

MASTER THESIS

# Measuring and Increasing Data Ownership Awareness on Facebook

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## **Executive Summary**

The aim of this research is to measure and increase the awareness of data ownership issues among Facebook users. Identified data ownership issues are i.) compromised users' privacy, ii.) data portability and iii.) license. To undertake the research, a mixed method approach was used consisting of quantitative and qualitative analysis. For the first, competitive analysis together with surveys were conducted. Semi-structured interviews were part of the latter. It can be concluded that Facebook users are not aware of data ownership issues. Moreover, Facebook keeps too much control over its users' data, which are being collected non-transparently.

**Keywords:** data ownership, control, facebook, social media, privacy

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# 1 Introduction

Social media or Social Networking Sites (SNS) are primarily web-based applications which allow users to create a profile to share one’s personal information and data (Boyd and Ellison, 2012; Kaplan and Haenlein, 2010). These are data created by millions of users resulting in billions of reactions, likes, photos, posts and shared links which collectively contain the intentions of millions of people. (Hjorth and Hinton, 2019).

We can divide these data into two categories based on whether the SNS user created the data consciously and unconsciously. Under the definition of consciously created data we understand the user’s active interaction on SNS such as content sharing, liking, re-posting or commenting. Unconsciously created data are often connected with users’ behavior in form of duration, content or interests metrics. For example, these would be information on how long the users watch a video, browse the content, where do they click on and what do they search for.

Before content is posted on SNS, users’ have full control and ownership over this data. This however changes when content is uploaded and some control over data is lost. While there are studies which focus on privacy concerns and awareness of privacy issues Soumelidou and Tsohou (2019), there is a lack of studies focusing on overlapping issues of data ownership and loss of control on SNS. This partly motivated me into looking into issues of data ownership. Hummel, M. Braun, and Dabrock (2020) define ownership as: “ownership is the sense of gaining and maintaining control over one’s data”. This definition results in a major shift in thinking. Instead of discussing data ownership concerns, we discuss primarily controllability or in other words, “effective means for data subjects to exercise control over her/his data” (ibid.). Generally, data ownership is about control we may exercise on our data, what we can do with our data and how we utilize them.

Main issues I identified in regards to data ownership with current mainstream SNS, is them collecting too much data which can lead to compromised users’ privacy. Secondly, it is the issue of data portability. And the last issue in connection to this research is the SNS license. It gives SNS too much power which was previously abused and it creates unfair conditions for its users (BBC, 2019). The three above mentioned issues can be observed in real life in various situations.

Take as an example the case of Cambridge Analytica where data collection compromised users’ privacy. In 2010, particular personal data belonging to 87 million of Facebook profiles was obtained without their consent

by a British Consulting Firm mainly to be used for political advertisement (Techcrunch, 2020). Another issue, related to ownership awareness is often overlooked - the data portability. Exercising the right to data portability is a time and energy consuming process that has the effect of discouraging the users from requesting and making use of their personal data. Moreover, in situations when users' access to the SNS is restricted, data portability is significantly reduced or impossible to do.

The root of the problem with data ownership is within the SNS license. When setting up an account users are required to "grant Facebook a non-exclusive, transferable, sublicensable, royalty-free and worldwide license to host, use, distribute, modify, run, copy, publicly perform or display, translate and create derivative works of users' content . . . " (Facebook, n.d.[c]). License itself is vague, full of technical terms, long and tiresome. At the same time, it gives too much power over users' data to SNS. However, at the end of the day, there are still new users agreeing to this license without being aware of its shortcomings (Denmark, 2019a; NapoleonCat, 2021; Stout et al., 2019).

It is evident that SNS users lack awareness about privacy issues (Aydin et al., 2020; Soumelidou and Tsohou, 2019). This might indicate that SNS user lack awareness of data ownership issues as well. On the contrary, data-ownership-aware people make wiser decisions with respect to sharing information online and demand fairer conditions on SNS, as it is with privacy-aware people (Avgerou and Stamatiou, 2015). They are also more likely to inform others about the issues and potentially spread awareness to a broader population as it was observed in connection to privacy awareness (ibid.) .

In this research, I would like to focus on measuring the amount of control and ownership that users of Facebook have and what is their perception of it. First, I will conduct a literature review based on the main research findings of (Aydin et al., 2020; Hummel, M. Braun, and Dabrock, 2020; Stephanie Exposito-Rosso and Medjaoui, 2021). Second, competitive analysis will follow to identify significant differences between mainstream social media Facebook, Youtube, Instagram, Pinterest, LinkedIn, Snapchat, Twitter, WhatsApp, TipTok, Reddit, and alternative/non-mainstream social media Aether, ScuttleButt, Mastodon, Micro.blog, Peepeth. Third, I will introduce the main findings of my survey conducted based on a chosen sampling method called Snowballing. Fourth, to compliment the survey, I will present qualitative semi-structured interviews with help of thematic analysis behind some of the findings in the survey. This way, I will answer the why's of the research. With the aim of proposing improvements, I wish to increase awareness of control and ownership issues among users of social



media Facebook.

### 1.1 Background & significance

Social networking site, Facebook is used by many different interest groups to influence users to buy their products or amplify extremes (Wong, 2021), it was also described as “*Surveillance Capitalism*” because of the imbalance of power over user from SNS (Zuboff, 2019). Zuboff (ibid.) describes that advertisements are influencing and shaping public communication. This is also suggested by similar term called nudging or hyper-nudging which was described to influence users’ decisions (Yeung, 2017). However, I do know based on Zuboff (2019) that by centralizing and creating a network effect, SNS creates a competitive advantage, which forces other competitors doing similar practices.

Network effect by dependence on SNS. Your work wants you to be on Facebook, your school wants you to be there too, your friends and family as well. Social pressure is responsible for a huge uphill battle if user wants to resist being on social media (Van Dijck and Poell, 2013; Zuboff, 2019).

Facebook is one of the top social media site used by 82% of Denmark population based on Mitchell et al. (2018) and 95% of Denmark population based on Denmark (2019a). The USA has lower usage of Facebook compare to Denmark but it saw an increase to 69% recently Auxierand and Anderson, 2021. These Statistics showcase the huge relevance of this study and centralization of data on few SNS. Centralization of information is then used for news consumption, for example, 38% of Danish users consumed news in the past week from Social media which illustrate the power these social media has (Denmark, 2019b).

To cross-reference how many people in Denmark are using social media based on Statcounter (2021) March 2021:

- Facebook: 5mil
- Instagram: 2,8mil
- Messenger: 3.5mil
- Linkedin: 2.7mil

When it comes to different social media sites or apps, a certain type of users have an inclination to a different type of social media, for example among college students there is a preference for Instagram and in women particular (Shane-Simpson et al., 2018). Overall younger social media user

can create stronger bonds with friends they connect to on Social media which was highlighted by creating friendship and happiness Manago and Vaughn, 2015. One of the reasons why college students choose to use Instagram is to focus on photo media which was one of the reasons they were motivated to share on mobile media (Goh et al., n.d.). Half of Europeans post self-created content on the internet, in Denmark it is 65% (Eurostat, 2019). From another large research survey in Sweden, we can understand that Facebook users use Facebook to maintain social connections with other people (Denti et al., 2012).

Web or Web 1.0 was mainly website with static content and a majority of users were consumers of that content. There was no centralization and content was dispersed among many websites. To understand what Web 2.0 and 3.0 mean. It is a term describing the functionality of the website. Web 2.0 is defined as a Web platform that allows anybody to become a creator of content. Web 3.0 is a decentralization of Web 2.0 functionality. This results in promoting peer to peer opt-in communication or individual websites (Silver, 2021).

## 1.2 Problem Statement

Primary purpose and aim of this study is to improve understanding of the data ownership on SNS with the special focus on Facebook. I have identified three main issues with data ownership as i.) collecting too much data which can lead to compromised users' privacy, ii.) data portability obstacles, iii.) shortcomings of license. First, being an owner of your data gives you the ability to control and manage potential privacy risks. However, these privacy risks are being managed by SNS since it is them having the control over users' data, not the users themselves. Unfortunately, SNS control over data is influenced by their business model driven by profit, which puts the users' data into unnecessary risks. Second, for SNS users, full data ownership means full access and control over their data. However, once the users' access to their account is lost or restricted, data portability and access to their data become extremely difficult process. It is important to mention that users are nowadays able to regain their data mostly thanks to European General Data Protection Regulation (GDPR, 2018; Stephanie Exposito-Rosso and Medjaoui, 2021). Third, wording of the license used by mainstream SNS takes too much control for itself. In its essence, it compromises data ownership by ability to sublicense, distribute, modify, run, copy and remove data while giving no extra right or royalty to users.

The interconnection of our three issues is data ownership on SNS. There-

fore, it is important to measure users' awareness of these issues and with the help of academic findings, aim to increase it. This being said, I define problem statement as:

**PS: Most of the SNS users are not aware of data ownership issues. This lack of awareness leads to compromised user privacy, issues with data portability and license.**

This problem statement leads to these research questions:

**RQ1:** Are Facebook users aware of what they agree to when using the Facebook platform in regards to data ownership and data access?

**RQ2:** What is the users' perception of their data ownership and control on Facebook ?

Researching the problem statement and finding answers to research questions leads to better understand of data ownership issues. Suggesting improvements to awareness of data ownership issues and highlighting benefits of alternative SNS.

### 1.3 Limitation

In order to narrow down the focus of this research, I chose Facebook as primary SNS. Involving multiple, all or a few SNS during the research process, mainly when conducting the survey, would impose various limitations. Having Facebook as primary SNS allows me to concretely compare and analyze participants' answers. Focusing on one SNS improves the possibility to achieve saturation with smaller sample size. At the same time, Facebook is one of the most popular SNS. On one hand, it makes the significance of my research higher. On the other hand, previously conducted research gives me a firm foundation to compare it with my findings.

## 2 Literature review

First, I will lay down previous studies about data ownership and how it connects to control over users' data. Next, review previous study done on Facebook, SNS in general, challenges related to SNS and data ownership issues connected to losing control over ones' data. Later, I lay down previous studies and findings about privacy issues and raising awareness which

overlaps with data ownership. While conducting literature review, I followed practices described by Pickard (2017) namely process of: Information seeking and retrieval; Evaluation; Critical analysis; Research synthesis.

## 2.1 Ownership

Ownership of data, the fundamental right of freedom and control over our data. When I talk about ownership of data, there could be two identifiable issues. An issue with material ownership, which focuses on the sphere of how it can be distributed. Second, an issue regarding socio-cultural ownership, which focuses on the sphere of recognition (Hummel, M. Braun, and Dabrock, 2020). There could be different kinds of ownership like psychological ownership where a user “feels” as though the target is theirs but I am not going to discuss these kinds of psychological ownership further because it is subjective and does not have legal merit (Kumar, 2019).

Based on Hummel, M. Braun, and Dabrock (2020), the author describes that under “property versus Quasi-property rights” there is variance in opinions of what represents legal frameworks for data ownership. Hummel, M. Braun, and Dabrock (ibid.) points out, that most authors in the legal sphere would say that under current legal frameworks, the idea of data ownership is incompatible. Other authors in the legal sphere would agree that certain frameworks give certain freedoms of ownership in data, however, there are only a few claiming it.

Focusing on individual data points, there is no denial of “fight” over data to extract information among big Social media. The rivalry among social media to get as much data as possible, while not sharing data with others, is the start of power imbalance which will only grow unless ownership rules are enforced and protected (ibid.).

The influence of data can be seen everywhere from employment, insurance status to prospects to receive fair unbiased treatment in court or trial. Hummel, M. Braun, and Dabrock (ibid.) suggest that data are a resource, and as such, they should be managed efficiently by all institutions which are handling them. Data ownership supports directly societal resource of justice, privacy, fairness, inclusion, self-determination and the like (ibid.). While individuals do not invest labor into a generation of data, this does not deny their entitlement to data ownership (ibid.). Individuals who are subject or co-contribute data creation by behavior which creates data, these individuals are appropriate object of legal protection (ibid.).

The issue with specifying legal ownership and ownership of data lays in how one would suggest the same rights for the other. Compare material

ownership with data ownership, one might not suit the other and therefore it is hard to retrofit these rules onto ownership of data if they don't fit. Therefore instead of focusing on codified legislative definition of data ownership, shift focus towards the core issue they are trying to protect, which is control over data. Therefore Hummel, M. Braun, and Dabrock (2020) define ownership as: *"ownership is the sense of gaining and maintaining control over one's data"*. This results in a major shift in thinking. Instead of discussing data ownership concerns, we discuss primarily controllability or in other words, *"effective means for data subjects to exercise control over her/his data"* (ibid.).

In terms of the fundamental value of data itself, there are arguments for and against assigning value to data. Thouvenin (2017) suggest that data are "new oil" and the most important resource in the 21st century, the fact is that there are no simple ways to transfer data easily from providers of our data, even if we consider that it is one of the crucial right, based on GDPR (Hummel, M. Braun, and Dabrock, 2020). It is argued that users of social media, do not receive a fair share of the value they help to generate by the provider, and one of the suggestion is to accommodate a micropayment system to better compensate individuals (ibid.). For this to happen, user needs to own their data and not give it away freely. Therefore we need to consider the data monetization aspect when signing to services which use data we help to generate, among other aspects. There might be an issue of separating data and consumer of data by creating artificial value of data for which it can be sold, but it is argued that data on itself does not have a fixed value, and it highly depends on how it is used and how much value does it generate (ibid.). Therefore, Hummel, M. Braun, and Dabrock (ibid.) suggests that while you as co-contributor of the data should get rewarded accordingly of how much value these data generated, it is not to be expected to have fixed value by itself. This way of thinking is more align with fairness for individual which mitigates speculative middleman of buy and selling data itself but it is not clear how this way of manipulating with data should be enforced. One of my suggestion would be to use a write only distributed database like blockchain to codified the path of data from creator to value generation party while keeping restriction on who and how this data can be used. However, it can be argued against public blockchain when talking about private data, which can be solved with different technology while maintaining the power of the smart contract of blockchain.

Hummel, M. Braun, and Dabrock (ibid.) points out that the relation between marketability and data ownership is rather complicated. One party pushing towards the possibility to market their data, other parties are afraid

of separating data and individuals which is claimed to be an integrated part of the individual and one could not simply capture this relation between data and individual. I see also issues with the possibility of fragmentation, and that people seeking any monetization would be happy to trade data for any value, thus stripping themselves and others from a fair consensus of how data can be used, who can use them, and for what compensation. I found the idea of the non-fixable price of data very appealing, but I am afraid that unless it would be enforced with legislation, it will not happen.

Hummel, M. Braun, and Dabrock (2020) in the section “Protection versus Participation” describes that user can only give what is his/hers and thus there is a question regarding how to support this notion of data ownership from a legal perspective. Hummel, M. Braun, and Dabrock (ibid.) follows that from user perspective what is “his/her” does not need to be genuine ownership, but can take the form of “quasi-ownership” which would support participatory ways of use of user’s data but also protective rights.

Another aspect to consider when choosing a legal stance is the dilemma of “Individual versus Collective claims and interests”. Hummel, M. Braun, and Dabrock (ibid.) suggests that it is not a “zero-sum game” between collective interests and individual. Rather, there are simply interdependence and trade-offs between these two domains. Justice requires social arrangements that allow all members of society to communicate with each other (Fraser, 2009). Others support this by claiming that justice of society and well-being is proportionate to its ability to secure conditions for mutual recognition, personal identity and self-realization (Honneth, 2003).

Suppose that legislators agree that user should own their data. Important question is, what defines which data is “mine”? What is the connection between the owner and his/her data? Under GDPR we refer to personal data, which only means that these are data which user can be identified. What is the difference between anonymized and personal data? Do they differ in ownership rights? It is still unclear how to answer these questions and I found that literature is not clear on these rules and legal frameworks rather differ (Hummel, M. Braun, and Dabrock, 2020).

## 2.2 Awareness

Connection between awareness of data ownership and awareness of privacy on SNS is large due to data ownership being also concern with privacy. Therefore data ownership has overlapping issues of privacy compromised which can be both improved and prevented with help of previous research. Notable findings are. First, Paper by Soumelidou and Tsohou (2019) which

visualizing privacy policy to users, their awareness level of privacy improves. Research was conducted by two empirical investigations, each with three intervention representing Instagram privacy policy to users (Soumelidou and Tsohou, 2019). Soumelidou and Tsohou (ibid.) highlights that usage of icons had the biggest impact on higher level of awareness in regards to privacy.

Other study indicate lack of awareness of GDPR related privacy issues by analyzing over 39 000 collected tweets, only 153 were relevant to study and these predominately mention data breaches of subjects analyzed (Aydin et al., 2020). Aydin et al. (ibid.) highlights that tweets collected did not include data subject rights or privacy issues directly. This lack of awareness in regards to GDPR issues and users rights showcase importance of conducting research towards measuring and increasing awareness.

Research of impact on online privacy disclosures on consumer trust concluded that online shoppers find short, straightforward privacy statement more comprehensible than long, technical ones (Pan and Zinkhan, 2006). This supports the findings of Soumelidou and Tsohou (2019) by indicating that the length, comprehension is important factor to understand of the users and their trust.

Study into understanding if privacy concerns influence Facebook membership showcase that significant majority are not aware of the privacy concerns (Acquisti and Gross, 2006). This study indicates that group of people who are aware of privacy concerns either do not join or do join but manage privacy by limiting data and information it shares with Facebook (ibid.).

Aimeur, Lawani, and Dalkir (2016) support claim that users of SNS do not read privacy policies mainly because of their length. Aimeur, Lawani, and Dalkir (ibid.) also highlights that users of SNS find usage of their private data for profit or without their knowledge unfair. This claim also supported by other study showing sensitivity and fear of sharing personal data with other entities (Chen and Ismail, 2013). Their survey however shows that allowing personalization and management of privacy policies influences trust positively and makes SNS more trustworthy to their users (Aimeur, Lawani, and Dalkir, 2016).

### **2.3 GDPR**

The General Data Protection Regulation known as GDPR (2018) is current European legislation that is enforced on SNS. GDPR ensures that: 1, service only collects necessary data to fulfill a contract with the individual; 2, freely given agreement; 3, protect data collected and notify the individual in case of breach; 4, transparency on how data are used and who exactly is using

them (GDPR, 2018).

### **GDPR definition of Personal data**

Personal data are data or metadata created or co-created (by behavior) about individual such as observed data, captured data, volunteered data and inferred data (ibid.). As an example, personal data could be, location data, information about you as a person, shared data, content you create, behavior data such as clicks or time spent watching the video.

GDPR (ibid.) defines multiple articles focusing on different digital rights:

- **The right to be informed.** Data subjects must be informed when their personal data is being collected and used by your business.
- **The right of access.** Customers can request a copy of the personal data being processed by your business.
- **The right to rectification.** If a customer's data is incomplete or inaccurate, they can ask you to rectify or complete it.
- **The right to erasure.** If you no longer need a customer's data for its original legal purpose; have processed their data unlawfully; or they formally object to or withdraw their consent to processing, you must delete their personal data.
- **The right to restrict processing.** In some cases, customers can ask you to restrict or stop processing their personal data.
- **The right to data portability.** Your customers should be able to copy or transfer their personal data securely and easily from your business to another organizations.
- **The right to object.** Customers can object to you processing their data and its use in direct marketing.
- **Rights in relation to automated decision-making and profiling.** If your data processing involves automated decision-making that legally or significantly impacts your customers (such as building up a profile of who your customer is and how they behave, or if you use an AI), you must inform them and get their consent to do so.



## 2.4 Data portability

Users of SNS generate valuable data through online interaction and by using SNS services. As user uses SNS data accumulates and become their digital capital. Term '*data portability*' mean ability to request and transfer their personal data from one service or platform to another for reuse. Aim of this digital right is to bring more competition, enabling the sharing, reuse and ability to adapt data to users needs.

Multiple case studies has been conducted to identify challenges when exercising digital right of data portability. Some of the findings are. Facebook has ignore requests of data portability and show lack of consideration, when asked about it, they invite the subject to court to resolve the dispute (Stephanie Exposito-Rosso and Medjaoui, 2021). In another case, Facebook impose constraints on the data subject could access, from the obfuscation of permissions and data relationships to limiting access to subject friends information (ibid.).

Main findings of Stephanie Exposito-Rosso and Medjaoui (ibid.) were. First, exercising the right to data portability is energy-consuming and time-consuming process that has negative effect of discouraging user of Facebook from requesting and making use of their data. Other study also highlights confusion on the side of provider between data portability and data access, being knowingly or not (Sørsum and Presthus, 2020). Second, Services such as Facebook often use loopholes to evade their responsibilities in regards to GDPR law of data portability (Stephanie Exposito-Rosso and Medjaoui, 2021). Third, Data which are labeled "*provided by the user*" is often too vague and does not reflect expectations of the user in regards to the way user wants to utilize his/her data portability request (ibid.).

There are many other challenges of SNS in regards to data portability for example changing application interface(API) or to cut access by companies like Google, Twitter, Linkedin, Facebook etc. These actions has been documented in US Antitrust Commission report accusing Facebook of using API access as an anti-competition practice (Jerrold Nadler, 2020).

Stephanie Exposito-Rosso and Medjaoui (2021) highlights also key obstacles in enabling the data portability for users: Market imbalance challenges; market distortion challenges; Discordant implementations; Lack of enforcement; Reluctance to share data; Winner-takes-all culture; Immature data governance; Information asymmetry; Data literacy gaps.

## 2.5 Data & Privacy

Network effect of SNS show that 51% of participants answering they would not join yet another SNS if it would collect data and its business model would be based on targeted advertisement (Rainie and Duggan, 2016). In the study they mention utilizing current social media instead of using a new one, indicating that people don't want to invest in yet another social media which concept is the same. This indicates the possibility of monopoly and from statistics, it can be argued that population already reached that point (Auxierand and Anderson, 2021; Denmark, 2019a).

