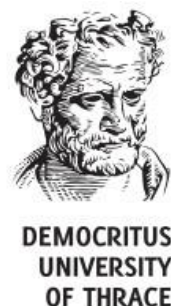


FAKE NEWS

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FAKE NEWS

In the era of online intentional misinformation;

a review of existing approaches

M.Sc. THESIS

of

Matina Rapti

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FAKE NEWS

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In the era of online intentional misinformation;

a review of existing approaches

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Abstract

Fake news is probably one of the most discussed issues of the past years. The term has acquired greater legitimacy after being named word of the year by Collins Dictionary, following what the dictionary called its “ubiquitous presence” over the year 2017. However, the fake news issue has not been yet deeply researched. Therefore, in this thesis, definitions by the literature about the term “fake news” are gathered and through them, specific characteristics and criteria are extracted in order to verify the exact elements of false news and intentional misinformation in general. This study aims to identify eventually as thoroughly as possible what fake news is and what is not. For that purpose, through qualitative research the total of features of the term is exhibited and analyzed concluding in the classification of characteristics most of the fake news incidents present. Following the proposed feature identification is examined through specific fake news case studies. Finally, after understanding deeper and verifying specific characteristics that appear on the nature of fake news detection and mitigation actions are proposed, demonstrating the need for technological development on the issue and educational evolution on digital skills of the public, accomplishing an inclusive review of a less studied term, such as the fake news. At last conclusions are presented leading to the main remark of the current thesis, namely the need for further quantitative and statistical research as much as deeper theoretical study, to better decipher the issue of fake news and thus resolve it.

Key Words and Phrases

Fake news; misinformation online; disinformation; post-truth; junk news; pseudo-news; false news; hoaxes; propaganda; conspiracy theories; clickbait; rumor; manufactured information; social media; fake websites; fake news detection; fake news case studies

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“We have moved into the post-truth post-fact era, where facts are fungible”, Dan Rather

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CHAPTER 1

INTRODUCTION

The first chapter introduces the phenomenon of fake news and the evolution of information through the history. Moreover, in this chapter the aims and objectives of the current study are presented as well as the research methodology followed. Finally, a summary of every section is presented at the end of the first chapter.

1.1 The evolution of information through the years

The human brain has been evolved to inspect and interpret its surroundings constructing meaningful narratives. Since the first-established human communities, information was shared among individuals in order to survive, persevere, and improve their quality of life. From very early in human history, those controlling knowledge, information, and the means to disseminate it became group leaders, with privileges that others in the group did not have (Burkhardt 2017). New information about events, things or persons became the “news” and later it was formalized to a type of text or discourse used or made public in news media or public information carriers such as TV, radio, and the newspaper (Van Dijk 2013). In the past, it was equally easy to spread false news, specifically untrue and non-cross-referenced information. However, taking into consideration the way in which information or news was passed on in the past, as well as the time needed to share a major event, it was for false or inaccurate information to intentionally "endure" among individuals. From its earliest stages, information science has sought to define information, beginning with Shannon and Weaver’s (1949) idea that information can be quantified as bits of a signal transmitted between one sender and one receiver. (Shannon and Weaver 1949) (Karlova and Fisher 2012)

Nowadays, the Internet provides new ways (i.e. social media) of information and news sharing in an even more increased speed. The new innovative means of technology coupled with the Internet and their accessibility to the average individual, resulted in the information nowadays to be common, easy and widespread. Information is transmitted rapidly by a user to another user, but also to a much larger number of people compared to the past decades and centuries. For its first few decades, this connected world was idealized as an unfettered civic forum: space where disparate views, ideas, and conversations could constructively converge. (Rainie and Anderson 2017).

The "information cascade" is created when misinformation continues to spread, this spread leads to the over-transmission of false news, and this over-transmission leads to "cognitive convenience" (Cognitive-ease) (Kahneman 1984). As a result of cognitive ease, Internet users tend to avoid data that require their minds to work more intensively. The phenomenon of spreading false news has not only created an addiction to lies, an immunity of online society to false, slanderous, misleading information, but also a complete deprecation of the concept of truth, the concept of the real incident, the concept of the "event". It is no longer relevant if news or information is true or not, whether it is based on a fact, or not, or whether or not an event actually happened. Most important is the information itself; false or true, is indifferent. (Koukiadis 2018)

1.2 Aims & Objectives

This thesis aims to provide a comprehensive approach towards fake news definition, characteristics and incidents through a series of steps assembled in a feature framework, that leads to deeper comprehension of the issue and therefore its upright limitation.

In this paper, the author discusses the classification of intentional misinformation in general as much as other comparable to fake news terms, such as satire, propaganda, conspiracy theories, clickbait, and hoaxes. According to that, attempts to assemble the motivation/ impacts of the dissemination of misinformation, its audience and thus propose the ways to detect and control it.

The general goal of the thesis is based upon objectives that are linked together. The exhibited research intends to respond to the following challenges:

1. The conception of an accurate and general definition/description of the fake news term,
2. The development of appropriate classification of the characteristics that fake news incidents present,
3. The examination of features upon fake news case studied, and,
4. The recommendation of effective detection and mitigation actions.

The thesis intends to work out these challenges separately, and combine the detached areas of interest in concise conclusions.

1.3 Research Methodology

THEORETICAL RESEARCH

According to Robson (2002), research strategies introduce established design approaches in which knowledge is assembled after the specification of the procedure and flexible design strategies. This kind of research is, on the one hand, known as quantitative, due to the numerical format of the data collected.

On the other hand, flexible design strategies are also known as qualitative. The qualitative research is one in which the investigator often acquires information and knowledge claims based primarily on the learning theory perspectives or support/participatory ones. The examiners study things in their natural settings aiming for comprehension (Denzin and Lincoln 1994).

The techniques utilized in qualitative research are based on the essence of the inquiry and are mostly explanatory since qualitative research requires planning, preparation and thorough investigation for the researcher to produce a comprehensive report of the subject in question, as well as categories or themes for analysis.

The current research is based on qualitative theoretical research and literature study. Specifically, the current research commenced with key-word inquiry and thorough investigation of the existing literature. Next followed the processing of the assembled information and its categorization in a produced classification system exhibited in chapter 3, congregating and defining the plethora of fake news characteristics and their particular features. Finally, the classification of the term's elements was validated through case study methodology, explained in the following section.

CASE STUDY METHODOLOGY

A case study is a real or hypothetical example reflecting a more general situation with the aim of analyzing thoroughly, in-depth, and up-close and exploring alternatives to emerging problems. Case studies can be produced by following a formal research method. A work that focuses its attention on a single example of a broader phenomenon is apt to be described as a “mere” case study. Case study research can mean single and multiple case studies, can include quantitative evidence, relies on multiple sources of evidence, and benefits from the prior development of theoretical propositions.(Gerring 2004)

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In order to create a proper case study, we should first ask the question “What is your instance or phenomenon?”. The next step is to choose the case that is appropriate to be studied and researched. In order for this to be accomplished we should point out that an average, typical case is often not the richest in information. In other words, it should be limited, avoiding excessive details, namely in clarifying lines of history and causations it is more useful to select subjects that offer an interesting, unusual or particularly revealing set of circumstances. Furthermore, it is worth mentioning that case studies must concern a small group of people or one particular individual, organization, event, or action, existing in a specific time and place since it is mainly a qualitative study not a statistical one. (Maxura n.d.)

Apart from the case itself it is very important to distinguish the type of case study applied. In the literature there have been various separations of the different kinds of case study methods. Although the most usual one is separating the case study methods into three large categories (Gerring 2004; Maxura n.d.): i) Explanatory which describes an unusual and exceptional situation to help other people understand; ii) Investigative which concerns preliminary plans that help guide the future. These projects are larger-scale and aim to identify research questions and possible research approaches; iii) For critical cases which focus on a single case with no general direction. Instances of such cases involve a descriptive study of a patient with a rare condition or a very specific case study to determine if broadly applicable.

Moreover, a case study should have a particular structure so that the outcomes be ascertained. The common components of a case study include an abstract, introduction, case description, discussion, and conclusion. Although the exact structure and form of these sections depend on the requirements of each published journal, and many common elements should be considered. The abstract will normally be structured and include a brief summary of each of the subsequent components of the composition. The abstract should also explain the problem or aspect that forms the central theme for the case and should explicitly state the educational message that is being carried. Next, the introduction of a case study establishes the scene, outlining how common the situation or condition is and what makes this particular case interesting. The introduction should, as well, connect the characteristics of this example to the known literature so that the reader can immediately refer to other related work. The introduction should establish the contribution this case study is accomplishing among the literature, in other words, it justifies the statement. Finally, the discussion should combine relevant literature and comments on the compatibility of this case study with the literature (Aitken and Marshall 2007). Most importantly

the discussion includes the problems, the actors, the decision points they faced, the choices they made, the paths are taken and shunned, and how their choices generated events and outcomes there is a distinction to be made between the subject and the object of the case study. The subject is the "practical, historical unity" through which the theoretical focus of the study is being observed. The object is the analytical frame (Ragin and Becker 1992). Thus, the subject will be selected because it is an interesting or unusual or revealing example through which the features of the object can be refracted. The object is whether a set at the outset or is emergent, it will be this analytical focus that crystallizes, expands, or evolves as the study proceeds: It is the way that this "object" develops that is at the heart of the study (Thomas 2011). Thus, the case study method is correctly understood as a particular way of defining cases, not a way of analyzing cases or a way of modeling causal relations (Gerring 2004). More sententiously, a typically structured case study includes: i) Introduction, where the key problems and issues in the case study are identified and the case's outcome is summarized; ii) Background which includes the relevant facts, the most important issues, and the researched problems; iii) Proposed solution where particular answers are provided and the roots of those solutions are demonstrated; iv) in the end recommendations are highlighted, namely specific strategies for accomplishing the proposed solution are researched. (Ashford University 2013)

A research design based on case studies can be a means for testing theories. Often the weaknesses of such research designs have taken precedence over considerations about its intensities. Although, case studies can certainly be a valuable method for examining theories. Therefore, the current study determines to test theory working with case studies, including the associated research intention, analysis, and generalizability. (Løkke and Sørensen 2014)

The above-analyzed methodology will be applied to the current theoretical research concerning the dissemination of misinformation online. Specifically, the case study methodology can be used to fake news incidents because it refers to a particular phenomenon, and every example is remarkable. It will follow the precedent qualitative, theoretical research, which is not nor can be statistical or quantitative, though it is merely drawn by the existing literature. Furthermore, the kind of case study that will be applied is the explanatory-type, focusing on a single example of a broader phenomenon to help other people understand. Particularly this type is the most compatible in the current study because its characteristics are fulfilled by the theoretical findings. Three conditions must be met to be considered suitable for an explanatory case study method (Centre for Research on Inner City Health based in Toronto 2015), namely the research must seek to explain why and

how a phenomenon occurs, to examine this phenomenon, and the researchers must have no control over the latter. Its purpose is to increase the robustness of the findings by explaining the case and identifying a set of causal links extracted by multiple cases (Yin 2014). Concluding, the following examples will follow the typical structure of the explanatory case study (ECS).

RESEARCH METHODOLOGY OUTLINE

- ❖ Literature examination through key-word research.
- ❖ Thorough review of the assembled information.
- ❖ Processing of the collected data.
- ❖ Production of a classification system categorizing the elements.
- ❖ Validation through case study methodology.
- ❖ Extraction of conclusions.

1.4. Thesis Layout

A brief description of the chapters of this thesis is provided below.

Chapter 1 discusses the background of this research, introducing to the phenomenon of online disinformation, briefly explaining the criticality of the fake news problem, along with the aim and objectives of the proposed framework. It also presents the adopted methodology of research.

Chapter 2 includes popular examples of fake news even before the digital era, survey of literature and related work in the areas of fake news definition, categorization and detection. This provides an overview of the current state of fake news phenomenon, and helps in pointing out the necessity of a more systematic approach.

Chapter 3 gives an extensive definition of the fake news term after the assemble of several definitions of the literature, along with the encountered features of fake news incidents and their particular elements. It also briefly presents the interrelation of features, needed for a fake news incident detection.

Chapter 4 presents one of the most well-known fake news incidents of the past years, examined as a case study under the light of the classified previously fake news features and particular elements. The “pizzagate” incident is summarized in this chapter, stripped off its components, concluding in recommended actions that could have prevented it.

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Chapter 5, similarly to the previous and following chapter, presents another famous fake news incident, titled as “Pope Francis endorsing Donald Trump”. The incident, which constitutes this case study, is summarized in this chapter, stripped off its components, concluding in recommended actions that could have prevented it.

Chapter 6 same as previously, another misinformation case is exhibited, a case originated before the evolution of Internet and social media, and reborn and expanded through social media platforms in the recent years. This case study is formed by the known as “antivaccination movement”, which is summarized in this chapter, stripped off its components, concluding in recommended actions that could have prevented it.

Chapter 7 includes the proposed mitigation actions in three pathways, technology, social media and digital literacy, along with the legal regulations that are currently available against online misinformation. Finally, the main remarks, case studies conclusions and thesis contribution as well as further possible research are presented.

CHAPTER 2

LITERATURE REVIEW

The second chapter, firstly, includes a sum of popular fake news examples that took place during the last decades. Following the related work by the literature is examined, presenting that there are still gaps and less researched fields of the fake news phenomenon, as well as challenges that should be dealt with through analysis and theoretical studies.

2.1 Historical examples of fake news

To properly explain what fake news is, the complexity of the situation nowadays, the people or groups and impulses behind its formation and online dissemination, even the impact it might have on the public individually and socially, it is important to glance at a few historical examples of fake news (Mavridis and Mehrabov 2018). One of the most well-known instances of fake news stories goes back to the year 1835 titled as the "Great Moon Hoax", which was published by the New York Sun in a group of reports about the alleged exploration of life on the moon (Thornton 2000). That discovery was incorrectly connected by the newspaper to Sir John Herschel, a famous astronomer of the time. Due to this phenomenal news story, the newspaper's distribution escalated dramatically. Although, while after the publishing of the story, it was revealed that it was nothing more but a hoax. Another famous fake news "by accident" story occurred in 1938 when Orson Welles created a popular radio adaptation of the classic "The War of the Worlds", which had an infamous impact on the listeners. Specifically, "The War of the Worlds", an episode of a radio drama series, was broadcasted on the Columbia radio network. The episode was narrated by Orson Welles himself and caused actual and mass panic to the audience. According to Schwartz (Schwartz 2015) in his book *Broadcast Hysteria*, the drama episode was about an alien attack that was mistaken by many listeners as real. Several listeners went out on the streets in dread considering the story as true. Moreover, a series of news broadcasts reporting a destructive alien invasion across the United States and the world followed after that. A different, more recent case of misinformation case was known as "Flemish Secession Hoax", (Allcott and Gentzkow 2017). In 2006 a Belgian public television station announced that the Flemish parliament had proclaimed independence from Belgium; the announcement was watched by a large number of viewers and was misunderstood as true. At this point, it should be mentioned, that the report was formulated as a hoax and, to make it more believable, there were discussions with leading Belgian

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politicians, some of whom were aware of the hoax. Nevertheless, the story was mistaken as legitimate and provoked continued public discussion.

Taking into account all the above, it appears that the roots of misinformation propagation time back to many years before the Internet. Burkhardt (Burkhardt 2017) describes in the "History of Fake news" that lies and fabricated stories have probably been around as long as humans have lived in groups where power matters. As it is explained in the above-mentioned research, before the invention of the printing press, information was regularly carried from individual to individual by word of mouth and its strength to influence what people know was an advantage that has been prized for many centuries.

Still, there is a notable distinction between those historical examples of fake news and the misinformation nowadays with the Web as the main medium of fake news dissemination. Social media networking and the plethora of Websites and online newspapers enable the accelerating distribution of such stories among the users and thus their influence occurs on a much larger scale. Anyone can be a publisher or distributor of news stories and their shared information could easily reach as many readers as a reputable online newspaper such as the New York Times (Allcott and Gentzkow 2017). Furthermore, a notorious example of a recent fake news story that was spread by users- who were at the same time publishers of the story was the "Veles case". The users that published and distributed the latter story managed to spread it through the Web among a large number of readers and gain much money from it. This incident (Subramanian 2017) occurred in a small Balkan town, where more than 100 Websites were organized by several teenagers, who created and shared fake news stories about the 2016 US election. Those sites produced an enormous amount of deceptive information on a regular basis about the election and the candidates. Through advertising and the increased traffic of the sites, the publishers managed to gain money. These websites were pumping out emotional, exaggerated, and fake stories about the US elections to earn readers and thus money from advertising.

One more recent example of a disinformation situation was the "endingthefed.com" website, that produced four of the ten most successful fake news stories on Facebook about the US election and its owner was a 24-year-old man (Townsend 2016). Finally, another fake news publisher was the US company called "Disinfomedia" holds many disinformation sites, such as "NationalReport.net", WashingtonPost.com.com, and USAToday.com.co. "Disinfomedia's" owner reported employing between 20 and 25 writers (Sydell 2016).

2.2 Existing approaches – Issues- Challenges

Due to the dynamic and continuously evolving nature of new types of new technologies and social media platforms, the term fake news is not appropriately defined and is often used interchangeably with other Internet-or technology linked dissemination of misinformation acts such as fabricated news, hoaxes, clickbait, etc. During the last decades, the frequency of fake news incidents is increasing and this trend is unlikely to be reversed anytime soon. In this part of the current study, there is a justification why is this particular research beyond necessary and why is there a theoretical gap on the approach of the fake news term. Fake news is certainly not a new phenomenon since misinformation exists as long as people were organized in communities, and has been somehow studied in certain fields. For example, there are many studies on the detection of fake news, though very few have truly researched the definition and solid understanding of the term in order to deeply classify the categories of fake news, the cause of its spread, its sources and its target. There is a theoretical gap on the issue, that we are trying to fill, in order to manage better ways to resolve it. Specifically, Conroy, Rubin, and Chen in their survey (Conroy, Rubin, and Chen 2015), are trying to separate the fake news detection methods in “1. *Linguistic Approaches in which the content of deceptive messages is extracted and analyzed to associate language patterns with deception; and 2. Network Approaches in which network information, such as message metadata or structured knowledge network queries can be harnessed to provide aggregate deception measures. Both forms typically incorporate machine learning techniques for training classifiers to suit the analysis.*”. Likewise Figueira and Oliveira in their study (Figueira and Oliveira 2017) divide these methods into: “(1) *algorithms that are based on the content; (2) algorithms that are based on the diffusion dynamics of the message, and; (3) hybrid algorithms, which are based on a weighted sum, or a group of features feeding a learning algorithm.*” Similarly, Rubin, Conroy, Chen, and Cornwell are suggesting (V. Rubin et al. 2016) that in order to develop such a detection tool, they have to partly study “*news satire as a starting point for the investigation of deliberate deception in news*”. Most of the existing papers offer a very general definition of the term fake news but not a collection of several definitions or a detailed one. For example, Nielsen and Graves offer some definitions provided by common users (Nielsen and Graves 2017) and Shu, A. Sliva, S. Wang, J. Tang, and H. Liu offer their one definition of the term (Shu et al. 2018), while Tandoc, Lim, and Ling refer to a few other definitions provided by the literature (Tandoc, Lim, and Ling 2018). Less research exists on the categorization of the several types of misinformation that usually appear on the Web. For instance, Zannettou, Sirivianos, Blackburn, and Kourtellis, write down their research on Types of False Information that can be found on the Web in

various forms, hence they propose their categorization of false information into eight types, fabricated, propaganda, hoaxes, rumors, clickbait, satire news (Zannettou, Sirivianos, et al. 2018). Similarly, Tandoc, Lim, and Ling categorize the types of fake news (Tandoc, Lim, and Ling 2018). Moreover, a few papers display the reason, the motivation of the dissemination of misinformation. For example, Shu, A. Sliva, S. Wang, J.Tang, and H. Liu refer to the social and psychological foundations of the fake news ecosystem (Shu et al. 2018), while Bakir and McStay report the economic or political gain that motivates the fake news' circulation (Bakir and McStay 2018).

As for the actors and victims of the fake news phenomenon, there have been very few theoretical studies. As far as the fake news actors are concerned Zannettou, Sirivianos, Blackburn, and Kourtellis “describe the different types of actors that constitute the false information propagation ecosystem”. They identify a handful of different actors according to their research, such as bots, organizations, governments, journalists and some individuals. With regard to the misinformation audience, Nelson and H. Taneja, in their paper “The small, disloyal fake news audience: The role of audience availability in fake news consumption,” refer to the reasons when and why users are affected by misleading news or fake news sites.

On the contrary, very few papers assemble the number of characteristics, the origins and the impact of fake news around the web in order to efficiently address the problem. For example, the “Social Media and Fake News in the 2016 Election” (Allcott and Gentzkow 2017) studies the fake news issue on a larger scale, although it is focused only upon the American Election in 2016, while the “Fake news- it's complicated” article (Wardle 2017) is a synoptic comment rather than an extensive research on the situation. Our contribution is to gather and enrich all this information targeting more effective detection methods. There is a need for the situation to be fully understood in order to be fought. It's almost impossible to solve a problem and find its detection ways unless you root out its causes. Therefore, we should first dig into the definitions, several types, dissemination motives, actors, audience/ target, impact in order to end up to a detection- resolution method. This paper fills this gap by offering a qualitative study of a solid understanding of the term found in the literature by thoroughly defining fake news, and build acquaintance with the substance of the studied issue for securer detection and handling. Maundering about fake news detection and aimlessly talk about misinformation dissemination, is getting us nowhere unless we gather and deconstruct all the scattered information that exists in the literature. Thus following in a related way the prototype classification system for cybercrime incidents by George Tsakalidis and Kostas Vergidis “A Systematic

Approach towards Description and Classification of Cybercrime Incidents” (Tsakalidis and Vergidis 2019), in this paper, there is a classification of fake news definitions, examples, types, motivations, actors’ and target’s categorization, misinformation impacts and at last effective detection ways, in a combined review.

As a conclusion, three of the main challenges that prohibit effective handling, classification and monitoring of fake news incidents:

- The lack of a unanimous definition of what the fake news term consists of;
- Deficiency in the conception of a widely accepted classification system for the various types of fake news incidents; and
- The absence of longstanding qualitative/quantitative analysis of monitored fake news cases and their instances that will assist in the adoption of appropriate measures and effective actions.

Apparently, there are considerable difficulties in finding a common and widely accepted fake news definition, due to the variety of approaches, as well as the related problems. Also, depending on the author’s attributes and area of focus, the term “fake news” can be defined differently.

Likewise, it is difficult to develop a recognized typology or classification system, as it covers a wide variety of misinformation cases, and thus renders it highly debatable. An author can focus in every possible aspect to categorize and group similar fake news incidents.

Regarding the monitoring and quantitative analysis of misinformation cases, there are several concerns related to the use of statistic reports since they are very limited still today. The uncertainty about the extent to which the impact on user and society is reported, as well as the fact that most reports develop trends and statistics in comparison with each previous year, construes how open these statistics are to interpretation.

2.3 Summary

This chapter presented some popular, even historical examples of fake news incidents, exposing the fact that the phenomenon is not new, rather than existed since people communicated with each other, since the beginning of the first traditional media. Moreover, in this chapter, related work by the literature is exhibited, showing that the evolution of the phenomenon is self-evident due to the technological developments. Therefore, in the following chapters the author intends to begin administering the above challenges by introducing the features of fake news incidents and their examination upon related case studies assembling the unstructured and dispersed information existing in the literature.

CHAPTER 3

FEATURE IDENTIFICATION OF FAKE NEWS INCIDENTS

This chapter presents a thorough analysis of the features of fake news incidents and their potential elements, and a classification system based on specific criteria. The proposed schema can be extended with a list of recommended actions, corresponding measures and effective policies that counteract the type and subsequently the particular incident. This matching will enable better monitoring, handling and moderating the various fake news offenses and their incarnation in the form of specific incidents.

Purpose of the feature identification is to assemble the existing in the literature definitions of the fake news term and thus compose a broader definition covering as many fake news incidents possible. Moreover, via this procedure specific elements of the issue are extracted and decomposed to their particular characteristics. This process leads to a more thorough and clear understanding of the phenomenon and a more explicit revelation of the general nature of fake news. As a result, the impact, detection, and limitation of the problem will be much more effective and sufficient.

