

The difference between centralized social media platforms and upcoming decentralized social media platforms: A comparative study

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ABSTRACT,

In recent years, centralized social media like Facebook and Twitter became indispensable pieces of technology in our society. Social media offer all kinds of ways to view content or interact with people. Yet social media have also brought many negative consequences like privacy concerns and algorithmic bias which can stimulate polarization in our society. In recent years, decentralized social media have made its appearance. Decentralized means that it is not owned or managed by a single organization but operates through a distributed network of nodes owned and managed by various users. In this thesis, these forms of social media were compared to each other to see why this decentralized social media development has not become mainstream yet, despite solving some of the problems centralized social media currently have. The results showed that the most important factors for the decentralized social media not becoming mainstream are the network effect and the stage of the company

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Keywords

Privacy, Social media, decentralized, platform, centralized, network-effect

1. INTRODCUTION

1.1 Situation and argumentation

Social media is a platform for online communication where users can exchange information, ideas, private messages, and other content (Encyclopaedia Britannica, 2023). It took off in the mid -2000's with a few social networking sites like Myspace and Facebook where photos and videos could be shared online (Amedie, 2015). In the past 20 years, social media has continued to evolve and expand into a world of endless possibilities and nowadays it is used by almost everyone. Social media have eliminated communication boundaries, established a decentralized communication channel, and have nowadays a significant impact on our culture, economy, and entire worldview (Amedie, 2015). There are a lot of benefits of a social media platform. For example, it can help spread awareness about an important issue or it can connect people regardless of their distance or time zone (Amedie, 2015). Social media also became an important tool in the business sector where it is used to promote products and services and it plays a key factor in brand building (Dwivedi et al., 2021), but social media nowadays also is important in the education sector wherein it provides access to educational resources or online courses (Faizi et al., 2013). Even though there are all these benefits, even social media comes at a cost. People prefer virtual connection instead of face-to-face talks which provided us with emotional and physical support (Amedie, 2015). Social media also takes away our self-control and our capacity for critically thinking for ourselves, because nowadays every little piece of information is available on the internet not to mention that there is also a lot of misinformation and fake news on the internet. What also will be discussed in this paper is the development of the existing algorithms being used by social media platforms, the opportunities it creates, but also the darker side of it wherein it essentially creates this "fake reality" for people such as this social comparison where people compare their life to the amazing lives of people they encounter on their TikTok or Instagram page, not knowingly these lives are in reality very rare (Levy, 2021). Another great example are these "filter bubbles", where users are only exposed to content that reinforces their existing beliefs and opinions while excluding alternative viewpoints which can result in polarization (Wolfowicz et al., 2021). These examples are a consequence of the way algorithms are being used by big tech social media platforms. The reason why they are being used is that algorithms can prioritize and customize the content that people view in their feeds (Newberry, 2022). A social media platform might, for example, use algorithms to see a person's prior actions, such as the posts they have liked or shared, and then use that data to recommend new content that is likely to be of interest to that user (Newberry, 2022). A reason for this is to optimize user engagement. Platforms may use algorithms to find content that is most likely to receive likes and comments and then give those posts priority in what users get to see. As a result, popular content may grow in popularity while less popular information gets pushed farther down users' feeds, creating a positive feedback loop (Newberry, 2022). So all of this essentially means that the big tech social media companies(also mentioned centralized social media platforms in this paper) have control of what people see when using social media

platforms (sometimes providing them with wrong information and an incorrect view of what happens in the world).

1.2 Research question:

Which aspects form a barrier for decentralized social media that prevents it from being seen as a widely used alternative to centralized social media?

1.3 Research Objective

The objective of this research is to discover why decentralized social media platforms are not used that much, despite them solving a lot of problems that centralized social media platforms like Facebook or Twitter currently have, like privacy issues and polarization effects. So there will be a focus on the differences between the centralized social media platforms and the newer decentralized platforms like Mastodon. With this comparison, this study aims to get some valuable results that contribute to the current literature about social media & social media effects. This paper also aims to create more awareness of the use of social media and the important link social media has with society

This paper is structured as follows: the first section contains relevant literature related to social media. Several developments as a result of social media will be explained and there will be one section wherein decentralized social media is explained. Then there will be the methodology section with information about how the research itself is conducted. Directly after the methodology, there will be a section with the results of the study, followed by the implications of the results.