In the book, *Understanding Social media* authors describe data as raw material which social media trade with (Hjorth and Hinton, 2019). Big data created new needs for analyzing this type of data, and Hjorth and Hinton (ibid.) describes it as a "computational turn" in humanities research. Computational turn has become the de facto requirement in order to answer many questions in humanities today (Hjorth and Hinton, 2019; Moniuszko et al., 2012).

Data which are collected by SNS do not stop on only collecting data about its users. They also collect information about phone and name from users' contact list shared from mobile phone creating graph of connection.

Machine learning biggest aim is to find patterns that could be used to optimise SNS goals, often increase attention span, promote interaction which content to increase time seeing a personalized advertisement. Why personalized and how personalized? Personalize advertisement promise is to increase profit for a company who bought items form this advertisement on SNS, these companies can target users with advertising based on their data. Generated interest groups are user age group, gender, interests, history, visits and more. Patterns from Big data can be also used to support algorithmic decisions making, this could be further used to credit score, provide personalized pricing, loan offerings, health care and propaganda (Zuboff, 2019 ch.3). Zuboff (ibid.) argues that this can affect our health care, educational opportunities and probability of being a political target.

All in all, the abundance of online data became a currency and creates a competitive advantage and everybody who wants to see these data has to compete for them, making it worth much more (Li, 2019). Li (ibid.) claim, that the input market adopters abuse their dominance by creating refusal to supply to others. This drives the price of users' data even higher. This relationship with market definition of data and networking effect of keeping data in the walled garden is resulting in all mainstream competitors in the Social media market doing the same, selling artificial scarcity of data (ibid.).

Li (2019) describes online data in two ways, one is that online data can be sold and bought in the market and the second is the process of products and services they are associated with.

When it comes to privacy research about Social media, it is plentiful. I see issues concerning privacy as significant but more importantly preventable issues. If Social media would not collect so much information and their business model would not be built on top of collecting more and more information, users of Social media would not have to be afraid that all the information can be leaked or abused. Some argue that Social media corporations were the first to find a way to mine social life in order to market it and make a profit (Elmer, Langlois, and Redden, 2015). Social media are invited users to post and connect with other members of the platform to share what is new in their lives, then use these data to create social knowledge which then is sold for profit to advertisers and marketers (ibid.). Elmer, Langlois, and Redden (ibid.) argues that SNS not only sell such knowledge but can also direct action towards the increasing probability of certain action, like clicking on the link. Social media make it possible to influence feelings, social stimuli and modulate responses (ibid.).

Most of the research done in Social media in regard to privacy do not focus on how users can be protected from other peoples' media (M. Smith et al., 2012). Security is as strong as the weakest link, and this is true also in cases where you yourself try hardest to not share data about yourself, and other people who know you share your location, photos, phone number and other private information. Considering that Facebook will pay a record 5bilions USD fine to settle privacy concerns regarding Cambridge Analytica improperly obtained data about 87 Million Facebook users I would say that these data were not supposed to be created in the first place (BBC, 2019; Techcrunch, 2020). This was possible only because social media thrive on "open" participatory communication while they restrict and deprive the general public of access to the very data people created (Elmer, Langlois, and Redden, 2015). The analysis of the data is available for research that fits within the for-profit motive of Social media corporations. Research for the public interest on the other hand is becoming more difficult, if not downright impossible (ibid.).

For example, Facebook, being such a centralized platform with so many active users and so much data is the primary focus of any attacker and when an attacker get information from the Facebook corporation, the data leaked is enormous. For example, a Facebook recent leak from April 2021 with 533 Million Facebook users phone number and personal data got leaked online (Holmes, 2021). Connection from WhatsApp to Facebook could be one of

the sources of this data. Social media chat apps like WhatsApp collect data like social graph metadata and contacts which later can be used to track user and find connection, this was previously abused by less democratic countries (Halpin, 2018 p.224). It is alarming how little data is enough to identify individuals, research indicates that it only takes 4 location traces to identify 95% of individuals (De Montjoye et al., 2013).

There have been studies to improve awareness of privacy policy by using visualization of privacy policies compare to textual ones, especially when icons were included (Soumelidou and Tsohou, 2019). The amount of data ranging from simple text to business domain content to entertainment domain is becoming internet culture and that this information is meant to be private (Senthil Kumar N, 2016).

It has been found from the survey in the USA that people would pay 5 USD per month to maintain data privacy but to sell personal data they would demand 80 USD (Winegar and Sunstein, 2019). Demand price would be much higher if personal data would contain health information or demographic data. This survey is raising an interesting point that people value the price of the data differently. Others argue that data are as valuable as their possibility to research or develop something useful and policymakers or users should not put one price for data (Bosher, 2020).

Another issue raised by previous research is ambient surveillance from the side of social media users themselves (McKay, 2020 p.187). Ambient surveillance is especially critical when it comes to a relationship to work, often employees are expected to accept to connect with their employer, creating a weird situation for themselves. One of the argument is by engaging online about both work and personal life, users blurred boundaries between work life and private life which results in employers seek to control what employees do and say online which influences what individuals want to share online (Hook and Noakes, 2019). This situation creates cynicism of a situation where user freedom to be “yourself” is undermined.

One could argue that by pushing towards transparency and more information disclosure and what is happening on social media with users data, users’ understanding would improve and users could make better decisions. Research however says that providing control over personal information in social networking contexts is negatively and statistically associated with information disclosure (Benson, Saridakis, and Tennakoon, 2015). However, the awareness and security notice improves with such information disclosure (ibid.). Research also points that there is a general lack of awareness from social media users how their information and user-generated content is used on the social platform, being it from social media, government or third parties

(Aydin et al., 2020; John C Bertot, Jaeger, and Grimes, 2010; John Carlo Bertot, Jaeger, and Hansen, 2012).

## 2.6 Control of data in Social media

Social media has total control on what content it allows or removes which users of Social media agree when signing Terms of Service(ToS) (Facebook, n.d.[c]; Instagram, n.d.[b]; LinkedIn, n.d.; Reddit, n.d.; Twitter, n.d.[b]; Youtube, n.d.). More specifically all of the mainstream social media have a clause with very similar wording of getting full control over data in their ToS: *“you grant us a non-exclusive, transferable, sub-licensable, royalty-free and worldwide license to host, use, distribute, modify, run, copy, publicly perform or display, translate and create derivative works of your content”*. This license only differ in exclusivity with transferring full copyright of the ownership to other entity by USA law (Engelhardt, 2013). Centralization of the content and control in hands of SNS creates some part of responsibility on SNS. For example in the UK legislators pressured SNS to remove extreme and hate crimes on their platform (Grassie, 2017). There are many questions regarding how this is possible, to what extent it is possible and by what rules users’ content should be removed, resulting in confusion and more power in hands of SNS. It is unclear how policy and lawmakers should enforce SNS to become judge, jury and executioner of content Grassie (ibid.) considering their mixed interest of content creating attention and reactions for profit. There have been highlights of how YouTube’s content ID contributes to automatic removal of content that would breach intellectual property infringement is one way to combat this issue (ibid.) . However, it has its limitations and it is not clear whenever benefits outweigh the drawbacks.

SNS research indicates that influences on incidental news exposure could be either weak or strong. Strong ties consist of friends and family which directly could influence political behavior. When it comes to weak ties which are not central in users’ lives lead to exposure to more diverse information (Scheffauer, Goyanes, and Gil de Zúñiga, 2021). This contradicts with some of the research claiming that social media form bubbles of interests of what users like (Pariser, 2011).

There have been studies of the social power of algorithms in Social media, which indicates that algorithms in social media are “blackbox” that produce biases and other negative consequences, especially for disadvantaged or minority (Broussard, 2018; Noble, 2018; Rubel, 2016) . Claim that social media algorithm is “blackbox” and not understood by users is supported by survey in the USA indicating that overall 53% say they don’t understand how al-

gorithm works (A. Smith, 2018). This issue has been one of the great social concern that research institutes and journal pay attention to, which resulted in “ask for transparency and auditing of algorithmic decision” (Diakopoulos and Koliska, 2017). If we put the user at the center of how algorithm influence users, we find that there are 4 types of users when dealing with algorithms: disengaged, negative curators, positive curators, activists (Min, 2019). Highlighting that when looking at how algorithm influence users, we need to consider their type and how much they are affected by algorithms decision. Research from Min (ibid.) highlights that there are people who influence their algorithm to their preference in different ways, but I would like to point that it is still “blackbox” for many and the fact to what extent users of social media could influence their algorithm which might depend on how technically competent are they. Another point I would like to make is that social media algorithm is not something we need to learn to live with, it is not enforced and it should never be enforced in the future. My point is that we choose this path considering trade-off, there are different way to curate content and I would agree on non-algorithmic way is better. When we choose a path of Social media algorithmic content consumption it ultimately defines the scope of our human knowledge and means of knowing to some extend (Gillespie, Boczkowski, and Foot, 2014).

To some extend research claims that current social media through curation of content paves way for our understanding which imitates the power structure of legacy media and state (Lundahl, n.d.). Research author Lundahl (ibid.) acknowledge that content filter bubbles described by Pariser (2011) are contested by empirical research which argues differently (Bechmann and Nielbo, 2018; Haim, Graefe, and Brosius, 2018). However, Lundahl (n.d.) argues that it is still visible to the user in a repetitive manner which creates the power of “hypernudge”. “Hypernudge” term by Yeung, 2017 describes the algorithmic design nudges users to do what the designer of an algorithm wants, in an unobtrusive, subtle, and yet powerful way. Social media algorithm architect encodes their biases and business model preferences into this algorithm which considering for-profit and growth focus is questionable. The nudge effect power has been already demonstrated when trying to improve healthier eating habits and other research into patterns of online audience formation (Leonard, 2008; Wu, Taneja, and Webster, 2020). Users of SNS however play an active role in deciding what is shown in their algorithmic feed.

Later Lundahl (n.d.) also argues that while Webster and Ksiazek, 2012 found little evidence that users spent too long in niche outlet. Instead, they consume content more and more from mainstream social media which be-

came too big and influential (Newman and Levy, 2016; Nielsen, 2017). This preference of larger digital intermediaries supports the argument for network effect in social media sites. This was further supported by research seeing a decline in smaller digital intermediaries where market leaders saw rise their unique visitors (Lundahl, n.d.; Webster and Ksiazek, 2012). Research quantify findings that despite everyone having the same available resources of information, extremes are enhanced by Social media algorithms designed to reduce division (Johnson et al., 2019). These findings were evaluated mathematically and they have reproduced in multiple time-dependent behavior observations (ibid.).

To further highlight the power and potential abused of control, there has been evidence of “Cancel culture” which is a term where crowd-sourced policing or mob mentality demand punishment (Altheide, 2013). This creates huge pressure on company or other individuals to act otherwise they fear social power which is argued to be constituted, legitimated and communicated by social media (ibid.). It is argued by Altheide (ibid.) that this is simply a reflection of propaganda, logic and procedures through which we communicate. Similar pressure is also apparent among smaller business which has to find balance between control and engagement (Humphreys and Wilken, 2015).

Research regarding young women’s mental illness claims that social media practices of control and emotional recognition are often invisible (Hendry, 2020). Hendry (ibid.) case study points that being visible to others produced anxiety among other pressure therefore instead of showing or sharing content about mental illness directly, participants rework content in humour, ambiguity among other things. This research shows that mental illness in social media is influence by pressure and anxiety of being seen, therefore changing content which these women share or create (ibid.).

Control on social media is often invisible, either by nudging which is not seen as direct influence, or simply not being able to understand why users see what they see. Considering that 53% don’t understand how social media feed works (A. Smith, 2018).

## 2.7 Research

There are two aspects of research on SNS, first how research is used as a tool of competitive advantage and second, how much users agree with being subject to research from Social media.

One of the many parts of the Terms of Service on Facebook users’ agree to is also agreement to research conducted on users’ data, directly or indirectly.

There has been controversial and ethically questionable research done on 61 millions of Facebook users about political social influence (Bond et al., 2012). The research from Bond et al. (ibid.) concluded that political messages had a direct influence on real-world voting behavior, information seeking and political self-expression. Data leaks from Facebook research on a large number of users contributed to bad publicity and pressure from legislator from many countries (Bond et al., 2012; Brown, 2020). This research was not conducted with explicit agreement from users, only agreement from accepting ToS of Facebook. Europe came with a GDPR protection law to some extent in response to these types of research conducted on users of SNS. This resulted in closed data access. Close data access could be beneficial for the users and harmful for public depending on how you look at this issue. In some way, it is rather good because passive research on your data could not be done or be harder to achieve from outside of Social media. However, it is equally true that socially positive research cannot be done either. This could mean that data are only accessible to private benefits of social media sites, which does not mean that the bad research cannot be conducted. What it means in practice is social media decides what kind of research does it want and benefits from (Wong, 2021).

Big data and social media allow many new research paradigms to quantify data, to extend that there are written books about “social media for academics” (Pennington, 2012). Many new papers and books came out on how to utilize this new opportunity to utilize social media platforms and their data, for example, “social science research” by Winegar and Sunstein, 2019.

Data mean for research that finally we can observe social life with help of data lens (Golder and Macy, 2014). Each click and keypress contributes to data accumulation which can be further analyzed to understand behavior and enable useful functions like spam detection, product recommendation and much more (ibid.). Unfortunately, I would argue that this sort of research has 2 issues. One, it is used and abused for the private benefit of companies controlling and collecting these data, which created competitive advantage and abuse. Second, by accumulating data, these data could be analyzed again and again, who knows what can be concluded or trained to understand from this accumulated dataset. With the rise of Artificial Intelligence(AI), not only we contribute to helping develop better AI by providing data for its research, but we also agree to be used as a target. This type of research creates yet another potential of compromised privacy.

On the bright side, social media can be used as a powerful amplifier of knowledge as shown in Twitter research about using visual abstracts to



effectively disseminate research and educated people (Ibrahim et al., 2017).

## 2.8 Addiction

When it comes to addiction, research suggests that Social media uses reward systems which activates dopamine (Sherman et al., 2018). Algorithm optimizing on keeping people on the platform keeps showing user content they might like, therefore user often spent more time than they would like. Research suggests some of the reasons why we share photos. We choose it because of low cost and transmission time (Goh et al., n.d.).

Data of mental issues among people in adolescence shows that many mental issues statistics went up in recent years (Surveys, 2019). Research shows that while usage of Social media is not casual effect, it is correlated with increased mental health issues, concluded from 8 year survey based longitudinal study (Coyne et al., 2020). However, recent revelation from whistleblower indicate that Facebook is aware of some of the issues it causes on mental health but chooses to ignore them (Wong, 2021).

With increase time spent on Social media, users are in risk of loosing control, and start of developing addictive behavior (Du, Koningsbruggen, and Kerkhof, 2018; Throuvala et al., 2019). Research also indicates difficulty of controlling their own social media use while having important tasks to do (Du, Kerkhof, and Koningsbruggen, 2019; Masood et al., 2020). All of these could lead to higher likelihood to addiction as these research papers suggest (Andreassen, Torsheim, et al., 2012; Crone and Konijn, 2018; Griffiths, Kuss, and Demetrovics, 2014; Hawi and Samaha, 2017; Masood et al., 2020). Increased time spent on Social media is also positively associated with cyberbullying (Andreassen, Billieux, et al., 2016; Andreassen, Pallesen, and Griffiths, 2017; Betts, Spenser, and Gardner, 2017; Giordano, Prosek, and Watson, 2021).

## 2.9 Business model

The business model influences the decision making and trade-offs companies are willing to take in order sustain profit. Many most popular social media platforms, build their business model based on advertisement. If we look at Facebook earnings, Facebook had revenue of 55,8 Billion USD in 2018 out of which 98,5% was revenue from advertisement (Foundation, 2019). The real issue with having built such a popular platform is that the amount of data and desire to gather more. Facebook tries to perform event tracking across the web outside of the Facebook website with the intention to op-

timize off-site advertisement and create the most relevant audiences (Facebook, n.d.[a]). If we search for website containing this script, we see more than One Million pages including the Facebook which shares data about users to Facebook (PublicWWW, n.d.). The combination of on Facebook data collection and collection of off-site increases the possibility for Facebook to see patterns and understand user more. Other Social media are collecting as much data as they can too, and by centralizing they are even influencing the global market (Karppi and Crawford, 2016). Karppi and Crawford (ibid.) describe this market to be more volatile and contagious. All of this collection of data contributes to compromise of users’ privacy. Research suggests that there are better ways to monetize platforms by collaborating with all stakeholders to create a better ethical platform (Maria and S, 2020).

Based on growth indicators over years of Facebook, it seems they are constantly pushing towards higher and higher growth (Macrotrends, n.d.). This could indicate ill-motivated idea of constant growth of Facebook which is not sustainable and potentially compromises users’ privacy.

## 2.10 Trust

Over the years Facebook changed the amount of information it provides to the public, both to protect the privacy of users, but more importantly to increase the value of the service (Shane-Simpson et al., 2018). Protecting the privacy of user was positively associated with the usage of Facebook over Twitter (Kwon, Park, and Kim, 2014). Based on Kwon, Park, and Kim (ibid.) research, if privacy concerned people using one service over the other, one could think that Facebook would be a more trusted service than Twitter. Indeed, self-expression was one of the reason why teenage girls use Facebook over Twitter (Binns, 2014). However, Facebook has had bad publicity over the years, especially because of data breaches and surveillance, which resulted in “quit Facebook movement” or “virtual suicide on Facebook”(by deleting an account) in reaction to privacy concerns (Pentina, Zhang, and Basmanova, 2013; Stieger et al., 2013). Another reason why Facebook has reduce trust from the public is research conducted on people’s mood while manipulating content feeds (Kramer, Guillory, and Hancock, 2014). These facts resulted in boom of research around Facebook. Publicity and research contributed to spread awareness of privacy concerns around Facebook, resulting in lower trust (Shane-Simpson et al., 2018; Stutzman, Gross, and Acquisti, 2013). Paradox in this situation is that even if users do not trust SNS and users are concern about their privacy online, these do not translate into privacy-related behaviors (Debatin et al., 2009). There is definitely

trade-off users are willing to make when it comes to using these services for the ability to reach and self-express and connect with others (Shane-Simpson et al., 2018). Lax privacy settings were weighed to be potentially worse for online engagement and content reaching maximum potential (Norberg, D. R. Horne, and D. A. Horne, 2007).

To see a lack of trust in Facebook in numbers, 42% of users have responded that they have taken a break from checking Facebook over a period of several weeks or more (Perrin, 2018). Based on the study by Perrin (ibid.) 26% deleted Facebook app from their phone, only 54% adjusted privacy settings, 9% downloaded all personal data Facebook has collected about them. Results are from a 2018 survey in America with a sample size of 3413 (ibid.). Trust in Facebook is reduced also because user feels that they are no longer seeing a post from their friends, and when they happened to see them, it is because of their system intervention (Rader and Gray, 2015). From Rader and Gray (ibid.) research, users are really in disagreement over how Facebook is showing news in their feed, thus reducing trust in the platform.

## 2.11 Moderation

I personally believe that ability to express him/herself should be given to everybody, a person should also be responsible for the content he/she creates. Social media can, however, moderate this content, this is often done with help of artificial intelligence with soft and hard control. Soft control is determined by what is shown in a given feed, for example, content that is popular would be shown more often. Hard control is analyzing content that is acceptable for publication and would be either shadow-banned, or banned/removed (Zuboff, 2019 ch.6). Both of these are rather opaque, depend on the country's rules and are often combined with human intervention which is time-consuming, difficult to review, analyze and criticize (ibid. ch.6). Some argue that soft control is often used to "optimize for addiction" algorithmic behavior, which results in seeing more of a content you like but in more extreme version (Zakon, 2020). Because of designing how to control the content on Social media, there is a need for a higher standard and incentivize greater levels of caution in its development process (ibid.). These consideration should reflect the policy and law in country with a desire to help user regain control over his/her data. Some argue that by moderating, optimizing for views, social media qualify as content developers by creating algorithms for content moderation (ibid.). It is important to highlight the importance of algorithm and how impactful would be to have flawed algorithms. Flaws in these systems could reinforce discrimination (Noble, 2018) , contribute to

political polarization (Bucher, 2018; Wong, 2021) , enable terrorism (Times, 2018), and much more (Zakon, 2020). Zakon (ibid.) argues that it is time to hold creators of algorithms accountable, and highlights that lawyers will play important role in making this happen.

From another end of the spectrum, there are arguments against focusing on enforcing to regulate the intermediaries which I totally agree with. Author says:

*“The new transparency and objectification of social interaction in social networking applications has powerful effects on the dialogue about control of communications. . . . behavior revealed through social media by generating pressures to regulate the intermediaries, instead of identifying and punishing the individuals responsible for the bad acts. . . . At its worst, this focus on the platform rather than the actor promotes the dangerous idea that government should regulate generic technological capabilities rather than bad forms of behavior per se.”* written by (Mueller, 2015).

I agree with the quote that we need to consider both users’ freedom of expression and the combination of conducts done by them. Stasi (2019) define this consideration as “theory of harm” which focuses better understanding of challenges at stake and what it means for users. Suggest to create an entire toolbox of regulatory instruments rather than one, however Stasi (ibid.) calls for more research in two areas. First, factual assessment of conducts that would have legal relevance. Meaning, higher level of transparency from platforms to provide data which can be research about topics: data collection, profiling, personalization and content moderation. Second, address the complex issue by identifying the combination of behaviors causing harm (ibid.). Others suggest improving the business model of such platforms first and foremost, then user and platform can collaborate into making more transparent platform and sustainable business model which are not so heavily reliant on data collection (Mergel, 2013).

