EXPLORING THE POTENTIAL OF THE BLOCKCHAIN TECHNOLOGY IN REDUCING THE EFFECT OF FAKE NEWS.

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Abstract:

This paper explores the potential of blockchain technology as a solution to tackle the problem of disinformation and fake news. The research method used to conclude is semi-structured interviews, and the interviews' findings combined with the literature reviewed led us to the conclusion. While there are many research papers, articles, and even books on both aspects of the matter, it wasn't easy to find sources that discussed both the technological and disinformation aspects of the issue. Internet access and social media platforms are making it easier than ever for a piece of false information to be shared, seen, and absorbed by more audiences. The intentions behind producing and publishing such content vary from political to financial gains to competition. However, the current business models where news agencies and website generate profit by ads views make it even easier for false news and information to be shared and viewed. Blockchain technology has enormous potential for smaller communities like journalists and academics, but at least now, the technology isn't mature enough to be employed by everyday users and to be considered a proper substitute for current social media platforms. There are successful examples of attempts to reduce the effect of such false information published online where instead of fighting every single entity producing and sharing misleading news, there have been attempts to equip the audience with fact-checking tools through media literacy courses. In the meantime, developing new business models could be another way to alter the existing mechanisms in which disinformation has become epidemic.

Keywords:

Disinformation, Fake news, Social Media, Blockchain, AI Technology, Fact-checking, Media Literacy

Contents

Introduction

Before the appearance of newspapers and magazines, the sources for people to know what has happened around the globe were books and art in any form. The creators of literature and artwork would paint pictures that helped their audience form ideas about how the rest of the world lived. Although the role of the imagination in the formation and perception of these ideas is greater than it can be overlooked. However, with the development of media and news agencies, the picture became more realistic. Nevertheless, media still falls short of providing a true image of global events. ("Journalism," n.d.)

During the past two decades, Internet and technological changes have made a huge impact on the media industry as well as a variety of other areas and industries. ("rise of digital journalism: Past, present, and future," 2021)The very first assumption one might have when thinking about the media, fake news, and technology (especially the Internet and social media), is that with social media making it more convenient for users to access information, videos, and images from all over the globe, and the possibility for common citizens to share their views and opinions worldwide, and to sympathize with and support other users from a completely different background, and generally with the people having access to platforms they can use as tribunes, if not completely impracticable, it has been more challenging to produce and spread news that are not based on truth. However, as appealing as the assumption is, it is not even close to the actual impact all these technological improvements have had on the notion of manipulation through media and propagandizing the people. Moreover, on social media's impact on the world's perception, Noam Chomsky says, “People tend to go to things that just reinforce their own opinions, so you end up with bubbles. The people on what is called the left see the left media, and the people on the right see the right media. And the level of the material is, of course, much more shallow.” (Macleod, 2019) This decline in understanding of the world due to the popularity the online media platforms can be dangerous in that, the lesser one knows about a particular subject, the easier it will be for them to be manipulated when exposed to news content that is not totally or partially true.

When it comes to disinformation and fake news, the emergence and popularity of the Internet not only failed to change things for the better but also has become a more convenient tool to mislead the masses even more deliberately. Moreover, it is believed that the fake news and news stories supposed to deceive the audience, are more likely to spread faster and wider through the internet. However, with the emergence of a newer technology called Block-chain, and its core characteristic (is of much value to the concern of this paper) being its decentralized nature where a certain user has access to all the changes occurring to a particular data, to the actual authenticated identity of the writer of a piece of content, or the user who posted an image, videos and etc., and the history of changes and modifications applied to it; there's hope that if not completely demolished, we are more likely to tackle the fake news and how it affects our society.

When speaking of blockchain technology, its facilities, possibilities, and positive effects it might have on a broad range of issues the world today is dealing with; it is only fair to mention the imperfections and flaws addressed to the technology, one of which is significant to this paper, is the immaturity of the technology. The fact that blockchain is still in its infancy era, along with the reluctance corporations, organizations, and everyday user have in regard to moving to the technology, has made it difficult for the experts to identify its flaws and shortcomings. (Honkanen et al., 2021) Furthermore, the fact that most of the research and essays published about blockchain use assumptions rather than facts, is another issue worth mentioning. However, this is the situation with every invention and revolutionary change these days.

This paper aims to explore the opportunities and potential of Blockchain technology to reduce the effects of fake news and deceiving entities on the flow of information. To do so, the research questions are as defined below:

RQ1: What features of blockchain technology make it a potential solution to the problem of online disinformation and fake news? And how?

RQ2: What are some possible challenges concerning identifying blockchain technology as a probable solution to the abovementioned problem?

1.1 Aim and scope of the research

We live in an era of information, where the fact that whoever (or whichever party & administration) has a better grasp of how technology works and has access to more advanced tools, is likely to be more successful in turning public opinion in their favor. Governments have been able to justify wars and crimes against humanity flawlessly using propaganda and disinformation tools. Candidates have managed to turn election results upside down by perfectly spreading fake news across social media and influencing mainstream views. Deep fake content has been employed to ruin the reputation of opponents to win competitions.

Digital technologies have made our lives easier in various ways, but they have also been causing modern problems which are believed to require current measures to tackle. The fact that it's now easier than ever to spread fake news and disinformation through social media platforms and the tendency that society has to pass on these sorts of content faster and further is concerning to experts. As a student of media management and as an individual who has encountered propaganda and fake news several times, I chose this particular topic to first understand fake news and disinformation mechanisms and to investigate the possibilities blockchain technology provides for us to minimize the effect of the abovementioned challenges and problems.

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1.2. Method and material

To come to a conclusion on the matter and learn more about the whole topic, I first researched the nature of blockchain technology, its features, potential and shortcomings, and how it would change our future. After this, I read articles on fake news, disinformation, and propaganda and how they affect the course of the events to better understand the discourses that are going on. This led me to the literature review; I reviewed articles and papers that discussed both fake news and blockchain technology and were altogether related to the topic of this paper.

The objective of the literature reviewed for the current paper is to first understand what is already known about the research topic; disinformation, fake news, incentives behind creating such content, business models and the systems that make it possible for entities to opt for such business models, and the technology tools and facilities that make it more convenient for the mentioned entities to do so. Also, the nature of blockchain, how it works, its features, and the possibilities it offers, along with its restrictive features and challenges one might face while considering blockchain as a possible solution to the problem.
The scope of the literature review is divided into two different sections. For the part about disinformation, propaganda and fake news, there is no time limitation, i.e., I looked into some of the older sources and books (published before 2000s) as well as more recent ones. However, the reviewed literature about blockchain technology was more recent obviously, since it's a new advancement itself.