2. LITERATURE

2.1 Knowledge-sharing through social media

When people share their knowledge or learn it from others, knowledge-sharing takes place (Bilgihan, et al, 2016). According to Hung and Cheng (2013), knowledge sharing is a procedure or activity involving interaction between people, groups, or organizations. Knowledge sharing is described as "the communication of knowledge from a source in such a way that it is learned and applied by the recipient" by Ma and Chan (2014, p. 52). According to Wang and NOE (2010, p. 117), knowledge sharing is defined as "the provision of task information and know-how to help others and to collaborate with others to solve problems, develop new ideas, or implement policies and procedures". A virtual environment that encourages knowledge-sharing activities is created as social media usage grows (Kwahk and Park, 2016). This is because social media tools are increasingly being used to facilitate knowledge sharing and ensure its widespread dissemination among users of social media tools. When compared to more conventional technologies like search engines or databases, the utilization of social media platforms allows for more options for quick knowledge transfer between people working in various locations. (Panahi et al., 2016b). Academic researchers have recently paid significant attention to the increased adoption of social media as a knowledge-sharing tool across various contexts such as work tasks, cultures, customers, businesses, competitors, or sports (Bilgihan, et al, 2016). They have been acknowledged as crucial tools that enable the free association of big groups of users, allowing them to communicate and share knowledge as well as their opinions, experiences, and perceptions (Kaplan and Haenlein., 2010). Because social

media tools enable effective information flow inside and between teams, previous research has shown that many firms encourage employees to share their knowledge through them (Pee and Lee, 2015). It aids in describing what, how, and where to locate practical knowledge inside an organization (Jin et al., 2015). To improve collaboration and innovation among its 400,000 employees, an IT company called IBM, for instance, uses social media platforms (such as social networks) as tools for knowledge sharing (Majchrzak et al., 2013).

2.2 Polarization

On the previous part, it is stated that knowledge sharing on social media is a powerful tool that has the potential to transform the way we learn and share information, but there are some downsides when this is done through social media, for example, the frequent occurrence of polarization on social media. Generally speaking, when we speak of polarization, it can be defined as a configuration of political and social interactions marked by an intensified level of conflict that affects views, attitudes, and values (Aguirre, 2020). So polarization creates bigger differences between different social groups, but what it also does is it divides society into more but smaller social groups. Social media and the absurd amount of people it can reach play a big role in the development of polarization (Guerra et al., 2021). For example, one term that plays such a role is the echo chamber. An echo chamber is a setting where someone only hears information or viewpoints that mirror and support their own (Terren, 2021). A reason people find themselves a lot in echo chambers on social media platforms is that the algorithm recommends content that is based on the content you like and thus already consume. The algorithm recommending you things also has a link with confirmation bias, or the propensity to favor information that supports pre-existing ideas. Echo chambers can lower people's critical thinking and distort a person's perspective, making it harder for them to consider alternative points of view and engage in complex discussions (Arguedas, et al, 2021). The thing about echo chambers is they cannot be detected easily by analyzing behavior or data from an online platform since they are about the media space that a specific person or group inhabits which is a much smaller part of the social media platform (Arguedas et al, 2021) We must take into account all the varied media and news sources individuals rely on, both offline and online, as well as across various internet ways of discovery, to determine whether people are actually within echo chambers or enclosed media spaces (Arguedas et al., 2021). There is also the concept of "filter bubble", which was first used in a book by activist Eli Pariser wherein he expressed concern that the rising personalization of search engine results and social media feeds will result in "a unique universe of information for each of us" (Arguedas, et al, 2021).

2.3 Trust and transparency

According to (Ridings et al, 2002), trust is an implicit set of assumptions that the other party won't engage in opportunistic behavior or exploit a circumstance. Trust is currently a well-researched phenomenon linked to online value and data privacy concerns., but trust in social media and newsfeeds is a topic that has received very little research yet (Crossler, 2011). According to (Hagar, 2013), we face a big problem due to the increased use of social media, and it becomes harder and harder to distinguish

if websites/information are trustworthy or not. Next to that, we face the problem of not knowing what the social media platforms will do with our personal information. Sharing personal information on online platforms has been frequently done since the start of social media. A benefit of it is that users can establish and maintain social interactions through doing this, according to (Altman & Taylor, 1973). People's social networks become stronger as a result of their increased disclosure of intimate and personal information as they become more used to one another (Altman & Taylor, 1973). A smart thing that is being done by online social platforms is reminding users of the inherent benefits of establishing and upholding social connections. Certain transparency features may persuade users to provide personal information (Reicher and Levine, 1994). Examples of this that may trigger you to make a certain action might be the design of social media with all the different buttons / or all the notifications that you get.

2.4 Productivity & Wellbeing

There is a case to be made that accessing social media for long periods does not benefit users. Popular news sources cover articles about the negative effects of social media usage. For instance, they found that people with low self-esteem in general use Facebook more often than people with high self-esteem (Forest & Wood, 2012). Extraversion, neuroticism, and openness to experience are the three personality traits that prior research have found to be crucial to social media use. They found that people with high degrees of extraversion and people who are more receptive to new experiences have a bigger chance to use social media more often (Correa et al., 2010). While extraversion and openness to new experiences were favorable predictors, emotional stability was a poor predictor of social media use (Correa et al., 2010). The accuracy of these predictions differed by gender. (Correa et al, 2010) discovered that only the men who reported higher levels of emotional instability used social media more frequently. The use of social media might be detrimental to productivity at work, according to the findings of a survey carried out by Kelly OCG, the Kelly Global Workforce Index (which included more than 168,000 respondents from around the world). 43% of respondents think that using social media at work has a negative influence on productivity (Kelly Services, 2012). Furthermore (Jacobsen and Forste 2011) discovered a correlation between the use of various forms of electronic media, including social networking, and first-semester grades in the university classroom. Although it cannot be concluded that social media is the reason for the lower grade point average (GPA), it has been seen that students with lower GPAs use social media platforms like Facebook more frequently (Boogart, 2006).