	FEATURE	ANSWERS THE QUESTION	FEATURE EXPLANATION
1	FAKE NEWS ITEM	What was published/posted?	Fake news definitions and examples
2	CATEGORIES/ FORMS	What kind of fake news item was it?	Criteria/ characteristics of fake news items
3	ACTORS	Who published/posted it?	Publisher/ user, etc.
4	MOTIVATION	Why did they publish/post it?	Fake news intention/ motive
5	AUDIENCE- TARGET	To whom was it addressed?	Internet users mostly
6	IMPACT	What was the result?	Consequences of fake news' dissemination

7	DETECTION	How could it be detected/prevented?	Measures to prevent it/ detect it
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Table 3.1 Identified features of fake news incidents

3.1 Fake news item- Definitions & Examples

The term fake news has deep historical roots, namely several fake news stories have been produced over the past to sell newspapers by misleading the readers. Such historical examples-that were previously discussed- are the "Great Moon Hoax" in New York in 1835, by the "New York Sun" newspaper written by Richard Adams Locke. Specifically, the purpose was not simply to narrate details of this bright journalistic tale with its scientific revelations of man-like creatures living on the moon but it is providing a more complete understanding of the journalistic environment that gave birth to the fabrication (Thornton 2000). Such lies were produced either to entertain and attract interest of the audience, for instance, *The War of the Worlds*, Orson Welles' radio adaptation in 1938 of H. G. Wells' drama from 1898, which was believed by the listeners as an actual news story of war, or to create fear and anger, for example, the "blood libel" story from Trent, Italy, which declared that the Jewish community had supposedly assassinated a little Christian boy, in 1475 (Umberti 2016).

Even though the issue of fabricated or false news stories goes back several years in the past, more innovative descriptions of the term fake news have been recommended recently, in order to adequately indicate the hurdles posed by new communication technologies.

As it is presented below in this section, lately, the term has been defined mostly as a wide spectrum of disinformation, misinformation, and malformation (Wardle and Derakhshan 2017b), varying from falsehoods, conspiracy theories, and propaganda, to errors and fun.

For example, Marwick and Lewis suggest that "fake news is a contested term, but generally refers to a wide range of disinformation and misinformation circulating online and in the media" (Marwick and Lewis 2017). On the other hand, the European Union (EU) statement from the independent High-Level Expert Group on fake news and online disinformation advises rejecting the term fake news entirely (HLEG 2018). This is because the term is considered as incompetent and deceptive to illustrate the severity of the

situation, the EU report preferably proposes adopting the term disinformation, which is described as “false, inaccurate, or misleading information designed, presented and promoted to intentionally cause public harm or for-profit” (HLEG 2018; Bente 2018)

First and foremost, in this review, we have gathered some definitions about the term “fake news” and through them, we venture to extract specific characteristics and criteria in order to verify the exact elements of false news and intentional misinformation in general. Specifically, if we define the term thoroughly and distinguish its characteristics from the news in general, then we will be capable of immediately foreseeing a fake news item.

News has been defined in a number of ways, ranging from being an account of a recent, interesting, and significant event, an account of events that significantly affect people, to a dramatic account of something novel or deviant. News is often seen as an output of journalism, a field expected to provide “independent, reliable, accurate, and comprehensive information”. At the same time, the news is socially constructed, thus, it is vulnerable not only to journalists’ own preferences, but also to external forces, such as the government, audiences, and advertisers (Tandoc, Lim, and Ling 2018).

Today, a particularly popular term, widely used throughout the world based on the United States of America, as well as in Europe, to define news, that is trafficked through information websites and social media is the term fake news. According to the English Dictionary Collins, which has highlighted fake news as the most popular term for 2017, the term is referred to as “false, often sensational, information disseminated under the guise of news reporting”. According to K. Shu, A. Sliva, S. Wang, J. Tang, and H. Liu (Shu et al. 2018) “A narrow definition of fake news is news articles that are intentionally and verifiably false and could mislead readers. Fake news is essentially a distortion bias on information manipulated by the publisher.”, and according to D. O. Klein and J. R. Wueller (Klein and Wueller 2017) “We define “fake news” as the online publication of intentionally or knowingly false statements of fact”, while the authors of “The Science of fake news” (Lazer et al. 2018) define the term as “to be fabricated information that mimics news media content in form but not in organizational process or intent. Fake-news outlets, in turn, lack the news media’s editorial norms and processes for ensuring the accuracy and credibility of the information. Fake news overlaps with other information disorders, such as misinformation (false or misleading information) and disinformation (false information that is purposely spread to deceive people)”. Likewise, E. C. Tandoc, Z. W. Lim and R. Ling (Tandoc, Lim, and Ling 2018) suggest “The word “fake” is often used interchangeably with words such as copy, forgery, counterfeit, and inauthentic. Others situate

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fake news within the larger context of misinformation and disinformation. While misinformation refers to “the inadvertent sharing of false information,” disinformation refers to “the deliberate creation and sharing of information known to be false” and “precise definitions when offered, often deal narrowly with fabricated news reports produced either for profit or for political purposes” (Wardle 2017). Moreover H. Allcott and M. Gentzkow (Allcott and Gentzkow 2017) mention that “Our definition rules out several close cousins of fake news: 1) unintentional reporting mistakes; 2) rumors that do not originate from a particular news article; 3) conspiracy theories (these are, by definition, difficult to verify as true or false, and they are typically originated by people who believe them to be true); 4) satire that is unlikely to be misconstrued as factual; 5) false statements by politicians; and 6) reports that are slanted or misleading but not outright false”. Finally, R. K. Nielsen and L. Graves (Nielsen and Graves 2017) report that from common people’s point of view “Precise definitions, when offered, often deal narrowly with fabricated news reports produced either for profit or for political purposes. [...] When asked to provide examples of fake news, people identify poor journalism, propaganda (including both lying politicians and hyperpartisan content), and some kinds of advertising more frequently than false information designed to masquerade as news reports”

Author(s)	Fake news definitions
K. Shu, A. Sliva, S. Wang, J. Tang, and H. Liu	“A narrow definition of fake news is news articles that are intentionally and verifiably false and could mislead readers. fake news is essentially a distortion bias on information manipulated by the publisher”
D. O. Klein and J. R. Wueller	“We define “fake news” as the online publication of intentionally or knowingly false statements of fact”

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D. M. J. Lazer et al	“We define “fake news” to be fabricated information that mimics news media content in form but not in organizational process or intent. Fake-news outlets, in turn, lack the news media’s editorial norms and processes for ensuring the accuracy and credibility of the information. Fake news overlaps with other information disorders, such as misinformation (false or misleading information) and disinformation (false information that is purposely spread to deceive people)”
E. C. Tandoc, Z. W. Lim, and R. Ling	“The word “fake” is often used interchangeably with words such as copy, forgery, counterfeit, and inauthentic. The Oxford Dictionary defines “fake” as an adjective which means “not genuine; imitation or counterfeit.” Others situate fake news within the larger context of misinformation and disinformation.
H. Allcott and M. Gentzkow	“We define “fake news” to be news articles that are intentionally and verifiably false, and could mislead readers. Our definition includes intentionally fabricated news articles. It also includes many articles that originate on satirical websites but could be misunderstood as factual”
R. K. Nielsen and L. Graves	“people identify poor journalism, propaganda (including both lying politicians and hyperpartisan content), and some kinds of advertising more frequently than false information designed to masquerade as news reports”
Claire Wardle	“Precise definitions, when offered, often deal narrowly with fabricated news reports produced either for profit or for political purposes[...] the term fake doesn’t begin to describe the complexity of the different types of misinformation (the inadvertent sharing of false information) and disinformation (the deliberate creation and sharing of information known to be false)”

Table 3.2.1 Compilation of definitions of fake news

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Apparently, some characteristics are repeatedly mentioned above and thus we deduct several criteria that establish the true meaning of the term fake news. These characteristics are misinformation/ disinformation, the intention of deception, distortion of truth, public spreading, misleading.

Heretofore, we are able to distinguish some scattered elements related much like antithetical to the term we are attempting to define, the fake news. Collecting those we reach to the first conclusion about our definition of fake news: Fake news is distorted events or non-cross-referenced facts or fabricated false information, that is publicly spread mostly through the Internet and knowingly intent to mislead and purposely spread to deceive people. Through this definition, we also deduct the criteria that compose the true meaning of the term; a) distorted event; b) non-cross-referenced fact; c) fabricated false information; d) publicly spread through the Internet; e) knowingly/ purposely mislead/ deceive people.

FEATURE	ELEMENTS				
FAKE NEWS ITEM	distorted event	non-cross-referenced fact	fabricated false information	publicly spread through the Internet	knowingly/ purposely mislead/ deceive people

Table 3.3.2 fake news definition's elements

There are several cases through the net that confirm this definition. For example, a website called DHMO.org claims that the chemical compound Dihydrogen Monoxide (DHMO) is linked to terrible health problems such as cancer or environmental issues such as global warming or acid rain, while the truth is that this component that exists in almost everything is actually H₂O aka water! The website promoted this information as a true fact (Burkhardt 2017). Similarly, another website the MartinLutherKing.org - with the .org domain extension deceiving a number of people that it was an unbiased non-profit organization working for good- created by a supremacist group, tried to mislead users about Martin Luther King discrediting his work, his writing, and his personal life (Burkhardt 2017). Moreover, during Barack Obama's campaign for president in 2008, throughout his presidency, and afterward, a number of conspiracy theories falsely asserted Obama was ineligible to be President of the United States because he was not a natural-born citizen of the U.S. as required by Article Two of the Constitution. (www.Snop.es.com 2016). Similarly, there were more than 100 news sites that made up pro-Trump content

traced to Macedonia, (Silverman and Lawrence 2016) according to a BuzzFeed News investigation.

Apart from all the definitions that exist in the literature, the recent European report on fake news and online disinformation by the independent High-Level Group of Experts (HLEG) of the European Commission, as it is mentioned above, avoids carefully the specific phrase "fake news" (HLEG 2018). As the HLEG insists, the particular wording "fake" as a descriptive epithet of the word "news" naturally cannot cover the complexity of situation of misinformation, which as proved by the various definitions, could involve ideas that are not really or entirely "fake" but also they could be fabricated information combined with cross-referenced facts and studies or anything else relating "news" such as automated accounts- as analyzed in the following section- networks of fake followers, fabricated or manipulated images and videos, advertising, trolling, and countless more.

Besides, the EU statement practices the term "disinformation" to label all forms of false, inaccurate, or misleading information designed, presented and promoted to intentionally cause public harm or for profit. After all, this description of disinformation is more general and comprehensive and connects various features of misleading information on the Web. One opinion, states, that fake news could be a component of disinformation and is, mainly, leads, events or information directly linked to what is known as news. (Bente 2018)

Consequently, HLEG's determination to withdraw the use of the fake news term does not imply that the term is not allowed or that it cannot describe one part of the phenomenon of fake news produced and distributed online. So, both terms will be used in the current research, since the term fake news adequately applies to the dissemination of misleading information online and the term disinformation is a more whole and accurate description of the studied phenomenon in general.

3.2 Types of fake news incidents

Above we approach roughly a generic definition of the fake news term. Although we have to take into account other very similar types of intentional misinformation and disinformation, in order for our definition to be whole, as well as to avoid generalizing.

We first have to recite the various forms and types that can be found on the Web and that are very much related to the discussed in this review term. The most common forms of misinformation or disinformation that anyone could encounter across the Internet are categorized as listed below; a) Fabricated News; b) Propaganda; c) Conspiracy Theories;

d) Hoaxes; e) Clickbait; f) Photo Manipulation; g) News Satire; h) News Parody; i) Rumors.

a) Fabricated News: Completely fictional stories disconnected entirely from real facts (Zannettou, Sirivianos, et al. 2018). The aforementioned refers to pieces of information which have no factual basis but are published disguised as news information to seem legitimate. Moreover, there is no implicit comprehension for the reader that the piece they are reading is fake. Certainly, the intention is usually quite the opposite. The writer or publisher of the fabricated news story often has the intention of misinforming. Fabricated items can be published on a website, blog or on social media platforms. Others equate fabricated news with yellow press and tabloids which present a wide spectrum of unverified news and uses eye-catching headlines (“clickbait”), exaggerations, scandal-mongering, or sensationalism to increase traffic or profits. Yellow journalism is a suitable source for fake news corpus in cases of obvious or exposed falsification, fabrication, or exaggeration, and may require investigation. (Conroy, Rubin, and Chen 2015). In conclusion, news fabrication is the type of reports that have no factual basis but are written in the style of news articles to formulate legitimacy. It closely imitates legacy news, and the writer often has the intention to deceive, either for political or financial reasons. Once the reader accepts the legitimacy of the reference, they are not trying to seek confirmation. This type of disinformation is comparable to news parody below, except for the implicit disclosure that the “news” item is manufactured and for entertainment purposes (Bente 2018). In a brief:

- ❑ completely fictional stories

- ❑ disguised as news information

- ❑ no implicit disclosure that the “news” item is manufactured

- ❑ intention of misinforming

- ❑ can be published on a website blog or social media platforms

b) Propaganda: This is a special instance of the fabricated stories that aim to harm the interests of a particular party and usually has a political context. Propaganda stories are profoundly utilized in political contexts to mislead people with the overarching goal of inflicting damage to a particular political party or nation-state

(Zannettou, Sirivianos, et al. 2018). Propaganda is the spread of information to harm a person, group or movement (Vasquez 2018). It does seem that propaganda stories have a more specific and explicit purpose of deceiving and this is mostly political rather than economic, and they are easily spread through social media. It is also considered as “news” with hyperpartisan content, associated with political campaigns that aim to deceive and attract people with lying basically, and its key feature is the public relations effort. (Nielsen and Graves 2017) . Generally, propaganda misleads the audience so that they believe a particular political/social agenda. (Rashkin et al. 2017). In a brief:

- ❑ fake stories utilized in political contexts

- ❑ “news” associated with political campaigns

- ❑ easily spread through social media

- ❑ no implicit disclosure that the “news” item is fake

- ❑ purpose of deceiving

c) **Conspiracy Theories:** Refer to stories that try to explain a situation or an event by invoking a conspiracy without proof. Usually, such stories are about illegal acts that are carried out by governments or powerful individuals and regularly hovering in the Web. They also typically present unsourced information as fact or dispense entirely with an “evidence” based approach, relying on leaps of faith instead (Zannettou, Sirivianos, et al. 2018). A conspiracy theory can generally be defined as an effort to explain some event or practice by reference to the intrigues of influential people, who attempt to cover their role (at least until their plans are accomplished), but also lacks cross reference and disclosure that the “facts” are not proven. So, it seems that in order to capture the essence of the term we assume that the most prominent and influential conspiracy theories are about public affairs. Moreover, conspiracy theories in order to be accepted as true must be a subset of the larger category of false beliefs, and also of the somewhat smaller category of beliefs that are both false and harmful. (Sunstein and Vermeule 2009). In a brief:

- ❑ fictional stories that try to explain a situation by invoking a conspiracy without proof.

- ❑ intrigues of influential people, who attempt to cover their role

- ❑ usually hovering in the Web

- ❑ lacks disclosure that the “facts” are not proven

- ❑ target on user’s false beliefs

d) Hoaxes: News stories that contain facts that are either false or inaccurate and are presented as legitimate facts. This category is also known in the research community either as half-truth or factoid stories. Popular examples of hoaxes are stories that report the false death of celebrities. (Zannettou, Sirivianos, et al. 2018). On the other hand, the Wikipedia community guidelines define a hoax as “an attempt to trick an audience into believing that something false is real”, and therefore consider it “simply a more obscure, less obvious form of vandalism”. A distinction must be made between hoax articles and hoax facts. The former are entire articles about nonexistent people, events, etc. The latter is false facts about existing entities (Kumar, West, and Leskovec 2016). Furthermore, counterfeit sites are the most problematic of hoax internet sites. The Martin Luther King site as above is an example of a site that is pretending to be something it is not, a Trojan horse so to speak. Counterfeit sites that produce such hoaxes disguise themselves as legitimate sites for the purpose of disseminating misinformation. These sites are rarely attempting humor or spoof, and even when humorous they are often misunderstood (Piper 2001). A hoax, in general, convinces readers of the validity of a paranoia-fueled story (Rashkin et al. 2017). According to the Cambridge Dictionary hoax is a “plan to deceive someone, such as telling the police there is a bomb somewhere when there is not one, or a trick (e.g. The bomb threat turned out to be a hoax. He'd made a hoax call claiming to be the president.)”. In other words, hoax is to “deceive, especially by playing a trick on someone a plan to deceive a large group of people; a trick or something else that is intended to deceive someone.” (Cambridge English Dictionary 2019). In a brief:

- ❑ news stories that contain facts that are either false or inaccurate

- ❑ presented as legitimate facts

- ❑ half-truth or factoid stories. (hoax articles- hoax facts)

- ❑ can be published by websites

- ❑ attempting to trick the audience into believing that something false is real

- ❑ even when humorous they are often misunderstood

e) **Clickbait:** News items often contain opinionated and inflammatory language, crafted as “clickbait” (i.e., to entice users to click on the link to read the full article) or to incite confusion. Thus, it is reasonable to exploit linguistic features that capture the different writing styles and sensational headlines to detect fake news. Linguistic-based features are extracted from the text content in terms of document organizations from different levels, such as characters, words, sentences, and documents. (Shu et al. 2018) In other words, clickbait refers to the intentional use of misleading captions and titles or headlines of content on the Internet, in order to draw the attention of its receiver. This form of deceptive information is not new as it appeared years before, during the Post-Printing Press era, a phenomenon known as yellow journalism. Typically, in the online world, there is competition among websites about the user’s attention, because their money comes from the clicks made by the readers. Therefore, to draw the readers to visit the media site and click on an article, they apply numerous techniques, such as coming up with catchy headlines accompanying the article links, which tempt the readers to click on the links. Such headlines are known as Clickbait. According to the Oxford English Dictionary (English by Lexico Dictionaries 2019a), clickbait is defined as “(On the Internet) content whose main purpose is to attract attention and encourage visitors to click on a link to a particular web page.” (Chakraborty et al. 2016). In a brief:

- ❑ news items with misleading captions and titles or headlines to draw the attention of its receiver

- ❑ purpose to incite confusion

- ❑ news items with opinionated and inflammatory language

- ❑ usually on the Internet content

f) **Photo Manipulation:** Fake news has also been used to refer to the manipulation of real images or videos to create a false narrative. Where the previous categories generally referred to text-based items, this category describes visual news. Manipulation of images has become an increasingly common occurrence with the advent of digital photos, powerful image manipulation software, and knowledge of techniques (Tandoc, Lim, and Ling 2018). Besides, it is common knowledge that a picture speaks a thousand words and as a result, it can be easily used to mislead. Photo manipulation is a form of poor journalism that is inaccurate and mostly sensationalist. After all, it is well known that with news images, questions of fake and authentic are better approached through a framework that acknowledges the uniqueness of images and particular tensions related to the art of photography. (Carlson 2009). In a brief:

- ❑ fake news as manipulation of real images or videos to create a false narrative

- ❑ visual news that aims to mislead

- ❑ with the advent of digital photos, powerful image manipulation software, and knowledge of techniques

g) **News Satire:** Typically use humor or exaggeration to present audiences with news updates. These programs are typically focused on current affairs and often use the style of a television news broadcast (a “talking head” behind a desk, with illustrative graphics and video)- or even a real news website- much as a regular news program. Nonetheless, a key difference is that they promote themselves as delivering entertainment first and foremost rather than information. (Tandoc, Lim, and Ling 2018) . Satire mimics real news but still cues the reader that it is not meant to be taken seriously (Rashkin et al. 2017) Generally, stories that contain a lot of irony and humor. (Zannettou, Sirivianos, et al. 2018). In a brief:

- ❑ humor or exaggeration to present audiences with news updates.

- ❑ disguised as real news

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- not meant to be taken seriously

- can be found on TV or websites

h) News Parody: It shares many characteristics with satire as both rely on humor as a means of drawing an audience. It also uses a presentation format which mimics mainstream news media. Where parodies differ from satires is their use of non-factual information to inject humor. Instead of providing direct commentary on current affairs through humor, parody plays on the ludicrousness of issues and highlights them by making up entirely fictitious news stories. (Tandoc, Lim, and Ling 2018). News parody is critically distanced from and complementary to that world according to Paul Achter the writer of the “Comedy in Unfunny Times: News Parody and Carnival after 9/11”, who adds about news parody occasioned by a parody Website, “the Onion” (<https://www.theonion.com>) that this type of “news” as a “carnavalesque meta-discourse” can generate opportunities to discuss racism, to approach other fundamental questions as well; “the news parody both constructs and participates in a public discussion of values”. (Achter 2008) In a brief:

- non-factual information/ entirely fictional stories that with humor or exaggeration mock real news

- mimics mainstream news media

- not meant to be taken seriously

- can be found on TV or websites

i) Rumors: Applies to narratives whose accuracy is vague or never established. This kind of misinformation has been analyzed by several studies. Some examples of rumors include stories around the 2013 Boston Marathon Bombings like the story that the suspects became citizens on 9/11 or that a Sandy Hook child was killed during the incident. (Zannettou, Sirivianos, et al. 2018). Rumor has been defined in the literature as a specific (or topical) proposition for belief, passed along from person to person, usually by word of mouth, without reliable standards of evidence

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being present (Allport and Postman 1947). In other words, a rumor is a method through which knowledge that has not been verified by a reliable source is passed along from person to person, and the information is changed according to the desires or hostilities of those individuals who pass it on (Levin and Arluke 1987). Gossip and rumor have flourished over centuries, among all cultures and through attempts of religious and cultural movements to eradicate them. (Houmanfar and Johnson 2004). In a brief:

- ❑ narratives whose accuracy is vague or never established
- ❑ proposition for belief passed along from person to person
- ❑ the information changes according to the desires of those who pass it on

FEATURE	ELEMENTS
CATEGORIES/ FORMS	a) Fabricated News; b) Propaganda; c) Conspiracy Theories; d) Hoaxes; e) Clickbait; f) Photo Manipulation; g) News Satire; h) News Parody; i) Rumors

Table 3.2.1 The types of fake news

The bullets above could easily assist us in clustering the characteristics that those types of misinformation have in common and what makes each one of them a different category. Specifically, all types of misinformation above share three common features: i) they are not true; ii) they present themselves as real news; iii) they can be easier spread on the Web. Moreover, thus we observe that all of them but news satire and parody share five common features: as aforementioned i) they are not true; ii) they present themselves as real news; iii) they can be easier spread on the Web; but also, iv) they intend to misinform and v) they contain no implicit disclosure that the information they present is not real. Furthermore, thanks to the categorization above we are able to make another interesting note, namely fabricated news, conspiracy theories, hoax articles, and news parody present completely fictional stories with no factual basis. On the other hand, propaganda, hoax facts, clickbait, photo manipulated stories, news satire, and rumors present stories that are not totally fake, however, they have some factual basis, it is more of a distorted fact, an exaggerated truth or a non-cross-referenced event.

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FORMS	CHARACTERISTICS						
	NOT TRUE	COMPLETELY FICTIONAL	FACTUAL BASIS	PRESENTED AS REAL NEWS	SPREAD ON THE WEB	INTENT TO MISLEAD	DISCLOSURE THEY ARE FAKE
Fabricated News	✓	✓		✓	✓	✓	
Propaganda	✓		✓	✓	✓	✓	
Conspiracy Theories	✓	✓		✓	✓	✓	
Hoax Articles	✓	✓		✓	✓	✓	
Hoax Facts	✓		✓	✓	✓	✓	
Clickbait	✓		✓	✓	✓	✓	
Photo Manipulation	✓		✓	✓	✓	✓	
News Satire	✓			✓	✓		✓
News Parody	✓	✓		✓	✓		✓
Rumors	✓		✓	✓	✓	✓	

Table 3.2.2 The types of fake news & their characteristics

3.3 Fake news actors

Before we move on to the question of why is there so increased dissemination of misinformation or disinformation nowadays than ever before, we should first research the subjects of this equation. We could first make discrimination between two categories of actors. Hence our research focuses on the Internet spread of misinformation there are two types of possible doers, the publishers/ authors, and the users/ readers. Although there is another separate category that can be equally appear on the two former categories, a non-human/ automated actor-type, the bots

PUBLISHER:

As a publisher, we could define a news media owner, aka a website owner, or the one generally uploading internet content on a regular basis. In the same category should be included the author, namely the journalist, the writer of a news story, the reporter, the correspondent. Moreover, as analyzed in the following section, with regard to the political and financial motivations of disinformation, in this class of actors, organizations, political parties and governments should be included.