### 3 Theoretical and Analytical framework

The way I approach this research was through the lens of users’ ownership and control over his/her data on SNS. This research theoretical and analytical framework is heavily based on research by Hummel, M. Braun, and Dabrock (2020) which takes a legal perspective on data ownership on SNS and shifts focus towards analyzing control on SNS. Therefore, I am going to create my own analytical framework based on thinking of control on SNS and analyze user’s perception and awareness of control. Based on GDPR rules,

we know that social media are required to disclose how they are handling user's data. Comparing users' perception of what SNS does with data and actual possibilities of SNS could highlight some of the shortcoming of users' awareness.

From a Theoretical framework perspective, I analyze why the control and ownership on Social media is an issue and that shift from individual to the centralized network has multiple alarming sideeffects, such as control over the user's even beyond the platform, network effect and privatization of research benefits, loose of ownership rights, polarization of society, increase mental issues among the young ones, monetization of user's data, lack of regulation and diminishing trust over privacy.

With help of Literature review and referenced articles, I will compare and pay attention to raised issues in Social media. Based on the findings, there is a phenomenon of lack of trust in social media, with known issues while usage of social media keeps rising. By capturing users awareness, we can understand closely where the issue is and deeply understand what kind of trade-off are user's making when using social media.

From literature, we understand the intent of social media and trade-offs, we are aware of issues in social media and the controllability of centralized systems. The intention of users, and why they used the platform, as well as how social media utilize the data to increase usage of the platform to gain profit from advertisement.

By focusing on controllability on social media, I can highlight how the current situation could be improved, based on results what can be done and understood from the results.

## 4 Research design

The research design of this study was based on a mixed-method approach inspired by (Pickard, 2017). Starting with competitive analysis. Following with quantitative part of the research design, I picked a survey. A quantitative method based on Pickard (ibid.) should bring internal and external validity, reliability and objectivity on its own but to further support the findings qualitative method, semi-structured interview is conducted to cross-reference findings with survey findings. Identified themes in thematic analysis will help to understand why's behind some of the survey findings. Semi-structured interview has been chosen to improve credibility, transferability, dependability and confirm-ability of this research (ibid.).

Pickard (ibid.) suggests that to know exactly what is happening with

data, it is a good idea to do data manipulation manually first, before using any of the analysis with software. Following this advice and to get familiar with data, I traverse and looked at the raw data. This gave me idea of structure and possibility to capture pieces of which I wanted to focus on. For data manipulation and visualization, I would use programming language R to make process transparent and reproducible. Using programming language for statistical, analytical and visualization work serves benefit of re-using programs. Dataset could be swapped for other dataset and results compared. This approach will improve the internal validity of research and the reliability of results.

#### **4.1 Epistemological and Ontological view**

From a perspective of Ontology; the nature of reality, I believe that by reading diverse literature, articles, experiencing the topic myself, I have a deeper understanding of the reality of the topic. When it comes to the reality of user's, I capture their perception and this perception could be biased on basis of memory, and their own individual experiences. Everybody has different values and priorities, by their answers, it is worth investigating into their individual knowledge. When captured enough users, we can capture broader reality.

To be objective, I followed the objectivist/dualist perspective to capture current perception and knowledge of participants and tried to identify their objective truth

From the research paradigms perspective, I would describe my approach as a post-positivism view, because of the focus on mixed methods research to ground my findings which is also a more pragmatic approach. Following the pragmatism, exploring research questions with qualitative and quantitative methodologies ensures that one compliments the other. This was closer described by Pickard (2017) in his section regarding Ontology and Epistemology.

From an epistemology perspective; philosophy of knowledge, I acknowledge my bias towards seeing data as a major piece in what is allowed and what is simply not possible. Knowing my biases towards data independence and privacy, I made sure to divorce myself from searching the truth I would like to see instead of identifying the objective truth I find in results. I acknowledge that my subjective interpretation of data cloud differs from other researcher but I try my hardest to clarify why I interpret data as I interpret them to make it transparent and visible to others to judge my objectivity. The only way to make my result objective is to validate them with future

research or peer review research conducting similar or same survey.

## 4.2 Competitive analysis

Competitive analysis is used for identifying relevance to other SNS compare to Facebook. It also serve overview of the current market and how similiar mainstream SNS are to each other in terms of data ownership issues. The aim of the competitive analysis is to highlight similarities and differences among SNS, therefore I am selecting the 10 most used social media platforms based on data survey from Auxierand and Anderson (2021) shown in Appendix F. Namely, Youtube; Facebook; Instagram; Pinterest; LinkedIn; Snapchat; Twitter; WhatsApp; TipTok; Reddit. In comparison to mainstream social media, I selected 5 alternative social media from diverse protocols, a different take on mainstream social media to highlight differences among social media. Namely, Aether; ScuttleButt; Mastodon; Micro.blog; Peepeth. To explain exactly why these alternative platforms have been chosen, I describe what is interesting about them and why I chose these specifically.

### **Mastodon**

Mastodon is a platform that is community-owned and ad-free. It is often compared to Twitter because of the similar limitation to number of characters. Where Mastodon differs is that it can be self hosted and it is federated network, meaning that you are able to communicate from one server to another. Main reason why I picked Mastodon as alternative is the fact that is one of the most popular non-mainstream open-source alternative to current mainstream SNS with more than 3M users (Federation, n.d.). While there are plenty of other social media which are part of “fediverse”(federated universe), in my competitive analysis they would not differ significantly therefore I only included the most popular one and not focusing on a subjectively better one in this sphere. How Mastodon application differs from Twitter, is very dependent on specific rules of the server you are registering and connecting to (website you log in with). Each server has different rules which could differ from vanilla open-source version of Mastodon. User has to follow those specific rules of the server to not get their content moderated or their account suspended. Mastodon by default does not contain any trackers or ads. It is open-source and free, so in this regard, it is a great alternative to twitter or other social media.

### **Peepeth**

Peepeth is one of the most popular peer to peer social network build on top of Etheruem blockchain(write-only distributed data-store) which is moder-

ated (Peepeth, n.d.[b]). Peepeth is built on top of blockchain, which means that writing to blockchain costs crypto-money. However, Peepeth cover this costs for you. Data written to blockchain cannot be tampered with and are always publicly available on blockchain. Users' data cannot be removed but they can be hidden by the platform. Peepeth' strategy is to provide free credits for users as long as they follow its rules, therefore users are able to communicate without need for converting real money to cryptocurrency. One of the conflicts between blockchain and GDPR is that data once written cannot be removed from blockchain(the whole point of being it on blockchain is not to be able to do that). Therefore it is advised not to store content that breaches intellectual rights nor is private information, this suggestion is also supported by possible conflict with GDPR described in (Halpin, 2018 p.203). Halpin (ibid.) claims that adaptation of blockchain based application does not lie in technical difficulties, but rather a cultural one.

### **Aether**

Aether is peer-to-peer alternative that is actually build by ex-facebook and ex-google employees. Aether is an open-source, self-governing community with transparent moderation and democratic election of moderators. While the number of users is unknown and not public, what interested me about this platform, was the fact that it does not require a server, and that users' data are limited to 6months of life-time, while no content can be removed by moderators, only hidden. This unique functionality is double-edge sword, meaning that users' data are never censored but they must be temporary. Aether is meant to be replacement for text or image board which are more temporary in nature like Reddit. Benefits of this platform are, no accumulation of users' data, transparent moderation and improved privacy. Aether also works offline and updates its software once connected, allowing fast response from the application. Aether could be compared to Reddit in terms of functionality, being able to make topic and react/comment on it.

### **Scuttlebutt**

Scuttlebutt is a decentralized secure gossip platform that is built on a top of peer-to-peer open-source protocol called "gossip" (Scuttlebutt, n.d.[b]). Gossip protocol is a local primary write protocol that distributes over from client to client, this means that Friend A messages goes to friend C through friend B if friend A and C do not meet directly. Scuttlebutt supports multiple clients which support different functionality and it works offline. Discovery of content is more local and to be able to discover content you have to follow at least one channel. Moderation is done with hiding content or users instead



of banning or removing them. All data are local and can be accessed with file manager. if I would have to compare, I would compare Scuttlebutt to Facebook because you can also share what you like, what you do, photos et cetera and others can react to your posts.

### **Micro.blog**

Micro.blog is social media which is focusing on bringing people to blogging and building their own website. It is built on open protocols therefore any compatible client could post and interact with this social network. What is different on Micro.blog, you can have your own website and still interact in Micro.blog with help of open protocols. This approach is documented in Indieweb.org Indieweb (n.d.) which promotes owning your data by having website and interacting with open protocol bringing the social media aspects to independent websites. What Micro.blog does is bridging these websites and makes it viable for non-tech users to create blog/website and only focus on writing and sharing what they love. Micro.blog was created after successful crowdfunding and does not contain advertisements but to host your website you can choose one of their paid plans available.

In other words, they separate content and social network, what it means is that you build your website and if you don't like being on Micro.blog you take your website and host it elsewhere while keeping all the history and content you generated over time. One of the drawbacks for some people could be that everything done on this platform is public, there is no private messages, no private responses, everything lives on your website, therefore it is accessible by everybody (Micro.blog, n.d.[a]).

Following the analytical framework, questions are focusing on license, privacy, limitations and data ownership. Questions are created for the possibility to answer yes or no while answering YES is a positive answer, meaning more yes across questions would highlight better SNS in terms of data ownership. Questions and explanation why I ask these specific questions are:

### **Questions**

One of the most important functionality for user's rights is moving from one platform to other. Often time it is not possible because of incompatibility of platform, however the second best thing is to be able to download content and data you as a user create or co-created. Therefore I am interested in finding out if exporting is possible.

- 1. Does SNS have tooling for export of user' generated content?

In case of social media closing your account or losing access to your account, it is best to have timely exports of data, so when user lose access to data, it has saved the most recent version of data. Therefore, I ask:

- 2. Does SNS support archiving of user' generated content over time ?

When you choose to change social media platform, user might want to reach to inform others that they can reach you on other social media platforms, therefore it is important to have information on who you connect to over time and possibly information on how to contact them.

- 3. Does SNS export user' follow or friends network ?

It is important that social media is built on top of an open protocol, so niche usage of social media can be performed through this protocol from any other system which integrates it. Sometimes users have completely different needs, therefore they use software that might not be standard and officially supported. To accommodate these needs of choosing different interface, I ask this:

- 4. Does SNS support posting of user generated content from different client (o = indicating open protocol)?

In next question is about looking at the license. I am trying to identified service which does not claim full control over users' data. In other words, I identify content of the license in SNS Terms of Service which does not contain this specific keywords "*non-exclusive, royalty-free, transferable, sub-licensable*". This keywords has been describe to be very similar to transfer of ownership copyright in USA law (Engelhardt, 2013). Therefore, I mark these keywords as "claiming ownership".

- 5. Does **not** claim "ownership"\* of content generated by users ?

There are times when user does not have access to internet connection, either by choice or simply because he/she is in tunnel and lose access temporarily. Local first or offline-first application save data on device, therefore they are more resilient and by having data available locally user has improved control over data. Performance is also a factor why ideal service is available without constant connection to internet. Therefore I ask:

- 6. Does support offline access to users' social media platform (has to have possibility to interact with content) ?

One of the issue with a centralized SNS is censorship and hiding users' content from the owner. One way how not to censor is to hide content from others users' content feed, while keeping original content visible and accessible to its owner (user). This hiding practice is more inline with not taking control – in this case access from the owner of the content by SNS. So I ask:

- 7. Does **not** allow possibility to remove your original content by design (moderation by hiding is acceptable) ?

Most of the social media platform supports direct communication of the user. Therefore it is important that this connection is secured not only from outside actors but also from inside actors. The most secure and private communication is one that travels directly from one device to another device, this direct communication is called peer to peer. End to end encryption means that only the initial device and final recipient is able to read messages without intermediate. Resulting in improved privacy. Therefore I look for:

- 8. Does support peer to peer end to end encryption (secure communication without going through server) ?

While GDPR enforces that personal data are forgotten, however in some application it is possible to trade not being able to moderate something with that information being able to remove. I want to see how different application handles this situation, especially the ones trying different ways how to prevent deleting content and protect user's content. I ask:

- 9. Does SNS support right to be forgotten in its tooling ?

The mainstream media requires user's to accept the latest Terms of Service otherwise users are not able to use the service. Is it everywhere like this, how alternative platform handles this dilemma, is it possible to create a platform where you have an actual choice when it comes to accepting term and conditions? So I ask:

- 10. Does **not** limit access to content you generated by requiring to accept terms and conditions ?

One of the findings is that Social media user does not understand or want an algorithmic feed, therefore I look to find how other platforms provide handles with that.

- 11. User can change/choose different feed algorithm ?

Sometimes user accesses application from an old device, or simply dislike the looks of the application, therefore I would like to see option of the interface to support the user's need.

- 12. User can change or use different user interface to post content ?

Personalized advertisement tries to collect as much data about user's as a platform can, therefore I do not think it is a good business model for keeping privacy, ownership and control of data to users. Therefore, I want to compare mainstream platforms and alternatives.

- 13. Does support ad free experience ?

More direct identification if the platform collects personal data and statistics. Statistics could be used to optimized time spent on the platform, which I personally find wrong, therefore I look for platform comparison based on this aspect.

- 14. Does **not** social media collect personal data and statistics (anonymous statics does not count) ?

Finally, business model of social media platform. Business model gives us insight into how the platform is sustained and motivated by and for. Therefore it is important to understand the monetization of the platform. Possible business models are:

A - Advertisement based business model

F - Freemium model, Free core functionality with premium/additional paid option

C - Voluntary contribution

S - In app store purchase and commission from sales

D - Selling data of SNS users directly

Last question:

- 15. What is the SNS business model ?

### 4.3 Quantitative Survey

A quantitative method survey is used to be able to capture diverse experiences in regard to data ownership and help to measure data ownership awareness.

#### 4.3.1 Survey

The general topic of the survey is to capture user's awareness of general conditions, perception of control, trust, restrictions, usage and demographic data on social media Facebook. The topic of the survey was created based on research questions, research review, theoretical and analytical framework. The conceptual design of the survey process was inspired by Pickard, 2017. For both Pilot data collection and survey data collection, software was used for the creation of a Survey form named Typeform (n.d.). Typeform (ibid.) tool has multiple trade-offs, first it is much faster and easier to collect data while respecting GDPR and not collecting personal information like email, phone. Second, I am limited in how the survey is presented and as a research, I am not able to adjust all aspects of the layout of the form. On the other side, a simple visual representation of the data is provided for me, which is used to showcase the demographic of users.

For the questions. Questions were created to first identify users who use actively social media platform Facebook, therefore a complete survey was a condition by the usage of Facebook. I do collect all the answer, including participants who responded to No, they do not use Facebook currently, and as an additional open-ended question asking why they stop using Facebook, which could indicate possible answers to our research questions.

For demographic questions, I was interested in **Country**, **Gender**, **Education** and **Usage frequency**. These indicators are used to understand patterns across users, and could indicate connection from one answer to the other.

The first major section of the survey questions asking about awareness of Facebook's Terms of Service with possibility to answer in 3 steps likert scale: Not at all aware; Slightly aware; Very aware. Likert scale was used to ease user experience of answering multiple questions grouped by topic. Tree point likert scale gives us minimum number required for enough options to capture users' intent, without confusing users with more options, or being confused between very similar options. Therefore, I find 3 point likert scale the most suitable for these types of questions. Questions were formed to be short and clear. They were based on current terms of service in use (Facebook, n.d.[c]), literature review and competitive analysis. Questions asked to understand awareness of users in regards to data ownership were:

- Awareness - Awareness of Facebook's Terms of Service understanding.  
Are you aware that:
  1. by signing Terms of Service, you agree to give "non-exclusive,

royalty-free, transferable, sub-licensable” permission to your data ?

2. you can be persecuted for content you post ?
3. content you post can be copied, modified, deleted ?
4. at any point, you may lose access to your account ?
5. you may not use videos or live-stream to create music listening experience ? [https://www.facebook.com/legal/music\\_guidelines](https://www.facebook.com/legal/music_guidelines)
6. you can get archive copy of data collected about you ?
7. Facebook is able to collect location data about you ? (based on Wifi, IP, GPS, Geo data)
8. Facebook is able to collect information about other websites you visit ? (If this website includes Facebook script)
9. Facebook can identify your face or voice from the content you post ? (depending on settings)
10. are you aware that Facebook may require your government ID to confirm your identity ? [https://www.facebook.com/help/159096464162185?helpref=faq\\_content](https://www.facebook.com/help/159096464162185?helpref=faq_content)

Ownership is a fuzzy term, therefore I tried my best to narrow down the understanding of ownership as having control over information and data. This question is subjective and could be interpreted differently, therefore I am highlighting the issue and I considered this fact when discussing results.

- If we define ownership as having control over your information and data you post, would you say that you are having this ownership on Facebook?

I am interested in finding out, how many people are changing what can be done to user’s data, therefore one way find answers to indicate such is to find out about user who has changed defaults privacy/control settings. This question might have memory bias due to how far back users’ needs to remember what action they performed. Therefore, users’ with more recent changes to default settings are more likely to remember. However, the most important idea to capture in this question is if users are aware of settings, without being specific if they changed some settings in regard to control of users’ data. Measuring how many people did not change default settings is good indicator of how important defaults are.

- Have you ever changed default settings on how Facebook handles your data ? - Have you ever turned off/adjust any of the settings from the picture (Figure 1)?

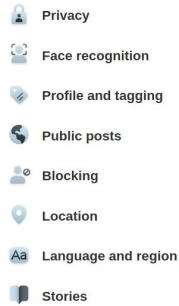


Figure 1: Screenshot of the default settings options on Facebook website attached in survey

- Data control on Facebook

How much do you agree with statement:

1. I am in control of my data on Facebook
2. Facebook is collecting too much data about me
3. What Facebook is doing with my data is transparent
4. Facebook has high influence on what I see
5. Facebook is limiting what I can do with my data
6. Facebook is using my own data against me
7. I would rather pay Facebook not to collect data about me, than have it for free and collect the data

I acknowledge that this question can be interpreted to be connected to privacy issues, therefore I expect to have lower trust number overall compare to other SNS which did not have any privacy issues publicized. I choose scale from no trust to full trust scale by one unit as perfect balance between arbitrary and precise.

- How much do you trust Facebook with your data ?

To understand user's usage of application across Social media, I wanted to find out what application user's use currently and what alternative they use, if any.

- What other Social media are you currently using alongside Facebook ? - Multi-select option possible.
- Have you tried any alternative to Facebook ?

Last survey question was designed as open-ended question which could indicate missing questions regarding the control and ownership or anything relevant to it, I might miss. Therefore I included optional open-ended question was analyzed to get themes/codes out of it.

- Do you have any other issue which we haven't ask about in regard to control of your data and ownership on Facebook ? Feel free to write anything else in this regard. - Feel free to write more, but this question is optional.

Full survey can be found in Appendix C.

### Pilot test

When pilot testing the survey, I found out that last question which is open ended and optional, require interaction with input field to be able to finish the survey. This might be confusing for people who contribute to survey, that even when it is an optional question to answer, it needs space, enter, any letter to finish the survey. This is limitation of the web application used to create a survey and I am not in control to change that behaviour.

Another issue I noticed when pilot testing the survey questionnaire, Mobile version of the matrix survey part where I ask about how much user agree with a sentence with title "Data control on Facebook", which consist of a question and option to select from 5 option likert scale is hidden by horizontal scrolling, therefore last 2 options, which are "Agree" and "Strongly Agree" are not visible without scrolling. Unfortunately I cannot change layout of the question to make it visible, therefore I had to find an alternative to raise awareness about the rest of the option. I added this note under question.

*"How much do you agree with statement:*

*There are 5 options - **Scroll to the right on Mobile to see more**"*



### 4.3.2 Survey Sampling

Under ideal circumstances, a representative sample would be taken from each country, a random sample to represent every age group, sex and educational background. However, this research does have limited resources in terms of time. Therefore as a limitation, I choose convenience sampling which could lead to snowballing of sharing the study. The survey was shared primarily on my Facebook page, and some participants were contacted directly, therefore it expected that participants have similar characteristics to myself. Geographic location of Slovakia or Denmark is very likely, as Slovakia is my home country and Denmark is country I am current resident of. Aim of the sampling is to capture enough people to see diverse answers, to give a number estimate, 50 would be good, above 100 would be perfect. Numbers are arbitrary because it all depends on the type of participants who are willing to participate in the survey, therefore findings are dependent on participants numbers and diversity of experience. Based on European statistics, we can expect to see the majority of my peers using social media, and likelihood of participant to be identified as female is bigger (Eurostat, 2021; NapoleonCat, 2021).

### 4.3.3 Analysis of survey

Analysis of survey is conducted by a mix of software, but mostly with help of R programming language. R is used to both clean the data and visualize the data. By using programming language, process of data manipulation is more explicit, reproducible, and more trustworthy because of lack of manual intervention. For simple visualization of the data, integrated visualization from Survey program is used (Typeform, n.d.).

## 4.4 Qualitative analysis of semistructured interview

Quantitative analysis of this research follows Thematic analysis described by V. Braun and Clarke (2006). In six phases, it identifies, analyses and reports behavioral patterns, called themes, within the answers collected from interviews. This method mostly organizes, interprets and describes the data in detail. I have selected this method with the aim to create a structure for the interviews, which are based on results from the conducted survey. At the same time, this method helps me to answer the why's of this research and identify themes.