The analysis and synthesis of the literature review is that of thematic analysis where the literature I went through were analyzed and based on the theme they were related to, therefore the structure of the literature review is constructed based on the theme and the subject of the literature review.

However, to get a deeper understanding of the potential of blockchain, and the application of it, I decided to pick a qualitative interview method, where I interviewed … experts who are actively investigating, researching, finding solutions, and own companies in the field. Since the interviewees were from different backgrounds and their areas of activity varied, I had to adjust the interview questions so that they would be relevant to the interviewees but would still serve my purpose and provide me with the information I was looking for. In this respect, my interviews are

considered to be semi-structured, which means I had a set of questions all the interviews were based on, but the questions were modified, and complimentary questions were asked when needed.

1.2.1 Design of the qualitative research

According to Juliette C. Young et al, ("Methodological guide to using and reporting on interviews in conservation science research," 2018), there are nine steps that need to be taken by researchers using the qualitative interview as their research methodology. The stages described are:

Identify research questions,

Select the interview type,

Device initial interview questions,

Sampling,

Ethical reviews,

Pilot/refine interviews,

Undertake interviews,

Analyze,

Write-up/dissemination

The basic stages in an interview process can broadly be defined as the initial project design (Stages 1–3), data gathering (Stages 4–7), and analysis and write-up (Stages 8–9). (Juliette C. Young, et al., 2018)

The initial project design stage of this paper went through a lot of changes and amendments as initially, I had intentions to investigate propaganda and the image it provides of certain regions and countries to the masses helping to form stereotypes and clichés. However, propaganda was somehow too much of a broad topic and eventually, I decided to narrow the topic down to fake news and disinformation and explore blockchain technology. Therefore, my research questions were formed as mentioned in the introduction chapter.

Since blockchain technology is a relatively new one, and there aren't many relevant articles and papers to access, the qualitative interview with semi-structured questions seemed like the proper methodology for this paper.

The questions included in the interview were designed so that the interviewee would start by talking about themselves and their background, moving forward with their fake news and blockchain activity background, and ending the interview by responding to general questions about the future of the matter.

The next stage described in the guideline is data gathering starting with sampling, which means identifying the interviewees; for this stage, I had the opportunity to get in touch with the first interviewee through a mutual friend and then I tried snowball sampling.

The fifth step, ethical reviews, also known as ethical clearance, does not concern this paper; the interviewees were informed of the whole topic and purpose of the paper, and no personal or sensitive questions were asked.

The process of refining the questions didn't take that long; based on my supervisor's comments, I only changed the order of some questions and made one question more specific.
Undertaking the interviews was challenging and time-consuming. It wasn't easy to schedule the interviews, and the first one which was very important to me was almost a disaster given the conditions it was conducted in.
The last stage is of great importance since it basically includes the whole findings of the paper and answers the research questions. In order to achieve this, I recorded the interviews with the intention to be able to go back to them and use the interviewees' exact words and sentences.

1.3 The Structure of the Thesis

1. Introduction: This initial chapter provides an overview of the research topic, the scope of the study, and the research questions to be explored.
2. Literature Review: Chapter two is the comprehensive review of existing literature on the topic. This review is divided into four sub-sections, each dealing with a distinct aspect of the research topic. The goal is to provide context for the study and identify gaps in the current knowledge that this research aims to address.
3. Data Presentation: In chapter three, I present the findings from the conducted interviews. This chapter is divided into three sections, each focusing on a specific topic addressed in the interviews. Complete transcriptions of the interviews can be found in the appendices.
4. Findings and Discussion: The fifth chapter includes a comprehensive discussion and analysis of the findings from both the literature review and the interviews. It presents key concepts, the interpretation of findings, and the conclusions drawn from the research.
5. Conclusion: In the final chapter, I summarize the key findings of the research, restate the conclusions drawn, and discuss their implications for the broader field of study.

Literature Review

2.1 Introduction

There are tons of research papers published on the topic of fake news, and disinformation, which are quite easily accessible online, the same can be stated about blockchain technology and its different features and characteristics. (for example Lazer et al., 2018, and "Chapter 11: Blockchain technology: principles and applications," 2016) However, there aren't as many surveys or research work done that concerns both aspects of the current paper, which shows the importance of the research required related to the topic and also the potential it has for producing valuable essays and research work.

The literature I went through while studying for the current paper mainly focused on four different aspects of the topic:
The definition of fake news, the feasibility of it being spread, and its consequences (e.g., Allcott et al., 2017).
The important role social media plays in the making of and spread of fake news (e.g., Victoria Rubin et al., 2016)
Methods used to detect and fight fake news using AI (e.g., Sebastiaan van der Lans, 2021)
Blockchain technology as a potential solution, its facilities, and challenges in tackling the issue. (e.g., Harrison and Leopold, 2021)

In the following paragraphs, the summary of the reviewed literature is discussed based on the aspects mentioned;

2.1.1 Fake news, definition, expansion, & consequences.

Almost all the work reviewed had some sort of definition of fake news, along with describing its significance in today's world and the fact that social media has made it more viral and epidemic. For example, Gyuwon Song and their colleagues as the authors of*"* ("Blockchain-based Notarization for Social Media," 2019) define fake news as "mostly relates to content that is false either partially or entirely" and it "can be seen as a propaganda of disinformation via traditional

News or social media platforms" in the essay *"An incentive-aware blockchain-based solution for internet of fake media things*." (Chen et al., 2020)

As the authors of the essay *"Fake News and its Credibility Evaluation by Dynamic Relational Networks: A Bottom-up Approach"* (Ishida & Kuraya, 2018,) in my view correctly remind us; "The news that includes photos and sounds that are artificially modified or tempered to exaggerate or twist the message delivered are considered as fake news."

However, I think the best definitions are provided by the paper *"Social Media and Fake News in the 2016 Election"* (Allcott et al., 2020) as they write "We define "fake news" to be news articles that are intentionally and verifiably false, and could mislead readers." And the article *"Fake News and Misinformation"* published in volume 4, issue 5 of the "International Journal of Advances in Scientific Research and Engineering (ijasre)" (M. Sadiku et al., 2018) reading; "Fake news is fabricated content deceptively presented as real news. It consists of stories designed to increase readership, online sharing, and Internet click revenue. It is published with the intent to mislead in order to damage an agency, person, or rival. It is well-known that fake news spreads faster and deeper than the truth." They discuss four types of fake news; clikbit, propaganda, opinion, humor

Clikbit is according to Sadiku et al, an exaggerated or false story created with the intent of generating clicks to increase ad revenue. These often have "clickbait" headlines, proclaiming that drinking two gallons of water a day is good for you, chocolate will help you lose weight, sugar causes cancer, or red wine will improve your skin tone.