2.5 Decentralized social media

Decentralized social media is a new upcoming development. It refers to social media platforms that operate on a decentralized network instead of a centralized network. In other words, it is not owned or managed by a single organization, but it operates through a distributed network of nodes that are owned and managed by various users (Laseur, 2022). Decentralized social media has the key benefit of removing the single point of failure issue. To explain what this means you can for example look at a centralized network. The entire platform of it becomes unavailable if the main server crashes. Decentralized networks on the other hand are more secure and robust since there is no

single point of attack that can be used to disrupt it (Laseur, 2022). Decentralized social media platforms also give users more privacy and data control. The information of a user is often kept on a central server in a centralized network, where it can be viewed and potentially used against users by the platform owner or other parties. Users have more control over how their data is shared and utilized in a decentralized network since user data is dispersed across the network (Laseur, 2022). Mastodon, Diaspora, and Scuttlebutt are a few examples of decentralized social media networks that have become more well-known in recent years. These peer-to-peer networks let users build and join groups, share material, and communicate with other users in a decentralized setting (Macmanus, 2022). One of the challenges of decentralized social media is that it can be difficult to achieve the same level of network effects as

centralized social media platforms. Because users are distributed across the network, it can be harder to build a critical mass of users and communities (Famulari & Strufe, 2014). However, as more users become interested in decentralized social media, this challenge is becoming less significant.

3. METHODOLOGY

3.1 Research design

The research design of this thesis consists of a systematic literature review based on existing literature, including academic articles, reports, and news articles, to gather insights into the issues associated with centralized social media platforms and the potential benefits and challenges of decentralized social media platforms. In addition to that, several open interviews were conducted with academic experts in the field of social media and decentralized technologies. This is to gather first-hand perspectives and insights into this field of research. Also, two tech companies were contacted to get data from their point of view. For every interview, a transcript of the conversation is created. Everyone had given consent for this. The interview questions (see Appendix A) are based on online research into the topics of centralized and decentralized social media and contain elements that are central to the comparison between centralized and decentralized social media. (see *Table 1 below*). The ultimate goal of the interviews was to gain a better understanding of the issues centralized social media currently has, such as algorithmic bias and data privacy and to get a better understanding of the developments of the new decentralized social media platforms and to answer the research question to see which aspects of decentralized social media form a barrier so that it is not yet seen as a widely used alternative to centralized social media.

Table 1

Variable	Current literature
Privacy	<p>- Centralized platforms store their data on private servers, giving them control over your personal data</p> <p>-Data of decentralized platforms is distributed across a network of nodes. Can give more privacy because of encryption or blockchain</p>

	technologies
Spread of misinformation	-Algorithms of centralized platforms provide you with information that you as a user want to see despite of being true or not
Transparency	Centralized platforms are generally not open about what they do with your data.

3.2 Sample

For this research, 10 interviews were conducted. Below in *Table 2* are these 10 people. The table includes their academic background and the work where they are currently active in.

Table 2

	Academic background	Currently active in...
P1	Communication studies	Marketing & communications
P2	x	Decentralized social media
P3	x	Social media
P4	Communication science	Communication science
P5	IT	IT & decentralized social media
P6	Digital marketing	Retired
P7	Science education & communication	Science & society
P8	Journalism	Journalism & media
P9	Communication science	Social aspects communication technology
P10	Online communications	Online communications

4. RESULTS

4.1 The spread of misinformation

Some findings were found in the 10 interviews that were conducted. The most important findings and quotes are incorporated into these results. Also in *Table 3*, some interesting findings can be found that continue on the information of *Table 1*. To start with, a lot of results about information dissemination were given. P1 was asked some questions about the dissemination of information and specifically the spreading of misinformation. The interviewee indicates that there is a lot of abuse of this online and that a lot of this translates itself to the physical world, with Brexit and the

presidential elections in America as examples. The thing is people want to be informed, the easiest way for this is Facebook and that can often go wrong. *"I don't believe social media necessarily has bad intentions, but I think that a social medium can very easily be abused by people with bad intentions"*. What P1 sees happening a lot and what is also a reason for this spreading of misinformation is that the big companies such as Facebook and Twitter are increasingly pushing you into your bubble. *"people want to be right as much as possible, and this can be made possible because you see a lot on social media that confirms your opinion"*. An important point that he mentioned is that even though this bubble effect occurs so much, there are still so many people who are completely unaware of it. According to him, these confirmations that these people keep getting will result in an addiction. P1 also adds that even when you are objectively searching for information, eventually the algorithm will always push you in a certain direction providing you with a custom set of information that might differ from what actually happens in the world.