At first, I *familiarized myself with data* by writing down the initial ideas after I transcribed the data with the help of an online tool. During this

phase, it was necessary to read and re-read the data all over again, in order to identify the themes later correctly and aligned with intent of all participants. Once I was finished with the first phase, I started to *generate initial codes* of interesting findings of the data. I assembled relevant data to each code, relevant to answering research questions during the so-called *searching for themes phase*. I put assembled codes into potential themes during the third phase of the thematic analysis process, including gathering all relevant data to the potential themes. *Reviewing themes* was an essential phase during which I checked if the themes fall within the codes and within the entire data set. After that, I *defined and named themes* by selecting the most important ones suitable for the research, making sure they capture the subject's experience. Lastly, the phase of *producing the report* followed, which documents how I went from semi-structured interviews to themes. Thematic analysis was build from bottom up, describes as inductive approach by V. Braun and Clarke (2006).

#### 4.4.1 Sampling of semi-structured interview

Main aim of the qualitative method is to get more in depth data and possible answers and support further findings of the survey. To be able to answer more questions, purposive sampling was used to intentionally pick 2 users with different experiences, perspectives and potentiality of diverse answers. One of the participants, was selected who used Facebook previously but decided to leave or not used this platform anymore. Second participant was selected for their active usage of Facebook, and bigger trust in the platform. Both of these participants were picked from people I am connect to directly. I have known their experience with SNS but did not have details or answers why they stop or keep using the platform. Therefore, I gathered answers from their perspective and try to capture their intent to best of my capabilities.

Initially, I was considering convenience sampling to find 3-5 participants to be able to gather enough diverse answers. However, it was not clear if I would be lucky enough to meet people with diverse experiences, even with larger number of participants. Considering the time limitation, and time consuming fashion of this sampling method, I picked purposive sampling which gives me ability to have lower number of participants with higher likelihood of diverse answers and reduce time for the analysis.

#### 4.4.2 Semistructured interview protocol

Protocol was formed to have consistent structure and same starting point for the interview. First things first, consent was asked for. Demographic data were asked with intent of cross-reference the result with the survey demographic. Same demographic questions were asked as in the survey. Questions were formed and after pilot testing them, the resulting protocol questions end up being:

- Would you describe yourself as regular user of Facebook ? if else describe
- Have you read Terms of Service ?
  - if no -> Why ?
  - if read
  - Is there anything which you don't like in Terms of Service ?
- How would you describe your understanding of Terms of Service on Facebook ? Overall understanding of rules.
- Is there anything you would not agree to when agreeing to Terms of Services on Facebook and would it bother you if you would not be able to access your account unless you would agree to these rules ?
- Would it bother you if you would loose access to you account ? Describe why.
- What do you think Facebook can do with your content ?
- What do you think Facebook can do with data it collected about you ?
- Why do you think Facebook needs “non-exclusive, royalty-free, transferable, sub-licensable” license to your data ?
- Do you think Social media Facebook claim ownership of your content ? What does ownership of the content mean for you ?
- How would you describe your perception of control on your data and ownership on Facebook compare to ownership and control elsewhere (private photo)?
- Do you think you are in control of the content you create ?

- Do you think you are in control of the data Facebook is collection about you ?
- Does your perception of ownership change when you upload content on Facebook ?
- What is the main purpose why you decide to upload content on Facebook ?
- Do you think Facebook influences what you see ? and to what extent you can influence what you see yourself ?
- Do you want more control on Facebook over ... ?
- Does Facebook limit you in any way ?
- Do you think that your content on Social media can be censored or removed ?
- Is there anything which bothers in way you experience Facebook ? What would you want to change ?
- Do you trust Facebook with your data and explain why yes/not ?
- Do you think Facebook is collecting to much information ? and which information do you think should not collect and collects ?
- What settings you changed in Facebook and why ?

#### 4.4.3 GDPR

Following the GDPR principles, I tried to use plain English to describe, what I do with data, for what purpose I collect data, and what type of data I collect. Clear opt-in consent option by either agree and contribute to research by filling the survey or choosing not to contribute. Following GDPR in regard to notification in case of a data breach or right to be forgotten is not possible, because I am not collecting any personal data nor any data by which I can identify user identity or content them. Not collecting personal data follows GDPR guidelines by not collecting information that I don't need to conduct research. By describing that I want to collect anonymous data, I clarify that any information inputted into a survey, which would be personal would be anonymized or removed from answers. For example names, phone, email anything in that regard I remove.

To make sure that the same person does not fill survey multiple times and to prevent spam, survey data consist of Network-ID(identification) which would be the same for a user who inputs survey answer multiple times. This ensures validity and reliability. Before analyzing the dataset from the survey, I first remove any occurrences of the same Network-ID.

### **GDPR and Data handling notice I included in Survey:**

*By contributing to this survey, you agree to process, analyze and collect data you input into this survey. This data will only be used for research. Data collected will not be able to identify you, and any personal information you may input will be anonymized. You also agree that data processed, collected and analyzed will be published with the research.*

*If you have any question please contact me (researcher).  
email: drafaj19@student.aau.dk*

## **5 Analysis**

### **5.1 Competitive analysis**

To highlight the findings, I created an overview of the competitive analysis in Table 1. For a better understanding of the table, I included questions asked. To see full answers for each platform, navigate to Appendix B.

#### **Questions**

1. Does SNS have tooling for export of user' generated content ?
2. Does SNS support archiving of user' generated content over time ?
3. Does SNS export user' follow or friends network ?
4. Does SNS support posting of user generated content from different client (o = indicating open protocol)?
5. Does **not** claim "ownership"\* of content generated by users ? \*By "ownership" I look for "non-exclusive, royalty-free, transferable, sub-licensable" keywords in the license.
6. Does support offline access to users' social media platform (has to have possibility to interact with content) ?

7. Does **not** allow possibility to remove your original content by design (moderation by hiding is acceptable) ?
8. Does support peer to peer end to end encryption (secure communication without going through server) ?
9. Does SNS support right to be forgotten in its tooling ?
10. Does **not** limit access to content you generated by requiring to accept terms and conditions ?
11. User can change/choose different feed algorithm ?
12. User can change or use different user interface to post content ?
13. Does support ad free experience ?
14. Does **not** social media collect personal data and statistics (anonymous statics does not count) ?
15. What is the SNS business model ?
  - A - Advertisement
  - F - Freemium (free base functionality and possibility to use premium features by buying premium)
  - C - Voluntary contribution
  - S - In app store purchase and commission from sales
  - D - Selling data of SNS users directly

From the Table 1, it is clear that mainstream media has resulted in different answer compare to alternative picked. Most of the mainstream answers are same and this indicate that current research is not only relevant to Facebook, but it is also relevant to other social media. Other major differences are between mainstream and alternative social media. Their business model, while all the mainstream social media build business model around advertisement, alternatives choose primarily voluntary contributions and Freemium models. This fact indicates direct influence the amount of data companies are incentivize to collect to support their business model. I would argue that data collection practices describe relation between social media and user, indicating that in mainstream social media users are product, while SNS alternatives provide product to users instead.

Table 1: Overview of the answers from Competitive analysis, full answers can be seen in Appendix B

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Facebook	Y	N	Y	N	N	N	N	N	Y*	N	N	N	N	N	AS
Instagram	Y	N	Y	N	N	N	N	N	Y*	N	N	N	N	N	AS
Twitter	Y	N*	Y	Y	N	N	N	N	Y*	N*	N*	Y	N	N	AD
Youtube	Y	Y	Y	Y	N	N	N	N	Y*	N	N	N	Y	N*	AF
Pinterest	N	N	N	Y	N	N	N	N	Y*	N	N*	Y	N	N	A
TikTok	Y	N	Y	Y	N	N	N	N	Y*	N	N	N	N	N	AD
Reddit	Y	N	Y	Y	N	N	N*	N	Y*	N	Y	Y	Y	N*	AF
LinkedIn	Y	N	Y	Y	N	N	N	N	Y*	N	N	N	N	N	AF
WhatsApp	Y	N	Y	-	N	N	N	Y*	Y*	N	-	N	Y	N	S
Snapchat	Y	N	Y	N	N	N	N	N	Y*	N	N*	N	N	N	AS
Mastodon	Y	N*	Y	Yo	N*	N	N	N	Y*	Y	Y	Y	Y	Y	C
Scuttlebutt	-	-	-	Yo	Y	Y	Y*	Y	N	Y	-	Y	Y	Y	C
Aether	N	N	N	No	Y	Y	N*	Y	Y	Y	-	N	Y	Y	CF
Micro.blog	Y	Y	N	Yo	Y	N	N*	N	Y	Y	-	Y	Y	Y	CF
Peepeth	N*	N*	N*	Yo	Y*	N	Y	N	N	Y*	-	N*	Y	Y*	CF

In some cases, question was not relevant to social media platforms which was indicated by -. Answering yes or no is not always as straightforward as it would seem, and in cases where there are caveats, I indicated with start \* that it depends. First 3 questions indicate that all social media sites support exporting data, however only a few provide archiving on timely bases (2 questions), this means that if user loose access to the platform he/she is not able to download their latest data, therefore, I suggest archiving manually more often than yearly. Exporting data is required by GDPR European law therefore the rest of the platform which did not support this by default can be asked to provide these data by email instead. From question number 4 we can see that only alternative social media provide uploading content by open protocol, therefore there are in many cases application where user can easily share content across social media platforms. Many mainstream social media platforms provide non-open way to upload content to their site, however in the case of Facebook, Instagram and Snapchat I did not find a way to upload content from outside of their app, which could be motivated by collecting of data on the platform respectively. For the 5th question, there was a clear contrast in intention from Social media platforms, all mainstream social media platforms require users to agree to give away full control over their data, in some cases, it was directly to sell these data, in other cases

of mainstream social media it was indirectly (research, advertisements, etc). For question 6, it was interesting to see social media platforms created for offline use, which improves control over data and localizes them. Unfortunately only 2 platforms were designed around offline functionality to support browsing and interacting. Based on question 7 answers we can see that most of the alternative social media improves rapidly how moderation is done and to what extent it can be done. All mainstream social media platforms are centralized and moderate their content, some more and some less but there is increasing worry over how influential these moderation are, therefore it is a very important part of competitive analysis. Alternatives on other hand improve and highlight how moderation can be done differently. Micro.blog separates source of content from social platform, therefore moderation is only done on social platform without affecting source of information. Peepeth embed information into write-only distributed datastore (blockchain) which have mechanisms against data manipulation, again separating source from presentation where it can be hidden if needed but never removed. Aether and Scuttlebutt distribute data directly from device to device and moderation are only local. Aether even puts a timer on data lifespan but moderation is transparent and moderator can be overruled by user or community. Mastodon has maybe the most similar moderation compare to Twitter which is far from perfect, but it is highly dependent on what instance user chooses to join and communicate and has the option to change at least.

Interestingly, many platforms support messaging but only a few support private direct communication, WhatsUp, Aether and ScuttleButt. Considering the amount of user use Facebook, Instagram and other for messaging, it is rather sour truth that these does not support best privacy in their messaging systems. Question number 9 is interesting because it highlights trade-off when it comes to distributed platforms and other systems which ore write-only, this highlights the importance of knowing what should be shared or not and some of the conflict with GDPR rules. Considering terms of service of the mainstream platforms, it is questionable if some of the data are anonymized or what happened when they were sold to 3rd parties by re-licensing them. Research indicates that there are still traces left after user deletes his/her content and traces are left which still leads to residual activity or undesired attention (Mondal et al., 2017). There should be advocacy towards sharing only content you are okay with not being able to remove, to some extend. Internet is based on copying and I would argue that what is once on the internet might not be possible to remove. However, user should be able to choose to remove content, without keeping traces, fortunately GDPR helps with this. Question number 10 main point was that if the



data source is separated and possible to access from a different application, there could not be enforcement of acceptance of Terms of Service, therefore alternative scored better compared to mainstream media. Mainstream media often protect access to user's generated content and in some cases even require government ID to access these data (Facebook, n.d.[d]). It is unacceptable that Facebook requires such ID and shares it with 3rd parties which compromises users' privacy (Facebook, n.d.[e]). Question number 11 highlights that only few allow the possibility to change the algorithm, while you can change the behavior of the algorithm, some people do not want to use it in the first place (Min, 2019). Alternative social media platforms do not even use an algorithm, and moderate content in different ways, however often it is only possible because their community is too small. Question number 14 shows the main difference between mainstream and alternative social media platform. Alternatives are trying to find a different way of funding social media without collecting information in the first place because they know that once the data are collected, it is a security thread and responsibility and much easier and beneficial for all parties is not to collect personal data.

## 5.2 Survey demographic

I reached 225 people but only 65 converted to complete the survey, from which only 58 participants fulfill the requirement of currently using SNS Facebook (Appendix C.17). It is unknown why number of converted users are so small, it could be that users were not interested in the topic or did not have time to complete survey. My biggest represented country is Slovakia with 40 participants. Participants from other countries were in smaller number, 4 or less. A full list of countries and number of participants can be seen in Table 2.

From the 58 participants who fulfill the requirements and finish the survey, 53,4%(31) are Female, 44,8%(26) are Male and 1 participant would rather not disclose this information (Appendix C.5). The majority of participants with 65,5% were in the age group 25-34, as can be seen in Figure 2. Compare to European statistics it is the biggest age group using social media (Eurostat, 2021).

From an education perspective, the Majority of participants completed a Master's degree with 31(53,4%) and Bachelor's Degree with 13(22,4%). The least frequent was Doctoral Degree with 2 participants (Appendix C.7). It is to be expected that the age group and education are similar to mine(researcher), and the main reason for these results is convenience sampling. The last demographic indicator is how often participants use Facebook indicating that

Table 2: Current residence of participants with count of participants, calculated in Appendix C.2

Country	Count
Slovakia	40
Czech Republic	4
Denmark	4
Poland	2
England	1
France	1
Germany	1
Japan	1
Spain	1
United Kingdom	1
United States	1
Other	1

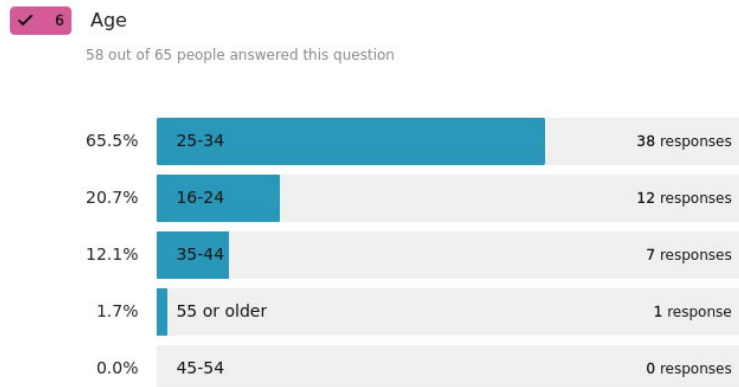


Figure 2: Participants self-selected age-group results, full size in Appendix C.6

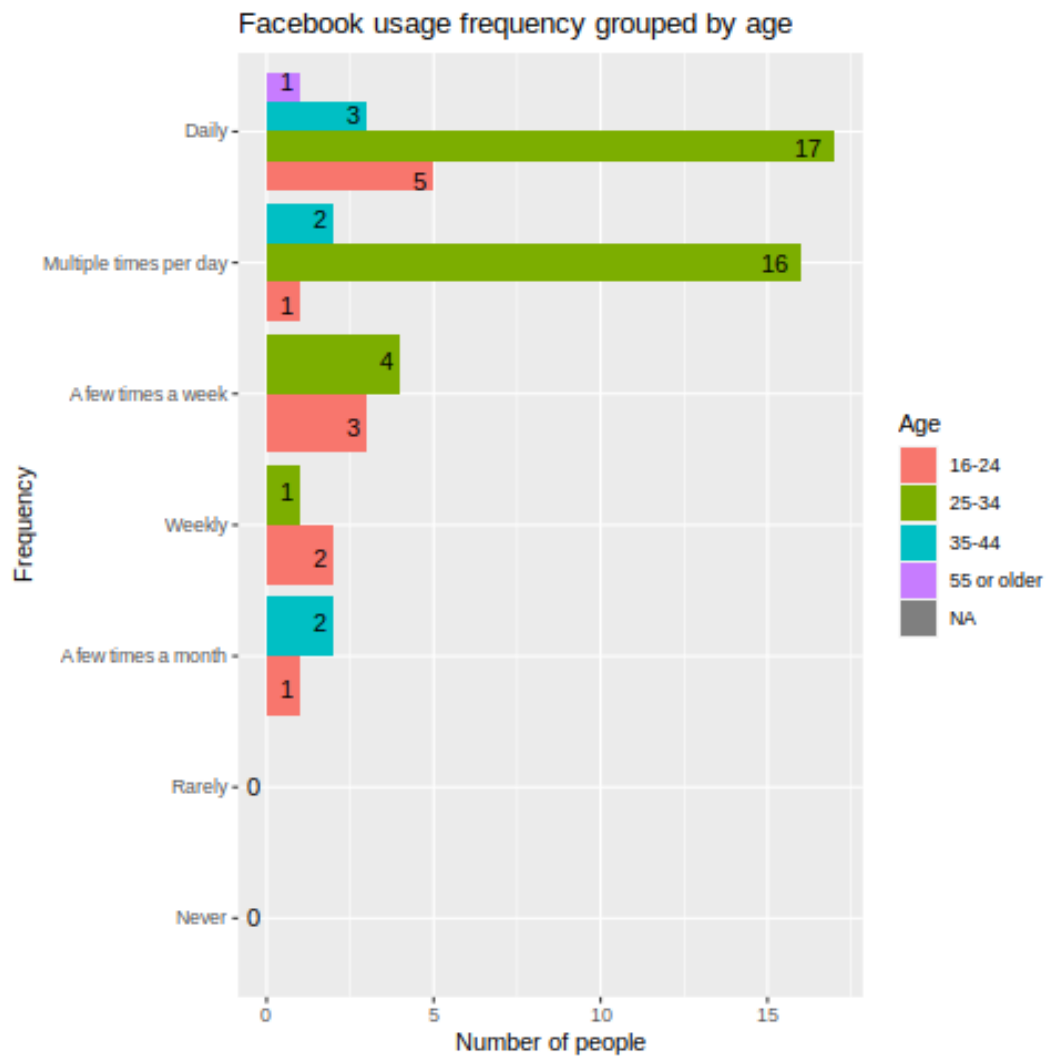


Figure 3: Participants usage frequency of Facebook grouped by age, (Appendix 20)

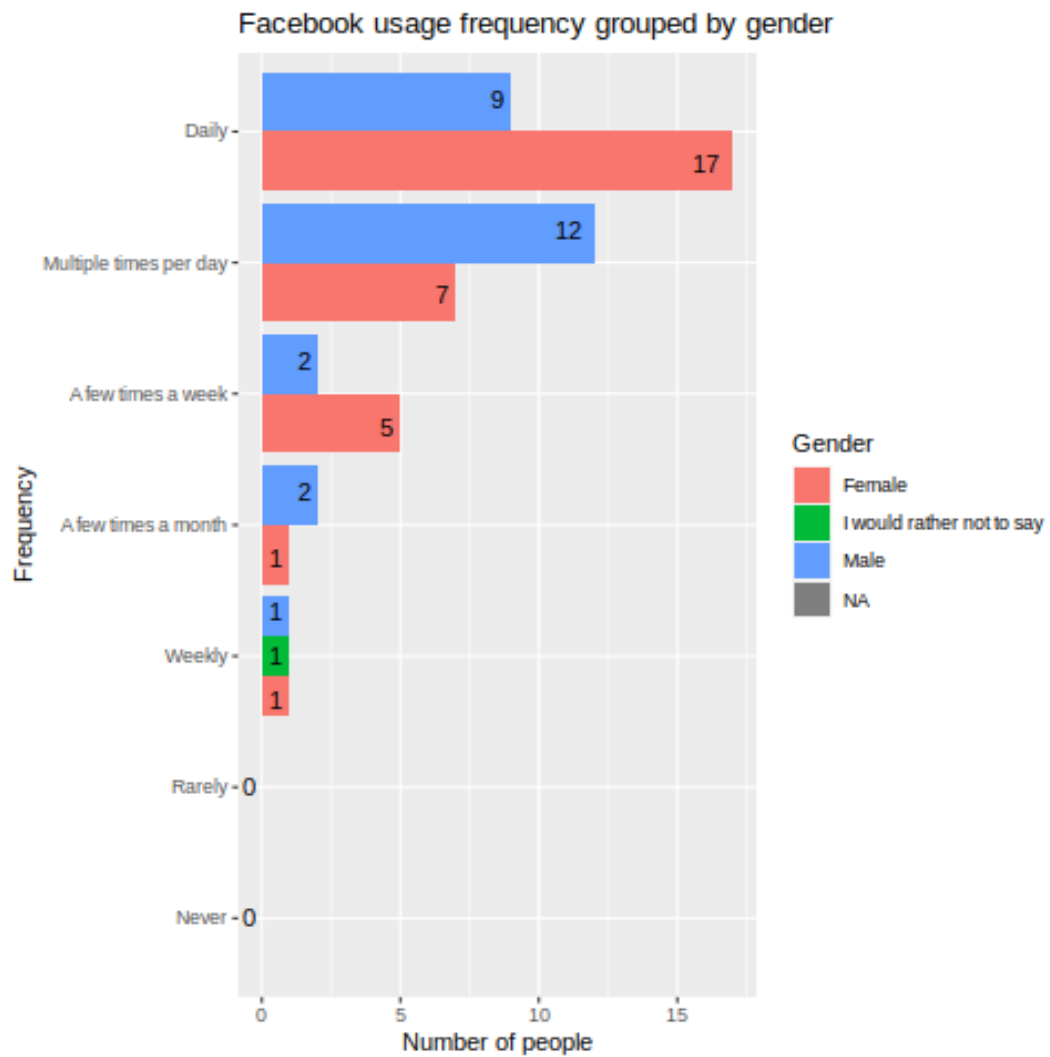


Figure 4: Participants usage frequency of Facebook grouped by gender, (Appendix 19)

the majority of participants use *Daily* or *Multiple times per day* Facebook, see Appendix C.8, 4. Only 7 participants(12.1%) declaring *A few times a week*, and only 3 participants indicated *weekly* or *a few times a month*.