Propaganda in its turn is a deceptive story designed to promote the author's agenda. It may be politically motivated. Propaganda is used by politicians and governments to promote their agenda.
Opinion The story is the author's commentary intended to influence the reader.

Humor This story is for the purpose of entertainment. It is using satire to discuss a public affair. The authors promote themselves as delivering entertainment and call themselves comedians

instead of journalists. If readers are aware of the humorous intent, they may not take the information at face value.

Other types are news parody, forgery, and photo manipulation. These types of fake news are based on two factors: levels of facticity and deception."

On the importance of acknowledging fake news as a serious issue and it getting more and more viral, there are notable remarks made too, for instance, "It is now easier than ever to fabricate and forge fake information due to a wide range of free content-generating software. Additionally, this forged information spreads like wildfire on social media as humans are likely to spread false news farther, faster, and deeper than the true news through their social networks." (Song et al., 2019)

The researchers who wrote According to Chen et al., *"An incentive-aware blockchain-based solution for internet of fake media things"* (Chen et al., 2020) claim that "Fake News is a sensitive and challenging issue for the economic, political, and diplomatic sectors. Fake News goes beyond everything that the human race should be fighting for integrity, honesty, transparency, and awareness."

For this thesis Allcot et al's description of on the feasibility of fake news and how it's being spread and its consequences, is useful. According to them, "We sketch a model of media markets in which firms gather and sell signals of a true state of the world to consumers who benefit from inferring that state." The way they focus on the financial aspect of the news, whether based on truth or fake, shows the profit-based nature of the news industry and how it can affect mainstream media news stories. "We conceptualize fake news as distorted signals uncorrelated with the truth. Fake news arises in equilibrium because it is cheaper to provide than precise signals because consumers cannot costlessly infer accuracy, and because consumers may enjoy partisan news." (in another essay *"An incentive-aware blockchain-based solution for Internet of fake media Things* Allcott et al 2020)

In their article "*How Blockchain Can Help Combat Disinformation*" published in the Harvard Business Review, Kathryn Harrison and Amelia Leopold talk about disinformation and how it's deliberately used to achieve financial and political goals and to affect the course of events by influencing the masses. "Disinformation — that is, content that intentionally misleads for political or financial gain — is nothing new. But as we've seen over the last year in particular, digital platforms have made it significantly easier to spread dangerous conspiracy theories, as patently false claims on topics as wide-ranging as the pandemic, racial protests, California wildfires, and presidential election results have gone viral with surprising speed and reach. Adding fuel to the fire is the emergence of deepfakes: highly convincing (yet totally fraudulent) audio, photo, and video content, created by AI, with the potential to cost businesses tens of millions of dollars. And that's not even considering the less-quantifiable but no less significant human impact of tech-enabled disinformation on society at large."

To sum it up, the content that are considered to be disinformation and fake, are produced and published intentionally either to increase readership, or to gain political and financial goals. These types of news have a tendency to spread faster and further which makes them a dangerous threat to democracy.

2.1.2 The important role social media plays in the making of and spread of fake news.

Social media has provided this opportunity for everyone regardless of their background, education, and expertise to have access to some sort of platform and be able to produce, comment on, and share any type of content without having to investigate and prove its credibility. This has made it much more convenient for fake news and disinformation to spread among people and impact their perception of the world around them.

On the role social media networks have in the production and the spread of fake news; the writers of the article *"Fake News or Truth? Using Satirical Cues to Detect Potentially Misleading News"* (Victoria L. Rubin et al., 2016) write "In the course of news production, dissemination, and consumption, there are ample opportunities to deceive and be deceived. Direct falsifications such as journalistic fraud or social media hoaxes pose obvious predicaments."

Another issue to discuss is the fact that there is no method for evaluating and fact-checking content created and posted on social media platforms. As Hunt Allcott and his colleagues put it; “Most recently, the focus of concern has shifted to social media. Social media platforms such as Facebook have a dramatically different structure than previous media technologies. Content can be relayed among users with no significant third-party filtering, fact-checking, or editorial judgment. An individual user with no track record or reputation can in some cases reach as many readers as Fox News, CNN, or the New York Times.” Fake news published on social media can spread faster than a virus and the number of people they reach can be unimaginably high, based on a survey done in the same article mentioned earlier, “The upper end of previously reported statistics for the ratio of page visits to shares of stories on social media would suggest that the 38 million shares of fake news in our database translates into 760 million instances of a user clicking through and reading a fake news story, or about three stories read per American adult.” (Allcott et al 2020)
When it comes to the motives for the production and publishing of fake news, we cannot always assume that the online users were doing so because of a lack of verifying tools to check the accuracy and credibility of the content they are sharing, as for many agencies and entities, it is not just that simple; “There appear to be two main motivations for providing fake news. The first is pecuniary: news articles that go viral on social media can draw significant advertising revenue when users click on the original site. The second motivation is ideological.” (Allcott et al., 2020)

According to the University of Victoria Library website, “Advancing technology and growth in social media use contribute to the spread of fake news. In fact, research shows that false news often spreads faster than real news online. Regular users of social media are to blame for a lot of this spread, as they like, share, and otherwise engage with posts containing misinformation.” On the same website, there is a link to an article with the headline *“We Tracked Down a Fake-News Creator In The Suburbs. Here's What We Learned. 2016”* It discusses how before the 2016 election in the USA, a totally fictional news story got shared almost half a million times only on Facebook, while not a single detail of it was based on the truth. In the article from NPR exploring one man's fake news company and how and why he's been so successful, they track down the fake news story with the headline "FBI Agent Suspected In Hillary Email Leaks Found Dead In Apparent Murder-Suicide." And end up interviewing the man behind something which appears to be a fake news empire, with a company registered under the name Disinfomedia owning several fake news

websites and having 20 to 25 employees writing fake news stories and then spreading them on Facebook groups and pages. On the effect of social media and how they help the spread of fake news, the owner of Disinfomedia says: "It was just anybody with a blog can get on there and find a big, huge Facebook group of kind of rabid Trump supporters just waiting to eat up this red meat that they're about to get served."