Journalists

Specifically, several sorts of publisher of fake news dissemination exist online according to the literature. First of all, the journalists, who are the fundamental substance responsible for producing and spreading information and the news in general, on a digital or non-digital form. Although they have the power to fill their reports with covered-as-facts opinions or to distort information towards a specific point of view, for various reasons. For instance, they might use an exaggerated headline, that is way more appealing to the readers, or even a distorted photo in order to increase traffic in their Website.

Deception is an elusive issue. The opposite of deception is integrity. (S. T. Lee 2004) Deception is unacceptable, but this moral outlook is complicated, although in journalism, with its emphasis on pursuing and publishing reports and stories, deception goes to the heart of the profession.

Besides it is well known that “journalists need facts to tell stories, but they need data to understand how to engage audiences with this accurate information”.(Albright 2017)

Journalists and the media need to be able to be accurate and neutral because of their capacity to diffuse information and ideas publicly and thereby contribute to public opinion-

making. They have the task of exposing information and ideas on matters of public interest, which the public has a right to receive. Journalists, the media and a growing range of other actors can also act as public watchdogs, by bringing information to light and by exposing wrongdoing and corruption by those in power (McGonagle 2017). Nevertheless, in many circumstances, journalists are exposed in the center of discussion as they post false information for several purposes. For example, they might change some stories so that they are more appealing, to increase the popularity of their platform, site, or newspaper. (Zannettou, Sirivianos, et al. 2018)

Although journalists and the media are so powerful that must not cross certain lines, in particular in respect to the reputation and rights of others. In principle, they are expected to act in good faith to provide accurate and reliable information to the public following the ethics of journalism. (McGonagle 2017)

Organizations

The second type of publisher-category actor are organizations, entities with political or unlawful background, who try to pass their passionate opinions on the users with mischievous ways. Such organizations are:

Political or Activist Organizations. (Zannettou, Sirivianos, et al. 2018) Various groups share false information to either support their organization, reduce other competitive organizations, or for "selling" a specific narrative to the public. A recent example involves the National Rifle Association, a non-profit organization that defends gun rights, which disseminated false information to manipulate people about guns(Luo 2017). Other examples include political parties that share false information, especially near major elections (Allcott and Gentzkow 2017)

Criminal Organizations (Zannettou, Sirivianos, et al. 2018) Criminal groups and terrorist formations are misusing media as the means to disperse false information to accomplish their goals. A recent example is the ISIS terrorist organization that diffuses false information in OSNs for propaganda purposes (Samer Al-khateeb 2015). Specifically, they create a very dangerous situation by widely disseminating ideologically emotional messages for recruitment purposes. This constitutes a notably hazardous condition for the population as there are several examples of individuals from European countries recruited by ISIS that ended-up perpetrating terrorist acts.

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In the above classes of disinformation actors, we could add hate groups and ideologues, who behave similarly. White supremacist and white nationalist groups have long used the web in the hopes of recruiting new members (Daniels 2009). A notorious example is the “manosphere”, which is a free collection of blogs and forums dedicated to men’s rights, sexual strategy, and misogyny. Such groups may use misleading tactics to draw attention to their causes or may present themselves as more serious and scholarly (Marwick and Lewis 2017)

Governments- Politicians

Governments (Zannettou et al. 2018). Through history, governments were always linked with the propagation of false information. Nowadays, with the increase of digital information, governments exploit social media to shape public opinion on specific topics. (Timberg 2017). Besides, there are reports that outside governments yield false information on other countries to mold public opinion on specific topics that regard the particular country.

An infamous example of politicians trying to manipulate public views by using distorted information is the 2016 U.S. elections. Particularly, scholarly (Marwick and Lewis 2017) through the 2016 U.S. election, politicians operated as intensification links for many of the ideas outlined in several reports. Specifically, the Republican nominee Donald Trump has long been known as an enthusiastic conspiracy theorist. Perhaps most famously, in 2011 he became one of the biggest proponents of the “Birther” theory, the belief that President Obama was not actually born in the United States (Barbaro 2016). He has also openly embraced anti-vaccination conspiracies for several years. (Cha 2015)

Throughout the 2016 election, Trump consistently expanded conspiracy theories that would otherwise have been restricted to border right-wing circles online. The mainstream media estimated such stories newsworthy because they were being made by someone who was not only a public figure but was running for political office. (Marwick and Lewis 2017)

A conspiracy theory could now run from rumor by a political party to the headlines of web news media within days. And even if the mainstream news is broadcasting it on as a negative or exaggerated story, it nevertheless affects millions of spectators and online users, because they are compulsorily exposed to these ideas. Moreover, when those ideas are spoken by a politician or a popular person in a high-status position, are even more compelling to the readers.

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Another example of a politician acting as fake news generator, is the example of Hilary Clinton through the 2016 U.S. elections as well. Hillary Clinton ventured to connect Donald Trump with biased ideas in order to degrade him amongst more mainstream Republicans. However, by addressing the ideas, she also gave them new visibility and legitimacy (Marwick and Lewis 2017).

ACTORS	
Publisher	User
→ Journalists	
→ Organizations	
→ Governments- Politicians	

USER:

On the other side of the digital communities, we find the users, the audience. The individuals who use the Internet, receive the information, repost the articles they encounter, react, comment, "like", retweet and generally share without being the authors themselves.

Individuals

Individuals are the category that includes all the Website users who are possible disinformation actors by reading, relating and sharing a story they encountered on a social media platform or a Website without previously confirming the information they receive. This generic type of fake news doers refers to numerous individuals that will likely have a personal gain by disseminating false information. This is a very broad category ranging from common persons like an owner of a cafeteria to popular individuals like political persons. (Zannettou, Sirivianos, et al. 2018)

Another term included in the current type of "misinformators" (<misinformation actors) dawns from the 1950s in North America as a mention to a singular political party's members that were handled by Russia to undermine the USA. Useful idiots are users that distribute inaccurate information due to the manipulation they undergo by the leaders of some group or due to their naivety. Regularly, useful idiots are common users that are

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not fully conscious of the purposes of the group, therefore it is tricky to distinguish them. (“Useful Idiot - RationalWiki” n.d.)

In this category, we may add another type of false information distributor, the influencers. Influencers are a spectrum of socially prominent, digitally famous individuals with various attributes; they can be online trolls, gamers, ideologues, and conspiracy theorists or typical social media users that hold significant influence among the other actors and play a distinct role in media manipulation efforts. As significant connections in these networks, they keep the power to magnify specific information and make opposite beliefs, which get mainstream coverage. This category includes people like Richard Spencer, the white supremacist director of the National Policy Institute and editor of the Website *altright.com*, who is renowned for having been punched on camera by an anti-fascist activist; Andrew Anglin, the *Daily Stormer* blogger who managed much of the alt right's trolling with the intention to make white nationalism appetizing to a millennial audience; Milo Yiannopoulos, the anti-feminist, anti-Islam media personality who was discharged from the *Breitbart* masthead after his comments about pedophilia came to light; and Andrew Auernheimer, a notorious hacker and internet troll who now uses his talents to spread white nationalist ideas. (Schwartz 2015; Marwick and Lewis 2017)

Conspiracy theorists

A separate category of fake news perpetrators are the conspiracy theorists. Social media networks and Websites are a fruitful area for the production and spread of conspiracy theories. Without the limitation of traditional media guards, amateur filmmakers can post their conspiracy “documentaries” to YouTube (Clarke 2007). On plenty of forums like Reddit, users can inspect event footage in real-time and immediately form theories that follow their own beliefs of the world (Wood, Douglas, and Sutton 2012). Certain groups of conspiracy theorists often experience polarization effects and they end up as echo chambers of like-minded believers without exposure to any differing views (Isenberg 1986). Generally, some of those theorists are characterized by nervousity about losing control or status in a particular social environment. Moreover, some of their theories have an ideological inclination; for example, anti-Semitism is a common theme. Others solely seem to display distrust of government or the “official stories” of the media. Conspiracy theories are motivated by dogma in the intrigues and maneuvers of a powerful organization of people who have succeeded to cover their role in an event or situation (Sunstein and Vermeule 2009). These speculations have existed for hundreds of years, with early followers arguing that the Illuminati and secret Jewish factions were secretly plotting to take over

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the world (Hofstadter 1964). More recent examples of conspiracy theories have centered on alternative descriptions of particular events, such as the 9/11 terrorist attacks and the Sandy Hook Elementary School shootings. The cases of these theories have endured especially constant in matters of loss of control within a religious, political, or social order (Marwick and Lewis 2017).

The conspiracy theorists or otherwise mentioned as passionate ideologues and true believers are generally typical Internet users, with no particular gain of disseminating such theories, who scatter their beliefs through the net because they actually consider them as true and passionately want other people to hear about them too (Zannettou, Sirivianos, et al. 2018).

Trolls

The last type of disinformation doers, that we may include in the larger user's category are the trolls. The term troll (Mendoza, Poblete, and Castillo 2010) is used increasingly in social media networks and the new digital news media in general and applies to users that intend to bother or upset other users, usually for nothing but their entertainment.

Originally, the term “troll” described those who deliberately deceived users to evoke an emotional response. Early trolls posted provocative messages on digital societies attempting to reach naive or inexperienced users. During the ‘00s, this motivation became known as the “lulz”: finding humor (or LOLs) in sowing discord and causing (Marwick and Lewis 2017). Trolls have a past of handling the media to expose hypocrisies and hysterias, determining early on to aim public figures. Trolls are supposedly apolitical and describe their use of often racist or sexist metaphors as only a handy medium to offend others. Trolling can relate to pranks, but it can also end up to be more serious than that. Trolling can involve “mischievous activities where the intent is not necessarily to cause distress”(Kirman, Linehan, and Lawson, n.d.) or it can seek to “ruin the reputation of individuals and organizations and reveal embarrassing or personal information.”(Coleman 2015).

Practically, though, trolling has started to work as a shield to defend with legitimacy a wide mixture of antisocial and offensive internet behaviors.

Similarly, to the types of false information distributors such as the internet trolls are the state-sponsored trolls that can be exploited by political persons or organizations to push false information for a particular agenda. The State-sponsored Trolls (Zannettou,

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Caulfield, et al. 2018) are a specific group of users that are funded to propagate false information on particular content or aiming a specific group of people. Usually, they are exploited for promoting an agenda, for example, to influence people to adopt certain social or business trends.

An example of the offensive digital behavior of trolls is posting provocative or off-topic messages to disturb the normal order or stream of discussion of a website and its users. As far as the information propagation is concerned, trolls are the users that publish dubious information to irritate other users or inflict emotional pressure. Traditionally, these actors use edge communities like Reddit to choreograph planned operations for disseminating false information to social media communities like Twitter, Facebook, and YouTube (Hine et al. 2017).

BOTS:

Another special category of disinformation actor are the bots (< robots). This is a non-human/ automated actor-type that can act as a publisher as much as a user. Specifically, bots are programs that are part of a bot network (Botnet) and are responsible for controlling the online activity of several fake accounts to disseminate false information. Botnets are usually attached to a large number of fake accounts that are used to produce and spread false information on the Web. A Botnet is usually used for financial gain by organizations to scatter false information for various motives. Remarkable is the fact that numerous types of bots with varying capabilities exist. (Zannettou, Sirivianos, et al. 2018)

Computational propaganda is the usage of algorithms, automation, and human curation to intentionally share distorted information over social media networks. Computational propaganda includes learning from and mimicking real people and their digital accounts on social media to manage public opinion across an assorted variety of platforms and device networks. Bots, the automated programs essential to the spread of computational propaganda, are software designed to perform simple, repetitive, robotic tasks. They are used to computationally improve the ability of humans to get work done online. Social media bots are automated individualities that can-do ordinary tasks like collect information, but they can also communicate with people and systems.

They are used to do lawful actions like delivering real news and information. They additionally are handled to do more wicked ventures linked with spamming and harassment. One or more people can utilize an "army of political bots on Twitter" to give the confusion of large-scale manufactured consensus (Woolley and Guilbeault 2017)

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Comparatively few accounts are responsible for a high share of the traffic that offers misleading information. These accounts are possible bots, and several manipulation tactics they use have been revealed. First, bots are unusually active in magnifying fake news in the very early spreading moments, before a case goes viral. Next, bots target prominent users through replies and mentions. Eventually, bots may alter their geographic locations. People are exposed to these sorts of manipulation, retweeting bots who post phony news just as much as other humans. (Shao and Ciampaglia 2017)

Social bots populate social networking systems they are often harmless, or even beneficial, although some are formed to hurt, by manipulating and deceiving social media users. Social bots have been related to infiltrate political dialogue, handle the stock market, remove personal information, and spread misinformation. The detection of social bots is, therefore, an important research endeavor (Ferrara et al. 2016).

Others categorize such bots, especially on twitter, into core and peripheral bots.(Alkhateeb and Agarwal 2015). Specifically, core bots are divided to three more categories, the short-lived, the long-lived and the generator bots. The short-lived bots are supposed to retweet a lot but seldom and last for less than six weeks before the social media's regulation blocks the account. On the other hand, the long-lived ones last for more than 25 weeks. The generator bots are the ones that retweet anything. The peripheral bots are actually legitimate users that are trapped in fake news dissemination, by retweeting tweets posted by the core bots above

ACTORS		
	Publisher	User
HUMAN	<ul style="list-style-type: none"> → Journalists → Organizations → Governments- Politicians 	<ul style="list-style-type: none"> → Individuals → Conspiracy theorists →Trolls
AUTOMATED	→ Bots	

Table 3.3.1 Fake news actors

3.4 Motivation

Previously, we have observed that among other things fake news is characterized by the intention to mislead and deceive. Although, in order to be an intention, there must first and foremost be a motivation, a purpose behind all. The misinformation perpetrators as analyzed above are certainly motivated by something that leads them to disseminate distorted or totally fictional information through the Internet. The motives differ, depending on the individual or group that spreads false information, namely the publisher and the user.

Those news articles with intentionally false information, are produced online for a variety of purposes, such as financial and political gain. However, what is the foundation of such intentions? It remains unclear what motivates regular users to share misinformation on social media. However, factors that motivate social media usage, in general, have been investigated in a number of studies. For example, a study about Facebook usage found that an individual's motivation is significantly related to the amount of time spent on Facebook, while personality is not shown to have as strong an impact (X. Chen et al. 2015). It is well known that social media platforms, such as Facebook and Twitter, are more popular among younger people. As social media become increasingly popular, a number of studies have been conducted to examine college students' social media use, among others (Kim and Sun 2014). Across different age groups, social media are widely used for various purposes. SNS (social networking service), for example, are among the most popular social media platforms used by college students. While SNS are used mainly for socialization purposes, recent research shows that many individuals get news from SNS. Microblogs such as Twitter and media-sharing sites such as YouTube are also frequently used as sources for news (Kim, Sin, and Tsai 2014).

At this point, we have to mention that on Facebook and other social media platforms, actions like “share,” “comment,” or “like” have unique meanings for the users. In most cases, a “like” is positive feedback to the post; a “share” means the will to raise the popularity of published information; and a “comment” indicates enrichment to an online discussion, which may contain negative or positive feedback to the post. An observation of this behavior above and several studies have shown that users tend to be connected only with like-minded people and “like”, “share” and “comment” such posts.

Thus far, we could point out the users' interaction with information on social media platforms. The spread of information among users is characterized by homophily (=The

tendency for people to seek out or be attracted to those who are similar to themselves.)(English by Lexico Dictionaries 2019b; Quattrociocchi, Scala, and Sunstein 2016)

For explaining motivation in fake news, we point out that there are two kinds of key players in the information system: the audience/ user and the publisher/ author.

Some of the most frequently observed audience-oriented motivation categories are: (1) entertainment, personal enjoyment; (2) socializing, to relationships developed in one's network on social media; (3) information seeking through social media applications; and (4) self-expression and status-seeking, which refers to using social media to express oneself and gain reputation (X. Chen et al. 2015). Those motivation categories should be integrated into two more general categories, the psychological and the social foundations of the misinformation dissemination. Specifically, the first and second categories above (entertainment and socializing) could comply with the social foundations' larger category, whereas the third and second categories (information-seeking and self-expression) with the psychological one.

FEATURE	CATEGORIES	
FAKE NEWS	BY USER	
MOTIVATION	SOCIAL	PSYCHOLOGICAL

Social Foundations

As far as the first category is concerned, we should first mention that social wants might also be motives for creating or spreading misinformation and disinformation. These social needs are attention, identity building, or entertainment. Users as fake news actors may generate and distribute disinformation to create social relations within online communities or to earn fame and digital friends (Wardle and Derakhshan 2017a). As aforementioned social media users are mobilized by likes, shares, and comments to “create content that will resonate with their friends, followers, and groups,” and media manipulation might be a way to gain “rank” and express individuality (Marwick and Lewis 2017).

Applying an approach in which news reading is seen as a ceremonial and dramatic action can make it easier to understand why certain types of disinformation are consumed and shared. Wardle and Hossein argue that we should understand communication as a ritual

rather than the more traditional understanding of communication as the transmission of information. Communication among users is not the act of giving information, but rather the illustration of personal beliefs, besides the communication and propagation of information attracts individuals together in solidarity and grouping. Thus, news reading and reposting/ spreading is a ritualistic and dramatic act where a singular sense of the world is defined and approved. By composing and distributing fake news, users are correlating with others with similar points of view. Further, digital platforms, forums, and social media support effective ways to simplify the information distribution thus as well as the fake news dissemination (Bente 2018).

Naturally, fun is another usually observed motive. As discussed in the previous section, regarding fake news actors, online trolls are usually scattering false information for their amusement. Their actions can sometimes cause significant damage to other individuals, and thus should not be taken lightly (Zannettou, Sirivianos, et al. 2018).

Psychological Foundations

Firstly, curiosity is a factor in human idiosyncrasy that does not need further explanation. Information seeking is one aspect of curiosity, which has been consistently recognized as a critical motive that influences human behavior in both positive and negative ways at all stages of the life cycle (Loewenstein 1994). Furthermore, there are other psychological foundations of Fake News. It's been observed that there are several reasons why people are not very good at distinguishing false to true information. Indicatively, the *Naive Realism*, (Shu et al. 2018) namely users tend to believe that their opinions and understandings of reality are the only accurate ones, while others who differ are considered uninformed, irrational, or biased; and *Confirmation Bias* (Shu et al. 2018) users prefer to accept information that establishes their actual beliefs. Due to these subconscious patterns of human nature, fake news can often be regarded as real. In addition, once the deception is established, it is very hard to reverse it. As described by social identity theory and normative influence theory, this inclination for social acceptance is crucial to a person's self-esteem, making users likely to choose socially safe views when posting news information, following the norms, even if the news being shared is fake news.

At last, there is another aspect, an individual's passion for an idea or view of events. A substantial number of users are very passionate about a specific concept, organization, or entity. This influences their understanding and can add to the diffusion of false information. Specifically, passionate users are blinded by their ideology and perceive the false

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information as correct and contribute to its overall circulation (Zannettou, Caulfield, et al. 2018).

Supporting what was analyzed right above, we point out another psychological aspect of these motives, the phenomenon called “Echo chambers”. Specifically, the World Wide Web is a fertile ecosystem for the extensive dispersion of unverified stories. Information related to distinct narratives—conspiracy theories and scientific news—produces homogeneous and polarized communities (i.e., echo chambers) having similar information consumption patterns (Garrett 2009; Flaxman, Goel, and Rao 2016). Users are selectively exposed to particular kinds of news because of the way newsfeed arrives on their homepage in social media, magnifying the psychological challenges to scattering fake news. For example, users on Facebook always follow like-minded people and thus acquire knowledge that supports their already supported existing narratives (Quattrociocchi, Scala, and Sunstein 2016). Therefore, users on social media tend to develop digital societies including like-minded people where they then polarize their ideas, ending up in an echo chamber effect. The echo chamber effect facilitates the process by which people consume and believe fake news due to the previously discussed psychological factors (Shu et al. 2018).

On the other hand some publisher-oriented categories are (i) short-term business: the purpose to maximize profit immediately, which is positively correlated with the number of consumers reached; (ii) long term business: their reputation in terms of news authenticity (Shu et al. 2018). Specifically, today’s fake news conceals some systematic, political and commercial efforts in liberal democracies in order to persuade and influence populations through propaganda, Public Relations (PR), political marketing and spin. It is true that fake news stories generate large, engaged audiences, earning some people thousands of Euros daily through digital advertising. (Bakir and McStay 2018). On the other hand, political gain is usually mentioned in the literature as a possible cause of disinformation propagation and especially in propagandizing, as it is further explained below.

FEATURE	CATEGORIES	
FAKE NEWS MOTIVATION	BY PUBLISHER	
	FINANCIAL GAIN	POLITICAL GAIN

Financial Gain

Profit is a very influential factor. Many actors in the false information ecosystem seek except for popularity and monetary profit for their organization or website. To accomplish this, they regularly propagate false information that raises the traffic on their website. This leads to grown advertisement income that results in pecuniary profit for the organization or website, at the expense of manipulated users (Zannettou, Sirivianos, et al. 2018).

Fake news motivated by financial purposes might seem like a relatively new dimension of misinformation. Earlier, we have mentioned clickbait as a usual type of misinformation. Purpose of clickbait posts or articles is to attract as many users possible to click on such a Website and thus encounter a misleading piece of information, possibly full of pop-up advertisements that have no relation with the content that the user was expecting to read. This is just an example of the financial gain that disinformation dissemination could offer. Similarly, exaggerated rumors or conspiracy theories can easily trigger users' curiosity and lead them to visit the Website that published them, hence the Website gains traffic and popularity, as well as financial opportunities. As already mentioned, the fake news term shares historic similarities with the term yellow journalism. Yellow journalism is often associated with the misconduct of newsgathering. The term was used to define the competition between two newspapers Joseph Pulitzer's *New York World* and William Randolph Hearst's *New York Journal*. Both papers were using the same tactic to create a fuss and thus raise their sales. Specifically, they were publishing articles with exaggerated headlines to increase curiosity to the audience in order to drive up circulation (Campbell 2001). Besides fake, sensationalist content is increasing attention and curiosity nowadays as well, though this time through website traffic and reposts.

There are several examples that confirm the publisher's financial motivation behind a fake news story. One of the most notorious relatively recent examples of fake news stories produced for financial profit includes some North Macedonian teenagers, who created and spread distorted and fictional stories about the American presidential candidates in 2016 to earn cash from advertising (Subramanian 2017). This analysis was established in a study of the most shared news stories during the same election campaign, which showed that false stories, outperformed real news stories on Facebook, indeed three of the most shared false election stories were overtly pro-Donald Trump or anti-Hillary Clinton (Silverman 2016a). Publishers of fake news motivated by financial opportunities have diverse backgrounds.

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Moreover, it is a usual phenomenon for social media platforms such as Facebook to encourage through algorithms users to publish and reproduce fake content and for that get financial profit. Also popular posts, with many likes, shares, or comments are very likely to be easier spread, aka liked, shared, and commented on, as popularity on social media is a self-fulfilling cycle, one that lends well to the dissemination of unestablished information, the phenomenon known also as “Belief echoes” (Tandoc, Lim, and Ling 2018; Thorson 2016). Besides most social media platforms as Facebook is in the business of making people share posts they are interested in, and its whole philosophy is based on users clicking, reposting, and relating with content (Solon 2016).

Political Gain

Political disinformation is often called propaganda, as we already discussed in the related section above. A political impulse has been recognized in fake news stories recently (Woolley and Guilbeault 2017). The actors of such misinformation intend to either manipulate public judgment, on special matters or individuals, on their opinions of the society. Propaganda can be defined as “the deliberate, systemic attempt to shape perceptions, manipulate cognitions, and direct behavior to achieve a response that furthers the desired intent of the propagandist” (Jowett and O’Donnell 2012). To recognize a report as propaganda is to imply something negative and misleading, and synonyms to the word propaganda are therefore dishonesty, falsification, trick, guidance, mind control, psychological warfare, and brainwashing (Bente 2018). Political disinformation efforts are typically used to plant mistrust and confusion about what sources of information are authentic, making people confused about what and whom to believe in. In the long run, it can decrease belief in central institutions, such as news media. The purpose in politically motivated distorted news stories is to sow discord. In specific periods, individuals or organizations share false information to seed chaos or disagreement to the public. Such practices can support promoting a particular entity’s agenda. Political-driven misinformation is of enormous attention due to the hurdles it poses for society. New advanced technologies produce and share political disinformation and thus make it harder to detect and fight the manipulation, both for journalists, fact-checkers, and citizens, but also for civil society and established democratic institutions (Bente 2018).