### 5.3 Survey results

To capture awareness of user's I asked ten questions about control, conditions and terms of services on Facebook. From Figure 5, first question indicates that majority of users are aware of the license they are giving to Facebook when agreeing to terms of services, however, 17.2% of users were not aware at all, which is a significant number. A significant number of people are simply not at all aware that they are agreeing to give away control over data. The second question is about the liability of content user's post, and 1/4 of people were not at all aware that they could be responsible and liable to pay fine or other punishment for breaching intellectual property. 1/10 participants are not aware that Facebook can moderate, change or delete post user provides. The majority of users were not at all aware that their account could be banned if they would share music experience on Facebook. Only around 62% of users are aware that they can download a copy of the personal data Facebook collects from or about them. Almost all (95%) users were aware that Facebook is able to collect location data about them. 31% of participants were not at all aware that Facebook could create a model to identify a person based on voice or face image. The majority of users 62.1% were not at all aware that Facebook might require a government ID to restore or access their own account.

The majority 62.1% of participants to asked say that they do not have ownership in form of control over their information and data on Facebook. Only 20% indicating they have this ownership on Facebook, and 17% simply do not know, visualization Appendix C.10.

Defaults are powerful. Survey indicates that 22.4% of participants have not ever changed default of privacy or control how Facebook handles data, and only one respondent did not remember or did not know. It is positive that over 75% of participants have changed default settings.

Based on the Figure 6 we can understand agreement or disagreement with statements to find these results. Participants do not agree nor agree with statement "*I am in control of my data on Facebook*" and almost 50% stay neutral. There is equal 22.4% of participants agreeing and disagreeing with statement but if we consider 8.6% of participants who Strongly disagree the average would lean towards disagreement. One of the few question where around 80% participants agree with is statement that *Facebook is collecting*



9

## Awareness

58 out of 65 people answered this question

	Not at all aware	Slightly aware	Very aware
by signing Terms of Service, you agree to give...	17.2%	65.5%	17.2%
you can be persecuted for content you pos...	25.9%	22.4%	51.7%
content you post can be copied, modified, delete...	10.3%	36.2%	53.4%
at any point, you may lose access to your account ?	29.3%	36.2%	34.5%
you may not use videos or live-stream to creat...	55.2%	24.1%	20.7%
you can get archive copy of data collected...	37.9%	22.4%	39.7%
Facebook is able to collect location data about you ...	5.2%	25.9%	69%
Facebook is able to collect information abo...	10.3%	29.3%	60.3%
Facebook can identify your face or voice from th...	31%	41.4%	27.6%
are you aware that Facebook may require you...	62.1%	19%	19%

Figure 5: Awareness matrix visualization of answers (Appendix C.9)

## 12 Data control on Facebook

58 out of 65 people answered this question

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am in control of my data ...	8.6%	22.4%	44.8%	22.4%	1.7%
Facebook is collecting too much...	6.9%	1.7%	12.1%	43.1%	36.2%
What Facebook is doing wit...	20.7%	46.6%	24.1%	6.9%	1.7%
Facebook has high influence...	3.4%	3.4%	17.2%	32.8%	43.1%
Facebook is limiting what I ca...	1.7%	12.1%	39.7%	36.2%	10.3%
Facebook is using my own data...	1.7%	20.7%	48.3%	20.7%	8.6%
I would rather pay Facebook...	12.1%	29.3%	25.9%	17.2%	15.5%

Figure 6: Agreement of participants to statement about control on Facebook (Appendix C.12)

*too much data about me*“. Only 7.6% of participants agree or strongly agree that what facebook is doing with their data is transparent, and over 66% of participants disagree. Participants mostly agree or stay neutral that Facebook is limiting what they can do with their data. Another very even answer is for statement *“Facebook is using my data against me”* with majority staying neutral, about 20% for both Agree and Disagree, but because of 8.6% who strongly agree average would lean towards agreement. To statement if user would pay or not pay not to pay for Facebook, participants would lean towards rather not paying Facebook to not collect their data, however, it is rather evenly distributed but leaning towards disagreement.

Lastly, I asked participants about trust and alternatives to Facebook. Participants as seen in Figure 7 indicates there is mostly distrust in Facebook with mean value below 3.5. The youngest age group in the survey has picked the smallest values of trust, therefore it indicates that younger generation distrust Facebook the most. Following age group 25-34, we can see distribution of trust, but majority picked between 3-5 point on the scale indicating distrust more closer to mean value. Our middle aged group 35-44 has skew towards more trust but the maximum trust indicated was 7. There were almost no high values across the whole participants dataset. What is interesting that age group 25-34 has picked the most extremes on both ends, which could be understood by the fact that it was our biggest group with participation of 65%. Participants indicate that they are using many other social media which based on competitive analysis have very similar abuse of control requirements in their terms of services as Facebook does. Only 2 participants indicated that they Do not use any of the mainstream social media alternatives suggested in survey, for visual representation of data navigate to Appendix C.14.

When asked about a direct alternative to Facebook, participants suggested other mainstream social media apps, like (Signal, Telegram, Instagram, Twitter, WhatsUp). When asked about why they stop using these alternatives to Facebook, participants indicated that either it is not available anymore (Google+) or they did not like the alternative (Twitter) (Appendix C.15). In case where 8 participants keep using an alternative to Facebook, the most often mention reason was *“privacy”* and *“friends”*.

At the end of the survey I asked open ended questions. Resulting from answers are captured interesting patterns (Appendix C.16):

- Dislike personal advertisement
- Disagreement on how long data are archived on Facebook



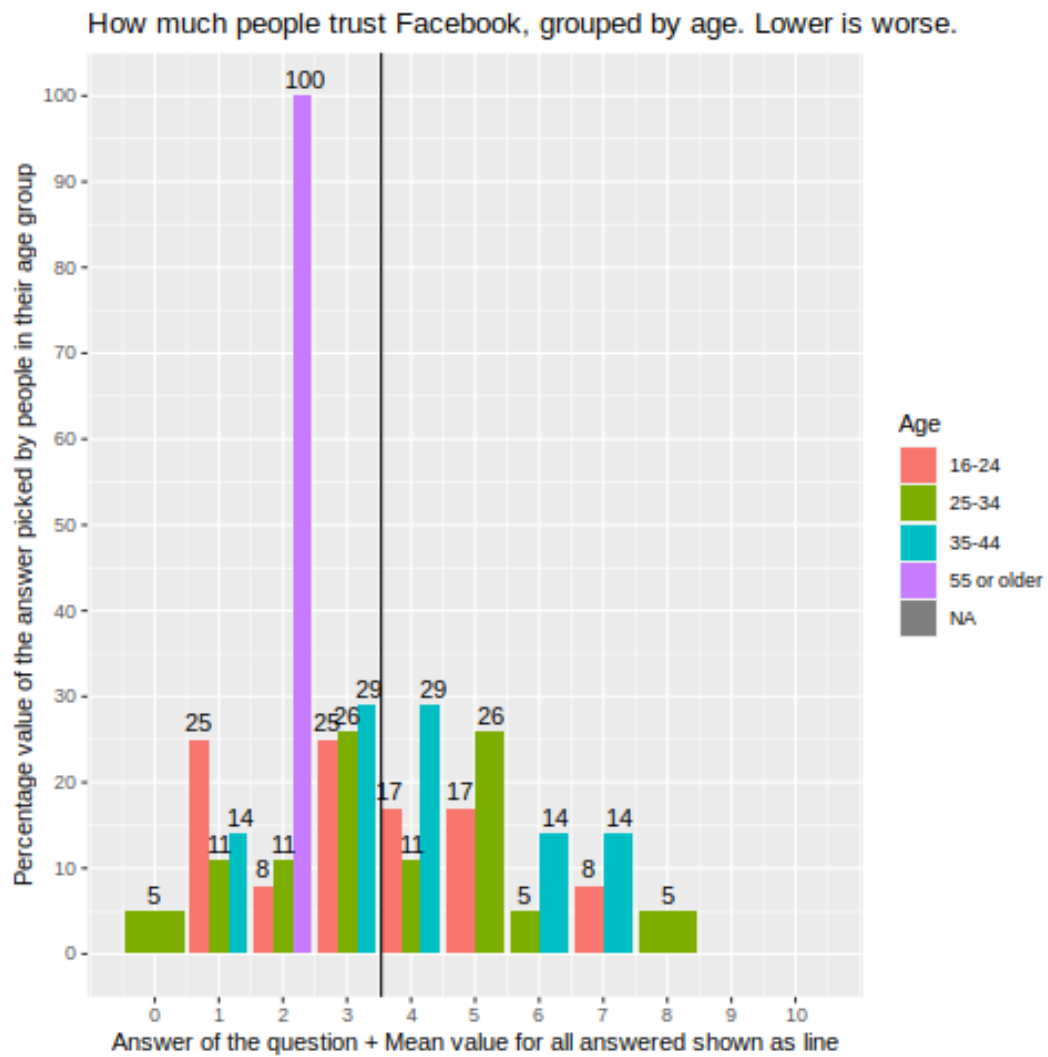


Figure 7: How much user's trust Facebook with their data, 10 point scale grouped by age. Mean line value included. (Appendix 22)

- Disengagement because of how data are used on Facebook
- Privacy concerns

## 5.4 Thematic analysis

### 5.4.1 Participants

Subject 1 is female 27 years old from Slovakia who uses Facebook and has Master degree. Her usage of Facebook is very frequent – daily.

Subject 2 is female from Slovakia who reached High school diploma and no longer uses Facebook actively, only messenger (direct message app from Facebook).

### 5.4.2 Themes

I analyzed the conducted semi-structured interview following V. Braun and Clarke (2006) process of thematic analysis, described in section Qualitative analysis of semi-structured interview. After I have recorded interviews with two participants, an automated system was used to transcribe most of the conversation to written text. I was then able to listen to the recording, traverse over the transcript and fix any missteps and words which were not picked up by the online tool. Once transcriptions of the conversations were done, I listened and re-read the conversations to retrieve codes or recurring key points to later be able to identify themes. Once codes were done, I went back and forth between recorded conversations and my codes to make sure that I captured the subject’s intent and did not misrepresent the transcription. Following the codes, I identified three recurring themes, relevant for the research. To report on the process of finding the themes, I am going to showcase codes from three themes and cite which theme and codes were represented. Full interviews can be found in Appendix D.2 D.3. Full list of codes found in thematic analysis and themes connected to them can be found in Appendix E.

The first identified theme is the **lack of understanding of the license**, represented and explained the best by three codes. Code *not reading license* was classified based on the asked questions “*Have you read the terms of services on Facebook?*” It is evident that the interview participants lack understanding of the license given that their answers to this question were either negative: “*No, I did not. I only accepted them.*” Or most likely negative: “*I don’t think I have*” Under this theme the code *too long license* was also identified after answers to the question “*Do you have any idea why*

*you had not read it?*” clearly stated by both of the interviewed participants that it was because the license is too long. It is interesting to mention that one of the asked participants compared the Facebook license to any other SNS license that she also never reads as they are too long. The third code resulting from the theme lack of understanding of the license is *not understanding meanings of the technical terms of the license*. I asked whether the participants understand why does Facebook need nonexclusive, royalty free, transferable, sub-licensable license to your data? Participant No. 1 clearly stated multiple times that she has no idea about either of these terms and that she feels *“totally confused about their necessity and meaning”*.

The second identified theme is the **lack of control over data on SNS** capturing the perception of the interviewed participants under the code *lack of control over data once shared*. When asked whether the participants think that they are in control over the data that Facebook collects about them, participant No. 2 answered *“I don’t think so. I don’t think I’m in control of everything or anything on Facebook”*. She then adds that once she shares something, Facebook can do *“whatever with that stuff”*. At the same time, interviewed participants also feel what is identified under code *lack of control over what is shown*. Participant No. 1 wished to have control over the Facebook design and control over what she sees on it. She realizes that she remains using Facebook because she does not have control over the content. Since it is in the hands of Facebook, the algorithm makes her to stay and *“see useless things”*.

The third identified theme is focusing on **privacy concerns**. Even though the asked question did not focus on the topic of privacy specifically, it still appeared voluntarily during interviews with both of the participants. Code *feeling of being watched* was classified based on participant’s No. 1 claim that Facebook is *“collecting how much time I spend looking at one picture”*. Another code under this theme covers occasions due to which participants *stop using Facebook due to privacy concerns*. For example, participant No. 2 stopped using Facebook because she knows *“that it is not private and it can be analyzed”*. she also points out that *“they (Facebook) will still have some kind of information but at least what I did was that I locked off”*. Last code is classified as *removed old and personal information due to privacy concerns*. Participant No. 2 blocked some of her personal information for safety reasons. After being asked whether she changed any of the Facebook settings she said that she removed *“my whole history”*. Moreover, she also said she removed the visibility of her birthday date and set up default settings from public to private.

## Themes and codes

- Lack of understanding of the license
  - from not reading license
  - from license being too long
  - from not understanding license' technical terms and what they mean
- Lack of control over data on SNS
  - from feeling helplessness
  - from lack of control over data once data are shared
  - from disliking of automatic changes to UI & UX on Facebook
  - from lack of control over visual aspect of SNS
  - from lack of control over what is shown
  - from lack of trust in Facebook
- Privacy concerns
  - from lack of control over data once data are shared
  - from feeling of being watched
  - from being forced to use SNS as public medium
  - stop using Facebook because of privacy concerns
  - forced to removed old content due to privacy concerns
  - removed personal information due to privacy concerns
  - from feeling confusion about what Facebook can do with information it collects about user

## 5.5 Summary of findings

In competitive analysis, I showed, that most of the mainstream SNS are build on top of business model which promotes collecting more data than necessary. Non-mainstream SNS showcase that their business model is more aligned with collecting less data and that they are more aligned with not taking over ownership of users' data. Significant difference in content of the license is shown between mainstream and alternative SNS. Facebook is not allowing posting users' content from outside of its platform contrary to other SNS. SNS support for offline use, while it provides better data ownership

for users, it is not as common among SNS. Blockchain based SNS have showcase incompatibility with GDPR requirements and they are not suitable for private data. One of many benefits of SNS build around open source protocol is diverse ecosystem and ability to support niche needs of users. Non-mainstream media showcase alternative ways to perform moderation which is more transparent and respects data ownership of users.

From quantitative data, we understood awareness of user's of Facebook, indicating that majority of participants were not aware of restriction on streaming music, and potential requirement of sending government ID to gain access back. Participants were the most aware of fact that Facebook can collect user's location and activity off Facebook. Another finding of quantitative data was that participants were mostly slightly aware of license permission they agree by accepting terms of services of Facebook. When asking about ownership, which I defined as having control over information and data on Facebook, majority of participants do not agree to have this ownership. When asked about if participants have ever changed default, majority confirmed yes. From question regarding data control on Facebook, users clearly indicated that Facebook is collecting too much data about them and has high influence on what they see. Participants also indicated that what Facebook is doing with user's data is not transparent. Participants also agree that Facebook is limiting what they can do with their data, and only slightly agree that Facebook is using their own data against them. Facebook participants also indicate that most participants would not pay for Facebook to not collect their data. Participants mostly do not trust Facebook and only 1/4 of participants trust Facebook neutrally or somewhat trust. Participants indicate that nobody have full or high trust in Facebook. Participants also indicate that alongside Facebook they use most of the other social media platforms, with Youtube, Instagram, WhatsApp the most. Both in themes and from result of the survey we see low trust in Facebook which should be indicator that something is wrong.

From Thematic analysis, subjects indicate lack of understanding of the licence on Facebook, lack of control over users' data on SNS and privacy concerns on Facebook. The later influences their trust in Facebook and reduction of amount of data they share with Facebook.

## 6 Discussion

The findings of the various studies in this thesis, it is evident that data ownership of Facebook users is severely reduced. It can be observed in all

three identified main issues of data ownership as i.)collecting too much data which can lead to compromised users' privacy, ii.)data portability obstacles, iii.)shortcomings of license. We will discuss these issues in detail with consideration of the literature and research findings.

First, Facebook collects much more data than alternative SNS. One of the main reasons for that is its business model as shown in competitive analysis and literature (Elmer, Langlois, and Redden, 2015; Hjorth and Hinton, 2019; Zuboff, 2019). Competitive advantage of Facebook is collecting as much data as possible, which has a negative effect on users' privacy because it centralizes data and stores them. The survey results indicate that close to 80% of participants agree or strongly agree that Facebook collects too much data about them. At the same time, only 7,6% of participants agree or strongly agree that what Facebook does with their data is transparent. From the semi structured interview it is evident that Facebook users feel privacy concerns and reduction of control over their data. For example, subject No. 2 said: *"... I know that it's (Facebook) not private and it can be analyzed. It can be monitored, it can be controlled... That is why... I removed the Facebook..."*. Moreover, the business model of compared mainstream SNS encourages them to collect this data to be able to better target the paid advertisements. On the contrary, non-mainstream SNS do not collect these types of data as they have different business models. As more control over ones data means more privacy, SNS should not collect more than necessary, considering that only a small amount of data makes users' identifiable (De Montjoye et al., 2013).

Second, there are many different reasons for users to leave Facebook. Users' level of trust in Facebook is declining, having negative impact on society (Figure 8), privacy concerns (Pan and Zinkhan, 2006), licence issues and many other. Leaving Facebook is not always a voluntary decision. Involuntary loss of access to the account also happens when the user's account is banned, users' no longer agree with updated terms of services, refuse to provide their government ID to prove their identity and other cases. More than 55% surveyed participants were not aware of the possibility of the latter. It is in situations like these, when Facebook users start to think about their data, its ownership and portability. From the conducted survey, almost 30% of participants indicated that they were not at all aware of the possibility to lose access to their account. At the same time, almost 38% of asked participants declared that they were not at all aware that they can get a copy of data that is collected and archived by Facebook. As long as users have access to their accounts, they can utilize Facebook tools and are able to download their archived data. However, while conducting the competitive analysis I identified that the process of downloading this data is manual,

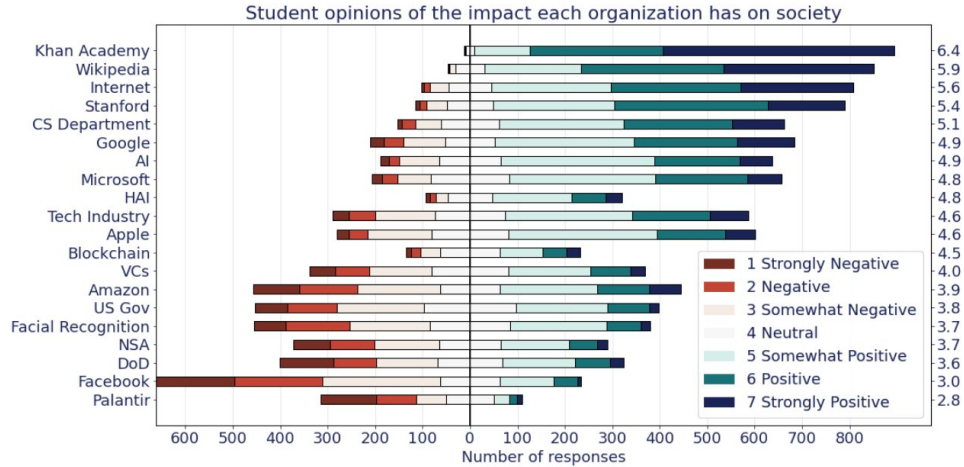


Figure 8: Survey of over 1000 students opinion of impact of various technologies and companies on Society. Indicating negative impact of Facebook on society. Source: Stanford (2021)

time consuming and does not support partial data exports. The very same issues have been identified in other studies before (Engels, 2016; Sørsum and Presthus, 2020; Stephanie Exposito-Rosso and Medjaoui, 2021). Once users' do not have access to their accounts, Facebook tools are no longer available, making the process even harder, more time consuming and cumbersome. These make the cost of switching high, reduce data portability and users' data ownership. Following the results of competitive analysis, there are two significant obstacles towards making data portability a viable option. First, lack of partial and timely export of data. Second, and more importantly, lack of possibilities to communicate with Facebook from outside of its tooling. Majority of SNS compared in competitive analysis support ability to communicate from outside of its tooling. However, it is only non-mainstream SNS that allow such a diverse ecosystem thanks to their open protocols. To improve data portability, Facebook should get inspired by non-mainstream SNS and also provide partial and timely archives available for its users.

Third, Facebook license gives full control over users' data to itself. It has too much power at the expense of users' control resulting in loss of data ownership on the users side. By the American law, the only difference between full transfer of copyright ownership and Facebook license is exclusivity (Engelhardt, 2013). By German law, it is not possible to transfer the copyright

ownership (Engelhardt, 2013). However, the license that Facebook requires its users to accept has very similar transfer of control compared to transfer of copyright in terms of transferability, sub-licensability, for the purpose of hosting, using, distributing, modifying, running, copying, publicly performing, displaying, translating and creating derivative works. On top of that, Facebook also requires users to agree that no royalty is to be expected. However technical these terms are, they must be understood by the users. Unfortunately, conducted surveys, semi-structured interviews and literature indicate that SNS users do not put effort to actually read the online social services' privacy policies and the terms of use (Acquisti and Gross, 2006; Gross and Acquisti, 2005; Jones and Soltren, 2005). With the help of thematic analysis, I identified lack of understanding of the license as one of the themes. Both interviewed subjects expressed that they did not read the terms of services on Facebook. When asked why they have not read it they indicated that it is too long, this finding is supported by literature as well (Cranor, Guduru, and Arjula, 2006). On the other hand, the conducted survey suggests that only 17% of the participants are not at all aware that they are agreeing to the content of the Facebook license. Additionally, with its license, Facebook also grants itself power to conduct research on their users' data, which was previously done without their explicit consent (Allcott et al., 2020; Bond et al., 2012; Draper and Turow, 2019). Selected alternative SNS showcase ability of providing their functionality without requirement of sub-licensability, transferability and with limited control of users' data. Users' data ownership does not have to be compromised. To improve Facebook license, they should re-consider the required control that they asked users to accept.