2.1.3 Methods Used to Detect and fight fake news using AI

It is believed that modern problems require modern solutions, and since the focus of this thesis is to find solutions to the problem of fake news and disinformation that are spreading on social media platforms, it was only relevant to look up the solutions that the AI technology has provided to the problem. "The breadth of information on the internet means that humans alone cannot put a dent in disinformation. If there is to be any legitimate effort to combat fake news, artificial intelligence and machine learning specifically will be part of the fight." (Sebastiaan van der Lans, 2021)
AI technology has been used to combat or at least minimize the effects of fake news in the past few years. There are several companies and entities employing the technology in various ways to detect fake news and fight it. The website called The Trusted Web has provided 13 AI-powered tools to fight fake news, from which I chose the following to discuss:

1. The Factual

According to the website, this tool is accessible as "a newsletter, app, Chrome extension, and website to users who want to be informed about the credibility of specific stories. The Factual is powered by an algorithm which rates the credibility of more than 10,000 news stories each day. Factors it considers include a site's sourcing history, the author's track record, and the diversity of sources in a news article.

The Factual's Chrome extension rates news sites as you view them. The Factual's website highlights the most credible articles on specific topics. The Factual was founded in 2016 in the San Francisco Bay Area." (Sebastiaan van der Lans)

2. Logically

This tool was interesting to me in that besides AI, it also relies on human fact-checkers. According to the website, "Founded in 2017, Logically is a free mobile app and browser extension. It provides fact and image verification services. It employs AI as part of its automated search assistant feature. Logically also relies on fact-checkers to assist those who use the service.

Its AI is designed to analyze claims, opinions, and events. It monitors more than one million web domains and social media platforms in real-time, using the information it gathers to assess the veracity of information and assertions on the web."

3. Full Fact

This one is different in that it gathers the most trustworthy stories of the day for you. The website describes this as "Full Fact is a media company founded in 2009. It offers several fact-checking tools, including ones that are automated through the use of artificial intelligence. It is a winner of the 2019 Google AI Impact Challenge.

It is building AI tools to help fact-checkers understand what is the most important, and check-worthy, information of the day. It also aims to design an algorithm that can identify when somebody *knowingly* repeats something they know to be false. The project remains in its developmental stage."

4. Grover

The reason I found this one interesting is that this tool is able to generate fake news itself which has caused some concerns, however, according to the website this ability is used to better detect fake news stories. "Grover is a fake news detection AI model produced by researchers at the

University of Washington. The project was unveiled in 2019, the algorithm takes on the language of specific publications in order to detect misinformation more accurately.

Grover has proven capable of generating fake content effectively, which makes it similarly effective in detecting AI-generated misinformation. Though some have voiced concerns about Grover's potential to generate convincing fake news, the plan is to use Grover to combat misinformation rather than contribute to its spread."

5. Sensity AI

This tool, unlike others, investigates and fights a newer sort of fake news. According to The Trusted Web," Sensity AI is a tool for detecting a relatively new frontier in fake information: deep-fakes. Unlike written information, it may be more difficult for the untrained eye to determine whether deep-fakes are, in fact, deep-fakes rather than legitimate images or videos.

Founded in 2018, Sensity AI may become increasingly useful as deep-fakes become more sophisticated, and could be used for reputation attacks, false reporting, and other nefarious ends. Sensity AI assesses and detects the severity of "visual threats". Its detection API combines video forensics and computer vision to determine whether still images or videos or legitimate or fake."

6. Defudger

And finally, an AI tool fighting fake news that uses blockchain technology. "Defudger is an AI-powered solution for the authentication of visual content. It has the capacity to detect the manipulation of videos and images. This means the exposure of images edited with programs like Photoshop as well as deep-fake videos. It also authenticates original visual content using blockchain technology.

The Defudger content database contains only visual content that has been validated as authentic using blockchain technology. This prevents the passing of duplicate or altered content as authentic. Defudger was founded in 2018."

2.1.4 Blockchain technology as a potential solution, its facilities, and challenges in tackling the issue.

Blockchain technology is still in its infancy, and not many are familiar with the ways it works, or how its future will be (Honkanen et al., 2021), however, when it comes to fake news and

disinformation, there are hopes that this new technology can be of some help. It is said that blockchain technology has some potential in solving the ever-growing problem of fake news. “The good news is, while technology has spurred the problem, new technologies — specifically, blockchain — also offer a potential solution to combat the growing threat of digital disinformation. Of course, it would be naive to expect a single, silver-bullet solution to solve these complex challenges. But recent developments suggest that a blockchain-based approach could potentially address many of the risks and root causes of digital disinformation.” (Harrison and Leopold, 2021)

According to their article in HBR, this technology has features that are of high significance to the problem concerning this paper. One of them is the decentralized nature of the blockchain technology. The decentralized and immutable ledger of blockchain systems ensures that information is recorded in a manner that undergoes constant verification by all parties involved. This process makes it extremely challenging to modify information once it has been created. While blockchain is popularly known for managing cryptocurrency transfers such as Bitcoin, its potential as a tool to track various forms of content lies in its capability to provide decentralized validation and a transparent chain of custody.

Speaking of the blockchain facilities that make it possible for it to be considered as a solution, according to the authors of the “*Blockchain @ Media A New Game Changer for the Media Industry?*” published in Monitor Deloitte, there are five key features of the technology that make it a potential solution.

Distributed — Since records are shared across a blockchain network, verification of the data can also be shared.

Consensus-based — Similarly, shared data verification means a consensus (often a majority, though some blockchain networks are governed by different rules) must be reached by the network participants.

Digitized — Most information can be expressed digitally, allowing blockchain to work for a variety of sources.

Chronological — Blockchain contains a permanent timestamp which refers to the previous data block, linking the various blocks together and forming a chronological, traceable path.

Sealed — Blockchain is also cryptographically sealed, meaning the blocks in the chain cannot be altered or copied and are therefore rendered digitally authentic.

When it comes to the shortcomings of the technology addressing disinformation and fake news issue, there are three major concerns that are very well expressed by the HBR article. “While blockchain clearly has a lot of potential to enable greater accuracy and transparency, there is nothing inherently trustworthy about the technology itself — at its core, blockchain is simply a recording mechanism. It is up to the communities that use these platforms to establish how content will be added to the ledger, how it will be verified, and what incentives will be put in place to build and maintain that trust. If users do not trust the majority of the contributors recording and verifying the information, we’ll be back at square one. No technology will ever fully solve the underlying challenges of establishing trust between people, nor eliminate the underlying human motivations for profit and political gain that drive disinformation in the first place.

In addition, even if we assume that the majority of users are well-intentioned, assuming that they will have the time and capacity to verify the huge amount of content that is produced every day is another matter altogether. How many of the source links included in this article so far have you actually opened, let alone stopped to read in their entirety? Making blockchain-based tools as accessible and easy-to-use as possible will help (imagine a content review system similar to restaurant health grades or Yelp reviews) — but even so, there is only so much we can reasonably expect from most users.