P9 is also very concerned about the spread of misinformation and fake news online. *"Only the extremes get the attention and not mine which are nuanced. There is also a chance that opinions are simply not correct but accepted nonetheless"*. P4 recognizes the major problems surrounding misinformation and sees that young people in particular are taking news from a lot of different sources. P4 also adds that the social media companies themselves are not happy that the spread of misinformation happens so much through their channels since they can lose large groups of people because of it. *"the spread of misinformation is constantly being taken into account so that they ultimately become a platform that people can rely on."* Immediately afterward she adds *"I also think we should say less loudly that technology polarizes people, in the end, it is also up to you because our interaction with the algorithm is based on what we want to see"*. According to her, the technology itself is fairly neutral based on what you do since the technology does not make up the content that you get to see on your screen. P5 mentioned some real-life examples where the spread of misinformation can have a major effect on society, such as the Ukraine war or the Russian interference in the American elections. *"These are forces that have an interest in stabilizing society"*.

4.2 The network effect

According to P2, the biggest challenge for decentralized social media is the fact that people don't like inconvenience. He describes decentralized social media platforms as currently lonely places. Switching to a decentralized platform means leaving your Facebook friends behind, and this often leads to FOMO (the fear of missing out), which weighs for most people more than having personal privacy in the future. P2 gives as an example Metcalfe's law, which states that the more nodes there are in a network the higher the network itself will be valued and this can also be applied to social media where it is called the network effect. The network effect states that the more people in your network use a certain online platform, the more likely you as an individual are inclined to use it. P2 had an interesting quote about centralized social media. *"It's easier to find people, they have more people. You have more content, and you have a higher value. So trying to go head to head between a decentralized model and an established social media platform is going to be extremely difficult"*. Something P8 mentions is that in many situations with decentralized platforms, you don't

see very many differences compared to the centralized platforms *"P8: you do have many good decentralized platforms that are actually a clone of an existing platform, so in the user experience that does not have to differ too much"*. This can be a disadvantage, because it can mean that such platforms don't have anything special to offer you when comparing it to its centralized counterpart and the result is that people won't leave their online network they have at a centralized platform. Therefore it is according to P2 important for a new social media platform that they introduce a new atomic unit for people to actually make use of it. *"Instagram was the photo. Snapchat was the disappearing chat, so every new social media typically has a new atomic unit of interaction, a new way for people to interact with each other"*. A recent example of a case wherein this turned out to be effective is BeReal. Getting access to the photos of others by first posting your photo of the day has never been done before in the social media space which makes it unique.

P4 had an interesting analogy about the network effect which relates to the current state of decentralized social media *"It has a lot to do with where people already are, and therefore I see it as a chicken and egg problem"*. This refers to a problem that for a marketplace to be successful it needs to attract buyers and sellers and if the decentralized platforms don't have enough selling points or not enough features available it becomes hard to attract users. In the interview with P9, we talked about reasons why people do not make the switch to decentralized social media platforms, and also in this conversation, we eventually returned to the network effect. *"The big social media companies want as many participants as possible and for this purpose computer programs have been made with algorithms in which people just stay where they are and they cannot leave. yes, they can leave, but then they will also lose all their friends there in that medium"*. According to P9 there is a solution, which is currently an important topic of conversation within the EU. *"portability so that you can transfer your data and with that transfer your friends, from one platform to another"*. P5 also sees data portability as a good development. *"The obstacles of moving from one platform to another are resolved"*. As a result, platforms should do their best to keep people on board because it is now so easy to transfer your data and move to the next platform.

4.3 Size & stage of the platform

According to P3, the important difference is that centralized platforms are much bigger and have more experience in managing a platform, and that decentralized platforms also often have to deal with start-up problems. *"Many people can disagree with something on Facebook or LinkedIn, but they still don't leave so quickly because the volume of the platform has become so large"*. According to him, this again has a lot to do with the fact that people don't want to miss any news. He also thinks that social media will always be a power struggle. *"On the one hand, therefore, politics and on the other hand, the gigantic social media companies"*. He also emphasizes that the financial resources that the big social media companies have and those have a major influence on the retention of power *"through financial resources they have the opportunity to put very smart people in certain positions"*.