When discussing the three issues, we must keep in mind that the centerpiece of improving data ownership is to give back control to the users over their data. It is equally important that users must get back control of both categories of their collected data - conscious and unconscious.

## 6.1 Strategies for awareness increase

Following the literature review, there are two suggestions for Facebook data ownership awareness increase. First, by using visual elements such as icons, pictures, emoticons and such as to create cues improving understandability of license. Visually appealing text, full of emoticons and eye-catching alerts should be the first thing the users see when agreeing to Facebook license. From its design, the reader must immediately understand the importance of the license text and the impact it will have on his or her data ownership



(Soumelidou and Tsohou, 2019).

Second, Avgerou and Stamatiou (2015) principle focuses on educating “*early adopters*” about data ownership. The aim is to utilize their connection and share their knowledge to others, which will create a growing network of data aware people. However, only passing on the knowledge about data ownership to people around us is not enough. As inspired by Bada, Sasse, and Nurse (2019), it is important to combine and implement other influencing strategies in the process of increased data awareness among Facebook users, such as: professionally prepared and delivered education, which is doable, targeted, memorable and actionable (ibid.).

## 6.2 Suggestion to use alternative SNS

Alternatively, new kinds of social media platform should be promoted and supported build around open-source software. One of the most promising one doing this, is Micro.blog *Micro.blog*. This social media platform supports syndicating content to other social media sites, supporting e-reader, consuming content in different formats, ability to read content offline and in any appearance. Micro.blog supports ability for users to change providers of SNS by having control over user domain where content of the website can change. As one of the examples to compliment data from other SNS, user used archive from other SNS on his/her domain.

Other non-mainstream SNS showcase improved user experience and respect of data ownership by supporting offline access. This results in limited possibility of data collection to no data collection from SNS while providing same ability of other SNS to connect and share data with other people.

What is important to note is the separation data and SNS functionality, where ability to change SNS without needing to move data from one SNS to other SNS is more likely to occur. This showcases potential of data portability.

## 7 Conclusion

It is evident that data ownership issues go hand in hand with data control. This research indicates that there are Facebook users who are not aware of their privacy being compromised due to the platform collecting too much data, obstacles when transferring data and shortcomings of the platform’s license. From the research question No. 1, it can be concluded that Facebook users are not aware of what they agree to when using the Facebook platform in regards to data ownership and data access. That is mainly because people

do not read the license as it is too long, technical and vague. This is to the contrary of their feeling of being slightly aware of the license they agree to, indicated by survey data. At the same time, Facebook keeps too much control over its users' data. Research question No. 2 implies that users' perception of their data ownership is standing on the belief that they do not have control over their own information and data. Moreover, users also indicate that Facebook is collecting too much data about them without any transparency to this process.

For future work on this topic, further quantitative research is recommended to capture data ownership issues more broadly and identify how common these might be among Facebook and other SNS users. This would help us understand in detail who are the most affected target groups in need of raising awareness that should be addressed. By researching and talking about these issues, I am also contributing to the process of raising the awareness about the data ownership issues.

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## 9 Appendixes

### A Competitive analysis - Table

**Questions** Questions are created for possibility to answer yes or no while answering YES is view positively (more yes, better)

1. Does SNS have tooling for export of user' generated content ?
2. Does SNS support archiving of user' generated content over time ?
3. Does SNS export user' follow or friends network ?
4. Does SNS support posting of user generated content from different client (o = indicating open protocol)?
5. Does **not** claim "ownership"\* of content generated by users ?
6. Does support offline access to users' social media platform (has to have possibility to interact with content) ?
7. Does **not** allow possibility to remove your original content by design (moderation by hiding is acceptable) ?
8. Does support peer to peer end to end encryption (secure communication without going through server) ?
9. Does SNS support right to be forgotten in its tooling ?
10. Does **not** limit access to content you generated by requiring to accept terms and conditions ?
11. User can change/choose different feed algorithm ?
12. User can change or use different user interface to post content ?
13. Does support ad free experience ?
14. Does **not** social media collect personal data and statistics (anonymous statics does not count) ?
15. What is the SNS business model ?

- A - Advertisement



- F - Freemium (free base functionality and possibility to use premium features by buying premium)
- C - Voluntary contribution
- S - In app store purchase and commission from sales
- D - Selling data users produce

\*By “ownership” we mean “non-exclusive, fully paid and royalty-free, transferable, sub-licensable, for content you as user generate” in other words, they can use your data as they want.

**Table**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Facebook	Y	N	Y	N	N	N	N	N	Y*	N	N	N	N	N	AS
Instagram	Y	N	Y	N	N	N	N	N	Y*	N	N	N	N	N	AS
Twitter	Y	N*	Y	Y	N	N	N	N	Y*	N*	N*	Y	N	N	AD
Youtube	Y	Y	Y	Y	N	N	N	N	Y*	N	N	N	Y	N*	AF
Pinterest	N	N	N	Y	N	N	N	N	Y*	N	N*	Y	N	N	A
TikTok	Y	N	Y	Y	N	N	N	N	Y*	N	N	N	N	N	AD
Reddit	Y	N	Y	Y	N	N	N*	N	Y*	N	Y	Y	Y	N*	AF
LinkedIn	Y	N	Y	Y	N	N	N	N	Y*	N	N	N	N	N	AF
WhatsApp	Y	N	Y	-	N	N	N	Y*	Y*	N	-	N	Y	N	S
Snapchat	Y	N	Y	N	N	N	N	N	Y*	N	N*	N	N	N	AS
Mastodon	Y	N*	Y	Yo	N*	N	N	N	Y*	Y	Y	Y	Y	Y	C
Scuttlebutt	-	-	-	Yo	Y	Y	Y*	Y	N	Y	-	Y	Y	Y	C
Aether	N	N	N	No	Y	Y	N*	Y	Y	Y	-	N	Y	Y	CF
Micro.blog	Y	Y	N	Yo	Y	N	N*	N	Y	Y	-	Y	Y	Y	CF
Peepeth	N*	N*	N*	Yo	Y*	N	Y	N	N	Y*	-	N*	Y	Y*	CF

## B Competitive analysis - Social media sites

### B.1 Aether

1. Does support exporting your generated content ?

No - Early stage product which currently does not support exporting content. Your content is on your device because it works from device to device without need of going from you to server to other user.

2. Does support archiving of your generated content over time ?

No - Does not support.

3. Does support exporting your follow/friends network ?  
No - Does not support.
4. Does support posting from different client (o = indicating open protocol)?  
No(o) - This product is focus more on direct communication, does not support as of now. It is open source however.
5. Does **not** claim “ownership\*” of content generated by you ?  
No - Does not collect information and does not even go through server.  
*“You are granted a non-exclusive, non-transferable, revocable license to access and use Getaether.net and Aether App strictly in accordance with these terms of use.”* (Aether, n.d.)
6. Does support offline access to your social media platform (can interact with content) ?  
Yes - You can browse/react/upvote and interact with application and once connected to internet, it synchronizes your changes.
7. Does **not** allow possibility to remove your original content by design (moderation by hiding is okay) ?  
Yes - While content can be moderated, user can choose to ignore this moderation. User of this social media can choose to remove content.
8. Does support peer to peer end to end encryption (secure communication without going through server) ?  
No\* - It is built on peer to peer connection but it is not built to be secure, only built not to be tracked.
9. Does support right to be forgotten ?  
Yes - You can request to remove your profile, and any content you post live only for certain time period, therefore it is built to be forgotten.  
No server collects your data.
10. Does not limit access to content you generated by requiring to accept terms and conditions ?  
Yes - This content is only accessible from the official app, therefore you have to agree to terms and conditions.

11. User can change/choose different feed algorithm ?  
 - - There is no feed algorithm, only channels and you choose to follow channels.
12. User can change or use different user interface to post content ?  
 No - There is only 1 official client.
13. Does support ad free experience ?  
 Yes - Does not provide ads and does not collect data to earn money on your data.
14. Does **not** social media collect personal data and statistics (anonymous statics does not count) ?  
 Yes - By design, it does not goes through server and only lives certain time period.

## B.2 ScuttleButt

1. Does support exporting your generated content ?  
 - - This question does not apply because all the content is on your pc and only you can remove it. Different client maybe has this functionality, there is no reason why it should not support this.
2. Does support archiving of your generated content over time ?  
 - - Same with above, there is no reason why to export data which are on your computer ?
3. Does support exporting your follow/friends network ?  
 - - Again, your data are not going anywhere because you have them in your pc.
4. Does support posting from different client (o = indicating open protocol)?  
 Yes - Supports multiple clients.
5. Does **not** claim “ownership\*” of content generated by you ?  
 Yes - Peer to peer, does not collect information and works offline. (Scuttlebutt, n.d.[b])

6. Does support offline access to your social media platform (can interact with content) ?  
 Yes - It does support offline access, everything is local, once you connected to internet you can sync data, or over local network.
7. Does **not** allow possibility to remove your original content by design (moderation by hiding is okay) ?  
 Yes\* - There is moderation, but nobody is going to remove data from your computer, therefore there is no control, however you can control what you see in your application and hide remove stuff of others.
8. Does support peer to peer end to end encryption (secure communication without going through server) ?  
 Yes - Does support peer to peer and private messages which are end to encrypted (Scuttlebutt, n.d.[a]).
9. Does support right to be forgotten ?  
 No - While you can remove stuff from your local pc, because it is design around distributed data store, until it lives in other computer it can always be accessible.
10. Does not limit access to content you generated by requiring to accept terms and conditions ?  
 Yes - You can change client if you don't agree with one's terms and service conditions.
11. User can change/choose different feed algorithm ?  
 - - There is no algorithm to change, only hierarchical data, you can block / remove ignore others people and posts.
12. User can change or use different user interface to post content ?  
 Yes - User are welcome to use different compatible application to access and interact with social media.
13. Does support ad free experience ?  
 Yes - Does not use ads, it is local first software so there is no cost to cover for servers. (There are servers acting as hubs, but they are not required and these servers are funded by open contributions of volunteers.)

14. Does **not** social media collect personal data and statistics (anonymous statics does not count) ?  
Yes - Local first software, nobody collects anything.

### B.3 Mastodon

1. Does support exporting your generated content ?  
Yes - Export is available in open format called “ActivityPub” which is readable by any compliant software.
2. Does support archiving of your generated content over time ?  
No\* - There is no automatic archiving functionality in official mastodon client, but there is OpenSource program which can be used to setup automatic archiving.
3. Does support exporting your follow/friends network ?  
Yes - Mastodon support getting list of follows and followers profiles, among other data.
4. Does support posting from different client (o = indicating open protocol)?  
Yes(o) - Mastodon supports different clients by design and accept open protocol called ActivityPub.
5. Does **not** claim “ownership\*” of content generated by you ?  
No\* - Similiar clause to mainstream media but it differs that Mastodon controls this information for purpose of making the service and product available.  
*“you grant us a non-exclusive, transferable, sub-licensable, worldwide license to host, use, distribute, modify, run, copy, publicly perform or display, translate, and create derivative works of your content for the purpose of making Indieweb.social’s services and products available.”*  
(Indieweb.social, n.d.)  
They are clear in Mastodon ToS that anything you make public could be outside of reach the server, therefore they encourage you to not share private information.
6. Does support offline access to your social media platform (can interact with content) ?  
No - Mastodon does not officially support offline interaction.

7. Does **not** allow possibility to remove your original content by design (moderation by hiding is okay) ?  
No - There is no design around keeping your content, your content can be removed by moderation.
8. Does support peer to peer end to end encryption (secure communication without going through server) ?  
No - Mastodon is not build to be secure, you can send private chat message, but it goes through server and admin can see what you send.
9. Does support right to be forgotten ?  
Yes\* - If you publish public post, this can be used elsewhere and based on Mastodon ToS it is possible to loose control over your content.
10. Does not limit access to content you generated by requiring to accept terms and conditions ?  
Yes - Mastodon is build about openness and user can choose to access his data from different client/migrate.
11. User can change/choose different feed algorithm ?  
Yes - Because you can choose different server, you can choose to see content in different way, even self host it. Many server support filtering, and adjusting feed to user need.
12. User can change or use different user interface to post content ?  
Yes - Mastodon is build on open protocol ActivityPub which has many compatible clients.
13. Does support ad free experience ?  
Yes - Depending on server, but yes mastodon does not show you ads by default.
14. Does **not** social media collect personal data and statistics (anonymous statics does not count) ?  
Yes - This is dependent on specific server you choose to use, but yes there are no trackers by default.

## B.4 Micro.blog

1. Does support exporting your generated content ?

Yes - Under settings, you can export your content in .wxr, .bar, .json.

2. Does support archiving of your generated content over time ?

Yes - You can setup automatic archiving of your content to website github.com under your account.

3. Does support exporting your follow/friends network ?

No - As of writing you cannot export follow/friends network. This might change in the future, there is no incentive to keep it secret.

4. Does support posting from different client (o = indicating open protocol)?

Yes(o) - Micro.Blog is based on open protocols and supports multiple clients.

5. Does **not** claim “ownership\*” of content generated by you ?

Yes - Only uses content to share with others without using it as source of income.

*“After posting Your Content to the Service, you continue to retain all ownership rights in Your Content, and subject to any licenses granted by you, you continue to have the right to use Your Content in any way you choose. By posting or sharing Your Content, you grant Micro.blog only the limited rights that are reasonably necessary for us to provide the Service, which includes, without limitation, the right to store Your Content and share or display it with other users of the Service. You represent and warrant that: (i) you own Your Content or otherwise have the right to provide it to us, and (ii) the posting of Your Content on or through the Service does not violate the privacy rights, publicity rights, copyrights, trademark rights, contract rights or any other rights of any person or entity.”* (Micro.blog, n.d.[b])

6. Does support offline access to your social media platform (can interact with content) ?

No - Does not provide offline interaction, while it may cache content you pulled, you cannot post/comment/interact etc.

7. Does **not** allow possibility to remove your original content by design (moderation by hiding is okay) ?

No\* - If you depend on hosting your content by Micro.blog, you might get your data deleted if you violated Terms of Service or other rule, but you still can access your content from automatic archive. There is also possibility to host your own content on your own server or 3th party where it would not be possible for them delete your content, only delete content which is on Micro.blog platform.

8. Does support peer to peer end to end encryption (secure communication without going through server) ?

No - By default most of the interaction and content you create on Micro.blog is public. Micro.blog does not support direct communication.

9. Does support right to be forgotten ?

Yes - Content can be removed from the site, and because of Micro.blog ToS content can be removed. If it was used elsewhere, this copy would exist.

10. Does not limit access to content you generated by requiring to accept terms and conditions ?

Yes - If you don't want to use one client, you are free to use different client to access same data.

11. User can change/choose different feed algorithm ?

- - There is no feed algorithm, as of now there is manual curation done on main discover feed, and only moderation(hiding) on others.

12. User can change or use different user interface to post content ?

Yes - User are free to use any client compatible with "micropub" protocol (W3C, n.d.).

13. Does support ad free experience ?

Yes - Micro.blog social media is build around hosting and it is paid platform, therefore does not show ads.

14. Does **not** social media collect personal data and statistics (anonymous statics does not count) ?

Yes - Does not collect personal data and only collects statistics without personal information (Micro.blog, n.d.[b]).



## B.5 Peepeth

1. Does support exporting your generated content ?

No\* - As of now there is no exporting because Peepeth is early product in Beta version state. Functional but features are missing.

2. Does support archiving of your generated content over time ?

No\* - As of now there is possibility to do that in client, technically it is possible to do it yourself or find 3th party.

3. Does support exporting your follow/friends network ?

No\* - All the data are on blockchain, but as of now ,they are not supported to export in frontend client.

- 4.(o) Does support posting from different client(based on open protocol) ?

Yes - While there is no alternative app as of now, there is documentation what data needs to be saved to be able to post to blockchain aka to platform (Peepeth, n.d.[a]) .

1. Does **not** claim “ownership\*” of content generated by you ?

Yes\* - While it is promoting, user control and ownership, it has very limited Terms of Service(ToS). No claming of sublicensable royalty free use, so I mark it yes.

2. Does support offline access to your social media platform (can interact with content) ?

No - Does not support offline access and be able to interact with content.

3. Does **not** allow possibility to remove your original content by design (moderation by hiding is okey) ?

Yes - Peepeth is social media platform design to keep content which cannot be modified or removed, once written to blockchain, it is not ever be deleted.

4. Does support peer to peer end to end encryption (secure communication without going through server) ?

No - Everything on blockchain is public by design, as of now does not support direct messages only “peeps” short messages/photo/links.

5. Does support right to be forgotten ?  
No - This one is huge drawback, there is no way to remove content from blockchain, you can hide things, but you cannot remove.
6. Does not limit access to content you generated by requiring to accept terms and conditions ?  
Yes\* - While you need to agree to rules of the platform, all the data yours, and data of other users are on public immutable blockchain(datastore). This means that you can access them from different client.
7. User can change/choose different feed algorithm ?  
- - There is no feed algorithm, as of now there is only chronological view of content coming in, which is moderated by admin and moderators of the platform.
8. User can change or use different user interface to post content ?  
No\* - As of now, there is only 1 client, but because it is bulid on blockchain and immutable store, there is page on how to build alternative client. Because it is not present as of writing, I mark it as no.
9. Does support ad free experience ?  
Yes - Peepeth promote “no ads” policy and focuses on monetizing extra features.
10. Does **not** social media collect personal data and statistics (anonymous statics does not count) ?  
Yes\* - All the data are saved to blockchain which is by design public. Peepeth ToS is non existent because the technology and the product is very new. Business model is not build on top of personalize advertisements, so there is potential that they will not introduce tracking.

## B.6 Snapchat

1. Does support exporting your generated content ?  
Yes - Snapchat supports request to provide you all the data they collect about you.
2. Does support archiving of your generated content over time ?

No - Does not provide way to set up automatic archiving of your content.

3. Does support exporting your follow/friends network ?

Yes - Does support exporting content and names of who you follow.

4. Does support posting from different client (o = indicating open protocol)?

No - Does not support posting and accessing content from outside of Snapchat app.

5. Does **not** claim “ownership\*” of content generated by you ?

No - Can collect and sublicense your content as well transfer this license to do what they want.

*“you grant Snap Inc. and our affiliates a worldwide, royalty-free, sublicenseable, and transferable license to host, store, use, display, reproduce, modify, adapt, edit, publish, and distribute that content. This license is for the limited purpose of operating, developing, providing, promoting, and improving the Services and researching and developing new ones.”*  
(Snapchat, n.d.)

6. Does support offline access to your social media platform (can interact with content) ?

No - Snapchat does not support offline interaction.

7. Does **not** allow possibility to remove your original content by design (moderation by hiding is okay) ?

No - Snapchat can moderate, change, remove your account and your content.

8. Does support peer to peer end to end encryption (secure communication without going through server) ?

No - I did not find any mention of end to end encryption. Data goes through server, because I can request them from archive.

9. Does support right to be forgotten ?

Yes\* - Yes you can request removal of the profile and your data, but under Snapchat ToS it is questionable what and how your data were used or re-licensed. (ibid.)

10. Does not limit access to content you generated by requiring to accept terms and conditions ?  
No - Snapchat limit access to mobile app and require you to accept Terms of Service to see and access application.
11. User can change/choose different feed algorithm ?  
No\* - Does not support choosing different algorithm. You are able to block or hide content from discover, this way you can adapt algorithm.
12. User can change or use different user interface to post content ?  
No - Snapchat only support mobile app, no official alternative.
13. Does support ad free experience ?  
No - Snapchat does not support pad version where you don't see ads.
14. Does **not** social media collect personal data and statistics (anonymous statics does not count) ?  
No - Snapchat collects Snaps, chat, profile, friends, ranking, location, search, contacts and much more.

## B.7 WhatsApp

1. Does support exporting your generated content ?  
Yes - You can ask for archive of you data
2. Does support archiving of your generated content over time ?  
No - Does not support timely archiving of your data you created
3. Does support exporting your follow/friends network ?  
Yes - You can get list of contact you are connected to among other data you ask to retrieve.
4. Does support posting from different client (o = indicating open protocol)?  
- - Not applicable, you don't want 3th party apps because of End to End encryption.
5. Does **not** claim "ownership\*" of content generated by you ?  
No - Want full control of your content you create or can be collected while using the Whatsapp app.

*“you grant WhatsApp a worldwide, non-exclusive, royalty-free, sub-licensable, and transferable license to use, reproduce, distribute, create derivative works of, display, and perform the information (including the content) that you upload, submit, store, send, or receive on or through our Services. The rights you grant in this license are for the limited purpose of operating and providing our Services”* (WhatsApp, n.d.)

6. Does support offline access to your social media platform (can interact with content) ?

No - Officially WhatsApp app does not support offline interaction.

7. Does **not** allow possibility to remove your original content by design (moderation by hiding is okay) ?

No - Your profile and content you share/send might be removed if it breaks WhatsApp ToS (ibid.).

8. Does support peer to peer end to end encryption (secure communication without going through server) ?

Yes\* - WhatsApp does support End to End encryption but it does go through server to be able to deliver your message.

9. Does support right to be forgotten ?

Yes\* - You are able to remove your account with your data but once you share the data, these data could be used, changed etc which makes it that you lose control over them.