And that’s just one of many tactical considerations that are yet to be resolved when it comes to actually implementing a blockchain-based media verification system. Blockchains are notoriously slow, can store limited amounts of information, and come with a slew of environmental, privacy, and freedom of expression concerns. Given these challenges, it is essential to invest not just in technological solutions, but also in complementary policy and education initiatives focused on mitigating the creation, dissemination, and monetization of disinformation.”

2.2 Summary

According to the literature reviewed, we live in an era where we are exposed to more fake news and disinformation than news stories that are actually based on truth. The incentives behind producing and spreading false information can be anything from financial gain from ads views to destroying entities and rivals' reputations for political and social reasons, and the widespread use of social media now acting as an inevitable communication tool has made it more convenient than ever for the false information to spread and reach the target audience.

It is safe to claim that the issue of fake news, disinformation, and deepfake, if not caused entirely by advanced technology, is intensified and boosted by it. But, there is hope that these advanced technologies like AI and more specifically, blockchain technology will play a significant role in minimizing the effects of deceptive information that is created and published intentionally. However, trust can never be fully maintained in the digital world by solely relying on technology.

Insights from Interviews: Unveiling Key Discoveries

As stated earlier in the methodology chapter, interviews were conducted in order to gain more insights and come up with the answers to the research questions. The people who were interviewed were experts in different fields and the responses they provided to the questions were very insightful. The interview questions can be categorized into three separate groups, each group focusing on a different aspect of the research. The categories are:

- The background of the respondent and their connection to the topic,
- Their experience and/or expertise in fake news and disinformation,
- Their technological background, using blockchain technology and AI-related tools

The fact that the interviewees had different backgrounds ranging from academic research in the media and its future concerning blockchain technology to actual practical work in the field of disinformation to the technological aspect of the topic, and also the legal aspect of the problem of fake news, will make the discussion chapter of the present paper more of an interesting exploration into different aspects of the problem.

3.1 The background of the respondent and their connection to the topic

The first interviewee, Mikko Salo is the founder of Faktabaari, a Finnish fact-checking and digital media literacy service. “Since 2014, it has regularly contributed to fact-based information circulation with innovative projects and fact-checks, notably to all national and European Parliamentary election debates with academically acclaimed quality and transparency standards. Faktabaari adheres also to the Finnish ethical code for journalists, is managed by a registered Finnish non-profit transparency NGO (Avoin Yhteiskunta ry) and works predominantly on a project basis. Faktabaari Editor includes professional journalists, researchers, EU experts, teachers, and technical specialists supported by a broader community of topic experts, as well as information and media literacy specialists.” While it was such a privilege to be able to interview Mikko, the interview conditions were not that perfect, however, I did my best to get the most out of the interview.

The next interviewee is a teacher at Arcada UAS, Mats Nylund, “I work as a Principal Lecturer in Media Culture at Arcada University of Applied Sciences in Helsinki. I was in charge of a Master's degree in Media Management from 2012-2019, and a lot of the research I did during this period was related to the field of media management, meaning mostly media business and media technology. My recent (new but yet old) research interest is time and media.” While I was studying for my research and looking for relatable literature, he was really helpful and I actually studied a couple of articles he has been writing with his colleagues, which I found very useful and enlightening.

The third interview was with Jamile Hamideh, a lawyer from Brazil who has a background in Humanitarian Logistics, Privacy Law, and Tech. As she put it “looking at how this intersection between law and technology affects the distribution of aid to refugees, mostly. So the cash and all accesses are basically like using money and how digital money is.”

The fact that she agreed to do the interview with me without actually knowing me, just “to help a fellow researcher” as she put it, finding time to do the interview while on vacation with her family, is very precious. The interview itself was quite interesting too, she was really passionate about the topic and provided a handful of tangible examples.

The last interviewee was Ville Savolainen, he was also kind enough to find the time and do the interview with me despite the fact that we didn’t know each other beforehand. “I’m a Post-Doctoral Researcher at the Department of Finance and Economics at Hanken School of Economics. My research is focused on cryptocurrencies based on permissionless blockchains. In addition, I’ve conducted research in theoretical macro-finance.” My interview with Ville gave me a good insight into the technological aspect of the whole topic, with little to nothing related to fake news and disinformation. I also decided to skip some of the questions about his background in fake news and disinformation since he didn’t have any background in that particular area.

3.2 Their experience and/or expertise in fake news and disinformation

As stated earlier, the first interviewee Mikko Salo "is Faktabaari (FactBar) & NewsBeez Co-Founder and EU Senior Advisor to LUT University. At the EU and Nordic -level he contributes primarily to EDMO NORDIS (Nordic Observatory for Digital Media and Information Disorder), to expert groups on media literacy, and to several international networks tackling online information disorders.

In 2014 he started the multi-awarded (Chydenius, Bonnier, Europcom) fact-checking service Faktabaari, to bring accuracy to the election debates. Since he has worked with (journalism) schools, media educators, scientists, administrators, and voluntary crowds for highly pedagogical and engaging Faktabaari and Debattibaari new media and NewsBeez media innovation concepts related he has e.g. served as an independent expert on European Commission's High-Level Group on Fake News and Online disinformation while involved in projects such as FactBar EDU developing digital information literacy toolkits to empower teachers and future voters' critical thinking and election participation. he has addressed audiences in more than 20 countries on 4 continents.

Mikko Salo is also Senior Advisor to LUT University on EU affairs and volunteers for several projects including journalistic associations, foundations, and start-ups. He is the long-term Chair of Finnish Transparency NGO in charge of Faktabaari with positions of trust both nationally and internationally." he is actually working towards reducing the effects of fake news and disinformation, his deep understanding of the issue, the fact that he is trying to solve the problem through education, his background in journalism, and the obstacles he and his colleagues are facing on their way, were the main focus of the interview. He also had some fascinating insights into the future in regard to journalism and media literacy.

Mats Nylund has a background in journalism too, in the 90s he used to work as a journalist and then he continued with Communication studies, then he was offered a job as a researcher at a university. He is a researcher in media and communication studies with a focus on truthful communication and as he put it in the interview, "Media and communication studies in a way it's

really much about truthful communication. The focus of the whole field, so to say… in a way I've been involved with the discussion of what is truth, truthful news, and what is not."

Jamile Hamideh is a lawyer and according to herself on the relation between her work and disinformation, "it doesn't have any direct one. I should connect with fake news and disinformation. Uh, not on purpose, at least. But I find that these days… misinformation, fake news, they are such an important force like they are shaping and they're telling our reality so much that sort of can't run from it no matter what you do. So I am originally a lawyer from Brazil and I have been working with technology for the past 5-6 years directly. Umm, I have just finished my master's degree in human account logistics.