P5 has his own application, which runs on top of the blockchain and stands for decentralized social. According to P5, the reason that hinders the growth of many decentralized platforms is linked to the phase they are in *"a lot of decentralized platforms are in the stage where it is called a cold star problem"*. This problem describes that it is very difficult for a system to have interactions for a user because the system

has not yet collected enough information and thus it is not possible to make recommendations. P5 also briefly mentioned macroeconomics as the reason. The big centralized social media platforms are deeply rooted in the macroeconomy, and if you removed those platforms it could disrupt the macroeconomy as a whole, because of their huge influence. According to P7, one of the biggest problems with centralized social media is because they are so you run into a lot of problems because of it. *“My post has been deleted what should I do? It is organized at a great distance and there is little you can do about it, so if Facebook disagrees with you, you don't have a leg to stand on.”* P6 also had an interesting comment about the fact that all the data on centralized platforms are controlled by 1 organization and is on 1 server: *“Because it is all set to 1 server, it is also more sensitive, if a data breach occurs there, you will have the data of a lot of people on the street”*. P9 also had an interesting comment on why centralized social media platforms are so big. *“A favorable circumstance for the large social media companies was that they were created in a favorable period in which there was a lot of privatization and liberalization of the market.”*

4.4 Other findings & quotes

The difference in privacy between centralized/decentralized social media, P1 says, lies in the intent of the company. Companies like Facebook are of course profit-oriented and know exactly which algorithm to use to keep you active on the screen for as long as possible. The longer you are active on such a social media platform, the more information you provide to such a company. The person had an interesting comparison *“if you have a newspaper subscription it will cost you money, but the newspaper you subsequently receive is the product, if you use 'free' media then you are the product yourself”*. He, therefore, finds the action of centralized social media logical because you as a person have to be sold.

According to p10, decentralized platforms also have a disadvantage: *“places such as Mastodon, there is a very nice idea behind it, but at the same time the challenge is that everyone over there also determines their own rules “you have to delve into each server, community or group to know what their specific rules are”*.

P6 also doesn't see enough indications for decentralized platforms to grow *“they have not become mainstream in the sense that we understand the mainstream tool or technology. So I think it will be difficult for these decentralized networks. We need to break the monopoly of the centralized networks”*. To sum all these results up there is an overview (table 3) with the most important data that was found during the research. It continues on the data of Table 1.

Variable	Output
Privacy	Discussed, but often not explored in depth. The interviewees are aware that our personal information is sold by centralized social media platforms, after all, that is their business model. Also

	mentioned multiple times that the incentive of more privacy is not enough to get people on board with a decentralized platform.
Spread of misinformation	Frequently mentioned, interviewees are seriously concerned about this. The current algorithm of centralized social media causes a lot of polarization in society.
Transparency	Many people are unaware of what happens to their data. Because are not aware they don't consider something like decentralized social media.
Size & stage of the platform	-Centralized platforms are more experienced -Centralized platforms have more financial resources - Decentralized platforms are in a stage wherein it is difficult to attract users (Network effect)
Network effect	-People don't like inconvenience. -Staying connected with your social network outweighs the benefits of decentralized social media Self-reinforcing element

Table 3

5. CONCLUSION

The algorithms of centralized social media platforms are focused on making profit and unfortunately, this can create problems for us as humans. This can range from privacy and transparency concerns to the rise of filter bubbles and echo chambers which result in the spread of misinformation in our society. This research focused on why decentralized social media have not been seen as a widely used alternative to centralized social media despite all the problems centralized social media face. During this research, two aspects were found that play a major role in this and also have a reinforcing effect on each other. So going back to the original research question:

Which aspects form a barrier for decentralized social media so that it is not yet seen as a widely used alternative to centralized social media?

The first aspect that answers the research question is the network effect: The network effect refers to the phenomenon where the value of a network or platform increases as more users join and participate in it. In the case of centralized social media platforms, they already have a massive user base and

established communities. This means that users can easily connect and interact with their social network. A really important thing to mention is that the network effect creates a positive feedback loop, which means that if you attract more users those users also attract users. making the platform increasingly valuable and difficult for decentralized social media platforms to replicate. The hardest part is that there is a certain amount of users necessary to create a strong network effect, as I said when you eventually create a network effect it can create a positive feedback loop, but where the barrier lies to create a network effect is hard to tell. Without a large enough user base there are fewer connections and interactions within the platform, which results in less content and engagement within the platform

The second aspect is the size & stage of the platform: The big centralized social media platforms like Facebook or Twitter already have gone past the barrier that creates the network effect and now have billions of users. The result of this massive user base is that there is a lot of content available and that there is something to find for everyone. These centralized social media platforms generate huge amounts of money because of this. This money then can be used to attract even more users by for example: improving user experience on the platform, marketing campaigns, creation of even more content, or investments in new technology and data analytics. Decentralized social media platforms on the other hand especially newer ones, have a much smaller user base. This smaller user community can result in a limited range of content or fewer interest groups to engage with. As a result, accumulating less money that can be used to attract more users than the centralized social media platforms.

What is so strong about the combination of the network effect and the size & stage of the platform is that they reinforce each other. The network effect is already a self-reinforcing element itself that makes these social media companies bigger and more powerful the more users they have and because these companies have become so big and powerful they can get financial access to all these tools that attract more users and more users can create network effects.