10. Does not limit access to content you generated by requiring to accept terms and conditions ?

No - WhatsApp limits access and usage of the app by accepting WhatsApp ToS.

11. User can change/choose different feed algorithm ?

- - Not applicable, does not have feed algorithm.

12. User can change or use different user interface to post content ?

No - Does not support 3rd party clients mainly because of End to end encryption.

13. Does support ad free experience ?

Yes - WhatsApp while sharing information to target advertisement, it does not have ads in its WhatsApp app.

14. Does **not** social media collect personal data and statistics (anonymous statics does not count) ?

No - WhatsApp primarily collects information about you and your contact phone number and location, this might be shared with Facebook. Among data which Whatsapp collects are: Account information, messages(E2E), connections, use of payments services, usage and logs, device and connection information, location information, cookies, information from 3th party providers.

## B.8 LinkedIn

1. Does support exporting your generated content ?

Yes - You can get copy of your data as User and you can also filter type of data you want to archive.

2. Does support archiving of your generated content over time ?

No - LinkedIn does not support timely archiving of your data in official LinkedIn web application.

3. Does support exporting your follow/friends network ?

Yes - LinkedIn supports exporting connection and people you connected which you can reach out to in different way.

4. Does support posting from different client (o = indicating open protocol)?

Yes - LinkedIn has API which you can be used to create 3th party publishing client, (Most likely there is some integration from other application). However API access is limited and Developer needs to comply with rules of API, which can be anything.

5. Does **not** claim “ownership\*” of content generated by you ?

No - From reading the LinkedIn, I understand it like this: They can use your data how they want in certain boundaries.

*“A worldwide, transferable and sublicensable right to use, copy, modify, distribute, publish and process, information and content that you provide through our Services and the services of others, without any further consent, notice and/or compensation to you or others. These rights are limited in the following ways:*

1. *You can end this license for specific content by deleting such content from the Services, or generally by closing your account, except (a) to the extent you shared it with others as part of the Service and they copied, re-shared it or stored it and (b) for the reasonable time it takes to remove from backup and other systems.*
2. *We will not include your content in advertisements for the products and services of third parties to others without your separate consent (including sponsored content). However, we have the right, without payment to you or others, to serve ads near your content and information, and your social actions may be visible and included with ads, as noted in the Privacy Policy. If you use a Service feature, we may mention that with your name or photo to promote that feature within our Services, subject to your settings.*
3. *We will get your consent if we want to give others the right to publish your content beyond the Services. However, if you choose to share your post as “public, everyone or similar”, we will enable a feature that allows other Members to embed that public post onto third-party services, and we enable search engines to make that public content findable through their services.*
4. *While we may edit and make format changes to your content (such as translating or transcribing it, modifying the size, layout or file type or removing metadata), we will not modify the meaning of your expression.*
5. *Because you own your content and information and we only have non-exclusive rights to it, you may choose to make it available to others, including under the terms of a Creative Commons license.” (LinkedIn, n.d.)*

1. Does support offline access to your social media platform (can interact with content) ?

No - Does not officially support offline interaction.

2. Does **not** allow possibility to remove your original content by design (moderation by hiding is okay) ?

No - LinkedIn might and could remove your content based on LinkedIn ToS. (ibid.)

3. Does support peer to peer end to end encryption (secure communication without going through server) ?

No - Does not support end to end encrypted communication, what you write on LinkedIn can be used accordingly under LinkedIn ToS (LinkedIn, n.d.).

4. Does support right to be forgotten ?

Yes\* - Your data could be used in research and in other way, where it cannot be revoked. If data is connected to other user, these data cannot be remove as well.

5. Does **not** limit access to content you generated by requiring to accept terms and conditions ?

No - LinkedIn require to its user to accept ToS otherwise they cannot access their data and in their rules, they say they are in no way responsible to keep access to you data.

6. User can change/choose different feed algorithm ?

No - LinkedIn does not support different algorithm, however you can influence it by marking certain post/people that you don't want to see.

7. User can change or use different user interface to post content ?

No - LinkedIn does not officially support option change appearance to different user interface.

8. Does support ad free experience ?

No - There is no possibility to opt out from ads but there is possibility to tweak personalize ads to non personalized ads.

9. Does **not** social media collect personal data and statistics (anonymous statics does not count) ?

No - LinkedIn collects information about you for personalizing data and doing research to sell other LinkedIn products.

## B.9 Reddit

1. Does support exporting your generated content ?

Yes - You have to request it and it can take up to 30days to process and generate your content.



2. Does support archiving of your generated content over time ?  
No - Not supported from Web version of the web app.
3. Does support exporting your follow/friends network ?  
Yes - It does support exporting what subreddits you subscribed to.
4. Does support posting from different client (o = indicating open protocol)?  
Yes - It is possible to interact with reddit from 3th party client utilizing Reddit API but this is highly limited based on current state of Reddit API.
5. Does **not** claim “ownership\*” of content generated by you ?  
No - Reddit can do anything they want with your content because they can sublicense your content and use it to their benefit.  
*“you grant us a worldwide, royalty-free, perpetual, irrevocable, non-exclusive, transferable, and sublicensable license to use, copy, modify, adapt, prepare derivative works of, distribute, store, perform, and display Your Content and any name, username, voice, or likeness provided in connection with Your Content in all media formats and channels now known or later developed anywhere in the world. This license includes the right for us to make Your Content available for syndication, broadcast, distribution, or publication by other companies, organizations, or individuals who partner with Reddit. You also agree that we may remove metadata associated with Your Content, and you irrevocably waive any claims and assertions of moral rights or attribution with respect to Your Content.”* (Reddit, n.d.)
6. Does support offline access to your social media platform (can interact with content) ?  
No - Does not officially support offline interaction and access.
7. Does **not** allow possibility to remove your original content by design (moderation by hiding is okay) ?  
No\* - Moderation of the content is based on subreddit rules and in some cases Reddit will moderate or overrule the moderator decision. Content which violates ToS could be removed as well as your account if you violate Reddit’s rules.

8. Does support peer to peer end to end encryption (secure communication without going through server) ?

No - There is no End to End encryption which would make direct communication private.

9. Does support right to be forgotten ?

Yes\* - You can erase your account and with your account your original data but based on Reddit ToS your data could be used elsewhere and be sub-licensed. Based on the Reddit ToS it is questionable whenever you can erase data about you (Reddit, n.d.).

10. Does not limit access to content you generated by requiring to accept terms and conditions ?

No - Officially and also accessing your content with Reddit API require you to agree to terms and condition.

11. User can change/choose different feed algorithm ?

Yes - You can select different way to see data, based on time period, Trending vs Hot vs Top and more.

12. User can change or use different user interface to post content ?

Yes - There is old Reddit website and new Reddit designed website which both can be used. Notably old Reddit uses less resources which is suitable to mobile use.

13. Does support ad free experience ?

Yes - Reddit premium provide ad free experience.

14. Does **not** social media collect personal data and statistics (anonymous statics does not count) ?

No\* - Reddit collects data to personalize ads for you and shares/uses 3th party data. You can opt out from some of this options in your account settings.

## B.10 Facebook

1. Does support exporting your generated content ?

Yes - After request you can download data in JSON or HTML format.

2. Does support archiving of your generated content over time ?  
 No - Does not support automatic archiving, you have to request it manually and they download, their ToS (Facebook, n.d.[c]) explicitly forbid automation on their site.
3. Does support exporting your follow/friends network ?  
 Yes - Among exported data you can select to export names of people you followed. To get phone number you could check data about-you/your-address-book which could match name with phone number if you shared it with facebook previously.
4. Does support posting from different client (o = indicating open protocol)?  
 No - It only support their own Mobile, Web and other clients which provide similar experience given by (Facebook, n.d.[b]). Does not support open protocol and even explicitly forbid this in their ToS. The exception is (Instagram, n.d.[a]) because it is under same company (Facebook, n.d.[b]).
5. Does **not** claim “ownership\*” of content generated by you ?  
 No - it claims /“non-exclusive, fully paid and royalty-free, transferable, sub-licensable, for content you as user generate”/(Facebook, n.d.[c]). In other words, you are responsible but (Facebook, n.d.[b]) can do anything with your data, including selling and exposing you to liability.
6. Does support offline access to your social media platform ?  
 No - While you can download your data and see it offline, I wouldn't define this as intended feature and facebook app or web does not support offline access by design.
7. Does **not** allow possibility to remove your original content by design (moderation by hiding is okay) ?  
 No - By design (ibid.) can do anything to your content, and I mean anything.
8. Does support peer to peer end to end(E2E) encryption (secure communication without going through server) ?  
 No - Anything you do in (ibid.) website or app goes through (ibid.) servers and it is stored there, this include direct communication from

friend to friend. Possibility of download all messages means they are not E2E encrypted.

9. Does support right to be forgotten ?

Yes\* - You can remove your data, but data linked to others stay on the platform, and other data is anonymized. Because of (Facebook, n.d.[c]) ToS they could store/sell data you created therefore change license and you lose control of such data. (once they are used for something, they cannot be removed if they left facebook servers)

10. Does not limit access to content you generated by requiring to accept terms and conditions ?

No - (Facebook, n.d.[b]) require you to accept terms otherwise it will not permit access to your data and account, in some cases (ibid.) requires you to confirm your identity for whatever reason they see fit, refusing you access unless you provide any of the information listed in their FAQ (Facebook, n.d.[d]).

*To help ensure that IDs used for identity confirmation are real, we use both manual review and automated systems. We may also partner with trusted service providers to confirm your identity.* (Facebook, n.d.[e]).

(Collecting more information about your real identity, increasing potential issues in the future. Making it possible steal your identity and other legal issues, if data would get leaked)

11. User can change/choose different feed algorithm ?

No - While you can change/influence the behaviour of algorithm, you cannot change news feed to be chronological for example.

12. User can change or use different user interface to post content ?

No - Does not support using 3th party client or other client to official post content to Facebook.

13. Does support ad free experience ?

No - The whole business model is build on providing free access for personalized advertisement.

14. Does **not** social media collect personal data and statistics (anonymous statics does not count) ?

No - Collects data about how you use the platform, information from device you use, and collects information from partners of Facebook.

## B.11 Instagram

1. Does support exporting your generated content ?

Yes - It does support export of data collected about you.

2. Does support archiving of your generated content over time ?

No - Does not support automatic archiving.

3. Does support exporting your follow/friends network ?

Yes - Does support exporting information about who you follow and who is following you.

4. Does support posting from different client (o = indicating open protocol)?

No - Does not support official or with open protocol to post on instagram.

5. Does **not** claim “ownership\*” of content generated by you ?

No - Can do all data access, while keeping responsibility/liability to you.

*When you share, post, or upload content that is covered by intellectual property rights (like photos or videos) on or in connection with our Service, you hereby grant to us a non-exclusive, royalty-free, transferable, sub-licensable, worldwide license to host, use, distribute, modify, run, copy, publicly perform or display, translate, and create derivative works of your content (consistent with your privacy and application settings). This license will end when your content is deleted from our systems.*

(Instagram, n.d.[b])

6. Does support offline access to your social media platform ?

No - While you can view content which is cached when opening Instagram app, you cannot interact or view content which is not cached. You can also view content which you downloaded but you cannot interact.

7. Does **not** allow possibility to remove your original content by design (moderation by hiding is okay) ?

No - Based on Instagram ToS (ibid.) and design of the system they can remove any content they seem fit.

8. Does support peer to peer end to end encryption (secure communication without going through server) ?  
No - Communication on Instagram/Facebook goes through their servers and does not support direct encrypted communication. Possibility of download all messages means they are not E2E encrypted.
9. Does support right to be forgotten ?  
Yes\* - Based on Instagram ToS (Instagram, n.d.[b]) it is possible that content licensed and sold potentially. Data which connects multiple users could be anonymized instead to keep it for connected user.
10. Does not limit access to content you generated by requiring to accept terms and conditions ?  
No - Require accepting Instagram ToS with every update.
11. User can change/choose different feed algorithm ?  
No - Not possible in current web/app by Instagram as of 2021.
12. User can change or use different user interface to post content ?  
No - Limited access exclusively from Instagram/Facebook application/web interfaces.
13. Does support ad free experience ?  
No - Does not support ad free experience.
14. Does **not** social media collect personal data and statistics (anonymous statics does not count) ?  
No - Instagram collects information to sell ads and improve their product, research and more (ibid.).

## B.12 Twitter

1. Does support exporting your generated content ?  
Yes - Settings -> Download an archive of your data, available in JSON and HTML format.
2. Does support archiving of your generated content over time ?  
No\* - It is possible to archive new twitter data with their API but there is no automatic setup from Twitter website which could mean that average user will not find this functionality, therefore it is hard to

decide if it is or is not supported. Considering that average user might know how to operate API interface I will mark this as No.

3. Does support exporting your follow/friends network ?

Yes - Among exported data there are channels you followed.

4. Does support posting from different client (o = indicating open protocol)?

Yes - Twitter support posting content from outside with application programming interface (API) which resulted multiple other applications to support posting/reposting content to twitter from outside. Support is limited and I would not define the protocol as open standard, therefore I put asterix and mark it as "Yes".

5. Does **not** claim "ownership\*" of content generated by you ?

No - User responsibility, all benefits to twitter.

*"you grant us a worldwide, non-exclusive, royalty-free license (with the right to sublicense) to use, copy, reproduce, process, adapt, modify, publish, transmit, display and distribute such Content in any and all media or distribution methods now known or later developed"* (Twitter, n.d.[b]).

6. Does support offline access to your social media platform (can interact with content) ?

No - Does not officially support offline interaction, posting is not possible both on web and app they provide.

7. Does **not** allow possibility to remove your original content by design (moderation by hiding is okay) ?

No - Twitter is able to do anything to your data and it is not design to keep your data while moderating it on their service. Twitter is able to hide or shadow ban user/content but we are more interested in system where it is not possible by design.

8. Does support peer to peer end to end encryption (secure communication without going through server) ?

No - By default everything is public on twitter. There are private messages and protected Tweets(protected in who can reply) but private messages does not support end to end communication, everything goes

to server, therefore it is visible by twitter (Twitter, n.d.[a]). Possibility of download all messages means they are not E2E encrypted.

9. Does support right to be forgotten ?

Yes\* - Based on Twitter ToS, yes you can deactivate and after 30 days your account will be deleted but data sold, relicensed does not have to be removed, they might be anonymized. Based on ToS anything can be done to user's data which could mean that some of the data is still present after deleting profile.

10. Does not limit access to content you generated by requiring to accept terms and conditions ?

No\* - Official web app or mobile app is only accesable by accepting ToS but twitter is not as hostile to getting content outside and supports API endpoint to get latest tweets out, which could be used in products average social media user can use. There is also risk of twitter changing/removing this option, but as of 2021 they support this option. Officialy no, but if you don't agree to ToS you can use 3th party product to interact with twitter.(Twitter, n.d.[c])

11. User can change/choose different feed algorithm ?

No\* - Users cannot change feed algorithm for different one, pure chronological vs reccomended etc. However they are able to adapt algorithm based on banned/hide/less post from X optionality in their feed.

12. User can change or use different user interface to post content ?

Yes - There is non-official alternative client, and their API capability is able to accept tweets from outside.

13. Does support ad free experience ?

No - It does not support ad free experience, but user can opt out of personalize advertisements, or use alternative 3th party app which can take data from twitter.

14. Does **not** social media collect personal data and statistics (anonymous statics does not count) ?

No - Collects and sell data and content user create.



## B.13 Youtube

1. Does support exporting your generated content ?

Yes - It supports download of your data in different formats and different sizes, under “Your data in Youtube” & under opening more in section Your Youtube dashboard. Data Videos, playlists, subscriptions, comments.

2. Does support archiving of your generated content over time ?

Yes - It supports archiving of your data every 2 months for a year.

3. Does support exporting your follow/friends network ?

Yes - Among exported data, there is list of your subscriptions.

4. Does support posting from different client (o = indicating open protocol)?

Yes - It does support uploading of video by using “YouTube Data API” which could be implemented by any 3th party client. Not open standard, similar to twitter api, youtube has its own rules/limits but it does support it, therefore I mark it yes.

5. Does **not** claim “ownership\*” of content generated by you ?

No - They take full control over your data to do anything they want.

*“you grant to YouTube a worldwide, non-exclusive, royalty-free, transferable, sublicensable licence to use that Content (including to reproduce, distribute, modify, display and perform it) for the purpose of operating, promoting, and improving the Service”*

(Youtube, n.d.)

6. Does support offline access to your social media platform (can interact with content) ?

No - Does not officially support watching and interacting with youtube offline.

7. Does **not** allow possibility to remove your original content by design (moderation by hiding is okay) ?

No - Youtube removes or punish many videos for claiming breaching copyright or breaching youtube rules. This is often done by youtube’ algorithm.

8. Does support peer to peer end to end encryption (secure communication without going through server) ?

No - Does not support direct communication. Communication in live chat is not End to end encrypted and is collect under your data on Youtube' servers.

9. Does support right to be forgotten ?

Yes\* - Under the Youtube ToS (Youtube, n.d.), your data could be used as copy or it can be sold, or anonymized. This results that some parts of data or copy of it can not be removed by you, even when you own original data.

10. Does not limit access to content you generated by requiring to accept terms and conditions ?

No - It does limit access to your content with up to date client upon agreeing to newest Terms and Conditions (ibid.).

11. User can change/choose different feed algorithm ?

No - You can influence your recommendations by pausing or deleting your watch history and search history in your Activity Controls. This does not mean that you can change/choose different algorithm, or not used one at all.

12. User can change or use different user interface to post content ?

No - They are very strict on accessing content only from official clients which are monitoring and collecting data about you.

13. Does support ad free experience ?

Yes - Youtube premium provides ad free experience.

14. Does **not** social media collect personal data and statistics (anonymous statics does not count) ?

No\* - Does collect by default, however you can dissable parts of data its collect, like youtube search history or youtube watch history.

## B.14 Pinterest

1. Does support exporting your generated content ?

No - I could not seem to find exporting/downloading my data, neither searching in help yield anything.

2. Does support archiving of your generated content over time ?  
No - Did not find the exporting feature, most likely does not support.
3. Does support exporting your follow/friends network ?  
No - Did not find the functionality to export data.
4. Does support posting from different client (o = indicating open protocol)?  
Yes - It does support posting potential different client through Pinterest' API, which has its own rules and limitation. This is not open protocol.
5. Does **not** claim "ownership\*" of content generated by you ?  
No - *"You grant Pinterest and our users a non-exclusive, royalty-free, transferable, sublicensable, worldwide license to use, store, display, reproduce, save, modify, create derivative works, perform, and distribute your User Content on Pinterest solely for the purposes of operating, developing, providing, and using Pinterest"*  
(Pinterest, n.d.)
6. Does support offline access to your social media platform (can interact with content) ?  
No - Does not support offline access beside caching. No support for offline interaction.
7. Does **not** allow possibility to remove your original content by design (moderation by hiding is okay) ?  
No - Pinterest can and will remove your data if they seems fit (ibid.).
8. Does support peer to peer end to end encryption (secure communication without going through server) ?  
No - Supports chat but End to End encryption safety is not supported.
9. Does support right to be forgotten ?  
Yes\* - User can delete his account and with it it's data. Based on ToS we can speculate on data which changed licences or copy of the work.
10. Does not limit access to content you generated by requiring to accept terms and conditions ?

No - It Does limit access by using restrictive 3th party based on API or official client which require online connection and acceptance of terms of use.

11. User can change/choose different feed algorithm ?

No\* - User can influence what is shown by following different accounts and boards.

12. User can change or use different user interface to post content ?

Yes - Pinterest provide alternative app client claiming lower usage of space on the device called Pinterest Lite.

13. Does support ad free experience ?

No\* - You can influence how much data they collect and communicate with ad networks, as well as opt out from personalize ads.

14. Does **not** social media collect personal data and statistics (anonymous statics does not count) ?

No - Pinterest collects data about you: “Log Data, Cookie data, Device information, Clickstream data and inferences”. However you can reduce part of the saved data by opting out from personalize ads and sharing information with 3th party.

## B.15 TikTok

1. Does support exporting your generated content ?

Yes - Only from the their official app or you can send request over email.

2. Does support archiving of your generated content over time ?

No - From the app I did not see support for timely export of you data.

3. Does support exporting your follow/friends network ?

Yes - Does support “favorite list” among data you export.

4. Does support posting from different client (o = indicating open protocol)?

Yes - While it has developer API to share video and pictures from other client, it is not based on open protocol and is very limited on what you are allowed to do on tiktok.

5. Does **not** claim “ownership\*” of content generated by you ?

No - I believe this to be the worst Terms of Service agreement for user. TikTok can and will do anything to your data to earn and utilize your content. *“you hereby grant us an unconditional irrevocable, non-exclusive, royalty-free, fully transferable, perpetual worldwide licence to use, modify, adapt, reproduce, make derivative works of, publish and/or transmit, and/or distribute and to authorise other users of the Services and other third-parties to view, access, use, download, modify, adapt, reproduce, make derivative works of, publish and/or transmit your User Content in any format and on any platform, either now known or hereinafter invented.”* (TikTok, n.d.)

6. Does support offline access to your social media platform (can interact with content) ?

No - They support caching on their mobile app but you cannot interact offline.

7. Does **not** allow possibility to remove your original content by design (moderation by hiding is okay) ?

No - Based on TikTok ToS they can do anything to your data, and design of the system is centralized so if they decide they don't want you or your content they can stop you from being there.

8. Does support peer to peer end to end encryption (secure communication without going through server) ?

No - Does not support end to end encryption, data goes through server and are accessible when exporting. Based on TikTok ToS they can be used by the company to any benefit for them.

9. Does support right to be forgotten ?

Yes\* - You can remove your content and your profile, however any data connected to other user stay on the platform. Any data which was re-licensed is out of your reach, therefore it is questionable if you can delete your content which was licensed elsewhere.