And I'm going to start my Ph.D. in humanitarian just as well and kind of looking at how this intersection between law and technology affects the distribution of aid to refugees, mostly.
It doesn't directly connect, but throughout my work experience, I have actually had to deal with it. It's the kind of thing that pops up again and again because like, it really shapes our reality."
Ville's background is in finance and economy, game theory, and supply chain. His work is related to cryptocurrencies and the financial aspect of blockchain technology.

3.3 Their technological background, using blockchain technology and AI-related tools

In his profession, Miko Salo has come across some AI-supported verification tools that are being used by the European corporation to digest what is going on in social media. He hasn't been using blockchain that much, and in his idea when it comes to technology and disinformation, there are a lot of problems like funding and budget.
Mats Nylund hasn't been using any blockchain technology either, because the technology is still evolving and there are still some issues and problems with it. however, he has been using Chat GPT just to test it, and also some AI detectors related to his job as a lecturer.
Jamile Hamideh is also using AI tools in her research, getting assistance from technology to find research papers and articles related to a specific topic she has in mind. She hasn't used any blockchain technology but she thinks there are uses for the technology in the field she works.

Ville Savolainen is using AI tools like Chat GPT for fun, to see where his students' answers come from, he is kind of using blockchain for research, in his area of expertise of course, which is finance.

Findings and Discussion

In this chapter, the main discussion is included, so basically what you are about to read in this chapter includes my own ideas and conclusion that I drew from all the literature I studied, the interviews, and my own gradual understanding on the issue.

I have decided to include the findings and the discussion in the same chapter for two reasons; first is the integration of results and interpretations, while the findings chapter typically presents raw data collected, and the discussion chapter interprets this data. I decided to combine the two for a seamless integration of the results and their interpretation, potentially leading to a clearer and more cohesive presentation of the research outcomes.

The second reason is direct contextualization, combining the chapters can help the reader to directly link the results to their implications, rather than having to recall the findings from a previous section when they reach the discussion. This can also help to avoid repetitive statements.

4.1 key concepts

Fake News: according to Cambridge Dictionary, fake news is “false stories that appear to be news, spread on the internet or using other media, usually created to influence political views or as a joke” ("Fake news,")

Disinformation: the same dictionary defines it as “false information spread in order to deceive people” ("Disinformation,")

Blockchain: Synopsys website defines blockchain as “A blockchain is a decentralized, distributed and public digital ledger that is used to record transactions across many computers so that the record cannot be altered retroactively without the alteration of all subsequent blocks and the consensus of the network.” ("What is blockchain and how does it work?," 2022)

Artificial Intelligence (AI): Tech Target explains AI as “Artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems. Specific applications

of AI include expert systems, natural language processing, speech recognition, and machine vision.” ("What is artificial intelligence (AI)? Definition, benefits and use cases," 2022)

Deep Fake: based on Merriam-Webster Dictionary, Deep Fake is “an image or recording that has been convincingly altered and manipulated to misrepresent someone as doing or saying something that was not actually done or said.” ("Definition of DEEPFAKE,")

4.2 Perspective

We live in an era where it is easier than ever to access any type of information one is looking for, while this can be considered a privilege and an advantage of the technological advancements our societies have achieved, it can be problematic too. Internet access, smartphones, and social media platforms have made it more convenient than ever for individuals to create, boost through likes and comments, and distribute any piece of data online, which is a positive thing per se, but can have a twisted side to it as well. The fact that misleading content created by everyday users, and distributed on social media, can have a major effect on the course of events and shape the mainstream ideas and perceptions of our world is frightening. However, misguided everyday users unintentionally sharing false information created by their fellow users is one issue, other entities employing the same trait of social media platforms to intentionally deceive public opinion on certain matters for political or financial reasons is another issue that is of high importance to the present paper. Over the past few years, there have been ongoing discussions regarding the influence of disinformation and fake news on several important events like elections, or health-related topics such as COVID-19 prevention and vaccination.

It is now clear that no matter what area of expertise one identifies themselves with and how distant and unrelated one assumes their field to be from the topic of this research, they are most likely to stumble upon one of the articles or pieces of news deliberately written and published to deceive their audience and reach their goals. The fact that these entities are aware of the ways the human

brain works, and the tendencies the mainstream mind has to distribute such content further, makes them count on everyday users to contribute to their plans of publishing a piece of fake news intentionally made.

Coming from a background where I have had first-hand experience of how media is used by the states to further their propaganda, and having learned about the "us vs. them discourse" in governmental media, I find the topic of the present paper of high importance and am very curious about the whole idea of trying to tackle the problem using the new technological tools we have access to.

When starting to generate the research questions and forming ideas about the topic of this paper, I was strongly optimistic and fascinated by the whole idea of using technology as a helpful tool to if not solve the problem of false information published on the internet completely, but at least minimizing its effect. However, after studying more and looking deeper into the problem, I came to the understanding that the problem that concerns this paper is a more complicated one.

At the beginning of the research, I had a rather simplistic view of the problem of disinformation and fake news, especially since the topic I had in mind first was more focused on propaganda, I had the impression that the whole problem of trying to deceive the masses and shape, form, and change the way they think was solely done by authorities and governments. Therefore, when I started to learn about blockchain technology, its decentralized feature caught my attention, and I started assuming that if blockchain really is the Internet of the future, and if it is claimed that this technology is here to help shift the power in the information industry to the people, then it is the ultimate solution to the problem.

4.2.1 Manipulation and Propaganda, As Old As Human Civilization

However, as I started to dig deeper into the issue, I realized that the problem of propagating people and using information as a means to influence the public mind has always been there. “The fact that wars give rise to intensive propaganda campaigns has made many persons suppose that propaganda is something new and modern. The word itself came into common use in this country as late as 1914, when World War I began. The truth is, however, that propaganda is not new and modern. Nobody would make the mistake of assuming that it is new if, from early times, efforts to mobilize attitudes and opinions had actually been called “propaganda.” The battle for men’s minds is as old as human history.” ("story of propaganda,"1944) Throughout the history of mankind, authorities have used different tools, forms of arts, activities, and events to steer the minds and thoughts of the public in their desired direction. “Differences on religious and political matters gave rise to propaganda and counterpropaganda. The strong-minded Athenians, though lacking such tools as the newspaper, the radio, and the movies, could use other powerful engines of propaganda to mold attitudes and opinions. The Greeks had games, the theater, the assembly, the law courts, and religious festivals, and these gave opportunity for propagandizing ideas and beliefs. The Greek playwrights made use of the drama for their political, social, and moral teachings. Another effective instrument for putting forward points of view was oratory, in which the Greeks excelled. And though there were no printing presses, handwritten books were circulated in the Greek world in efforts to shape and control the opinions of men.” ("story of propaganda,"1944)

4.2.2 Technology Advancements Providing More Tools

During the industrial revolution and the start of what we now call the modern era, press, Radio, and Television became popular sources of entertainment and information distribution. Hence, these new mediums were considered the instruments through which the authorities and the elite controlled the thoughts and minds of the masses. However, back in the days when newspapers, magazines, and TV channels were the ultimate source of news, information, and entertainment, the information war didn’t seem that extreme. One reason could be that people were exposed to some sort of discourse that were contradictory to their own beliefs, what we now recognize as the

left and right political stances were more encountered with the opposite side's views on different matters.