6.DISCUSSION & IMPLICATIONS

6.1 Discussion

In this study, research took place to discover which aspects form a blockade for decentralized social media so that is not yet seen as a widely used alternative to centralized social media. Through interviews, this study gathered qualitative data and came to the results that the network effect and the size & stage of the company are the two important factors, especially the combination of them both. Decentralized social media platforms may have certain benefits such as privacy, but in reality, these don't outweigh the combination of these two factors. This specific example with regards to privacy is called privacy calculus

Privacy calculus refers to the decision-making process people go through in the trade-off between sharing personal information and getting the benefits or services offered by a particular platform or organization (Dinev et al., 2013). It involves considering the perceived costs and benefits of disclosing personal data about one's privacy concerns. Perceived privacy risk can be seen as the potential opportunistic

behavior of the receiver that occurs when he or she gives personal information. (Dinev and Hart,2006). Besides the negative consequences of the disclosure of personal information, there is a positive side of rewards. These can be financial rewards, personalization, and social benefits (Diney et al., 2013).

6.1.1 Future research

Future research with regards to developments of social media may investigate more into the relationship between the stage of companies and how strong network effects are in that stage. Also, more research might need to be done on privacy calculus theory by (Laufer & Wolfe) to apply to social media developments and to understand certain trade-offs. In this research for example was the trade-off whether to use centralized or decentralized social media.

6.2 Implications

6.2.1 Academic implications

The academic relevance of this thesis lies in the importance of understanding the impact that centralized social media platforms have on society and looking at the potential benefits and challenges of the new upcoming decentralized social media platforms. Social media are nowadays often used as powerful tools for example shaping public discourse, influencing political outcomes, and reinforcing societal norms. However, the use of algorithms by these platforms has also led to issues such as algorithmic bias, the spread of misinformation, and all different privacy concerns. Decentralized social media platforms, on the other hand, offer a more democratic approach to content moderation and data privacy, but also pose unique challenges. Therefore, this thesis contributes to the academic conversation surrounding the role of social media in society and provides insights into the potential of decentralized social media platforms to address the problems associated with centralized social media platforms. This paper aims to encourage other researchers to investigate the world of social media and especially decentralized social media since there isn't much literature written about it available. By delving into the key characteristics and functionalities of these platforms researchers and scholars can gain a deeper understanding of the social media space and hopefully, we can come up with new ideas and solutions within the social media space that are beneficial to society.

6.2.2 Practical Implications

The practical implications of my thesis are meant for social media companies and users of social media. The research in this thesis gives people insights into the issues associated with centralized social media platforms, such as polarization, the spread of misinformation, and data privacy concerns. This information can be used by for example policymakers to regulate the practices of big tech centralized social media companies and to establish guidelines for the development of these newer decentralized social media platforms, to make sure that people will use those more often. Social media companies can also use this information to improve the practices of their content and to address user concerns. Users can use this information as well to make better decisions about the social media platforms they use and to advocate for changes that promote for example greater transparency, accountability, and privacy. Overall this paper aims to create more awareness so that people will navigate through social media more responsibly and make the right choices.

7. LIMITATIONS

There are some limitations to this study. Mainly short time frame wherein the research needed to be done. Also, the topic of decentralized social media is very specific and also very new, which made it difficult to find the right people for interviews, especially from my perspective as a student because I don't really have a network in terms of professional career to find the people that I need for my research. So unfortunately more time was spent in finding people for interviews than I initially hoped for. Lastly, due to the topic being very new, there isn't much literature available. Decentralized social media is still pretty young, which resulted in the qualitative data of the interviews being based on recent experiences with the topic rather than data that is based on for example research and literature that is out for let's say 40 years. It is also important to mention that the literature on this topic is evolving quickly. In the future different decentralized platforms might appear with different features and approaches, so it is important to stay up-to-date with the latest developments in the field of decentralized social media

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9. REFERENCES

Amedie, Jacob, "The Impact of Social Media on Society" (2015). Advanced Writing: Pop Culture Intersections. 2. http://scholarcommons.scu.edu/engl_176/2

Altman, I. and Taylor, D.A. (1973) *Social Penetration The Development of Interpersonal Relationships*. Holt, Rinehart, & Winston, New York, 459. - References - Scientific Research Publishing. (n.d.). [https://www.scirp.org/\(S\(czeh2tfqyw2orz553k1w0r45\)\)/reference/ReferencesPapers.aspx?ReferenceID=1817496](https://www.scirp.org/(S(czeh2tfqyw2orz553k1w0r45))/reference/ReferencesPapers.aspx?ReferenceID=1817496)

Amy Ross Arguedas, Craig T. Robertson, Richard Fletcher, and Rasmus K. Nielsen(2021).*Echo chambers, filter bubbles, and polarization: a literature review*. (n.d.-b). Reuters Institute for the Study of Journalism. <https://reutersinstitute.politics.ox.ac.uk/echo-chambers-filter-bubbles-and-polarisation-literature-review>

Bilgihan, A., Barreda, A. A., Okumus, F., & Nusair, K. (2016). Consumer perception of knowledge-sharing in travel-related Online Social Networks. *Tourism Management*, 52, 287–296. <https://doi.org/10.1016/j.tourman.2015.07.002>

Boogart, V., & Robert, M. (2006). *Uncovering the social impacts of Facebook on a college campus* (Doctoral dissertation, Kansas State University).