Generally, the wicked intention is a usually encountered motive of the disinformation. Applies to a plethora of intents that drive actors that want to harm others in various ways. Some examples include causing damage to the public image of a specific person, organization, or entity, which also applies to politically-driven intentions. Moreover, influence

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is one more aspect of this type of motivation. This motive refers to the purpose of deceiving other people to control their decisions or manipulate public opinion concerning specific topics. This motive can be divided into two categories; 1) aiming to get support or power and 2) changing the criteria of the public by propagating false information. This is particularly usual on political matters, where authors or publishers in news media distribute fraudulent information to intensify an individual's public image or to damage the public image of opposing politicians, especially during election periods (Zannettou, Sirivianos, et al. 2018).

FEATURE	CATEGORIES			
FAKE NEWS MOTIVATION	BY USER		BY PUBLISHER	
	SOCIAL	PSYCHOLOGICAL	FINANCIAL GAIN	POLITICAL GAIN
	→entertainment, personal enjoyment; →socializing, to relationships developed in one's network on social media;	→information seeking through social media applications; →self-expression and status-seeking, which refers to using social media to express oneself and gain reputation.	→raises the traffic on a website. →grown advertisement income and pecuniary profit	→aiming to get support or power →changing the criteria of the public by propagating false information.

Table 3.4.1 The types of motivation by publisher and user

3.5 Target- Audience

At this section of this research, we should, first of all, point out the Uses and Gratification Theory (UGT). This theory is a logical core and applies to the mass media and communication studies field. It is moreover, a common method to understand mass communication and audiences. UGT sets the user, the consumer, the audience in the center of the interest rather than the communication as an idea because it (the theory) promotes the question what people do with media rather than what media does to people (Leung and Wei 2000). The uses and gratifications theory, according to the definition presented by Hui-Fei Lin and Chi-Hua Chen (Lin and Chen 2017) declares that the readers, users, consumers, the audience, in general, prefer media based on personal needs and knows which media can satisfy their needs. Particularly, whether an audience uses a medium is determined by the latter's usefulness in providing information and is influenced by the

audience's motives (Mavridis and Mehrabov 2018). As a result, users' behavior when consuming news media indicates former interests without being easily stirred. UGT implies that parts of the audience are not idle but instead, they fulfill an active role in defining and connecting media into their own lives.

Social media networks are currently rising as one of the key platforms for information diffusion (Xiang and Gretzel 2010) because information distribution, discussion, news exchange, and communication, in general, are among the fundamental urges behind the use of social media (Ahn et al. 2007). As a consequence, the most common audience that is influenced by the misinformation dissemination is mostly the Internet users, which is, therefore, the fake news target of most interest. Since the attention nowadays bends on the role of social media in the news distribution at first and by extension the disinformation propagation, about current political and social affairs, it is important to discuss the way the audience interacts with disinformation on Social Network Sites (SNS). Based on some theories described by the literature, it is apparent that social media platforms perform a critical role in the distribution of fake news, but it is also clear that the users are also responsible for the reproduction of misleading information online. (Mavridis and Mehrabov 2018). In particular, two types of Social Networking Sites use have been recognized, the first states that the majority of users use two or more SNSs concurrently because each has its individual features and purposes; and the second that people frequently adopt SNSs as instruments for both communication and information, which help them fulfill their informational, emotional, and social ambitions.

The audience consumes news- real and by extension fake too- for several reasons, as it is analyzed above. Firstly, one of the main goals for people to read the news is information. As far as the helpful surface of information is concerned there is the monitoring satisfaction, namely, information- originated news consumption rotates around news use for inspection, to satisfy the need to know, to know what is happening around the globe, and to keep up with politics. Moreover, apart from the information motivated news consumption, some people may be prompted to turn to search the news for entertainment. For instance, this can be proved by several recent studies that examined the ways in which political comedy shows (e.g. Saturday Night Live) and late-night entertainment talk shows (e.g., The Tonight Show or The Late Show) inform their audience on political matters while using humor and exaggeration through satire and parody. Furthermore, with the growth of the Internet over the previous decades, there is exposure by the users on their digital profile, which has shown up as one of the prevailing ways to measure media networking. The relationship between audiences and news media entails a need for

opinion validation. At last, except for the two above mentioned reasons, there is also social-motivated news consumption, which indicates the consumption of news for social purposes or interpersonal advantages. From the reasons that are presented above and according to the literature, the data about U.S. news audience reported that the adult population, generally, was mostly motivated by information motivations when consuming news, followed by social motivations entertainment motivations, and opinion motivations (A. M. Lee 2013). Since those ideas become comprehended by the news author/ publisher, it is much simpler for them to direct their information production at specific target groups depending on the type of user they desire to manipulate. Digging deeply into the news consumption reasons makes easier handling and manipulation of the audience. As a result, if it were not for the audience's vulnerabilities towards news media the distribution of misinformation would be much more troublesome.

AUDIENCE BASED ON AVAILABILITY

Another very important concept in the audience- issue on the misinformation propagation is the term availability bias. Specifically, since the perception of people's urges for media consumption is very important, one even more critical concern is the audience availability. The audience availability means the quantity of time the users spend on using the medium in the first place. For example, viewers tend to choose television programs based on their availability rather than their preferences. Even when program schedules change, the specific time audiences set aside to watch television does not (Taneja and Viswanathan 2014).

According to Webster (Webster 2014), "Audience behavior is often a two-stage process in which a decision to use a medium precedes the selection of specific content" (p. 94). Even in the modern media ecosystem, where users have more freedom and apparently endless possibilities, they are still restricted by the decided amount of time they have for media use. Consequently, their availability to benefit from media directs to a moderating effect on their unique characteristics, such as media preferences. People with more free time, namely with more availability, are characterized as heavy media users, are the ones who have more time to spend searching various media offerings. On the other hand, those with less free time, the audience with less availability, that is characterized as the light media users, are the ones who use their more limited time to gather within the most popular choices.

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FEATURE	TYPES	
AUDIENCE/ TARGET	Heavy media users	Light media users

Moreover, the less available audience, the light users focus their attention to the most popular news media productions, websites or else, so they do not know what they are refraining from because they do not devote their research on additional sources. On the opposite site the more available audience, the heavy media users are aware of all the information options that are offered by the media ecosystem, since they have the time to investigate more. According to relative analysis, the heavy media users cover a smaller part of the overall audience. These heavy users are also the ones that exploit the popular as well as the unpopular news media rather than forgoing the former for the latter. (Nelson and Taneja 2018). A title from a well-known news site that already has millions of followers, for instance, the CNN is expected to get sold out to audiences more frequently and more emphatically than a headline from a more distant news site. While the term “fake news” now seems to grow up fast, even the most prominent fake news outlets (e.g. InfoWars, 70 News) are much less recognizable than media institutions like The New York Times and The Wall Street Journal. According to the study above those with more availability, the heavy media users will still probably be “endangered” to information from a wider variety of sources, from every kind of digital knowledge, while the light media users will be expected to continue to receive their information from the usual popular sources. As a result, the first category seems, at first sight, more exposed to disinformation, although the second category may be in more danger after all. Particularly, the heavy media users are supposed to read all kinds of news sites, but thus they are maybe more informed and more capable of critical thinking. On the other hand, the light media users rest assured on specific news media sources without investigating more information. So, it seems more possible for the latter to be endangered by misinformation rather than the first, who spend more time in news consumption. However, another opinion states that, although fake news stories could absolutely “go viral” and reach a lot of attention, they would need to overwhelm the institutional forces, aka the popular news media, working to alienate them and favor stories from the mainstream, established outlets. Even in a media environment where news consumption has grown increasingly “incidental” and mediated by social media platforms (Fletcher and Nielsen 2017).

AUDIENCE BASED ON AGE

Furthermore, in this section a very important factor must be pointed out. The age of the audience is one of the most determining “ingredients” that could characterize the fake news audience.

According to a new study of misinformation published in *Science Advances* (Guess, Nagler, and Tucker 2019) researchers state that age is a very important factor of fake news distribution by users. Particularly, the study claims that older people are the ones more affected and manipulated by fake news stories. New York and Princeton University researchers proved from their research that users over 65 years old shared approximately seven times more stories from misinformation fields than younger users in ages 18-29 years old and 2.3 times more than those in middle-aged users in ages between 45 and 65 years old. The factor age is actually one of the most reliable signs of how the Internet and especially social media users interact with disinformation, above and beyond sex, race, income, education, or how many links they share, the researchers found. Moreover, the researchers proposed that some elements that could help to clarify why older people are more apt to propagating misinformation. One possible explanation is that those who are over the age of 60 are less digitally literate than younger users with more fluency on new technologies. Naturally, there is the distinction between digital "citizens" who grew up with technology and the older digital "newcomers" who've had to adopt it. Conclusively, this leads us to another very important element of the misinformation victims' behavior, the digital intelligence.

AUDIENCE'S DIGITAL INTELLIGENCE

In light of the accelerated and constant evolution of digital technology, people are expected to use a developing variety of technical, cognitive, and sociological skills to perform tasks and solve problems in digital ecosystems. These abilities are referred to in the literature as “digital literacy” (Eshet 2004).

Individuals' ability to conform to the Web as it adjusts to them, is very determining for the new technologies' future. Nowadays, according to Paul Gilster Internet amateurs with the essential thinking skills and core competencies, they'll need to grow in an interactive environment so fundamentally different from passive media such as television or print. (Pool 1997). During the cooperation with digital technologies for several activities such as business, games, communication, and information, the pattern for mental improvement of the audience is being modified. Based on Gardner's theory about "The multiple

intelligences" between the different kinds of human intelligences (e.g. emotional intelligence) today there is yet another one that has emerged, digital intelligence. (“Gardner’s Multiple Intelligences” n.d.). The hastening presence of new digital intelligence and all of the associations this recognition may create is very essential for the audience's/ users' education and information. In our globalized digital era and culture, digital literacy is necessary to be studied (Adams 2004).

Specifically, digital literacy is the ability to understand information and to evaluate and integrate information in multiple formats that the computer can deliver. A user cannot understand the information found on the Web unless evaluating its sources and placing it into context. Internet information is not like traditional information found on another medium, because computers are multimedia, they offer simultaneously text, audio, video, and image. Moreover, the information users encounter on the web is researched in a different way than on a typical newspaper for example. The information found is gathered literally from all around the world and thus constructed. Additionally, being digitally literate means interaction and communication, because, through social media networking, a piece of information can not only be read but commented and distributed at the same time with other users (Pool 1997). Now, more than ever, citizens are in critical need of media literacy skills when navigating information, especially in the context of social media platforms, where patterns of distribution are complex due to the news-sharing habits and algorithms at work (Tandoc et al. 2018).

FEATURE	TYPES			
AUDIENCE/ TARGET	Heavy media users	Light media users	Audience based on age	Audience’s digital literacy

Table 3.5.1 The types of fake news audience

3.6 Impact

Unreliable information, such as the studied issue of fake news, false press announcements, and fabrications, may be deceptive or even dangerous, mainly when they are detached from their sources and contexts. According to Anderson and Rainie (Anderson and Rainie 2012) “A 2012 report of Pew Internet Research on the future of big data argues that even though by 2020 big data is likely to have a transformational effect on our knowledge and understanding of the world, there is also danger from inaccurate or false information”

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named as “distribution of harms”. In particular cases, news stories of totally unreal, non-existent, and disturbing events have been taken seriously, causing serious damage (Conroy, Rubin, and Chen 2015). For example, the known as the “Pizzagate” conspiracy theory, which is examined further below, namely according to BuzzFeed News “A California man has been charged with intentionally setting a fire inside the Washington, DC, pizza parlor at the center of the debunked conspiracy theory known as “Pizzagate,” authorities said”. The above conspiracy theory claimed that Hillary Clinton was behind a child trafficking network, which was connected with several restaurants- among them the pizzeria almost set on fire- in DC used for cover (Hernandez 2019).

Moreover, according to the EU Commission, which expressed concerns over the issue of disinformation “Web platforms and various other online services offer us new ways of connecting, discussing and collecting information. However, the dissemination of news that deliberately misleads readers is a growing problem for the functioning of our democracies, affecting citizens' perceptions of reality.” Parallely, the Commission on 17 and 18 November 2016, organized the second annual fundamental rights symposium on “Media pluralism and democracy”. A Eurobarometer survey published on 17 November 2016 showed that European citizens are concerned about the independence of the media and that the levels of media confidence are low (European Commission 2017). In 2018 the Commission also reported that Online platforms play an essential role in tackling the abuse of infrastructure by hostile actors and preserving the safety of users and society. Based on an independent report released in March 2018 by a panel of high-level experts news and misinformation on the internet, as well as the wider consultations that have taken place in the last six months, the European Commission defines as “misinformation, proven misleading information created, presented and disseminated for financial gain or for the deliberate deception of the public, and which could harm the public interest”. In the latest Eurobarometer survey, 83% of respondents said that fake news poses a threat to democracy. They are particularly concerned about the deliberate misinformation aimed at influencing immigration elections and policies.

Individuals receiving information (including misinformation and correct information) is not a tabula rasa. Specifically, users or people, in general, acquire hewn beliefs and perspectives and treat new information regarding first what they already know and believe. Therefore, in many situations in their environment, people will have an urge to believe one event report over another. That is, according to the literature people's resistance to the retraction of false information (Ecker et al. 2014).

Several series of misinformation and repair of information have emerged around news stories over politicians, for example, candidates' biographies, federal funding allocations, and a wide range of other political topics (Graves and Glaisyer 2012). It is usual for people to deny corrections of faulty reports that appear opposite to their views (Nyhan and Reifler 2010). Nevertheless, studies have explained that misinformation is affecting a person's assumptions even when it explicitly declares that they are misleading and invalid (Ecker et al. 2014). In a whole ecosystem of beliefs, false declarations are doubted and exit the ecosystem, ending in a shared reality that correctly depicts the world.

Misinformation that confirms one's beliefs will be compatible with actual individual's experience and other ideas, will be familiar and therefore easy to process and more readily believed. For instance, the audience who took as true the official reason for the war in Iraq would remain to believe the corrected news item, notwithstanding moments earlier they were explicitly aware of the fact that the story was fake (Ecker et al. 2014).

Still, even when the falsehood of a news item is revealed, the ecosystem of ideas can break in two directions. First, a part of the audience probably will not accept the revision of the news report, rather than sustaining their position in the false information. This breakdown is called "belief persistence". For instance, many individuals maintained their belief that Barack Obama is a Muslim even after they were exposed to the true version of the news item (Hollander 2010). According to the literature, there is resistance to corrections of faulty stories. Moreover, there is a likelihood that exposure to fixed misinformation could formulate what Emily Thorson calls as "belief echoes," (Thorson 2016) or "effects on attitudes that persist despite an effective correction".

Above, we have discussed the term belief persistence; several media and studios observation to misinformation in the past few years have concentrated on defining belief persistence, namely conditions in which people keep their misled ideas yet in the face of the truth. Truth and falsehood are thus indistinguishable, as a result of the excess distribution of misinformation and its credible or not correction through the Web.

In other circumstances, belief persistence can drive people to develop opinions that deviate from those that they would carry if they were accurately informed; in other words, misinformation can easily form opinions towards a specific idea. Such falsely formed beliefs can even affect behavior, as demonstrated by the recent anti-vaccine movement in the United States (Nyhan et al. 2014). Some research in psychology suggests that the effects of false information can remain. Specifically, people who make deductions based on a critical piece

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of evidence manage to preserve at least some of those assumptions even when the evidence is shown to be false (Ecker et al. 2014; Ecker, Lewandowsky, and Tang 2010).

Although, identifying, in general, how many people confronted or shared with other users a fake news item is not the same as identifying how many individuals read or were affected by it. Unfortunately, metrics and studies of the short- or long-term influence on the political or social behavior of exposure to fake news are essentially nonexistent in the literature. Apart from constituent results, our knowledge about the effects of misinformation and disinformation consists of some possible kinds of influence, such as increasing cynicism and apathy to encouraging extremism. There is little practical research on the impacts of fake news in these regards (Lazer et al. 2018).

On the other hand, there is a thorough frame of research on media effects more generally, and this is an important starting point for this review to recite the idea of media impact and the new era of media through new technologies- that is the focus here- and thus relate those effects to misinformation impact to the individuals and the society by extension. First, in the area of media effects there is definite recognition that they (the effects) can be described as having a powerful micro orientation, namely that the part of analysis is typically the individual media user, and the focus is on the comparatively restricted issue of whether using regularly a particular media message could affect a user's perspectives, emotions, ideas, viewpoints, or their behavior in general. On a larger scale, on the other hand, when we discuss about media impact its orientation can be defined as a bit more macro, in that the anxieties about media results may reach further aspects, namely except from one user's perspectives, emotions, ideas, viewpoints, or their behavior in general also more widespread systemic shifts such as organizations and institutions (Napoli, n.d.).

Additionally, it is important to point out, that the spread of false beliefs is not only a side effect of fake news but is an immediate consequence of its definition. News sources, such as the most well-known, the Websites, create misunderstandings by intention or not, and even more the less reliable among them produce more misconceptions. The news stories that appear can lure audiences into developing false beliefs, but even a comparatively high falsity rate of a news source is compatible with its function of conveying the truth. Naturally, fake news is designed to operate in a way that is not restricted by the truth, either because it aims to introduce untruths in its target group (e.g., to undermine a political opponent), or because the way it is intentionally produced is objectively likely to mislead its audience, its real goal being, for instance, the age group of clickbait through sensational claims that attract an online audience.

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Moreover, repetition consequences cause that continuous exposure to the same information repeatedly—even when the reappeared information comes from the same news Website, for instance, and so, reasonably, is redundant—declares that information is more efficient; this situation can impact the construction of the following information to the point of changing its meaning. As a result, effective arousal increases bias and judgments involving assessment and thus decreasing the general willingness to negotiate or compromise, and locking ways for denying false claims.

Conclusively, we should mention that a side effect of fake news is the affecting-an-entire-system ways by which fake news assembles audiences' mental biases and thorough discoveries, through changing their thinking methods and rules. Confirmation bias, repetition effects, affective arousal, and related mental biases, as are analyzed above, therefore, support a variety of everyday misconceptions that restrain critical thinking and logic reasoning, and the characteristics essential in the design of the news sources through which fake news generates and propagates create additional barriers to critical thinking and active questioning. (Gelfert 2018)

Apparently, the fake news is currently viewed as one of the greatest threats to democracy, journalism, and freedom of expression in general. The societal results of disinformation are related to the media impact on audiences. Specifically, according to theoretical researches, there are political effects, namely the people's influence on voting and the propaganda's effect on their ideology. Moreover, the receiving of information can shape social behavior, the social construction of reality, stereotyping and form viewpoints in general. Similarly, information through social networking sites molds ideas and structures the way an individual learns and receives data. It is, after all, common knowledge, that some politicians and organizations, exploit the news media, either they are accurate or deceptive, for reelection and to gain support for their political goals. Therefore, important effects of news media and by extension misleading news media could be societal and cultural (Perse and Lambe 2016).

FEATURE	CHARACTERISTICS	
IMPACT	on individuals: → forming beliefs → restraining critical thinking	on society: → political effects → ideological effects

Table 3.6.1 The impact of fake news

3.7 Detection

In this section, of the current study, we are researching what are the prospects of not only designing and developing algorithms that can trace, detect and recognize fake news misinformation and disinformation in general, but also training people to detect such issues as well.

Starting with a fact, it is worth mentioning that according to Haile “55% of readers who click on an article link don’t end up reading the actual article” (Haile 2014) these kinds of titles can be counted deceptive "clickbait" and play a vital role in diffusing misinformation online and yet users are easily falling inside the trap. In a digital world such as our own, broad audiences gain pathways to information through typical search engines, digital forms of mainstream news channels and international information-sharing networking platforms. Misinformation and disinformation exposure have recently drawn increasing attention from the global audiences and researchers, hence the flow of fake news stories through the Web raises, specifically in social media feeds, blogs, and digital newspapers. For example, as correspondent research states, according to “a recent report by the Jumpshot Tech Blog found that Facebook referrals accounted for 50% of the total traffic to fake news sites and 20% total traffic to reputable” (Pérez-Rosas et al. 2017).

As far as the fake news detection as a term is concerned, it may be defined as the foresight of the possibilities of a singular news report (article, essay, expose, etc.) being intentionally misleading (fake, fabricated, hoax, etc). As Chen, Conroy, and Rubin (Conroy, Rubin, and Chen 2015) claim a text analytical system can improve human skills to recognize falsifications, contribute proof for its doubts, and alert users to further fact-checking. Although people/ users are not great in recognizing lies, not much better than speculation, and computers can insignificantly defeat humans on limited tasks (V. L. Rubin and Conroy 2012).

Social media platforms are very popular, and therefore this has built an ecosystem where data is shifted onto users either through sponsored messages or by shared posts from other users (Mitchell and Page 2015). When the user does not pay proper attention, the article becomes detached from its source and fact mixes freely with fiction. Not only intentional misinformation but also satirical content and faulty reports, unproven and even completely fictional news stories can instantly spread far and wide on the Internet (Y. Chen, Conroy, and Rubin 2015).

Additionally, in recent years, it is worth mentioning that the trustworthiness of the information on the Internet has appeared as a critical problem of modern society. Social networking sites (SNSs) have updated how news circulates by enabling users to freely produce and share content themselves. Consequently, SNSs are also frequently used as carriers for the spread of misinformation and disinformation. The volume of scattered information and the speed of its propagation creates a practical impossibility of estimating trustworthiness and authenticity promptly, increasing thus the ultimate need for automatic fake news detection systems. For instance, one code developed for hoax detection is available from <https://github.com/gabll/some-like-it-hoax> (GitHub [2017] 2019). Its goal is to classify posts into hoax and non-hoax posts. According to the analysis of social media sharing by (V. L. Rubin and Conroy 2012), “users tend to aggregate in communities of interest, which causes reinforcement and fosters confirmation bias, segregation, and polarization”, and “users mostly tend to select and share content according to a specific narrative and to ignore the rest”. This implies that the audiences who like a post should be highly significant of the quality of the post. The researchers present two methods, confirming their basic hypothesis: the set of users that interacts with news posts on social network sites can be used to predict whether posts are hoaxes (GitHub [2017] 2019; Y. Chen, Conroy, and Rubin 2015). Conclusively, this is one approach to begin the study on the detection of misinformation.

Although what is really necessary for such approaches is the demand for parallel forces to fight the dissemination of lies and distorted information, particularly its online spread, namely there is, firstly, need of heightened consciousness of online misinformation and preemptive civil action by professors, administrators, and news professionals to develop literacy skills on people and, secondly, the construction of automated machines and new technologies to support journalists, writers, and publishers, in general, to be able to prove, fact-check, and to help news audience by clarifying and signaling ambiguous news stories and obscure information.

Moreover, another very crucial factor of the detection issue is not only the speed and quantity of information online but also the monetization of the online media ecosystem, the monetization of “views” cultivated by advertising resources. Being so, clicks and website traffic turn immediately to economic profits.

FEATURE	CATEGORIES	
Misinformation detection	Digital literacy	Automatic Technologies

Table 3.7.1 Fake news detection approaches

Therefore, the detection- and thus prevention- of fake news could be discriminated into two pathways, including the human factor and the technological progress. First of all, the need for digital literacy seems more essential than ever. Ernest Hemingway once said that “every man should have a built-in automatic crap detector operating inside him” (Manning 1965). Secondly, the need for automation seems nowadays more possible than some decades ago and is also crucial of the current situation of the news media environment to structure a greater system towards fact-checking and verification (Y. Chen, Conroy, and Rubin 2015).