The next great advancement in technology which was brought to humans was the popularity of the Internet, which is believed to have been a facilitator of rising extremism in a variety of different areas. The accessibility of internet connection combined with the popularity of smartphones, has made it easier than ever for civilians to find any sort of information they desire. Something that was assumed to be in favor of democracy and a more educated and knowledgeable society has been now recognized as a threat to the free flow of information. In the interview with Jamile Hamideh, she addressed this; "So for example it was one thing when you had… More written content, for example, and then it's kind of like easier to see the source now that we are moving so much more to video. Like you receive a video on WhatsApp and it's like that's impossible to track down. Uh, Tiktok even like Oh before you were watching a 5-minute video and you would make up your mind based on that. Now you watch a thirty-second video and you make your mind based on that, right? And you see like fifty of those, they're sort of saying the same thing like this 15, 30 seconds." The fact that people tend to follow accounts, influencers, and channels that reinforce their own beliefs and ideas, along with the way that social media platforms and their form of content distribution through short and rather shallow videos have negatively affected the attention span of the consumers, has resulted in a society where each individual is almost completely trapped in a bubble of a shallow perception of what they think is the ultimate truth. As we discussed the issue with Jamile Hamideh and she mentioned that "Unfortunately, I just think that we are way behind because this is something that is related to, you know, powerful interests, it's related to the way that we as humans want to confirm the things we believe we don't like to be challenged in our beliefs, right? So if I believe a certain thing and you come to me with a contradictory piece of evidence, it's much easier for me to just ignore it and say no."

4.2.3 Business Models & Economic Aspect of the Problem

Apart from the societal impact of social media platforms the consequences of which is a society with more narrow-minded individuals, most of them of younger generations, there's an economic aspect to the way that these platforms are reshaping our world. The new business models employed by the technology giants are built in a way that they offer their services for free to the customers, by making them agree to a long text of "Terms and Conditions", full of incomprehensible legal terms that confuse the user to ultimately receive their consent on collecting their personal information and selling the personal data to the advertising companies. The way these companies make revenue is usually by the number of clicks and shares they receive per content they post, therefore, it seems logical to create such content that the audience is triggered to click on and read more about.

This is where the problem of fake news and disinformation comes in, referring back to the reviewed literature; "Fake news is fabricated content deceptively presented as real news. It consists of stories designed to increase readership, online sharing, and Internet click revenue. It is published with the intent to mislead in order to damage an agency, person, or rival. It is well-known that fake news spreads faster and deeper than the truth." Also, the four types of fake news categorized as clickbait, propaganda, opinion, and humor are mostly produced with the intention to increase readership and bring in revenues for the publisher. According to Mikko Salo, "These business models are dangerous to democracy, and new business models should be given a chance. Because of the current situation of social media younger generations are being lost easily due to the way they digest the information published on these platforms without seeing any problems here."

Mats Nylund had an interesting viewpoint on the notion of "Fake News"; "Donald Trump played a really big role in establishing this notion of fake news and he used it to criticize the news media. But then I think the news media actually have kind of taken this concept and are trying to use it to kind of elevate their own role as fact providers and to distinguish them from, for instance, content creators on social media or distinguish them from politicians like Donald Trump and so on. But in a way I think… it's quite interesting to see how these established traditional news institutions are using this notion of Fake news to elevate themselves and to emphasize their role as Uh, providers of the opposite, so to say. And stressing that they have a really important role because their role

has been declining because of so many new players in this information market or whatever you want to call it."

Another problem with the new ways people consume media is that most of the content posted on the platforms is created by everyday users who aren't educated in many areas in which they create content. This causes the cycle of producing a piece of content on a certain topic without actually having any knowledge of it but influencing fellow users' ideas on the matter. So basically there's the problem of tracking the source of the content and ideas that are being published on a daily basis and finding out who is behind a certain piece of false information circulating online.

4.2.4 Blockchain; Myths & Realities

It has been believed that modern problems require modern solutions, but given the fact that trying to manipulate people using any sort of information, whatever the intention, has been going on for as long as human history, denies the assumption that the problem to the concern of this paper is a modern one. However, there's a modern aspect to it, and that's how easier technology has made it.

When it comes to blockchain, we have to agree that there was at least a bit of hype about it in the beginning. The whole idea of blockchain changing everything in our future looks more like a plot for a futuristic movie. However, it has some features and possibilities that cannot be overlooked. Referring back to the article by Harrison and Leopold which mentioned in the literature review; "The good news is, while technology has spurred the problem, new technologies — specifically, blockchain — also offer a potential solution to combat the growing threat of digital disinformation. Of course, it would be naive to expect a single, silver bullet solution to solve these complex challenges. But recent developments suggest that a blockchain-based approach could potentially address many of the risks and root causes of digital disinformation."

Thus, having the first research question in mind which is about the features of blockchain technology that make it a potential solution to the problem of online disinformation and fake news, the following features and characteristics can be discussed:

Distributed — Since records are shared across a blockchain network, verification of the data can also be shared.
Consensus-based — Similarly, shared data verification means a consensus (often a majority, though some blockchain networks are governed by different rules) must be reached by the network participants.
Digitized — Most information can be expressed digitally, allowing blockchain to work for a variety of sources.
Chronological — Blockchain contains a permanent timestamp which refers to the previous data block, linking the various blocks together and forming a chronological, traceable path.
Sealed — Blockchain is also cryptographically sealed, meaning the blocks in the chain cannot be altered or copied and are therefore rendered digitally authentic.

As stated earlier, however, the most important feature of the technology which made me think of it as a possible solution, is its decentralized nature. While current platforms like Facebook, Instagram, Tiktok, and Youtube are governed and controlled by a group of entities who have their own profit and interest in mind and make decisions based on revenue return policies, things on blockchain-based platforms look to be different. The decentralized nature of the technology means there's no one party or entity in charge of policy-making and the direction of the development of the platform, instead, it's the users who make the decisions and control the course of events.