Britannica, T. Editors of Encyclopaedia (2023, June 16). social media. Encyclopedia Britannica. <https://www.britannica.com/topic/social-media>

Correa, T., Hinsley, A., & De Zúñiga, H. G. (2010). Who interacts on the Web?: The intersection of users' personality and social media use. *Computers in Human Behavior*, 26(2), 247–253. <https://doi.org/10.1016/j.chb.2009.09.003>

Crossler, R. E. (2011). Privacy in the Digital Age: A Review of Information Privacy Research in Information Systems. *Management Information Systems Quarterly*, 35(4), 1017. <https://doi.org/10.2307/41409971>

Digital Media Literacy: How Filter Bubbles Isolate You. (n.d.). GCFGlobal.org. <https://edu.gcfglobal.org/en/digital-media-literacy/how-filter-bubbles-isolate-you/1/>

Dinev, T., & Hart, P. (2006). An extended privacy calculus model for e-commerce transactions. *Information Systems Research*, 17(1), 61–80. <https://doi.org/10.1287/isre.1060.0080>

Dinev, T., Xu, H., Smith, J. H., & Hart, P. (2013). Information privacy and correlates: An empirical attempt to bridge and distinguish privacy-related concepts. *European Journal of Information Systems*, 22(3), 295–316. <https://doi.org/10.1057/ejis.2012.23>

Dwivedi, Y. K., Ismagilova, E., Rana, N. P., & Raman, R. (2021). Social Media Adoption, Usage And Impact In Business-To-Business (B2B) Context: A State-Of-The-Art Literature Review. *Information Systems Frontiers*, 25(3), 971–993. <https://doi.org/10.1007/s10796-021-10106-y>

Echo Chambers, Filter Bubbles, and Polarisation: a Literature Review Amy Ross Arguedas, Craig T. Robertson, Richard Fletcher, and Rasmus K. Nielsen https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2022-01/Echo_Chambers_Filter_Bubbles_and_Polarisation_A_Literature_Review.pdf

Faizi, R., Afia, A. E., & Chiheb, R. (2013). Exploring the Potential Benefits of Using Social Media in Education. *International Journal of Engineering Pedagogy (iJEP)*, 3(4), 50. <https://doi.org/10.3991/ijep.v3i4.2836>

Famulari, A., & Strufe, T. (2014). A survey on decentralized Online Social Networks. *Computer Networks*, 75, 437–452. <https://doi.org/10.1016/j.comnet.2014.10.005>

Forest, A. L., & Wood, J. M. (2012). When Social Networking Is Not Working. *Psychological Science*, 23(3), 295–302. <https://doi.org/10.1177/0956797611429709>

Guerra, P., Meira, W., Cardie, C., & Kleinberg, R. (2021). A Measure of Polarization on Social Media Networks Based on Community Boundaries. *Proceedings of the International AAAI Conference on Web and Social Media*, 7(1), 215–224. <https://doi.org/10.1609/icwsm.v7i1.14421>

Hagar, C. (2013). *Crisis Informatics: Perspectives of Trust – Is Social Media a Mixed Blessing?* SJSU ScholarWorks. <https://scholarworks.sjsu.edu/ischoolsrj/vol2/iss2/2/>