The literature has offered some research on the issue of automated detection and the ways to approach it. For example, Pérez-Rosas et al. (2017), at their “Automatic Detection of Fake News,” composed a group of people and asked them to produce purposely fake news items, and at the same time, the researchers gathered several pieces of misinformation across the web. Specifically, they set up a task that asked workers to create a fake version of given news items. Meanwhile, they assembled a second dataset of fake news from network sources with similar directions as in the previous dataset. Though, they aimed to recognize fake content that usually appears on the web, such as news about celebrities, who are frequently targeted by rumors, hoaxes, and fake reports.

Firstly, they paid attention to “Linguistic Features”. Specifically, they began by selecting particular characteristics of linguistic elements, namely in computational terminology n-grams. In the fields of computational linguistics, an n-gram is a bordering sequence of “n” items from a provided sample of text. The features can be phonemes, syllables, letters, characters, words or base pairs according to the application. The n-grams typically are collected from a text or speech corpus (Broder et al. 1997). The team that conducted the study extracted n-grams obtained be the words of each news article.

In addition to such linguistic features, the researchers took under consideration the texts' punctuation. According to studies (V. Rubin et al. 2016; Ott et al. 2011), the usage of punctuation could be indicative of deception or exaggeration. In the aforementioned study, the researchers used a specific punctuation system of periods, commas, dashes, question marks and exclamation marks, derived from the Linguistic Inquiry and Word

Count software (LIWC, Version 1.3.1 2015). Furthermore, they applied to their study "psycholinguistic features" using also the LIWC lexicon. Specifically, these features combine the use of words per sentence, phrases, emotional figures of speech, analytical thinking, function words, pronouns, affective processes, social processes, etc with psychological elements (Bond and Lee 2005). The final feature they took into consideration was the "readability" of a text. In other words, the understandability of a text was suggestive of its trustworthiness, namely the number of characters, complex words, long words, number of syllables, word types, and number of paragraphs (Pérez-Rosas et al. 2017).

Similarly, Conroy, Rubin, and Chen (2015) in their thorough study over fake news detection claim that it may be defined as "the prediction of the chances of a particular news article (news report, editorial, expose, etc.) being intentionally deceptive". The increase of user produced content and Computer-Mediated Communication (CMC) technologies such as blogs and social media networks have the ability of mass-scale news distribution, regardless of its trustworthiness. The above-mentioned study suggests the distinction between structured and unstructured data concerning fake news detection. Particularly they claim that structured ones are apparently easier to check. Moreover, the language domain plays a significant role. In their survey, similarly to the previously-referred study, two categories of characteristics- crucial to the disinformation detection appear- the first is linguistic-oriented and the second network-oriented. In other words, the first approach concerns the misleading messages that are associated with lingual patterns and the second the information is seen as network data and structured knowledge, that lead to machine learning automated techniques for prevention of deceptive information.

Particularly, this research suggests that language is the most indicative factor of lying. Usually, liars use linguistic elements preplanned, to elude being revealed. Such elements are pronouns, the combination of words, sensationalism in a certain pattern that is possible to give away the deception. Observing those linguistic configurations may lead to the prediction of misleading information, namely its detection. In a similar way as the previous study, this one approaches those lingual patterns as texts, that compose a unit of single words, aka the n-grams, as analyzed above. The n-grams are, according to Conroy, Rubin, and Chen "individual words or frequencies that are aggregated and analyzed to reveal cues of deception". These "lexical cues" are patterns of speech and syntax that could create a repetition that points the deception. Examples of common and regularly encountered pieces of linguistic signs are very complicated syntax and grammatical analysis. Specifically, as far as the syntax is concerned, misleading information is usually structured in an intricate, confusing manner; in the discussed study there is syntax analysis, namely

the texts' sentences are converted to a set of “rewrite rules”, for example, noun and verb phrases, which are in rotation rewritten by their syntactic constituent parts. Apart from the syntax analysis, there is also a grammatical examination, because only, syntax analysis might not be adequately able to recognize a falsehood. So, for the integrity to be found, it is very important to examine “the degree of compatibility between a personal experience (e.g., a hotel review) as compared to a content “profile” derived from a collection of analogous data”. According to the research, it is possible that the dishonest user/ writer has no experience of the content, situation, happening, event they are writing about, thus several imperfections and contradictions appear on the text.

On the other hand, except for the linguistic elements that lead to revealing the deception there are network approaches equally important, as the study claims. Particularly, since, SNSs are exceptionally popular nowadays, network behavior of a user could be signifi- catory of misleading attitudes. The previous syntax and grammatical examinations could be applied to network content and seek for deceptive language. “For certain data, false “fac- tual statements” can represent a form of deception since they can be extracted and exam- ined alongside findable statements about the known world. This approach leverages an existing body of collective human knowledge to assess the truth of new statements” (Conroy, Rubin, and Chen 2015).

Conclusively, those two thorough examinations of detection of fake news lead us to as- sume that language, syntax and grammar are crucial to perceive misleading information scattered online. Moreover, if those elements are put together to an automatic self-learn- ing system, especially over social networks, may be extremely helpful to foresee with am- ple sufficiency a fake piece of information. Although this cannot be to the utmost correct and adequate.

Additionally, we should notice that such fact-checking attempts have already entered the digital era. For instance, Vlachos and Riedel (Vlachos and Riedel 2014) are among the first to construct fake news and fact-checking datasets. Specifically, they collected 221 reports from CHANNEL 4 and POLITIFACT.CO, a Pulitzer Prize-winning website. PolitiFact includes an extensive variety of political issues, and they present specific find- ings with highlighted labels. Similarly, Ferreira and Vlachos (Ferreira and Vlachos 2016) have published the Emergent dataset, which includes 300 labeled rumors from PolitiFact. Nevertheless, with such few paradigms, less than 1000, it is absurd to apply these datasets as a model for generating and estimating machine learning algorithms for fake news de- tection. (W. Y. Wang 2017)

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Furthermore, Wang (2017), practices a different method to reveal falsehood. In particular, they utilize empirical techniques to investigate and detect fake news based on “surface-level linguistic patterns”. They have, in distinction to the aforementioned datasets, composed a heterogeneous network to combine metadata with text. Some examples of their system “Liar liar pants on fire” are:

- “E.G. Statement: “The last quarter, it was just announced, our gross domestic product was below zero. Whoever heard of this? It's never below zero.”

Speaker: Donald Trump

Context: presidential announcement speech

Label: Pants on Fire

Justification: According to the Bureau of Economic Analysis and National Bureau of Economic Research, the growth in the gross domestic product has been below zero 42 times over 68 years. That's a lot more than “never.” We rate his claim Pants on Fire!

- Statement: “Under the health care law, everybody will have lower rates, better quality care, and better access.”

Speaker: Nancy Pelosi

Context: on 'Meet the Press'

Label: False

Justification: Even the study that Pelosi's staff cited as the source of that statement suggested that some people would pay more for health insurance. Analysis at the state level found the same thing. The general understanding of the word “everybody” is every person. The predictions don't back that up. We rule this statement False” (Wang 2017)

Generally, according to Figueira and Oliveira the attention about deceptive information was additionally pointed out by the inventor of the world wide web, Tim Berners-Lee, who , in an open letter, suggested a five-year strategy where he reveals a project to stop data abuse and fake news, while acknowledging that the solutions are not easy (*BBC News* 2017). Notwithstanding, another related report by Wendling (Wendling 2017) that listed

a substantial amount of organizations and actions across the world aimed at stopping the spread of fake news. For example, he mentioned human interference to check information integrity regarding the International Fact-Checking Network (IFCN) that enables American and German Facebook users to flag knowingly manufactured items. Moreover, Wendling reported fact-checkers from media organizations such as the Washington Post and Snopes.com, who flag fake news items. Similarly, this strategy is being practiced by the newspaper “Le Monde”, and its fact-checking section named “Les Decodeurs”, which means the Decoders, who have formed a browser extension called “Decodex”. Secondly, Berners-Lee referred to algorithms to fight fake news; specifically, since algorithms play a significant role in the distribution of the fake news, they might be the solution, by distinguishing fraudulent content and confirming the information sources. Such algorithms, though, yet need the necessary strength and proper structure to offer a solid affirmation of whether the information is fake or not (Figueira and Oliveira 2017).

Parallely, the European Commission is suggesting that the human factor in detecting disinformation online is critical. Specifically, EU Commission on its press release “Upcoming measures to counter false news: Commission sets up high-level expert group and launches public consultation”, suggests the ways with which, disinformation will be faced inside the Union. According to the announcement Commission launched public consultation on false news and misinformation on the internet today and set up a high-level expert group university, online platforms, the media and civil society organizations. First Vice-President of the Commission Frans Timmers said: “the freedom to receive and disseminate information, and media pluralism enshrined in the EU Charter of Fundamental Rights. We live in a time when the flow of information and par information has become almost uncontrollable. That is why we need to give European citizens the tools to detect fake news, improve online confidence and manage the information they receive”.

Andros Ansip, Vice President of the European Commission for the Digital Single Market He added: “We need to find a balanced approach between freedom of expression, media pluralism and citizens' right of access to diverse and reliable information. All relevant actors, such as online platforms or the media should contribute to finding a solution.”

The public consultation that the EU Commission proposed will collect viewpoints on steps that could be practiced at EU level to provide citizens powerful tools to recognize reliable and valid information, as well as to adjust to the hurdles of the digital age (European Commission 2017).

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On 26 April 2018 European Commission announced once again, the proposed measures to seize online misinformation including an EU-wide code of good practice for cybercrime assisting an autonomous network of people, that work as event verifiers and a series of actions to promote quality journalism and promote media literacy.

At the same time, the discoveries about Facebook and Cambridge Analytica have shown exactly how personal data can be exploited in democratic processes, such as an election. For that reason, the Commission is taking actions to combat misinformation to safeguard European values and security. These measures involve the “Code of Good Practice for Misinformation” and, in general, the web platforms emerging and supporting a common code of good practice in order to assure clarity of advertised content, in particular, political sponsoring, targeting to lower the income of misinformation traffickers; implementing more precise information on the development of algorithms; enabling users to find and access easier various news sources representing alternative views; to introduce measures to detect and close counterfeit accounts and address automated bot programs.

Furthermore, what is crucial according to the Commission is to allow fact-finding bodies, researchers and public authorities to consistently watch online misinformation. Therefore, for that to be achieved the fact-finding groups will be decided by the members of the International Event Tracking Network - a secure European platform for misinformation “to provide support to the network of incident investigators and their associated university research, cross-border data collection and analysis, as well as access to EU-wide data”.

Finally, one of the most critical factors in tackling misinformation is strengthening people's digital literacy. A greater level of digital literacy will benefit European citizens to recognize online misinformation and access the Internet critical content. This would be accomplished by providing educational material to schools and their students via the fact-finding teams and civil society organizations. Parallely, to this achievement, users' voluntary online identification is essential, because it will improve the traceability and traceability of information providers and encourage reliance and confidence in each other (European Commission 2018).

The example for digital literacy followed Singapore, on a program for educating students from a young age, towards acquiring digital skills crucial in a digital era. According to Cher (Cher 2015) “computational thinking is defined as the ability to dissect problems and formulate solutions by drawing from concepts in computer science”. Digital literacy and computational thinking are anticipated to be an increasingly valuable skill set in the

future. The “Infocomm Development Authority of Singapore (IDA)” and US technology giant Microsoft Corp have started on an aspiring plan to convert Singapore into a “computational thinking” nation by teaching coding skills to the people. The IDA and Microsoft have partnered to originate “Code for Change”, a three-year program that aims to teach 1.2 million Singaporeans different levels of coding, in the goal of developing computational thinking in the city-state. “Singapore is building itself into a ‘Smart Nation’”, said IDA executive chairman Steve Leonard. “The opportunity now is to create a culture of experimentation in which students are both curious and confident when working with technology”, he added (Cher 2015; Pearl 2016).

Digital literacy as a sum of technical, cognitive, post-cognitive and socioemotional abilities and skills is based on moral values that allow users to cope with digital life’s challenges and adjust on its demands. People educated and equipped with digital intelligence are more capable, intelligent and future-ready to be digital citizens by successfully using, controlling and developing technology for the sake of humanity and democracy. Those digital skills are essential to tackling misinformation online since the users will be accustomed to digital information and its dissemination, thus with critical thinking, they will be capable of acknowledging it.

3.8 Summary

In the chapter above we analyzed after qualitative research the general characteristics of the term fake news that exist on the current literature. We examined each element of the scattered definitions provided by researchers and scholars, concluding in a more general, inclusive and comprehensive definition. Apart from delimiting the term we categorized and classified the plethora of different types of fake news that anyone can come across on the Web clarifying which could be listed as fake news and which as pure, harmless entertainment. Similarly, the possible fake news actors were pointed out and listed according to their characteristics. Motivations, target and impact regarding individuals, publishers and society were featured, as well. Finally, several detection attempts concerning automated approaches and people’s education on new technologies. Therefore, follows a final board of features highlighting the most important characteristics of the fake news term.

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FEATURE	ELEMENTS								
FAKE NEWS INCIDENT	i. distorted event ii. non cross-referenced fact iii. fabricated false information iv. publicly spread through the Internet v. knowingly/ purposely mislead/ deceive people								
CATEGORIES FORMS	Fabricated News	Propaganda	Conspiracy Theories	Hoaxes	Click-bait	Photo Manipulation	News Satire	News Parody	Rumors
ACTORS:	PUBLISHER					USER			
HUMAN	→ Journalists					→ Individuals			
	→ Organizations					→ Conspiracy theorists			
	→ Governments- Politicians					→Trolls			
AUTOMATED	→ Bots								
MOTIVATION	PUBLISHER					USER			
	Financial gain		Political gain			Social	Psychological		
AUDIENCE/TARGET	Heavy media users			Light media users		Audience based on age			Audience's digital literacy
IMPACT	ON INDIVIDUALS					ON SOCIETY			
DETECTION	DIGITAL LITERACY					AUTOMATIC TECHNOLOGIES			

Table 3.8.1 Final board of features

CHAPTER 4

The “Pizzagate” case study

The fourth chapter of the current thesis focuses on the “Pizzagate” incident, and the several characteristics extracted by it through the former classification system. This particular case refers to the convenience that social media platforms and the Internet, in general, offer to individuals or organizations to produce a story based on coincidental elements and spread it as a proven fact, while users believe and reproduce it among others. The “pizzagate” case below is being classified to the separate characteristics that compose a fake news incident, confirming the existence of those elements to all similar cases.

4.1 BACKGROUND

Summary of the fake news incident

One of the most well-known misinformation incidents of the last decades is named “Pizzagate” (<pizza+ investigate). Specifically, the “Pizzagate” story is characterized by many websites and digital newspapers as a demystified conspiracy theory. Social media and the Web played a critical role in the story's dissemination that went “viral” before and during the 2016 United States presidential election period. The Pizzagate report has been broadly doubted by a wide field of organizations, including the Metropolitan Police Department of the District of Columbia. In a brief, the fake news incident started in March 2016, when the personal email account of John Podesta, Hillary Clinton's head pre-election campaign manager, was hacked due to a phishing scam. Because of that hacking incident, Podesta's emails were revealed to the public in November 2016 by Wikileaks.org “a multi-national media organization and associated library”. The Wikileaks Website was founded by its publisher Julian Assange in 2006.

WikiLeaks specializes in the analysis and publication of large datasets of censored or otherwise restricted official materials involving war, spying, and corruption. It has so far published more than 10 million documents and associated analyses (“WikiLeaks - What Is WikiLeaks” n.d.). Defenders of the Pizzagate story claimed the emails contained coded messages connected to child pornography. These codes also related several U.S. pizza-restaurants and influential politicians of the Democratic Party with an alleged human trafficking and child molestation organization. One of those restaurants supposedly involved was the Comet Ping Pong restaurant and pizzeria in Washington, D.C. The result

of this misinformation spread was a man from North Carolina, who traveled to Comet Ping Pong to investigate the story by himself and fired a rifle inside the restaurant.

Several Websites and digital newspapers covered the story constantly. For instance, according to BuzzFeed the unconfirmed theory now known as “Pizzagate” has resulted in a man causing an attack with a rifle to the DC bar named in the theory, according to local police. Silverman writes down that, ““Pizzagate” claims that Democratic operatives placing orders at Comet Ping Pong were actually using code to talk about underage prostitutes. This strange and convoluted conspiracy theory, which also involves allegations of occult rituals, has its origins in false accusations about the Clintons that began spreading in late October. The original theory claimed that the Clintons and other government figures were involved in a global human trafficking and pedophilia ring. This one example shows how Trump supporters, members of 4chan and Reddit, and right-wing blogs in the US and in other countries combined to create and spread viral misinformation during the election season” (Silverman 2016b). According to the New York Times, “In the span of a few weeks, a false rumor that Hillary Clinton and her top aides were involved in various crimes snowballed into a wild conspiracy theory that they were running a child-trafficking ring out of a Washington pizza parlor. The fast evolution of the false theory revealed how a powerful mix of fake news and social media led an armed North Carolina man to investigate the rumors about the pizza place, Comet Ping Pong, last Sunday” (Aisch, Huang, and Kang 2016).

How the fake news incident was disseminated.

First the globally famous Website, WikiLeaks.org released personal emails hacked from the account of John Podesta, Hillary Clinton’s campaign chairman, a month before the election. After that several volunteers, with social media accounts on Twitter, Reddit, and 4chan, shifted through the leaked Podesta's emails, searching for suspicious hidden evidence, that might incriminate those politicians. Between those emails, there were several references on Podesta's dinner plans, including words such as pizza or pasta. Next followed the conspiracy theorists that connected the words pizza, hotdog, pasta, and others to child molesting. Specifically, a user on 4chan connected the phrase “cheese pizza” to pedophiles, who on chat boards use the initials “c.p.” to denote child pornography. Furthermore, Wikileaks published another FBI classified document about symbols on advertisements or businesses (heart in a heart, triangle in a triangle, butterfly symbol, etc.) that are indicative of child pornography. Incidentally, the supposedly related pizza restaurants included such similar symbols on their logos. Combining those coincidental hints, the

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supporters of the story, focused on the “Comer Ping Pong” pizzeria and its owner who hosted several events for Democratic operatives.

With those “clues” and absolutely no cross-referenced facts or evidence, the story started snowballing on social media, especially on Twitter and Facebook, with the hashtag #Pizzagate, shared by many users across the world. The theories about the truth behind the Pizzagate story became more and more distorted and exaggerated, including kill rooms, underground tunnels, satanism, and even cannibalism, under the premises of the restaurants.

The result of this fake news incident was that in December 2016, Edgar Welch- a young man from North Carolina- decided that due to the FBI negligence to investigate the situation, he should take over to reveal the truth. So, with a military rifle and a handgun Welch started shooting inside the Comet Ping Pong pizzeria without hurting anyone, or finding any evidence.

Although, this radical action did not prevent the Internet users to still disseminate the Pizzagate story or distort it even more. On the contrary, the theory took the internet by storm. YouTube videos promoted a false story, gaining hundreds of thousands of views. Individuals subscribed to digital message boards, filling into speculations with fake news reports and crowd-driven detective work. The police denied the claims of an online pedophile ring running out of Comet Ping Pong, but the theories continued (Aisch, Huang, and Kang 2016; Wendling 2016).

4.2 Classification

FAKE NEWS ITEM	What was published/ posted?	Fake news definition
	The “Pizzagate” theory	i. distorted event ii. non cross-referenced fact iii. fabricated false information ✓ iv. publicly spread through the Internet ✓ v. knowingly/ purposely mislead/ deceive people ✓

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First of all, the above discussed fake news incident that took place during 2016 fulfills the elements of the term's definition. Specifically, as was revealed, the supposed facts, that were disseminated, had absolutely no evidence of factual basis, whereas the reports presented were only based on coincidences. Therefore, the “Pizzagate” reciprocates to the fabricated-false-information characteristic of the definition that we approached on the current study. On the other hand, this incident is no distorted event or non-cross-referenced fact, since- as it was proved- it was totally fictional based upon no legitimate events, clues or facts.

Moreover, this misinformation story was easily spread through the Internet worldwide. As mentioned above, Twitter, Reddit, 4chan and several other websites and social media networks multiplied the propagation of the story by their users. Particularly, according to the BBC, it all originated from an anonymous user post on Reddit the allegations spread to public through the Internet some days before the 2016 U.S. presidential election, after a Reddit (social networking website where people around the world post, vote, and comment in communities organized around their interests) user posted a Pizzagate “evidence” document (Wendling 2016). Even though the original Reddit post removed, the story was, nevertheless, pulled by other fake-news websites like *InfoWars*, *Planet Free Will*, (Kang 2016) and *The Vigilant Citizen* (Cedric 2016) and was encouraged and inflated by alt-right activists (white nationalist movement based in the United States) such as Mike Cernovich, Brittany Pettibone, and Jack Posobiec (Fisher, Cox, and Hermann 2016; Wendling 2016). Apart from those promoters of the theory were David Seaman, a former writer for TheStreet.com, (Zuylen-Wood 2017) CBS46 anchor Ben Swann (Wemple 2017). So, it is more than clear that the Websites, the social networking sites, the Internet, in general, was responsible for the easier and rapider dissemination of the alleged scandal of “Pizzagate”.

Except for the fabricated false information and its fast spread via the Web, the discussed fake news incident is characterized by the intentional will of deception. The above Internet users and writers assisted in propagating unsourced information with no actual evidence, and even more, after the revelation that the supposed facts were nothing more than coincidental non cross-referenced theories when the spread continued.

So far, the discussed misinformation case completes the elements of the fake news definition and therefore is classified as fake news incident.

CATEGORIES/ FORMS	What kind of news item was it?
	a) Fabricated News ✓ b) Propaganda c) Conspiracy Theories ✓ d) Hoaxes e) Clickbait ✓ f) Photo Manipulation ✓ g) News Satire; h) News Parody i) Rumors

Second, as far as the categorization of the discussed fake news incident is concerned, we should take a closer look to the characteristics of each form of misinformation and whether the “Pizzagate” case applies to one or more types.

Fabricated news. Of course, the pizzagate incident could certainly be classified as a case of fabricated news. As we analyzed in the related section above, fabricated news is a completely fictional story disguised as news intending to misinform, with no implicit disclosure that the “news” item is manufactured disseminated easier through the Web. According to the aforementioned history of the pizzagate issue, there was no factual basis to support the story, on the contrary, it was completely made-up. Apart from that the elements of the fake news incident and its dissemination matches to the whole concept of the term fabricated news.

Propaganda. Opposed to the latter, propaganda is not a type of misinformation that relates to the pizzagate case. Certainly, propaganda stories are profoundly utilized in political contexts to mislead people with the overarching goal of inflicting damage to a particular political party or nation-state. The pizzagate theory might entail political backdrop, although this is not proven by the investigations on the incident. It might be related to the 2016 US elections, although it is not blatantly part of party members' political campaigns or political ideologies. As a result, even though it targeted Hillary Clinton and her co-workers, it did not refer to their political program and actions related to the at-the-time-approaching elections.

Conspiracy theories. Most of the digital newspapers that covered the pizzagate story referred to it as a conspiracy theory. Indeed, the elements that compose a conspiracy theory apply to the discussed fake news incident. Specifically, as mentioned previously, they consist of unsourced information masked as facts, relying on leaps of faith, as an effort to explain some event or practice by reference to the intrigues of influential people, who

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attempt to cover their role. The definition of conspiracy befits the pizzagate story, especially concerning the supposed cover-up of the scandal by the FBI to protect the Democrat party members.

Hoaxes. This category of misinformation approaches more a practical joke than a piece of fabricated news since the news stories that contain facts that are either false or inaccurate and are presented as legitimate facts, although their initial intention is to trick their audience. In other words, hoaxes do not take themselves seriously, even though they manage to deceive. So, the pizzagate story does not approach the elements that compose a hoax as much as a story about the supposed death of a celebrity, for example. Perhaps the story about hidden pedophile scandals is a paranoia-filled fabrication, though it does not seem to have originated as trickery.

Clickbait. The clickbait types of misinformation constitute a more general category since the exaggerated headline with inflammatory language is what matters. Many Websites that reproduced the pizzagate story used such title to approach the audience's curiosity. For instance, some Websites titled their articles as “OMG FBI INSIDER: Clinton emails linked to political pedophile sex ring” or “IT’S OVER: NYPD Just Raided Hillary’s Property! What They Found Will RUIN HER LIFE” (Silverman 2016b). Although the fake news incident itself does not apply to the clickbait category unless the publishing Website used outrageous linguistic features to elude the users into clicking on it, as the headlines mentioned above.