While the idea of a democratic platform like this taking over current social media platforms and changing everything for the better is appealing, it is far from reality. Blockchain technology indeed has plenty of potentials, but not for an issue as big as disinformation which has been around for centuries, but maybe we can start testing this new unknown and rather complicated technology to tackle more simple problems on a smaller scale.

As the examples provided by Jamile Hamideh when we discussed the solutions based on blockchain; "This example is not about the media part, but I've seen some fantastic blockchain solutions, for example for international trade. So you have to track a shipment, for example. Umm, because when you are let's say shipping a container from China to the US, you have one set of shipping documents, right? That over the journey that takes months, they have to be copied from

system to system, and then each person that's typing that again… Uh, they make one minor mistake with a number with a comma and… If let's say each document has, I don't know 2% chance that the person is going to make a mistake, no matter how minor it is, but that has to be done 20 times… in the end, the document comes quite different than what it originally was."
So, according to her, blockchain technology has great potential for making such processes more efficient "…But if you can have a system… that's the companies that are involved because just like there's the company that manufactured the product, there's the company that took the container from the factory to the port, loaded on the ship that is from another company that is going to unload it in the next port and so on, right? If you can have all these companies within the same system and they're just like checking that first document, they don't have to replicate it and then they can just add their own stuff in the verification along the way. That is brilliant."

Another example she had was how this technology can be used in communities like academics and journalists. "You can have the same thing for research and the same thing for journalists, right? If you are already in a trusted environment, it is like OK.

I compiled this data. I don't know. Or electoral polling, 20% of people said that are going to vote for this kind and 80% said that registered. And then another researcher should come and say oh, but I've done this research. 30 days later in another district, there was also this, like you could have this chain at the end. We can look at it like it's all verified. You're not going to change it, but then you already have the trust."

To investigate further and discuss the second research question which was about "Some possible challenges concerning identifying blockchain technology as a probable solution to the abovementioned problem", there are two main issues to be discussed.

The first issue is related to the technical aspects of the technology and its limitations, for example, the fact that blockchain technology is slow, compared to the existing social media platforms that are popular partially because they can keep up with the fast pace of our so-called modern lives. According to Mikko Salo, "Blockchain technology is complex for ordinary people to understand, they cannot trust or work with it, and the technology can contribute to confusion."

What we discussed with Ville Savolainen was another aspect of the problem, we had a discussion based on the hypothesis that there's an incentive-based platform on blockchain for users to report on the incidents that are happening around them, whether the users are real journalists or not, we can assume that they are willing to create content based on truth in order to receive cryptocurrency incentives, and we assumed that the content is one hundred percent verifiable, and also other users are willing to play the role of fact-checkers, and vote on the accuracy of a piece of content again to receive cryptocurrency as incentives, another assumption was that all the users have gone through authentication and are identified, this affects the way voters are going to verify a piece of content "in less democratic countries", therefore the problem of verifying content remains. What stops voters from truthfully verifying the news on these platforms, is what makes it hard for independent journalism to operate in certain parts of the world.

Also, according to Mats Nylund; "We might have at some point the news, that is where blockchain is used to make this kind of time stamps and this kind of order the authentication of the news. But when you have a law, you make a law to avoid something. But when you have the law that people are so creative that they always get ways to get around it. And I think that it's the same with these technological solutions."

Another issue to be discussed is the intentions behind creating a misleading piece of news, generally known as fake news or disinformation. If the answer to the propaganda test was technology, I wouldn't be writing about this topic as my master's thesis. The problem of trying to deceive people using information, news, and media is more of a behavioral issue rather than a technological one. As long as people have intentions to deliberately create content that is partially or completely based on false information, to achieve financial, political, or any other sort of gains, no matter how advanced our technologies are, we still have to fight propaganda and disinformation.

However, the whole situation is not that black and white. Something that was common with all four interviews, and made me admit what I had come to realize halfway through the process of my research, is that education plays an important role. We cannot control every user, every platform,

and every news agency, nor can we run every single piece of content or news article through a fact-checking test, however, we can try to teach ourselves, and our younger generations how to verify news and information they come across on a daily basis. We can take the example of Faktabaari, and educate kids as soon as they are introduced to these platforms. There's the possibility to equip the next generations with a better understanding and insight into how all these new media agencies work. Based on what Mikko Salo said, through good education, it is possible to nourish curiosity, critical thinking, and media literacy, especially for the younger generations and voters as they are usually the target of so-called fake news and disinformation.

Conclusion

Using information to direct the public mind is a practice as old as human history, depending on the historic era and the most advanced technology or the dominant medium authorities had access to, the battle for the mind of the man has always been going on. Misleading content and pieces of news have been created intentionally with financial, political, or social benefits in the minds of the entities creating them.

While in the past they had to rely on word of mouth, gazettes, and more recently newspapers to spread the content, nowadays social media platforms are a more convenient tool to spread false information. Possessing a set of rather simple psychological facts and knowledge on how the human brain works and employing them to produce the headings and the content of the so-called fake news in a way that they catch the attention of the masses, combined with the fact that nowadays due to the way we consume media, our attention span is getting shorter and shorter, has led to an epidemic of false information spread on social media platforms and other online news sources.

Before digging deeper into the topic, I had the assumption that blockchain technology would be the ultimate solution to these problems due to its unique features and characteristics, such as consensus-based, chronological, digitized, sealed, and distributed. However, after learning more on the topic, I came to the understanding that even though this new technology has huge potential for turning quite many of the existing procedures into more efficient ones, maybe we need to look somewhere else for the solution to the issue concerning this paper.

After reading the literature and talking with the interviewees, I concluded that new technologies like AI can be used to help make society more equipped when it comes to fake news and disinformation. For example, there are already AI tools to detect different types of altered and false pieces of content, whether it's an article or a visual kind of content like images and videos. However, if we are determined to limit the effects of the widespread false information mostly published on social media, we have to look at successful examples such as Faktabaari.

As stated earlier, the accessibility of Internet connection along with smartphones being an inseparable part of our everyday lives, have created a situation in which the number of false and

misleading content created and posted on online media platforms, and shared on social media websites and apps by everyday users, make it almost impossible to run a fact-checking test for every piece of content, or every website and account that is out there. But, what we can do, is dedicate our resources to educating our society, starting from an early age, on how to verify the sources of the information they consume, and how to think more critically when they come across a controversial headline. It only seems more logical if we include media literacy courses in schools' curricula to equip our younger generations with tools to reduce the effect of the false information published. This in turn can reduce the number of times such content gets shared, liked, and commented on social media platforms, therefore reducing the effects of fake news and disinformation.

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