- Hung, S. W., & Cheng, M. (2013). Are you ready for knowledge sharing? An empirical study of virtual communities. *Computers & Education*, 62, 8–17. <https://doi.org/10.1016/j.compedu.2012.09.017>
- Jacobsen, W. C., & Forste, R. (2011). The Wired Generation: Academic and Social Outcomes of Electronic Media Use Among University Students. *Cyberpsychology, Behavior, and Social Networking*, 14(5), 275–280. <https://doi.org/10.1089/cyber.2010.0135>
- Jin, J., Li, Y., Zhong, X., & Zhai, L. (2015). Why users contribute knowledge to online communities: An empirical study of an online social Q&A community. *Information & Management*, 52(7), 840–849. <https://doi.org/10.1016/j.im.2015.07.005>
- Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media Business Horizons, 53(1), 59–68. <https://doi.org/10.1016/j.bushor.2009.09.003>
- KellyOCG | Global Workforce Strategy, Solutions & Operations. (n.d.). <https://www.kellyocg.com/>
- Kwahk, K., & Park, D. (2016). The effects of network sharing on knowledge-sharing activities and job performance in enterprise social media environments. *Computers in Human Behavior*, 55, 826–839. <https://doi.org/10.1016/j.chb.2015.09.044>
- K, W. W., MA, & Chan, A. S. C. (2014). Knowledge sharing and social media: Altruism, perceived online attachment motivation, and perceived online relationship commitment. *Computers in Human Behavior*, 39, 51–58. <https://doi.org/10.1016/j.chb.2014.06.015>
- Laseur, D. (2022, December 8). What is decentralized social media? Pros and Cons. Flatline Agency - Custom development, Challenge the status quo. <https://www.flatlineagency.com/blog/what-is-decentralized-social-media/#:~:text=Decentralized%20social%20media%20is%20a,interested%20in%20decentralized%20social%20media>.
- Levy, R. (2021). Social Media, News Consumption, and Polarization: Evidence from a Field Experiment. *The American Economic Review*, 111(3), 831–870. <https://doi.org/10.1257/aer.20191777>
- MacManus, R. (2022, May 6). Scuttlebutt: Decentralize and Escape the Social Media Rat Race. The New Stack. <https://thenewstack.io/scuttlebutt-decentralize-and-escape-the-social-media-rat-race/>
- Majchrzak, A., Faraj, S., Kane, G. C., & Azad, B. (2013). The Contradictory Influence of Social Media Affordances on Online Communal Knowledge Sharing. *Journal of Computer-Mediated Communication*, 19(1), 38–55. <https://doi.org/10.1111/jcc4.12030>
- Newberry, C. (2022). Social Media Algorithms: A 2023 Guide for Every Network. Social Media Marketing & Management Dashboard. [https://blog.hootsuite.com/social-media-](https://blog.hootsuite.com/social-media-algorithm/#:~:text=Social%20media%20algorithms%20are%20the,most%20likely%20to%20engage%20with)
- Panahi, S., Watson, J., & Partridge, H. (2016). Information encountering on social media and tacit knowledge sharing. *Journal of Information Science*, 42(4), 539–550. <https://doi.org/10.1177/0165551515598883>
- Pee, L. G., & Lee, J. S. H. (2015). Intrinsically motivating employees' online knowledge sharing: Understanding the effects of job design. *International Journal of Information Management*, 35(6), 679–690. <https://doi.org/10.1016/j.ijinfomgt.2015.08.002>
- Privacy in the Digital Age: A Review of Information Privacy Research in Information Systems on JSTOR. (n.d.). <https://www.jstor.org/stable/41409971>
- RAFAEL AGUIRRE (MARCH 2020),A Literature Review on POLARIZATION AND ON ENERGY AND CLIMATE POLICY IN CANADA<https://ruor.uottawa.ca/bitstream/10393/42465/1/Aguirre%202019.pdf>
- Reicher, S., & LeVine, M. J. (1994). On the consequences of deindividuation manipulations for the strategic communication of self: Identifiability and the presentation of social identity. *European Journal of Social Psychology*, 24(4), 511–524. <https://doi.org/10.1002/ejsp.2420240408>
- Ridings, C. M., Gefen, D., & Arinze, B. (2002). Some antecedents and effects of trust in virtual communities. *Journal of Strategic Information Systems*, 11(3–4), 271–295. [https://doi.org/10.1016/s0963-8687\(02\)00021-5](https://doi.org/10.1016/s0963-8687(02)00021-5)
- Terren, L. (2021, March 15). *Echo Chambers on Social Media: A Systematic Review of the Literature*. <https://rcommunicationr.org/index.php/rcr/article/view/94>
- The Editors of Encyclopaedia Britannica. (2023, March 24). *Social media | Definition, History, Examples, & Facts*. Encyclopaedia Britannica. <https://www.britannica.com/topic/social-media>
- Wang, S., & Noe, R. A. (2010). Knowledge sharing: A review and directions for future research. *Human Resource Management Review*, 20(2), 115–131. <https://doi.org/10.1016/j.hrmr.2009.10.001>
- Warner-Søderholm, G., Bertsch, A., Sawe, E. N., Lee, D. R., Wolfe, T., Meyer, J., Engel, J., & Fatilua, U. N. (2018). Who trusts social media? *Computers in Human Behavior*, 81, 303–315. <https://doi.org/10.1016/j.chb.2017.12.026>
- Wolfowicz, M., Weisburd, D., & Hasisi, B. (2021). Examining the interactive effects of the filter bubble and the echo chamber on radicalization. *Journal of Experimental Criminology*, 19(1), 119–141. <https://doi.org/10.1007/s11292-021-09471-0>

APPENDIX A

Questions

- 1. Could you highlight any specific challenges or limitations associated with centralized social media platforms?**
- 2. What are the potential challenges or drawbacks that decentralized social media platforms may face?**
- 3. From a user's perspective, what are the key differences they would experience when using a centralized social media platform compared to a decentralized one?**
- 4. In terms of user data privacy and transparency, how do centralized and decentralized social media platforms differ?**
- 5. How do you foresee the future of social media platforms evolving? Do you anticipate a dominance of either centralized or decentralized models, or a coexistence of both?**
- 6. What impact do centralized social media platforms have on information dissemination and the potential for misinformation or fake news to spread?**
- 7. Can you discuss any ongoing research or innovations in the field of decentralized social media platforms that have the potential to shape their future?**
- 8. What do you think of the current accessibility of decentralized social media**
- 9. do you have any recommendations on how we as people can use social media more wisely**