Photo manipulation. Similarly, to the clickbait category, the pizzagate story itself is not a photographic piece that turned into misinformation, it does not refer to real images or videos creating a false narrative. Although, many of the Websites that reproduced the fake news item combined it with edited and photoshopped pictures to make it more believable and appealing to the users.



Picture by Silverman (2016b)

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News satire/ parody. These two categories of fake news do not approach at any level the pizzagate story. The discussed story does not utilize humor or exaggeration to present audiences with the updates. Moreover, parody or satire might be in the guise of legitimate news, although they clarify that they are not meant to be taken seriously and certainly they do not aim to mislead. So, from every aspect, the pizzagate case cannot be classified as humorous or entertainment, rather than a very serious disinformation issue.

Rumor. Finally, the rumor category is another type of misinformation that does not apply to our case. Rumors are vague propositions for belief, passed along from person to person changing according to the desires or hostilities of those individuals who pass it on. In the pizzagate case, the information that was disseminated was analytically described and based on fictional facts with no evidence.

ACTORS	Who published/posted it?	
	Publisher	User
human:	<ul style="list-style-type: none"> → Journalists ✓ → Organizations → Governments- Politicians 	<ul style="list-style-type: none"> → Individuals ✓ → Conspiracy theorists ✓ → Trolls
automated:	→ Bots	→ Bots

According to the background information of the pizzagate case- and the way it was spread all over the Internet- the actors of the fake news incident were not only publishers but also Internet users. Specifically, as we analyzed in the related section the type of actors that published and reproduced this piece of misinformation were individuals, namely social media users, conspiracy theorists, and website owners. First, concerning the category of individuals, we mention again that they are Website users who are possible disinformation actors by reading, relating and sharing a story they encountered on a social media platform or a Website without previously confirming the information they receive. Moreover, this specific case involves, as well, the “useful idiots”, that distribute inaccurate information due to the manipulation they experience by the leaders of some political group or due to their naivety. It is possible- according to the New Yorker Magazine- that the Reddit and 4chan users that reproduced the

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story were Donald Trump's supporters (Aisch, Huang, and Kang 2016). Certainly, to the researched case the conspiracy theorists played a significant role as well (see above “Conspiracy Theorists”). Apart from the common Internet users that reproduced and thus disseminated the pizzagate story, there were also Website owners that deflated its content. As it seems by the research on the pizzagate phenomenon well-known Websites such as the InfoWars, were the ones validating the theories. As a publisher, we have defined a news media owner, the category which includes the author, the journalist, the writer of a news story, the reporter, the correspondent. Finally, it is vague in the Pizzagate story whether there were politicians that incited the dissemination or even the origins of such information.

MOTIVATION	Why did they publish/post it?			
	Fake news intention- motive			
	BY USER		BY PUBLISHER	
SOCIAL ✓	PSYCHOLOGICAL ✓	FINANCIAL GAIN ✓	POLITICAL GAIN ✓	

There is no statistical or qualitative research on the actual motivations and reasons for the dissemination of the Pizzagate story. The speculations focus on political factors, namely the target was for one political party to be undermined a while before the 2016 US elections. Several digital newspapers and Websites refer to the producers of the information as Donald Trump supporters, whereas the Comet Ping Pong pizzeria's owner was the Democratic party's supporter (Aisch, Huang, and Kang 2016; Wendling 2016). Moreover, journalist research has shown that the information first was reproduced on a section of the site popular with Donald Trump supporters from the extremist white nationalist alt-right. Furthermore, the fake story remained on 4chan and Reddit alt-right supporters for a long time. On Twitter alt-right activists, conservative journalists, and others who had urged Clinton's prosecution over the emails - took up the “pizzagate” cause with repeated intensity (Wendling 2016). So according to this information the political background of the story played important role to the extension of its propagation. Apart from the political gain that a certain political party might have had due to the spread of the pizzagate story, there is also clear economical motivation for the Website owners. Specifically, Websites such as Infowars gained tremendous traffic by producing constantly the

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particular conspiracy theory. For instance, an article combined with a YouTube video on the InfoWars website gained more than nine million viewers (Salazar 2017). As a result, the advertisement placed inside the site offers enormous economic profits for such popularity.

On the other hand, common users that helped on the spread of the story appertain to categories of the user that succumb to their social and psychological needs on social media networks. Although there is no actual proof or statistical analysis of why the common social media users believed and disseminated the pizzagate story we could only assume that need for attention and the feeling of fitting in a group of people, or even the curiosity are possible motivations.

AUDIENCE-TARGET	To whom is it addressed?			
	Heavy media users	Light media users	Audience based on age	Audience's digital literacy

Unfortunately, there is no theoretical or statistical research as far as the target of the specific fake news incident is concerned. Unluckily, no conclusive evidence exists, whether the audience that received the misinformation was heavy or light media users' type, what was its age scale and its digital literacy and knowledge of new technologies. We can only assume that the falsehood was targeted toward heavy media users of older age and with less digital awareness. This hypothesis arises from the precedent theoretical findings, as examined in the relevant "audience- target" section above.

IMPACT	What was the result?	
	Consequences of fake news' dissemination	
	on individuals ✓	on society ✓

The impact of the examined case was more than palpable. According to the reports of the New York Times "A 29-year-old North Carolina man fired a military-style assault rifle inside a popular Washington pizzeria in December, wrongly believing he was saving children trapped in a sex-slave ring[...] The man, Edgar Maddison Welch, drove on Dec. 4

from his hometown, Salisbury, N.C., to the Comet Ping Pong restaurant with three guns. He was investigating unfounded but widespread online reports of children held there in a child abuse scheme led by Hillary Clinton, a theory known as Pizzagate.”(Haag and Salam 2017).

However, Mr. Welch, who pleaded guilty to federal weapons charges and was sentenced to four years in prison in March, saved no children from the alleged child trafficking network. He managed to terrify employees and clients of the restaurant, who panicked and ran. Mr. Welch surrendered after the attack, when he tried to expose the supposedly imprisoned in the basement children and almost immediately apologized, saying he had made an “incredibly ill-advised decision”. He explained that he had traveled to Washington “with the intent of helping people” but conceded that his actions were in fact “foolish and reckless.” (Lipton 2016). Before the gunfire, there has already started an agitating period for the restaurant, its employees and the whole neighborhood since the fake narratives generated and disseminated online. Multiple threats against employees had been made through email and social media. Sabrina Ousmaal, the owner of a French restaurant named Terasol, which is opposite from Comet told the New York Times (Lipton 2016) that “The F.B.I. and the police were notified repeatedly of these death threats and calls, emails, online posts,”. Moreover, in a statement, Comet Ping Pong’s owner, James Alefantis, denounced the individuals and the Websites who had been growing the counterfeit stories about child abuse. “What happened today demonstrates that promoting false and reckless conspiracy theories comes with consequences,” he said. “I hope that those involved in fanning these flames will take a moment to contemplate what happened here today and stop promoting these falsehoods right away.” Also, Alefantis tells BBC Trending “They ignore basic truths,”. For instance, the conspiracy supposedly is run out of the restaurant's basement. “We don't even have a basement.” (Wendling 2016).

On the other hand, there are no reports concerning any political cost that this fake news incident might have had on the elections for the targeted Democrat candidate, Hillary Clinton and her not being elected. Moreover, there is not enough statistical evidence on how many individuals actually believed the story. For instance, a poll which surveyed 1,224 registered voters indicated that “14% of Trump supporters think Hillary Clinton is connected to a child sex ring run out of a Washington DC pizzeria. Another 32% aren’t sure one way or another, much as the North Carolinian who went to Washington to check it out last weekend said was the case for him. Only 54% of Trump voters expressly say they don’t think #Pizzagate is real.” and “Nationwide, those numbers are 9 percent, 19 percent, and 72 percent respectively.” (Jensen 2016; Kafka 2016).

Conclusively, the impact of the examined case was that it affected people’s beliefs towards a non-founded story leading from cyberbullying to physical violence. However, there is no quantitative proof that this fake news distributions affected the voter’s choice on the 2016 US elections and by extension the whole American society.

4.3 Recommendations- Actions

DETECTION	How could it be detected/prevented?	
	Digital literacy ✓	Automatic Technologies ✓

Of course, there are actions that should have been made when the spread of the proved as counterfeit incident started. The recommended confrontation actions could have prevented the outcome of this incident and could be implemented in several other similar cases.

Although famous social media platforms have tried to diminish misinformation and abusive content through the last years. Facebook, however, has admitted foreign operatives published thousands of posts in an effort to sway the results of the 2016 U.S. presidential election. As a result, the company has endured continuous reaction from lawmakers around the world for failing to restrain the spread of fake information in election campaigns (Schulze 2019b; 2019a; 2019c).

Nevertheless, the prevention- of fake news incidents such as the “pizzagate” could start by including the human factor and the technological progress in this effort. It is important for co-existing powers to support the confrontation of distorted information. So, there is need of heightened consciousness of online misinformation and preemptive public action by news professionals and specialists to develop literacy skills on people and, secondly, the development of automated machines and new technologies to support journalists, writers, and publishers, in general, to be able to prove, fact-check, and to help news audience by clarifying and signaling ambiguous news stories and obscure information. Particularly, in the studied instance the best- known platforms as Facebook, Google, YouTube, and Twitter should intensify their efforts to battle fake news. They should first make progress in some of their efforts to fight disinformation, like hiring fact-checking teams and stretching restrictions around advertising, as well as adding a layer of defense against fake news, work cross-functionally with our warning intelligence, data science,

engineering, research, community operations, legal and other teams. As a consequence, non-cross-referenced stories as the pizzagate would be flagged warning the users of falsehood. On the same time, users should be aware of such questionable content as the above examined and would not reproduce it before checking its sources or evidence. This could be accomplished if the audience acquired digital literacy, was educated and equipped with digital intelligence if the audience was more capable and future-ready to be digital citizens by successfully using, controlling and developing technology.

4.4 Conclusion

First of all, we should mention the unknown elements of the specific case, namely the ones that cannot be classified with certainty to the categories- characteristics of the fake news term. Specifically, those elements are the motivation, the target and the impact on society. In other words, no statistical or qualitative researches exist concerning why the actors disseminated the pizzagate story, to which particular audience were they targeting and finally whether its spread affected the socio-political scene of the US apart from the individuals alone. On the other hand, the rest of the pizzagate features could distinctly be classified to the categories that supervened by the previous theoretical research of the current study. As a result, the background of the fake news incident was stripped of its undermining components to be understood and thus better confronted.

CHAPTER 5

The “Pope Francis” case study

The fifth chapter includes the incident named as “Pope Francis endorsing Trump during 2016 US elections”, followed by the elements concluded from the fake news story and its particular characteristics. This fake news incident differs from the previous one that was closer to a conspiracy theory. On the contrary, this one approaches the satire and parody type only it was confused by the audience as a legitimate news story. This case study presents the quickness with which a fake story can be disseminated online as a fact even if it was produced in fantasy and how easily can the audience be confused and misled. Such examples prove the lack of digital literacy of the users as well as the lack of awareness regarding the severity of spreading a news story without first checking its origin. The “Pope Francis” case below is being classified to the separate characteristics that compose a fake news incident, confirming the existence of those elements to all similar cases.

5.1. BACKGROUND

Summary of the fake news incident

Another famous fake news incident that proliferated across the web during the presidential elections in the US during 2016 was titled “Pope Francis endorses Donald Trump”. Fake news - from incorrect celebrity scandals to completely made-up stories as the one of Pope Francis endorsing Donald Trump - became a huge concern during the US election campaign. Those who produced falsehoods were mostly motivated by profit and sometimes by politics. (Wendling 2017). The discussed fake news incident started by a Website called “WTOE 5 News” with the headline “Pope Francis Shocks World, Endorses Donald Trump for President, Releases Statement.”. It refers to Pope Francis supporting Trump on the 2016 US presidential elections. Specifically, the report mentions: “VATICAN CITY – News outlets around the world are reporting on the news that Pope Francis has made the unprecedented decision to endorse a US presidential candidate. His statement in support of Donald Trump was released from the Vatican this evening: “I have been hesitant to offer any kind of support for either candidate in the US presidential election but I now feel that to not voice my concern would be a dereliction of my duty as the Holy See. A strong and free America is vitally important in maintaining a strong and free world and in that sense, what happens in American elections affects us all. The Rule of Law is the backbone of the American government as it is in any nation that strives for freedom

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and I now fear that the Rule of Law in America has been dealt a dangerous blow. The FBI, in refusing to recommend prosecution after admitting that the law had been broken on multiple occasions by Secretary Clinton, has exposed itself as corrupted by political forces that have become far too powerful. Though I don't agree with Mr. Trump on some issues, I feel that voting against the powerful political forces that have corrupted the entire American federal government is the only option for a nation that desires a government that is truly for the people and by the people. For this primary reason, I ask, not as the Holy Father, but as a concerned citizen of the world that Americans vote for Donald Trump for President of the United States."

Sources within the Vatican reportedly were aware that the Pope had been discussing the possibility of voicing his concern in the US presidential election but apparently were completely unaware that he had made a decision on going forward with voicing this concern until his statement was released this evening from the Vatican. Stay tuned to WTOE 5 News for more on this breaking news." ("Pope Francis Shocks World, Endorses Donald Trump for President, Releases Statement – WTOE 5 News" 2016).

How the fake news incident was disseminated.

Specifically, the article that was shared on Facebook by more than 90,000 users:



Picture by "WTOE5News"

According to BuzzFeed "the hoax has registered over 100,000 comments, shares, and reactions on Facebook, according to data from "BuzzSumo". But the hoax did even better on Facebook when, in late September, the website *Ending the Fed* published a fake story with the exact same headline. That post has earned close to 1 million Facebook engagements and was the single biggest fake news hit of the election" (Silverman and Singer-Vine 2016).

Although what is actually crucial in this case is the section "About" in this particular Website where it is written that: "About wtoe5news.com: WTOE 5 News is a fantasy news website. Most articles on wtoe5news.com are satire or pure fantasy" ("About Us – WTOE 5 News" 2016). Nonetheless, many of the social network users never checked this section of the satirical Website, or even more, they just read the headline without even

further examining the article before sharing it among their digital friends. As a consequence, some of the audience assumed the article as legitimate resulting in a fact-checking organization to investigate it to restore the truth. Particularly, the referred-to Website, called FactCheck.org (“About FactCheck” n.d.) is a nonpartisan, nonprofit “consumer advocate” for voters that aims to reduce the level of deception and confusion in U.S. politics. We monitor the factual accuracy of what is said by major U.S. political players in the form of TV ads, debates, speeches, interviews, and news releases. Our goal is to apply the best practices of both journalism and scholarship and to increase public knowledge and understanding. According to FactCheck.org, their efforts are included in a project of the Annenberg Public Policy Center of the University of Pennsylvania. The APPC was established by publisher and philanthropist Walter Annenberg to create a community of scholars within the University of Pennsylvania that would address public policy issues at the local, state and federal levels (“About FactCheck” n.d.). Therefore, the Website above received many questions by users wondering about the accuracy of the “news” item, namely whether Pope Francis was endorsing Donald Trump in the upcoming elections. As stated above, Pope Francis’ alleged support of Trump arose by the satirical website WTOE 5 News. In the counterfeit announcement- as above- the pope is indicated to illustrate facts on the FBI investigation of Hillary Clinton, writing, “The FBI, in refusing to recommend prosecution after admitting that the law had been broken on multiple occasions by Secretary Clinton, has exposed itself as corrupted by political forces that have become far too powerful.” Of course, the whole article, as well as the Pope's statement is completely fictional with no factual basis. Although the piece is disguised as an actual news report, especially when the pope claims that he is not defending Trump as the pope, but rather “as a concerned citizen of the world” (Schaedel 2016).

Moreover, FactCheck declares that the Pope not only is supporting Donald Trump but has in the past reprimanded his politics, especially as far as the Mexican border was concerned.

Particularly, the Pope has declared that “A person who thinks only about building walls, wherever they may be, and not building bridges, is not Christian,” when asked about the Republican presidential candidate as he returned after a visit to Mexico. (Yardley 2016)

Further evidence on the issue was provided when Vatican's spokesman Lombardi and the Pope himself in several interviews tried to refute the fake news incident stating that “It is not that the pope wishes to be, in any way, a personal attack nor an indication of voting,” and “I never say a word about electoral campaigns,” when asked how Catholics should

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vote if they dislike Clinton and Trump. “The people are sovereign. I will only say: Study the proposals well, pray, and choose in conscience.” (Bever and Johnson 2016; McElwee 2016).

5.2. Classification

FAKE NEWS ITEM	What was published/posted?	Fake news definition
	The “Pope Francis” story	i. distorted event ✓ ii. non cross-referenced fact iii. fabricated false information ✓ iv. publicly spread through the Internet ✓ v. knowingly/ purposely mislead/ deceive people ✓

This particular case fulfills the characteristics that compose a fake news story. Firstly, it is composed of facts that were either distorted or completely fictional. The specific article that was first produced by the WTOE 5 news website created a whole fake interview of the Pope, where the latter supposedly was supporting Trump’s candidacy. Some of the article’s elements were distorted statements of the Pope, whereas most of them were completely made up. The publishers of the piece were completely aware of the fact that the item was counterfeit and simultaneously there was no writer or source placed below. Although there is a difference between the current fake news incident and the previously discussed case. The “Pope Francis” case was produced by a fake website. So, this incident satisfies the characteristics that compose a fake news item, although the Website includes a disclosure statement that informs of the satirical, humorous and whimsical content of the most pieces published. Even though the disclaimer was not placed over or below the article but on a separate section of the Website referring to its general content. As a result, this case is worth examining because of the confusion that provoked and the deception that created to the users.

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CATE- GORIES/ FORMS	What kind of news item was it? (Criteria/ characteristics of fake news items)
	a) Fabricated News ✓ b) Propaganda c) Conspiracy Theories d) Hoaxes ✓ e) Clickbait ✓ f) Photo Manipulation ✓ g) News Satire ✓ h) News Parody ✓ i) Rumors

Furthermore, as far as the categorization of the discussed fake news incident is concerned, we should take a closer look to the characteristics of each form of misinformation and whether the “Pope Francis” case applies to one or more types.

Fabricated news. Of course, the “Pope Francis” case could positively be listed as an incident of fabricated news. As has been already mentioned, fabricated news is a fictional story covered as news expecting to misinform. Although the examined case was produced by a satirical Website with implicit disclosure that most of its content is manufactured, there was no such mention on the article itself. According to the exposed evidence, there was no factual basis to support the story (Sarlin 2018; Global Banking and Finance 2018). Apart from that the elements of

the fake news incident and its propagation fits the concept of the term fabricated news.

Propaganda. Certainly, propaganda stories are thoroughly appropriated in political contexts to deceive people with the overarching purpose of causing damage to an opposed political party or nation-state. The “Pope Francis” theory might involve political background, since it is relevant to the 2016 US elections, although it is not referring to party members' political campaigns or political ideologies and after all, it is satirical.

Conspiracy theories. Definitely, as mentioned earlier, the examined story consists of fabricated information masked as facts, as an effort to mock some event or practice. Although it includes no effort of explanation by reference to the intrigues of influential people, who attempt to cover their role. The definition of conspiracy does not apply to the current fake news incident.

Hoaxes. This type of fake news resembles more a practical joke than a piece of fabricated news considering they include facts that are either incorrect or fictional and are presented as genuine facts, even though their original intention is to trick their audience. In other words, hoaxes do not take themselves seriously, however they manage to deceive. So, this fake news incident approximates the parts that compose a hoax as much as a story about the supposed death of a celebrity, for example. And it is certainly begun as trickery.

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Clickbait. The clickbait examples of disinformation establish a broader category since the exaggerated headline with inflammatory language is what matters. The headline of this particular fake news piece “Pope Francis Shocks World, Endorses Donald Trump for President, Releases Statement” includes words such as “shocks” and “endorses” which are fierce and catch the user's eye. It could apply to the clickbait category since the publishing Website used outrageous linguistic features to elude the users into clicking on it.

Photo manipulation. Similarly, to the clickbait category, the “Pope Francis” story itself is not a photographic creation that ended up as a misinformation item, it does not relate to actual images or videos building a false narrative. Although, the article was combined with an edited and photoshopped picture to make it more appealing to the users.

TOPICS: Pope Francis Endorses Donald Trump



photo by Jeffrey Bruno / CC BY-SA 2.0 / cropped & photo by Gage Skidmore / CC BY-SA 3.0 / cropped

Picture by “WTOE5News”

These two categories of fake news which are very similar to each other differ from fake news due to its explicit humorous content. Although sometimes such as the examined case the satirical aspect is not so clear and as a result, the audience gets misled, therefore it converts to a type of fake news. The current case approaches at any level the parody- type of misinformation since it uses non-factual information to introduce fun comments. Rather than producing a literal criticism on popular affairs parody plays on the ludicrousness of problems and highlights them by creating entirely fictitious news stories. Although, the content of this specific case is not clearly satirical or humorous since there is no use of exaggerated linguistic features. The element that classifies the story to the parody-kind is the irony, considering that the Pope would not express such an opinion. The discussed story is, additionally, in the guise of legitimate news, and even though the Website mentions that it is a product of fantasy, the article itself generated confusion to the public. So, the “Pope Francis” story could be classified as humorous or entertainment, if only the declaration part was explicit to the audience.

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Rumor. Finally, the rumor category is another type of misinformation that does not apply to our case. Rumors are uncertain suggestions, carried along from person to person switching according to the motives or malice of those who pass it on. In our case, the report that was propagated was particularly detailed and based on certain fictitious statements.

ACTORS	Who published/posted it?	
	Publisher	User
human:	<ul style="list-style-type: none"> → Journalists✓ → Organizations → Governments- Politicians 	<ul style="list-style-type: none"> → Individuals✓ → Conspiracy theorists → Trolls
automated:	→ Bots	→ Bots

The “Pope Francis” story was originally produced by the WTOE 5 news website owners, reproduced mostly by users, but also by online journalists from other Websites. WTOE5News.com was barely two weeks old when it published the hoax story and as a result, it was not recognized as a satirical site. The largest category of actors, in this case, was the individuals, namely the ones who use the Internet, obtain the information, share the articles they encounter, react, comment, like, retweet and generally distribute without being the authors themselves. Apart from the individuals that are classified as fake news actors since they propagate counterfeit information without checking first, we should mention the publishers of the story as main participants. The original publisher and WTOE 5 news owner was never revealed. According to BuzzFeed “It has largely been overlooked as a player in the world of fake news, a flash in the ersatz pan. But a BuzzFeed News investigation has found that the site is part of one of the world’s most unique and ambitious fake news operations — a network of at least 43 websites that together have published more than 750 fake news articles” (Silverman and Singer-Vine 2016; Silverman 2016a). On the same time other Websites, such as the “Ending the Fed. Com” and “archive.is” (EndingtheFed.com 2016; archive.today 2016) mimicking the WTOE's hoax have gone on to gain further attention as concerns about fake news during the election

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have increased. That story has been named repeatedly. Still little has been told and known about the site that started this massive fake news incident.

MOTIVATION	Why did they publish/post it?			
	Fake news intention- motive			
	BY USER		BY PUBLISHER	
	SOCIAL ✓	PSYCHOLOGICAL ✓	FINANCIAL GAIN ✓	POLITICAL GAIN

There is no statistical or qualitative analysis on the real impulses and reasons for the propagation of the “Pope Francis” case. The speculations direct on financial factors, regarding the Websites that published and reproduced the story. According to evident reports even though some of those websites are now offline, the advertisements that were included on them it is possible that offered them large economic profits. As far as the original Website-publisher, similar to other fake sites, nearly all of them in this fake news network held the same Google AdSense ID in their source code. This means the economic profit they earned each month from ads placed on the sites was going directly into their bank account, probably the same bank account. On the other hand, regular users that helped on the spread of the story relate to categories of the user that need to fulfill their social and psychological wants on social media networks. Although there is no actual proof or statistical analysis of why the common social media users believed and disseminated the story, we could only assume that call for recognition and the sense of belonging, or even the curiosity are possible motivations.

AUDIENCE-TARGET	To whom is it addressed?			
	Heavy media users	Light media users	Audience based on age	Audience’s digital literacy

Similarly, to the “pizzagate” case, there is no academic or statistical analysis as far as the objective of the “Pope Francis” story. Unfortunately, no definitive data exists, whether the audience that received the misinformation was heavy or light media users’ type, what

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was its age scale and its digital literacy and knowledge of new technologies. We can only speculate that the story was aiming for heavy media users of older age and with less digital awareness. This assumption derives from the theoretical findings of the current study, as observed in the relevant “audience- target” section above.

IMPACT	What was the result? Consequences of fake news' dissemination	
	on individuals ✓	on society

We cannot be certain of the impact that the examined case caused. Some findings are suggesting that was almost no influence due to the “Pope Francis” fake news incident. So, even though the Pope never made the endorsement, that didn’t stop the story from being shared, liked, or commented on nearly 1 million times on social media. Recently, a study of more than 16,000 Twitter users found just a little fraction spread and saw the majority of misinformation, and that they were typically older and politically conservative. David Lazer, a political scientist at Northeastern University in Boston, and his colleagues examined tweets from 16,442 registered voters who also had Twitter accounts during the 2016 election. Along with another study accomplished by Joshua Tucker, a political scientist at New York University in New York City, resulted in that taken together the two studies the majority of Americans are not sharing fake news or being exposed to it on social media. “[They] cut against the dominant narrative that fake news was everywhere on social media in 2016,” Tucker says. Still, even small amounts of fake news possibly have an impact on the political process, and additional research is required to define what that impact is.(Fox 2019; Grinberg et al. 2019)

5.3. Recommendations- Actions

DETECTION	How could it be detected/prevented?	
	Digital literacy ✓	Automatic Technologies ✓

Of course, actions should have been made when the spread of the proved as counterfeit incident began. The suggested encounter measures could have stopped the high spread of

this incident. As mentioned in the previous case, social media platforms have tried to diminish misinformation and abusive content through the last years. Nevertheless, the prevention- of fake news incidents such as the examined could start by including the human factor and the technological progress in this effort. What is primarily important in the specific incident is the individual's digital literacy and awareness of the fake news phenomenon. Mainly social media users should be cautious of such dubious content and always check the online information's source and evidence first. This could be achieved if the audience obtained digital skills, was trained and equipped with digital intelligence if the audience was more proficient and future-ready to be digital citizens by successfully using, controlling and developing technology. This digital education and online consciousness can be delivered by news professionals and specialists to develop digital skills on people. Simultaneously the development of automated machines and new technologies along with the more popular social networks to support journalists, writers, and publishers, in general, to be able to prove, fact-check, to help news audience and warn them for ambiguous news stories and obscure information is demanded.

5.4. Conclusion

Concluding this specific case differs from the previous one considering the fact that in the “Pope Francis” story, the dissemination could have been prevented if the users or the reproducing Websites have checked the “about” section of the publishing Website. Therefore, it is worth mentioning that the audience's carelessness combined with the lack of misinformation detection by websites and social media platforms can convert a purely imaginative story to news reports. Moreover, there are those elements such as the motivation, the target and the impact on society that remain unclarified in this case as well as the previous one. Yet, only assumptions exist concerning why the actors disseminated the story, to which particular audience were they targeting and finally whether its spread affected the socio-political scene of the US apart from the individuals alone. Finally, the other features could distinctly be matched to the classes issued by the preceding analysis of the current study. As a result, the framework of the “Pope Francis” incident was peeled of its undermining elements to be recognized and therefore better faced.

CHAPTER 6

The “Antivaccination” case study

Similarly, to the previous ones the sixth chapter exhibits the anti-vaccination movement phenomenon, as part of the fake news issue, followed by its classification to the specific categories and characteristics resulted by the story. The current fake news incident was chosen because of its temporal and social importance. Specifically, the misinformation against immunization has started many decades ago and even it has been proven false, still spreads causing great danger to the public. It is worth examining, since it is a remarkable example of how fake news can affect society even after its expose. The “anti-vaccination” case below is being classified to the separate characteristics that compose a fake news incident, confirming the existence of those elements to all similar cases.

6.1. Background

Summary of the fake news incident

Medical scientists have named vaccination as one of the most important accomplishments of health research in the previous century. However, resistance to vaccination has subsisted as long as vaccination itself (Wolfe and Sharp 2002). One of the first oppositions to vaccination was related to Diphtheria, Tetanus, and Pertussis (the DTP Vaccine Controversy). Specifically, around 1970 in Europe, Asia, Australia, and North America there was strong controversy about the safety of DTP vaccination. The origin of this dispute was 36 children in a Hospital in the United Kingdom that allegedly suffered neurological diseases due to their DTP immunization (The College of Physicians of Philadelphia 2018). This was not the only example of the fear of vaccines. Almost 25 years later the DTP controversy another one appeared, related to Measles, Mumps, and Rubella (the MMR Vaccine Controversy). Again, after the DTP controversy, England was one more time the place of anti-vaccination motion, this time regarding the MMR vaccine.

Of course, the anti-vaccination movement was most fiercely strengthened in the past few years when a former British doctor, Andrew Wakefield, published a paper which submitted belief to the exposed faulty link between the measles, mumps, and rubella (MMR) vaccine and growth of autism in young children (Wakefield and et al. 1998). However, later studies denied a causal relationship connecting the MMR vaccine and autism (Fombonne and Chakrabarti 2001; DeStefano and Thomson 2014; Farrington, Miller, and

Taylor 2001). Wakefield's research was strongly criticized because of his flawed methods, which he practiced to attract his results (Ferriman 2004). Moreover, it was exposed that his research originated due to economic profits Wakefield was offered. Particularly, he had accepted funding from defendants against vaccine manufacturers. Although his research was rejected by the scientists the faulty information was already spread to many different parts of the world, especially Europe and North America. For instance, the MMR vaccines sank from 92% in 1996 to 84% in 2002, and in 2003 the rate was 61% in London, far below the rate needed to avoid an epidemic of measles (Murch 2003). Similarly, in Ireland, in 1999-2000, the national immunization level had fallen below 80%, and in North Dublin, the level was around 60% (McBrien et al. 2003). In the US, the discussion following the publication of the study directed to a decline of about 2% in terms of parents obtaining the MMR vaccine for their children in 1999 and 2000. Even after later studies explicitly and fully exposed the supposed link between vaccination and autism, the fall in vaccination rates continued (Reily 2012; Azhar et al. 2018).

How the fake news incident was disseminated.

Nowadays, the Internet is one of the most famous ways to require information even relating to health issues. While this convenience is helpful, the propagation of deceptive and unreliable information found on the internet can also lead to catastrophic outcomes, such as parents not permitting their children's vaccination. Regarding vaccination issues, incorrect reports are abundant and accessible to every user. For instance, a study that analyzed the content of the first 100 anti-vaccination sites-results after typing "vaccination" and "immunization" on Google search concluded that 43% of websites were anti-vaccination. These Websites were not evidence-based and claimed vaccines were genetically dangerous without any quality-based argument.

On the discussed fake news incident, we are, particularly referring to the "anti-vaxxers" movement that is evolving on several closed Facebook groups, which members disapprove vaccination and immunization by sharing nonfactual and evidence-based researches against vaccines. Such groups demand approval in advance to accept their members, so they are able to spread neat disinformation without any disagreement (Pilkington and Glenza 2019). The Guardian found that Facebook search results for groups and pages with information about vaccines were dominated by anti-vaccination propaganda and that YouTube's recommendation algorithm steers viewers from fact-based medical information toward anti-vaccine misinformation (Wong 2019).

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The specific case we are studying is related to fake news articles that allege that the vaccines possibly cause psychological and neurological disorders to children even though the medical literature has since debunked such claims. One particular article of the “Althealthworks.com” Website titled as “Yale University Study Establishes Link Between Major Neuropsychiatric Disorders and Childhood Vaccinations.” (2017) claims that there is a “significant link” between children who are vaccinated and mental disorders. At the bottom the report concludes that users may respond by liking the post, writing a comment, or sharing it with others. The fake news article concentrated on the study’s finding of a tiny association found between receiving the MMR vaccine and the following diagnosis of brain-related disorders. The item assumes that vaccines can convert to true health risk and should not be applied to children. This statement is deceptive and complete disinformation because the study eventually achieves the result that the average quantity of their findings is surpassed by the clear public health benefits of vaccines in limiting mortality and morbidity in childhood contagious diseases, and the research recommends that families maintain vaccination schedules according to CDC guidelines.

Apart from this article which by the way was shared more than 130 thousand times on Facebook, there are several others that connect children vaccination and autism or other disorders. Even though academic researches of the medical literature have exposed these myths. (Chiou and Tucker 2018). Furthermore, although the Centers for Disease Control and Prevention (CDC) suggest that people should receive their first vaccinations during childhood, parents describe fear about safety as among the most important reasons why they prefer not to vaccinate their children (Smith et al. 2016). Despite the large misinformation cases around vaccines, medical experts ascertain that vaccination represents an important health affair for the general public because when children get vaccinations, they additionally shield the society through crowd immunity by blocking the further spread of the diseases to the ones unable to be vaccinated, such as HIV patients.

At this point we should mention that even though scientists request the public to receive vaccination there is another Website that produces and supports such fake news. The Website is named “vaccinesrevealed.com” and claims that “When it comes to vaccine risk, the only debate is the degree of risk that vaccines pose.” and that “without government compulsion or intervention, parents should have the right to choose what, if any vaccines their children should receive and individuals should have the right to determine if they wish to be vaccinated.” and “forced vaccination [...] have violated the rights of parents in deciding whether or not they want to inject vaccine substances into their children”. Finally, the site presents itself “to be a beacon of light that shines uninhibited truth on this

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critical subject. By aggregating the world’s leading experts on vaccines into a global forum where unbiased knowledge can be freely shared, we endeavor to be a resource for millions of enlightened parents and concerned people worldwide who wish to evaluate this topic and form an independent opinion from which they can act in their own interest.” (“Vaccines Revealed - FREE - Vaccines Revealed” n.d.).

6.2. Classification

FAKE NEWS ITEM	What was published/posted?	Fake news definition
	The “anti-vaccination” incident	i. distorted event ✓ ii. non cross-referenced fact ✓ iii. fabricated false information iv. publicly spread through the Internet ✓ v. knowingly/ purposely mislead/ deceive people ✓

In order to examine the particular fake news incident, we used a singular article titled “Yale University Study Establishes Link Between Major Neuropsychiatric Disorders and Childhood Vaccinations” produced by the “alhealthworks.com” Website. The incident once again satisfies the fake news' definition elements. Specifically, the “anti-vaccination” incident consists of a distorted event with non-cross-referenced facts which by its dissemination through the Internet caused deception of the audience. First of all, the article is based on single research of Yale University and includes no other evident sources that confirm the study's accuracy. Moreover, the writer of the article uses one observation of the research “Temporal Association of Certain Neuropsychiatric Disorders Following Vaccination of Children and Adolescents: A Pilot Case–Control Study”, namely that “patients diagnosed with neuropsychiatric disorders like obsessive-compulsive disorder and anorexia nervosa were more likely to have received vaccinations three months prior to their diagnoses” (Leslie et al. 2017) to create a whole counterfeit argument leading to a generalization that “Yale Study: Brain-Related Disorders Rise Following Childhood Vaccinations”. As a result, the fake news piece is distorting the scientific facts. Rose, who developed a vaccine template that was used for the development of the current Ebola vaccine, agreed with the study’s assertion that the results are very preliminary and do not establish a cause and effect relationship. While actually, the researchers asserted that the

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study needs replication on a more extensive scale and does not establish a causal link between vaccines and neuropsychiatric disorders. (K. Wang 2017). However, it cannot be considered as fabricated false information, since the author has not produced information himself. So far, the discussed misinformation case completes the elements of the fake news definition and therefore is classified as fake news incident.

CATEGORIES/ FORMS	What kind of news item was it? (Criteria/ characteristics of fake news items)
	<ul style="list-style-type: none"> a) Fabricated News b) Propaganda c) Conspiracy Theories ✓ d) Hoaxes e) Clickbait ✓ f) Photo Manipulation ✓ g) News Satire; h) News Parody i) Rumors

Furthermore, as far as the categorization of the discussed fake news incident is concerned, we should take a closer look to the characteristics of each form of misinformation and whether the “anti-vaccination” case applies to one or more types.

Fabricated news. The discussed incident, cannot be listed as an incident of fabricated news. As has been already mentioned, fabricated news is a completely manufactured story narrated as news leading to deception. Although the examined example was created based on legitimate scientific research. According to the scientific study, there was a factual basis to support the story, since

“There’s a fair amount of interest in the vaccine safety question, so let’s try to be critical and do further studies that will help examine this issue in a more thorough way,” said James Leckman, professor one of the study’s five authors. (K. Wang 2017).

Propaganda. Surely, propaganda narratives are wholly seized in political contexts to manipulate people with the overarching purpose of causing damage to an opposed political party or nation-state. The “anti-vaccination” theory might involve political background since the study article refers to government involvement supporting the pharmaceutical companies. However, this link cannot classify the piece as a propaganda report, having no content of a political party's goals.

Conspiracy. Indeed, the factors that form a conspiracy theory apply to the discussed fake news incident. Specifically, as mentioned previously, it is composed of unevidenced data masked as facts, leading to leaps of faith and generalizations, as an effort to explain some event or practice by reference to the intrigues of influential people, who attempt to cover

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their role. The article actually mentions that “the debate centers around corrupt pharmaceutical companies and how far they’ll be allowed to go in the name of profit. Most vaccine studies are funded by pharmaceutical companies, who are well-entrenched in both government and media branches because of their enormous financial influence”.

Hoaxes. This type of disinformation resembles more a practical joke than a distorted event or a conspiracy theory since the news stories' original purpose is to trick the audience. In other words, hoaxes' intention is the deception itself, usually practicing trickery. The specific piece of misinformation is not completely manufactured as the hoaxes commonly are and entails no insanity-filled content rather than based on true facts but distorted information.

Clickbait. The clickbait category establishes a broader kind of misinformation since the exaggerated headline with inflammatory language is what values. Apart from the currently discussed piece, there were other Websites that produced “anti-vaccination” stories and used such headlines to approach the audience's curiosity. The discussed incident includes a very appealing title mentioning that a Yale study “establishes” the connection between vaccination and mental disorders although the specific study's title was “Temporal Association of Certain Neuropsychiatric Disorders Following Vaccination of Children and Adolescents: A Pilot Case-Control Study”. Therefore, using the verb “establishes” along with capital lettering triggers the user's curiosity, to click on the article. Similar articles used headlines such as “AUSTRALIAN PARENTS: if you are on the fence about vaccination, watch Vaccines Revealed, a FREE 9-part miniseries featuring 24 vaccine experts that explain why vaccines are neither safe nor effective **CLICK HERE TO WATCH**” (“Vaccines Revealed - FREE - Vaccines Revealed” n.d.).

Photo manipulation. Similar to the “Pope Francis” the “anti-vaccination” piece examined itself is not a photographic piece that ended up as a misinformation item, it does not relate to actual images or videos building a false narrative. Although, the article was combined with an edited and photoshopped picture to make it more appealing to the users.

Yale University Study Establishes Link Between Major Neuropsychiatric Disorders and Childhood Vaccinations

by Yelena | February 14, 2017

136k Shares  136k  152  103  31



Picture by “*Althealthworks.com*”

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News satire/ parody. These two categories of fake news do not approach at any level the discussed piece of misinformation. The article does not use humor or fantasy to confer audience's entertainment. Moreover, parody or satire might be disguised in genuine news stories, although they clarify that they are not the product of serious research and certainly they do not aim to mislead, rather than entertain. So, from every aspect, the "anti-vaccination" case cannot be classified as humorous or entertainment, rather than a very serious disinformation issue.

Rumor. Finally, the rumor kind is another category of misinformation that does not fit to our case. Rumors are questionable hypotheses, passed along from person to person alternating according to the beliefs or wishes of the people who spread it. In the "anti-vaccination" case, the misinformation that was propagated originated by the specific examined article was analytically described and based on facts that were distorted in order to make a point.

ACTORS	Who published/posted it?	
	Publisher	User
human:	<ul style="list-style-type: none"> → Journalists✓ → Organizations → Governments- Politicians 	<ul style="list-style-type: none"> → Individuals✓ → Conspiracy theorists → Trolls
automated:	→ Bots	→ Bots

Of course, main actor of the incident was the author of the specific article along with the publishing Website. The writer of the article is name Yelena and there is no further information of her sources or expertise. As far as the participants in the spread of the misinformation incident are concerned, we should mention that the largest category was the individuals, namely the ones who use the Internet and especially social media. The social networking members receive the information, distribute the information pieces they meet, respond, criticize, "like", retweet and regularly reproduce without being the authors themselves. Unfortunately, the piece was shared more than 130.000 times on Facebook. Apart from the average Internet users that multiplied the spread of the fake news, there were also other Website owners that reproduced its content, for example, the "childrenshealthdefence.org", which stated that "Yale University Study Shows Association

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Between Vaccines and Brain Disorders” and that “However, children who had been vaccinated were 80 percent more likely to be diagnosed with anorexia and 25 percent more likely to be diagnosed with OCD than their non-vaccinated counterparts. Vaccinated children were also more likely to be diagnosed with an anxiety disorder and with tics compared to the controls” (Kennedy 2017). Although, there is no evidence whether there were other participants on the dissemination of the story.

MOTIVATION	Why did they publish/post it?			
	Fake news intention- motive			
	BY USER		BY PUBLISHER	
	SOCIAL ✓	PSYCHOLOGICAL ✓	FINANCIAL GAIN ✓	POLITICAL GAIN

The main way that this fake news story was disseminated among the users was Facebook. According to research, proof names Facebook groups as “echo chambers”- as we have analyzed above- through which users strengthen their similar opinions(Sunstein and Vermeule 2009)Users originally react to the content clicking the “like” button more than interacting with a comment to encourage further dialogue. Normally, according to Chiou and Tucker (2018), “the number of reactions per post exceeds the number of comments”. Furthermore, the latter researchers state that Facebook groups work as an “echo chamber” when users “like” posts from other members and assist as a course of diffusing fake news when they share the posts with their digital friends. Therefore, social media enables a person to approach a wide audience and give and receive information without commentary or fact-checking data. Moreover, when Facebook members explore for information about vaccines on Facebook itself, they probably are directed to non-scientific, anti-vaccination propaganda. Similarly, on YouTube, a competing social media platform owned by Google, individuals looking for reports about vaccines are likewise pushed toward anti-vaccination misinformation, mostly produced to scare parents, while measles' outbreak, for example, rages in the pacific northwest (Wong 2019). On the other hand, the reason why the Website owners publish and post such misinformation pieces is the financial profits. Such popular issues as the vaccination and immunization- especially of the children- create great traffic on blogs and Websites. Assumptions lead to the conclusion that the

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advertisements that are included on them it is possible that offered them large economic profits. Particular, the discussed article includes a plethora of advertisements and discounts, e.g. at the bottom of the piece a bold colored message informs the readers that they can “get the thrivers diet for 25% off”. However, political gain cannot be proved in the specific fake news incident.

AUDIENCE-TARGET	To whom is it addressed?			
	Heavy media users	Light media users	Audience based on age	Audience’s digital literacy

Similarly, to the previously studied cases, there is no academic or statistical analysis regarding their target as far as the audience is concerned. Unluckily, no reliable data exists, whether the public that took the misinformation was heavy or light media users’ type, what was its age scale and its digital literacy and knowledge of new technologies. Comparable to the former fake news incidents we can only hypothesize that the story was aiming for heavy media users of older age and with less digital awareness. This theory originates from the theoretical findings of the current study, as observed in the relevant “audience- target” section above. However, in this case, some survey evidence reports that half of the low-income families with special healthcare necessitates children seemed “comfortable determining the quality of health websites” (Knapp et al. 2011). Moreover, very few adults in the US are proficient in health literacy and parallelly “low-quality antivaccine web pages that promote compelling but unsubstantiated messages” (Kutner et al. 2006; Fu et al. 2016). As a result, the target of such Websites is less skilled in digital information audience.

IMPACT	What was the result?	
	Consequences of fake news’ dissemination	
	on individuals ✓	on society ✓

As far as the impact of this misinformation case it should be mentioned that vaccination and immunization defend the public health and the health of individuals that belong to vulnerable populations (e.g. people with allergies or exhausted immune systems due to

cancer, HIV/AIDS patients, and certain diseases) who are unable to receive vaccination and hence rely on society to protect them from specific illnesses. The percentage of vaccination needed to accomplish this sort of community protection or multitude immunity varies between 83 to 95 percent (Chiou and Tucker 2018). Although the anti-vaccination movement rises serious issues because one-third of US citizens use social media for health care news (Miller 2017) and more than 40% of them state that “information found via social media affects the way they deal with their health.” Another research (Esposito et al. 2014) reports that the “dissemination of misinformation and anecdotal reports of alleged vaccine reactions by the media, the Internet and anti-vaccination groups leads parents to question the need for immunization.” They add that vaccination for measles, mumps, and rubella is among the most “frequently omitted of the recommended vaccines, usually because of concerns about the vaccine safety.” Further studies show that vulnerability to misinformation online relating to vaccination drives to more solid anti-vaccine ideas considering individuals do not acknowledge the credibility of the content (Betsch et al. 2010). Furthermore, measles cases in 2019 are more frequently occurred in the US than the rest of the world, since millions of children drop on vaccination against the virus. The US Centers for Disease Control and Prevention (CDC) has recorded nearly 700 cases the highest number since 1994, according to Reuters on the article titled as “U.S. measles cases hit the highest level since eradication in 2000” (Allen 2019).

6.3. Recommendations- Actions

DETECTION	How could it be detected/prevented?	
	Digital literacy ✓	Automatic Technologies ✓

Naturally, some steps should have been made when the spread of the proved as counterfeit incident started. Specifically, regarding the discussed article what was most crucial for the famous social media platforms to try and reduce misinformation. Facebook, for example in this case should have warned its members about the unreliability of the articles content. To this action an expert team of programmers, journalists and health specialists should research such misinformation pieces to protect the audience. Simultaneously, what is primarily important in the specific incident is the individual's education in digital information and awareness of the fake news phenomenon in health issues. Essentially social media members should be careful of such suspicious content and always check the online

information's source and evidence first. Even more concerning health issues the Internet and social media should not be their primary source of information, rather than an actual doctor. This digital literacy and online awareness can be passed along by news professionals and specialists to develop digital skills on people. Concurrently the construction of automated tools and new technologies along with the more popular social networks to prove, fact-check, to help news audience and warn them for ambiguous news stories and obscure information is demanded.

6.4 Conclusion

The specific fake news incident arises enormous concern regarding the large-scale issues that incorrect pieces of information may cause to the public. The lack of vaccination can generate health problems to communities and lead to an epidemic crisis. Moreover, even though the anti-vaccination movement has been repeatedly debunked some of the audience insists on supporting it. This shows the audience's absence of awareness regarding the ways they should receive information from the Web along with the need to fight digital ignorance. Besides, there are those factors such as the motivation and the target that remain unclarified in this case as well as the previous ones. Hitherto, only hypotheses endure regarding why the actors propagated the story. Finally, the other pieces could clearly be matched to the types issued by the preliminary analysis of the current study. Conclusively, the structure of the “anti-vaccination” incident was skinned of its subversive components to be recognized and therefore better fronted.

CHAPTER 7

Discussion & Conclusions

Chapter 7 is the final chapter of the current thesis, presenting tackling measures and conclusions withdrawn by the study. Specifically, in this final chapter mitigation actions are proposed, via three perspectives/approaches, measures considering technology, social media platforms and people's digital education. Following, the existing legal regulations are presented. Next, general conclusions and main remarks combined with conclusions extracted by the case study methodology process are bestowed, giving the results achieved by this research and its affirmation through case studies. Finally, research limitations and proposed further research are included in this chapter.

7.1 Mitigation actions & Legal confrontation

There are three types of approaches in modern detection philosophy against fake news. The first approach focuses on technology and promising artificial intelligence and self-learning automated tools, which can even promote misleading content, as well as to detect it. For example, a new algorithm of the University of Washington and the Allen Institute (Zellers et al. 2019) and several other similar attempts, indeed, promise to revolutionize the detection of misinformation. The second approach concentrates on the alteration of the information journey and the responsibility of the online information ecosystem developing on social media. The third, less invasive, approach and possibly the most important one, is to educate and fight digital illiteracy. European countries are considered to be the most immune to misinformation and have a more aware audience. As analyzed above, in the relevant detection section, the EU is making serious efforts to teach the next generation how to detect the truth by themselves. Our, mostly, digital society is getting closer and quicker to the point when misinformation and artificial intelligence collide. Millions of automated accounts on social media, the previously mentioned bots, manage to deliver fake news to globally in just a few hours, while already smart writing software is capable of producing persuasive misinformation articles. Video processing technology and artificial audio may be in the embryonic stages, but a "teasing" video, in which former US President Barack Obama appears to say various jokes have already shocked the world, demonstrating how vulnerable are the limits between reality and fantasy. (Eustathiou 2019)

Technology

The proposed mitigation actions are exhibited in this section along with legislation efforts from around the world. In a brief, to reach the above three pathways of confronting the fake news phenomenon some organizations and individuals should cooperate. Governments, lawmakers, scholars, journalists, scientists, educational institutes and, of course, the Internet users, the common audience of misinformation should work parallelly to accomplish facing the issue. First of all, as far as the first approach is concerned, automated devices and self-learning machines should be evolved leading to detecting inflammatory, language, photoshopped fake images, content produced and reproduced by bots, fake accounts and the lack of the writer and evident sources on a piece of information, as well as fake Websites. Specifically, as was stated in the detection-section, fake news detection is, in other words, the foresight of the risks of a particular information item (news report, editorial, expose, etc.) being intentionally deceitful. Confirming the authenticity of information online is a fearful but crucial challenge, often even for humans. The potential for automated acknowledgments to misleading information online that don't require human surveillance is still limited today. Scientists and scholars are searching both more and less structured ways to automated affirmation, displaying wider ranges in the AI scene. To automate this process, two main methods have emerged, as we have mentioned above, first, the linguistic methods, by which the language and selected phrasing of a piece is analyzed to reveal a deception-connected pattern, and second, the network methods, by which network information and elements, such as metadata can show misleading ornaments.(Fandango-Project EU 2018; Conroy, Rubin, and Chen 2015).

Moreover, “automated fact-checking” (AFC), is a term that appears constantly upon the effort of automated deception detection. By AFC we define the evolution of automated devices and technologies to support journalists in and testing factual reports (Fandango-Project EU 2018; Hassan et al. 2015; Pérez-Rosas et al. 2018). For instance, in 2015, Hassan et al., in “The Quest to Automate Fact-Checking”, define the “Holy Grail” of automated fact-checking as a computer-based system that can be, fully automated, fact-checking without human interference. The system receives the audiovisual flags and texts of political discussion and replies factual claims and a truthiness rating for each part. This system is, also, instant returning results after claims are made, without noticeable setbacks, it is claimed to be equally or more accurate than any human fact-checker, and, finally, accountable, since it self-documents its data sources and analysis, and makes the process of each fact-check clear.

Such efforts should and will be even more developed in the future. Naturally, these automated tools and self-learning machines should be adopted by online media, such as Websites, digital newspapers, social media platforms, search engines, etc. aiming to warn and inform the users regarding which piece of information is more accountable and accurate.

Social media

Moving to the second approach concerning the social media policies and the circulation of information in the modern digital communities. Some of the most popular social platforms such as Google and Facebook, along with Twitter, are currently under increasing pressure to control their algorithms as more features emerge about how Russia used their platforms to interfere in the presidential election (Pierson 2017). Those platforms have an enormous weight on what gets read and shared. More than two-thirds of Americans claim to get a part of their news from social media, according to the Pew Research Center. Another study published by Edelman in 2017 discovered that more people trusted search engines (63%) for news and information than traditional media such as newspapers and television (58%) (Atodiresei, Tănăselea, and Iftene 2018).

Concurrently, while Facebook founder, Mark Zuckerberg, seems opposed to forbidding fake news publications completely, articles identified as fake news, stand to have their reach drastically reduced by Facebook's latest effort and Google, likewise, is developing fact-checking regulations to warn users while searching. Facebook, the world's biggest social network, has 24 million users in France, more than a third of the country's population. It will rely on users to flag fake news on its network so that the articles can then be fact-checked by its partner organizations. Facebook is also supporting a separate initiative launched by Google dubbed "CrossCheck" which calls on users to submit links to contested content to a dedicated website so that it can be investigated. Specifically, after assessing feedback from both users and publishers, Google is making the Fact Check label in Google News available everywhere, and expanding it into Search globally in all languages. For the first time, when someone searches on Google that declares an authoritative result including fact checks for one or more public claims, the users will see that information precisely on the search results page. The snippet will display information on the claim, who made the claim, and the fact check of that particular claim (Barzic and Kar-Gupta 2017; Kosslyn and Yu 2017).

Conclusively, the second pathway that should be followed to the successful tackling of fake news is the cooperation of social media platforms in protecting and warning their

members about misleading and dubious content, by developing their policies over falsehoods and adopting the above-mentioned automated systems in detecting such content.

Digital Literacy

Firstly, as is analyzed below governments and lawmakers are responsible to create a framework of legal regulations that will protect citizens from deception. Although inside this framework freedom of expression and circulation of information should be preserved. In other words, the fake news prevention should not be an excuse for unlimited governmental infliction, censorship of ideas and controlling of shared information by the state. Nevertheless, this framework should undoubtedly include the education of the public regarding fake information. This is the previously defined term of digital intelligence, namely the awareness of users concerning how to search, process, adopt and spread the online information. Note that, this is an enormously important part of the mitigation procedure. It is worth mentioning that the example of Canada, Netherlands and Denmark upon this field should be imitated by other countries, as well. As Funke and Flamini exhibited in their research, many countries have started to take actions on the fake news issue. Some of them, such as the latter, have concentrated on the people's education. Canada, for instance, "Canada announced it was giving \$7 million to projects aimed at increasing public awareness of misinformation online.", whereas the Netherlands in February 2019, launched a public awareness campaign aimed at informing people about the spread of misinformation online. The campaign, which came months ahead of the EU Parliamentary elections, was predominantly waged on social media (Pieters 2018). Similarly, the Danish government has set up a task force for addressing misinformation, which is responsible for developing responses to widespread misinformation campaigns and foreign disinformation attacks (Baumann 2017). The same example is being followed by Nigerian Government, which is planning cooperation with digital and traditional media, and the National Orientation Agency, to educate Nigerians in discriminating what is real and fake online (Okakwu 2018; Funke and Flamini 2019). Meanwhile, in the USA, the California state government enacted a law that sustains media literacy in public schools. The legislation orders the Department of Education to prepare instructional materials and resources on how to evaluate trustworthy media. This effort is being supported by several current and former attempts to improve media literacy in at least 24 states, by a strategy called "Media literacy now", begun in Massachusetts in 2011, and is trying to change the way people think about media and literacy through building public awareness and influencing policy. (Minichiello 2018; Media literacy now 2011). Australia, also, adopted similar strategies regarding the 2019 federal elections, creating the campaign called "Stop

and Consider” (Stop and consider 2019) asking the voters to check the source of information so they can cast an informed vote in the election. All the above efforts show the need which has appeared in order for the Internet users to guard themselves of misleading news. So, media experts and educational institutes funded by the government cooperating with other social organizations should create campaigns to inform the public regarding how to search, read, examine and then reproduce items of information. Specifically, students and adults should be trained through seminars and classes about the Website accountability, the presence of the author’s name and the information references and sources above or below the article, the linguistic elements of the piece, the photographic content and whether the item is produced to satirize. Finally, the public should be warned whether to report or comment the unreliability of dubious content, or at least not share with others information that seems counterfeit if they are not sure.

LEGAL CONFRONTATION OF FAKE NEWS

Apart from the listed anti-misinformation actions that should be performed by individuals and organizations, there is also a legal framework that would assist in preventing the actors from spreading false information. First of all, though, we should take into account the rights that shouldn't be suppressed during this process. Specifically, we should point out the following: i) Freedom of Expression article 11 par. 1 and 2 of the European Union Charter of Fundamental Rights the heading “Freedom of expression and information” which includes that “1. Everyone has the right to freedom of expression. This right shall include freedom to hold opinions and to receive and impart information and ideas without interference by public authority and regardless of frontiers. 2. The freedom and pluralism of the media shall be respected.” ii) Article 19 of International Covenant on Civil and Political Rights under which “ Everyone shall have the right to freedom of expression; this right shall include freedom to seek, receive and impart information and ideas of all kinds, regardless of frontiers, either orally, in writing or print, in the form of art, or through any other media of his choice” iii) Finally, it is also found in Article 19 of the Universal Declaration on Human Rights, which states that “Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers” (EU Office Journal n.d.; UNITED NATIONS 2015; UNITED NATIONS HUMAN RIGHTS n.d.). Therefore, it is worth mentioning that in the effort of eliminating the propagation of fake information we should not suppress the opinion exchange as long as it is presented as such and not spread as information. Furthermore, the plethora of

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information sources, the pluralism of references is significant for the evolution of knowledge and of course for avoiding censorship and monitoring of public interaction.

Fake news actors- especially the publishers- most commonly are prosecuted by individuals or organizations attempting to receive financial damages or court orders. Some of the legal claims, legal regulations and associated defenses are described hereinafter. (Klein and Wueller 2017).

Defamation. The most usual legal claim against fake news actors is the law tort of defamation. Regularly, defamation is the expression of a false declaration of the fact that it harms another person's reputation or character. Expressed, non-documented defamation is known as slander, while defamatory comments that are written or recorded are defined as libel. For instance, in the United States, truth means complete protection from libel and slander cases. Moreover, under First Amendment free speech protections, each defamation suitor must demonstrate that libelous or slanderous comments were published with purpose. Wicked, misleading statements of truth regarding a public figure (e.g., a celebrity or a politician) are meriting legal action particularly if the perpetrator acted with "actual malice," meaning that they practiced the misinformation declaration with either knowledge that the statement is false or reckless ignorance for its falsity. In the opposite direction rigidly private individuals(e.g., the person next door) need to prove only that opprobrious statements were published with negligence (Birkeland 2017). Therefore, concerning the "fake news" definition which includes intentional or knowingly deceiving statements, it is plausible to assume that such comments would satisfy the purpose element for defamation claims. On the other hand, courts usually have provided adequate defenses and justifications to defamation claims involving satire or parody. Defamation as a result of parody and satire commonly are actionable only if they could be rationally conceived to explain facts about the "victim" or real situations in which the plaintiff participated (US District Court of Columbia 2012; Texas Supreme Court 2004).

Intentional infliction of emotional distress. Comparable to defamation above, intentional infliction of emotional distress (IIED) is a typical law tort that is commonly asserted against fake news actors. IIED befalls when someone deliberately or carelessly "attacks" in violent or abusive behavior that causes another person to suffer severe emotional distress. On the contrary, unlike defamatory statements, which may be actionable for solely being harmful and false, narratives supporting IIED claims must be "so outrageous in character, and so extreme, as to go beyond all possible bounds of decency, and to be regarded as atrocious, and utterly intolerable in a civilized community" (Pedrick 2013).

FAKE NEWS

Cases of fake abusive publications that concern a specific personality and regarding that the “actual malice” feature applies to defamation cases it is then evenly applicable to IIED claims brought by those figures- victims (US Supreme Court 1988).

Cyberbullying. After a series of suicides due to online harassment and bullying, many countries have established anti-cyberbullying laws. Most cyberbullying laws prevent online harassment and bullying of children, while others criminalize all online transmissions of corrupt, improper, or offensive content to or about a person for purposes of harassment and the infliction of emotional harm. Similar to criminal libel laws, many criminal cyberbullying laws signify content-based limitations that violate the First Amendment (New Jersey code of criminal Justice 2014). For example, posting to Facebook and commenting on an allegedly falsified, sexually themed screenshot of a victim is connected to the creation and reproduction of false information combined with the intentional infliction of emotional distress and defamation (Supreme Court of North Carolina 2016).

Other legal regulations. Singapore parliament approved the “anti-fake news” law. The Ministry of Law stated the legislation will help prevent the transmission of “deliberate online falsehoods” which are being used “to divide society, spread hate, and weaken democratic institutions” (Palatino 2019). Singapore’s new legislation expects social media networks like Facebook to carry signs on posts the government considers false and remove comments against the “public interest”. Singapore, which ranks 151 among 180 countries rated by the World Press Freedom Index, defines “public interests” as threats to its safety, foreign relations, electoral sincerity and public understanding of the government and state organizations. Violations could attract fines of up to S\$ 1 million (\$737,500) and 10 years in prison (Ungku 2019). Similarly, in Russia during March 2019, President Vladimir Putin approved into law severe new fines for Russians who published and propagated what the authorities consider as fake news or who show “blatant disrespect” for the state online. Experts, although, have urged such legislation could support censorship, but legislators say it is needed to combat fake news and abusive online content. Authorities may block websites that do not meet demands to remove incorrect information. Individuals can be fined up to 400,000 roubles (\$6,109.44) for disseminating false information online that leads to a “mass violation of public order” (Ungku 2019). European Union has started an effort in minimizing digital criminality, establishing the Directive 2013/40/EU of the European Parliament and the Council on attacks against information systems. For the European legal order, there is an inevitable conflict of rights. Freedom of expression and the full democratization of the internet society, are restricted, to safeguard the dissemination of true information and facts. In Europe, the duty of truth in the dissemination of

facts is of utmost importance, as opposed to the free expression of an opinion. The European Court of Human Rights (ECHR) recognizes the dangers of unrestricted freedom of expression and communication on the Internet and thus weighs the conflict between fundamental rights of free expression and, on the other hand, the protection of the public interest from the adverse effects of spreading fake news. The European Union and authorities worldwide will have to settle big technology and social media corporations to shield citizens. EU heads of state will support governments to share information on perils through a new warning system, launched by the bloc's executive. They will also request for online programs to remove deceptive or unlawful content. Union-level efforts have been restrained by diverse rules in each country member and doubts over how quickly lawmakers can catch misleading content online. In the European legal order, there is an inevitable conflict of rights. Freedom of expression and the full democratization of the internet society, are restricted, in order to safeguard the dissemination of true information and facts. In Europe, the duty of truth in the dissemination of facts is of utmost importance, as opposed to the free expression of an opinion. The European Court of Human Rights (ECHR) recognizes the dangers of an unrestricted freedom of expression and communication on the Internet and thus weighs the conflict between fundamental rights of free expression and, on the other hand, the protection of the public interest from the adverse effects of spreading fake news. For instance, the Greek legal order regulates the issue by the provision of Article 191 of the Greek Penal Code according to which: "1. A minimum of three months' imprisonment and a fine shall be condemned by any person who in any way disseminates fake news, or rumors liable to cause concern, or fear to the public, or to disrupt public trust, or to undermine public confidence in the national currency, or its armed forces, or disturb the international relations of the country. If the act was repeatedly executed through the press, the culprit shall be sentenced to at least six months' imprisonment and a fine of at least five hundred ninety (590) euros; 2. Anyone who becomes guilty of any of the acts referred to in the preceding paragraph shall be punished by imprisonment of up to one year or by a fine".

7.2 Main remarks- General conclusions

Certainly, in a digital era, such as our own, the use of computational propaganda and automated tools to form public opinions through social media has become common practice reaching past the efforts of a few bad actors. As a result, the problem has amplified and spreading on a much larger scale and rhythm. In an information ecosystem distinguished by immense quantities of information and restricted user awareness and trust, the tools, and techniques of computational propaganda is becoming a common piece of digital

systems. Even though misinformation has always been a part of media discussion, the deep and wide-ranging extent of online information raises critical public interest concerns.

According to Amy Watson (Watson 2018), phrases such as “fake news”, “post-truth” and “alternative facts” are indissolubly associated with the 2016 US Election. Misleading stories, such as Hillary Clinton leading a child trafficking business and Pope Francis endorsing Trump for President, as we examined above, were liked, commented and shared upon hundreds of thousands of times on Facebook, with many users being unable to tell whether the headlines were real or not. More than half of the users asked in surveys believed that the latter report regarding the Pope supporting Trump was moderately or highly accurate. This indicates the confusion that fake news caused. According to the statista.com and several surveys that took place regarding fake news in North America the results showed that 34% of North Americans trust social media for their information, 65% trust traditional media, 23% rarely trust news on Facebook and most of them consider CNN the most trustworthy source for political information. Concerning a shadier aspect of the fake news phenomenon, which is the actual impact on the wider society, the same statistics showed that 27% of Americans are very confident in recognizing fake news and 52% assume that online news sources are misinforming. Although, there is no answer whether the consumption of such amounts of fake news influences the users' social or political behavior. Furthermore, the data have shown American Facebook members trust what their friends and family share on the platform in a share of 19%, whereas 10% of adults and 31% of children and teenagers have shared a fake report knowingly or unintentionally.

Many indeed regard the Internet as the "greatest" democratic conquest in History, which leads to the democratization of media, as every individual can now become a publisher. Next, the internet is supposed to promote freedom of expression, emancipation, and equality while online participation is seen as a form of direct participatory system. At the same time, though there are millions of websites, and digital platforms but few gather a significant number of visitors. The reason for the high traffic and popularity in successful websites is not their valuable and quality content but their attractive features such as headlines, exaggerated language, and appealing photographic pieces. That results in the monetization of information since inflammatory content raises traffic, traffic raises advertisement and advertisement pays the website owners/publishers. Furthermore, the number of sources of information is infinite. So, it depends on the individual to choose which information is trustworthy and which is counterfeit and must be rejected. There lies the need for digital education as part of the new era we traverse along with coordinated efforts

of the governments, social networking platforms, scholars and scientists to bring out the issue and eliminate it. Although, great attention should be paid to the fact that the state cannot in its effort censor and monitor the shared information, only protect, warn and educate the citizens. Nevertheless, legal requirements that oblige authors and publishers to inform about the essence of their produced information before publishing it is probably a helpful approach to combat the phenomenon. In other words, if the writer of each report indicated whether their piece is an article, a personal opinion, news, reputation, or satire the audience would be aware of what he encounters and therefore more careful with what they share with other users. As a result, the publishers would be obliged to take responsibility for whatever they produce and propagate, since if they published a piece of fake news, they would be called upon to justify their actions, dealing with certain consequences.

The fake news phenomenon hasn't been, yet, deeply investigated. Faulty information always existed, but the technological automation that the Internet has offered assisted in its radical evolution and growth. The digital ecosystem has become the ideal field of action for the dissemination of misinformation. The social networks, especially, function like an avalanche, like the Chinese whispers game, in which a phrase is whispered from player to player and finally spoiled. The users unwillingly play the biggest role in the spread of counterfeit data and thus today misinformation can reach thousands of users worldwide. Through websites, blogs, digital newspapers, and social media truth and lie can easily hide under the cloak of news and therefore spread. We live in the era of the "keyboard" Democracy, a fraudulent form of Democracy where facts are not what matters most.

We can easily understand that a spate of falsehoods exists causing concerns to society regarding its impact on social, political, economic, even health decisions of the audience. Therefore, there must be a retrospective analysis and guidance on the phenomenon.

7.3 Case studies conclusions

In this chapter, all the conclusions withdrawn from the speculation of fake news incidents and their analysis through the case study methodology are presented and summarized. Firstly, we should mention that most of the fake news incidents that a user encounters on the Web and social media platforms have a plethora of features in common. As a result, the nature of fake news is similar to the majority of such cases. This deduction is notably helpful when it comes to the confrontation of the fake news phenomenon. Specifically, the observations extracted via the case study process leads us to understand that we could

easily classify an information piece to the definition of fake news by confirming the existence of particular elements, such as the information's sources, factual basis, manufactured data, and dissemination thanks to new technologies.

Secondly, through the examination of some well-known misinformation incidents, we could comprehend that there are factors that are still unknown in this phenomenon that defines today's digital era. Those features are the personal motivation behind the reproduction of dubious information by the individuals who use the Internet. In other words, in all three examined cases the financial or political motives of the fake news publishers were exposed. On the contrary, the users' actual reasons for sharing that information with others were not statistically and quantitatively tested. Furthermore, the original target of fake news publishers has not been investigated. The question is, did the publishers, writers, journalists, and website owners aim to a specific audience- target group, and thus created and propagated a story? This issue yet remains unanswered by the literature and researchers. Finally, another unsolved query is whether such incidents actually shape the socio-political scene of our society, or the impact is isolated in specific individuals and groups. For instance, no certain and extended research proves that the US citizens voted in the 2016 elections due to the influence of propagated disinformation or it did not affect their initial point of view. Even though some elements of the phenomenon, such as the motivation, target and wider impact on society need to be further studied and clarified, the main features were confirmed and refined through the case study process. Concluding, the theoretical literature research conducted in this thesis interpreted the basic features that compose the definition of fake news. Moreover, the analytical exposition of the phenomenon's characteristics is a valuable tool for the more reliable understanding of its nature and therefore its detection and mitigation. That examination exhibited, also, that the proposed actions regarding the most fake news incidents are similar. The recommended confrontation actions could limit the spread and consequences of the digital disinformation and could apply in most of the cases. As a result, we can reach the conclusion that the nature of the fake news problem is common for most of the cases and thus their confrontation could be undivided and overall the same for each incident.

7.4 Thesis contribution, Limitations & Further research

The feature identification presented in this thesis, aims towards a comprehensive approach towards fake news incidents. Each feature along with its particular elements compose a succinct definition of the term fake news and its various aspect. Assembling the unstructured information of the issue a more thorough analysis is accomplished.

Therefore, connection between subjects, means and impacts is revealed, concluding to more effective ways of tackling the problem. The process involves plethora of academic papers, surveys, studies, and opinions of scholars and specialists on the issue.

First, by collecting several definitions lying in the literature, we could understand the spectrum that the term covers, and after that combining and adding features that belong with a more general definitions, we are able to enclose a larger scale of fake news incidents and exclude the cases that are harmless and cannot be considered as fake news, such as satire and parody. Moreover, by listing the several categories of fake news, namely creating an umbrella of types, where fake news is the broader one and the types analyzed, such as conspiracy theories, hoaxes, clickbait etc, are more narrow kinds of misinformation, we are able classify every given fake news incident to a certain subcategory and decompose it of its particular characteristics in a more qualified manner. Similarly, by pointing out the types of actors, victims and impacts, we conclude the special issues that are brought up relating to each different case.

Second, the above feature identification was analyzed through the case study methodology an applied on some well-known fake news incidents and their particular aspects. Through this process the analysis and classification of characteristics was confirmed upon specific cases, revealing the importance of structuring a concise framework regarding the fake news issue, resulting in more targeted solutions.

Third, thanks to the systematic assemble, categorization and classification of the until now unstructured elements of the fake news issue, the author was able to distinguish the exact parts of the problem and, as a result, systematically discern the three pathways that can lead to a direct and focused program of resolution. According to each different case and after each incident's classification to the examined categories and subcategories the adjustment to these three tackling paths would be much more precise and effective.

On the other hand, the issue of fake news is still new and not adequately researched by the literature. Since this thesis is a theoretical study, it is, unfortunately, limited to the existing work which is almost purely qualitative, as well. The quantitative and statistical analysis of the issue is still in embryonic stages and the amount of such surveys is still insignificant in every aspect. This limitation leads to dubious conclusions regarding the actual impact of fake news on individuals and broader communities, namely whether the consumed misinformation changes the public point of view or this result would appear regardless the fake news consumption. In other words, lacking such statistics are we sure

that fake news influence wider social, political or economic aspects of society or the ones that are affected were acquiring such beliefs either way. Furthermore, another remaining unanswered question concerns the issue of fake news actors' target. There is zero to insignificant research on the criteria publishers or Website owners target their audience; who are the ones that are affected the most and are the actors operating based on that? The literature has not answered this question with numbers neither plenty theoretical study. In conclusion the limitations of the current thesis lays upon the prematurity of the phenomenon and lack of broad quantitative research.

At last by the latter statement anyone could conclude that the suggested further research concerning the fake news phenomenon is deeper and wider quantitative and statistical research in order to validate and confirm the theoretical findings. Naturally, apart from statistical proof the theoretical and qualitative analysis of the issue remains in early stages, therefore further categorization and classification of fake news incidents is needed. A future extension related to the current classification of fake news could be an integrated research to analyze more probably existing types to propose various other suitable measures towards prevention, tackling and mitigation for each of these types. Through examining the causes of the cases of each fake news type, a labeling system based on the one introduced in the current thesis, could characterize them and direct attention properly to the ones increasing incident frequency.

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