10. Does not limit access to content you generated by requiring to accept terms and conditions ?

No - TikTok limits access to your content by requiring you to agree to ToS there is no way to access your content, beside exporting it before change to TikTok ToS.

11. User can change/choose different feed algorithm ?  
No - I did not find any indicators that you can change feed algorithm.
12. User can change or use different user interface to post content ?  
No - While there is support for posting content with TikTok API, they restrict your access and other features exclusively from their provided services.
13. Does support ad free experience ?  
No - TikTok does not support ad free experience.
14. Does **not** social media collect personal data and statistics (anonymous statics does not count) ?  
No - TikTok business model and their algorithm needs data to find out what to show it to you.

## C Survey

### C.1 Questions asked

#### Awareness of data ownership and control loss in social media

1. Do you use social media Facebook ?

- Yes
- No

If answer No.

- (a) Have you ever used Facebook before ?

- Yes
- No

If answer Yes.

- i. What was the reason you stopped using Facebook ?

End Survey

End Survey

2. Country - What is your country of residence ?
3. Gender - What is your gender ?

- Male
- Female
- I would rather not to say

4. Age - What is your age group ?

- 16-24
- 25-34
- 35-44
- 45-54
- 55 or older

5. Education - What is your highest achieved education ?

- School Qualifications
- Vocational Education
- Bachelor's Degree
- Master's Degree
- Doctoral Degree

6. Usage frequency - How often do you use Facebook ?

- Never
- Rarely
- A few times a month
- Weekly
- A few times a week
- Daily
- Multiple times per day

7. Awareness - Awareness of Facebook's Terms of Service understanding.

Scale:

- Not at all aware
- Slightly aware
- Very aware

Are you aware that:

- (a) by signing Terms of Service, you agree to give “non-exclusive, royalty-free, transferable, sub-licensable” permission to your data ?
  - (b) you can be persecuted for content you post ?
  - (c) content you post can be copied, modified, deleted ?
  - (d) at any point, you may lose access to your account ?
  - (e) you may not use videos or live-stream to create music listening experience ? [https://www.facebook.com/legal/music\\_guidelines](https://www.facebook.com/legal/music_guidelines)
  - (f) you can get archive copy of data collected about you ?
  - (g) Facebook is able to collect location data about you ? (based on Wifi, IP, GPS, Geo data)
  - (h) Facebook is able to collect information about other websites you visit ? (If this website includes Facebook script)
  - (i) Facebook can identify your face or voice from the content you post ? (depending on settings)
  - (j) are you aware that Facebook may require your government ID to confirm your identity ? [https://www.facebook.com/help/159096464162185?helpref=faq\\_content](https://www.facebook.com/help/159096464162185?helpref=faq_content)
8. If we define ownership as having control over your information and data you post, would you say that you are having this ownership on Facebook?
- Yes
  - No
  - I don't know
9. Have you ever changed default settings on how Facebook handles your data ? - Have you ever turned off/adjust any of the settings from the picture ?
- Yes
  - No
  - I don't know
10. Data control on Facebook
- Scale:



- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

How much do you agree with statement:

- (a) I am in control of my data on Facebook
- (b) Facebook is collecting too much data about me
- (c) What Facebook is doing with my data is transparent
- (d) Facebook has high influence on what I see
- (e) Facebook is limiting what I can do with my data
- (f) Facebook is using my own data against me
- (g) I would rather pay Facebook not to collect data about me, than have it for free and collect the data

11. How much do you trust Facebook with your data ? Scale 0 - 10.

0 - No trust

10 - Full trust

12. What other Social media are you currently using alongside Facebook ? - Multiselect option possible.

- None of them
- Instagram
- Twitter
- Youtube
- Pinterest
- Youtube
- Reddit
- TikTok
- LinkedIn
- WhatsApp
- Snapchat

13. Have you tried any alternative to Facebook ?  
 if yes ask:
  - (a) What is the name of this alternative you have tried ? - Alternative you had in mind in last question.
  - (b) Are you still using this alternative to Facebook ? if yes ask:
    - i. What are the main reasons you keep using this alternative to Facebook ? - Feel free to describe more.
  - if no ask:
    - i. Why did you stop using this alternative to Facebook ? - Feel free to describe more.
14. Do you have any other issue which we haven't ask about in regard to control of your data and ownership on Facebook ? Feel free to write anything else in this regard. - Feel free to write more, but this question is optional.

## C.2 Demographic

```
library(tidyverse)
data <- read_csv("./dataset/data.csv")
## Filter out users who do not use social media
names(data)[2] <- "q1"
data <- data %>% filter(q1 %in% 1)

names(data)[5] <- "country"
## unite countries under same name
data$country[data$country=="SK"] <- "Slovakia"
data$country[data$country=="slovakia"] <- "Slovakia"
data$country[data$country=="Dk"] <- "Denmark"
data$country[data$country=="Czech reupblic"] <- "Czech Republic"
data$country[data$country=="the Czech Republic"] <- "Czech Republic"
data$country[data$country=="Czechia"] <- "Czech Republic"
data$country[data$country=="Czech republic"] <- "Czech Republic"
data$country[data$country=="spain"] <- "Spain"
data$country[data$country=="united Kingdom"] <- "United Kingdom"
data$country[data$country=="mm"] <- "Other"
data <- data %>% group_by(country) %>% summarize(country_count = n()) %>% arrange(desc(
data
```

Figure 9: Country representation of participants.

Slovakia	40
Czech Republic	4
Denmark	4
Poland	2
England	1
France	1
Germany	1
Japan	1
Other	1
Spain	1
United Kingdom	1
United States	1

### C.3 Do not use Social media

```
library(tidyverse)
data <- read_csv("./dataset/data.csv")
names(data)[2] <- "q1"
data <- filter(data, q1 %in% 0)
count(data[2])
```

Figure 10: Number of participants who do not use social media (no demographic)

7

```
library(tidyverse)
data <- read_csv("./dataset/data.csv")
names(data)[2] <- "q1"
data <- filter(data, q1 %in% 0)
names(data)[3] <- "q2"
data <- filter(data, q2 %in% 0)
count(data[3])
```

Figure 11: Number of participants who have never used social media

1

```
library(ggplot2)
library(ggthemes)
library(tidyverse)
data <- read_csv("./dataset/data.csv")

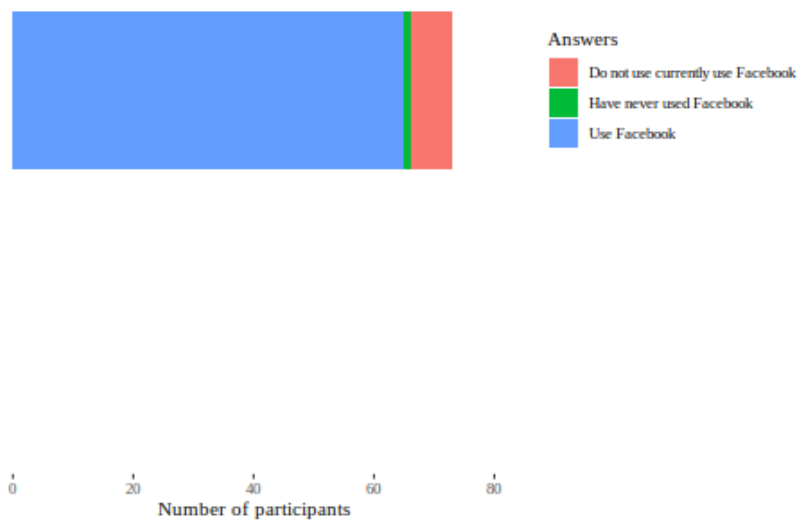
total <- nrow(data)

names(data)[2] <- "q1"
data <- filter(data, q1 %in% 0)
do_not_use_currently <- nrow(data)
names(data)[3] <- "q2"
data <- filter(data, q2 %in% 0)
have_never_used <- nrow(data)

vis_data <- data.frame(
  Answers = c("Have never used Facebook", "Do not use currently use Facebook", "Use Fa
  Response = c(have_never_used, do_not_use_currently, total)
)

vis_data %>% ggplot(aes(x=total, y=Response, fill=Answers)) + geom_bar(stat="identity") +
  ggtitle("") +
  xlim(63, 67) +
  ylim(0, 80) +
  xlab("") +
  ylab("Number of participants") +
  theme_tufte() +
  theme(axis.text.y=element_blank(), axis.ticks.y=element_blank())
```

Figure 12: Graph of participants usage of social media



## C.4 Reasons why users do not use Social media anymore

### Patterns in content

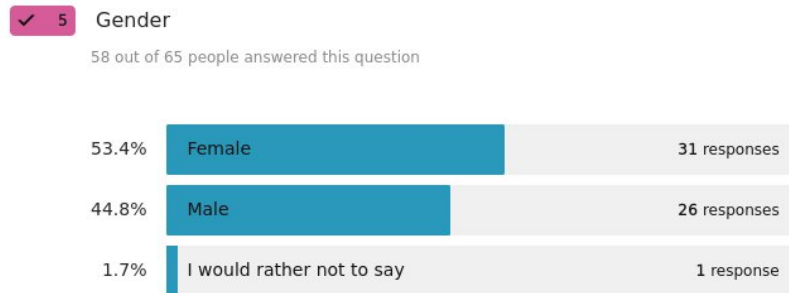
- Privacy issues
  - *Mainly because of privacy issues. I hate to being watched*
  - *Too much exposure*
- Not enough value provided by Facebook
  - *erased profile*
  - *Dont need it, bringing little value to my life*
- Lack of control and interest

– *At first, it started out as a result of me working a lot and not really having time to check Facebook every single day unless it was to reply a private message or so. Gradually, I started losing interest in using it unless it was completely necessary e.g. group discussions for school assignments or keep contact with friends back in my home country. The times I would check Facebook I would also realize that there were subtle changes done to their UI - which also contributed to me not being motivated to use it e.g. less and less control over my news feed, if any. I also noticed that my Facebook friends seemed to not be as active as they were before. After a while, I just gave up on it.*

- Dislike

– *I don't have time for bullshit anymore*

## C.5 Gender



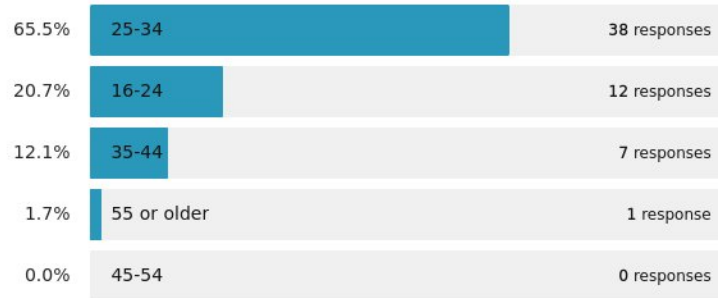
## C.6 Age graph



6

### Age

58 out of 65 people answered this question



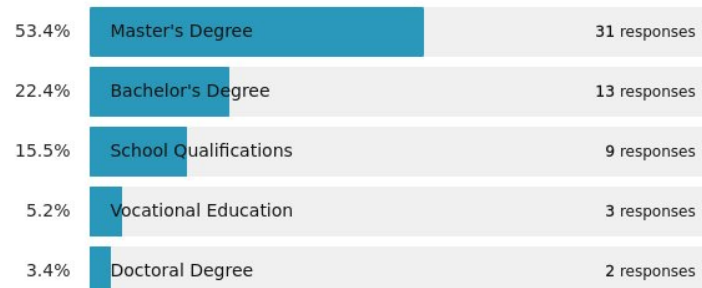
## C.7 Education



7

### Education

58 out of 65 people answered this question



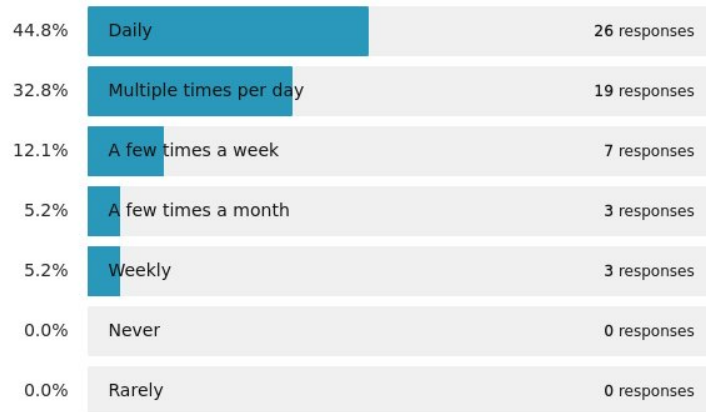
## C.8 Usage frequency



8

### Usage frequency

58 out of 65 people answered this question





## C.9 Awareness



9

### Awareness

58 out of 65 people answered this question

	Not at all aware	Slightly aware	Very aware
by signing Terms of Service, you agree to give...	17.2%	65.5%	17.2%
you can be persecuted for content you pos...	25.9%	22.4%	51.7%
content you post can be copied, modified, delete...	10.3%	36.2%	53.4%
at any point, you may lose access to your account ?	29.3%	36.2%	34.5%
you may not use videos or live-stream to creat...	55.2%	24.1%	20.7%
you can get archive copy of data collected...	37.9%	22.4%	39.7%
Facebook is able to collect location data about you ...	5.2%	25.9%	69%
Facebook is able to collect information abo...	10.3%	29.3%	60.3%
Facebook can identify your face or voice from th...	31%	41.4%	27.6%
are you aware that Facebook may require you...	62.1%	19%	19%

## C.10 Ownership

- ✓ 10 If we define ownership as having control over your information and data you post, would you say that you are having this ownership on Facebook?

58 out of 65 people answered this question



## C.11 Change default

- ✓ 11 Have you ever changed default settings on how Facebook handles your data?

58 out of 65 people answered this question



## C.12 Data control Matrix



### 12 Data control on Facebook

58 out of 65 people answered this question

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am in control of my data ...	8.6%	22.4%	44.8%	22.4%	1.7%
Facebook is collecting too much...	6.9%	1.7%	12.1%	43.1%	36.2%
What Facebook is doing wit...	20.7%	46.6%	24.1%	6.9%	1.7%
Facebook has high influence...	3.4%	3.4%	17.2%	32.8%	43.1%
Facebook is limiting what I ca...	1.7%	12.1%	39.7%	36.2%	10.3%
Facebook is using my own data...	1.7%	20.7%	48.3%	20.7%	8.6%
I would rather pay Facebook...	12.1%	29.3%	25.9%	17.2%	15.5%

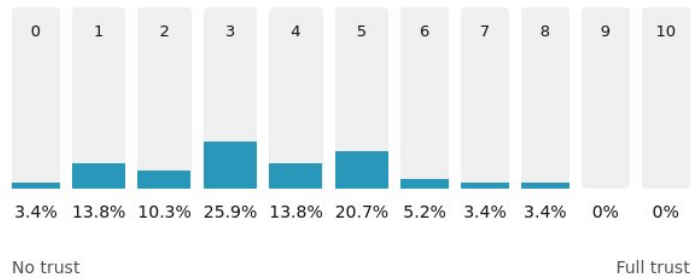
### C.13 Trust



How much do you trust Facebook with your data ?

Avg. 3.5

58 out of 65 people answered this question

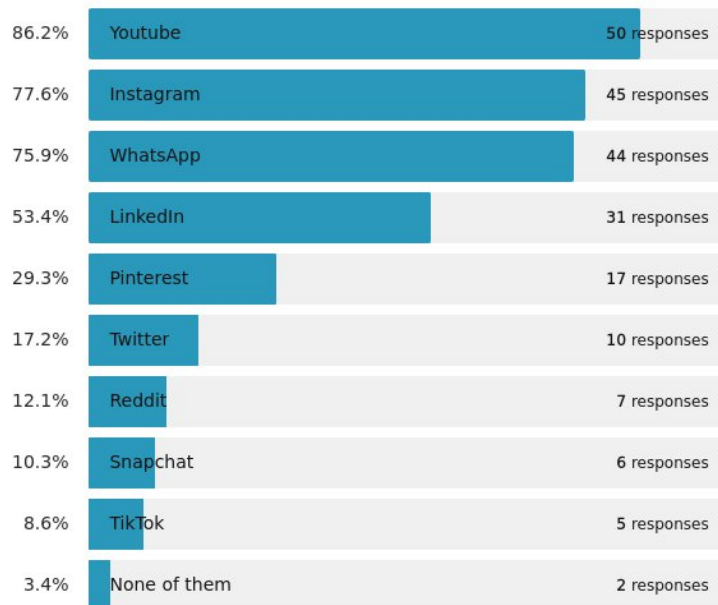


### C.14 Alternative social media



What other Social media are you currently using alongside Facebook ?

58 out of 65 people answered this question (with multiple choice)



## C.15 Alternative to Facebook

```
library(tidyverse)
data <- read_csv("./dataset/data.csv")
names(data)[2] <- "q1"
data <- filter(data, q1 %in% 1)
names(data)[40] <- "q2"
data <- filter(data, q2 %in% 1)
count(data[40])
```

Figure 13: How many participants answered yes, they tried alternative to Facebook

11

```
library(tidyverse)
data <- read_csv("./dataset/data.csv")
names(data)[2] <- "q1"
data <- filter(data, q1 %in% 1)
names(data)[41] <- "q2"
data %>% group_by(q2) %>% summarize(q2_count=n()) %>% drop_na() %>% arrange(desc(q2_count))
```

Figure 14: What is the name of this alternative you have tried ? - Participants answered:

Google+	2
Signal	2
Telegram	2
Twitter	2
instagram	1
Instagram , Twitter	1
WhatsUp	1

```
library(tidyverse)
data <- read_csv("./dataset/data.csv")
names(data)[2] <- "q1"
data <- filter(data, q1 %in% 1)
names(data)[42] <- "q2"
yes <- filter(data, q2 %in% 1) %>% nrow()
```

```
no <- filter(data, q2 %in% 0) %>% nrow()

table <- data.frame(
  Answers = c("Yes", "No"),
  Value = c(yes, no)
)

table
```

Figure 15: Are you still using this alternative to Facebook ?

Yes	8
No	3

```
library(tidyverse)
data <- read_csv("./dataset/data.csv")
names(data)[2] <- "q1"
data <- filter(data, q1 %in% 1)
names(data)[41] <- "q2"
names(data)[43] <- "q3"
data %>% distinct(q2, q3) %>% drop_na(q3)
```

Figure 16: Why did you stop using this alternative to Facebook ?

Google+	useless, Facebook was powerful that time
Google+	not available anymore
Twitter	I didn't like it

```
library(tidyverse)
data <- read_csv("./dataset/data.csv")
names(data)[2] <- "q1"
data <- filter(data, q1 %in% 1)
names(data)[41] <- "q2"
names(data)[44] <- "q3"
data %>% distinct(q2, q3) %>% drop_na(q3)
```

Figure 17: Why do you keep using this alternative to Facebook ?

WhatsUp	More privacy
Instagram , Twitter	More options to share
Signal	Privacy and data security
Signal	My data is safe, like very safe. I hope.
instagram	more polite
Telegram	Friends use this app and stopped using Facebook
Telegram	You Daniel:)
Twitter	The main reason is that more of my peers moved to other platform and I prefer

### C.16 Anything else to add ? open ended question

Q: “Any other issue which we haven’t ask about in regard to control of your data and ownership on Facebook ? Feel free to write anything else in this regard.”

#### Patterns in content























- Dislike personal advertisement
  - *Some advertisements on FB pages are annoying for me because FB provides me with information about what I do not like so much. In daily life, I search for unpreferable things in the internet if I need to do so, and after that FB shows some advertisements related to them. This makes me irritated.*
  - *level of advertisement and promotion of business over user content*
- Disagreement of how long data are archived on Facebook
  - *How many years they save my data*
- Disengagement because of how data are used on Facebook
  - *I know they collect many data and controlled post. Because of this I really carrefully take care of what I’m sharing.*
- Privacy concerns
  - *I used Signal and Telegram; seems to be secure more than Facebook*

## C.17 Drop off rates

Views 222 Starts 97 Responses 65 Completion rate 67% Average time to complete 05:08

Question by question

All time

Questions	Views	Drop-off (7)
 Awareness of data ownership and control loss in social media	222	-129 (58%)
 GDPR and Data handling and protection	93	-4 (4%)
*  1 Do you use social media Facebook ?	89	-3 (3%)
*  2 Have you ever used Facebook before ?	10	-1 (10%)
 3 What was the reason you stopped using Facebook ?	7	-1 (14%)
*  4 Country	78	-2 (3%)
*  5 Gender	75	0
*  6 Age	76	0
*  7 Education	76	0
*  8 Usage frequency	76	0
 9 Awareness	76	-9 (12%)
*  10 If we define ownership as having control over your information and data you post...	67	-1 (1%)
 11 Have you ever changed default settings on how Facebook handles your data ?	66	-2 (3%)
 12 Data control on Facebook	64	-4 (6%)
*  13 How much do you trust Facebook with your data ?	60	0
*  14 What other Social media are you currently using alongside Facebook ?	60	0
*  15 Have you tried any alternative to Facebook ?	60	0
*  16 What is the name of this alternative you have tried ?	13	-1 (8%)
*  17 Are you still using this alternative to Facebook ?	12	0
*  18 Why did you stop using this alternative to Facebook ?	3	0
*  19 What are the main reasons you keep using this alternative to Facebook ?	9	-1 (11%)
 20 Do you have any other issue which we haven't ask about in regard to control of y...	59	0

## C.18 Spam prevention indicators

```
library(tidyverse)
data <- read_csv("./dataset/data.csv")
names(data)[48] <- "spam"
data %>% group_by(spam) %>% summarize(spam_nth=n()) %>% arrange(desc(spam_nth), spam)
```



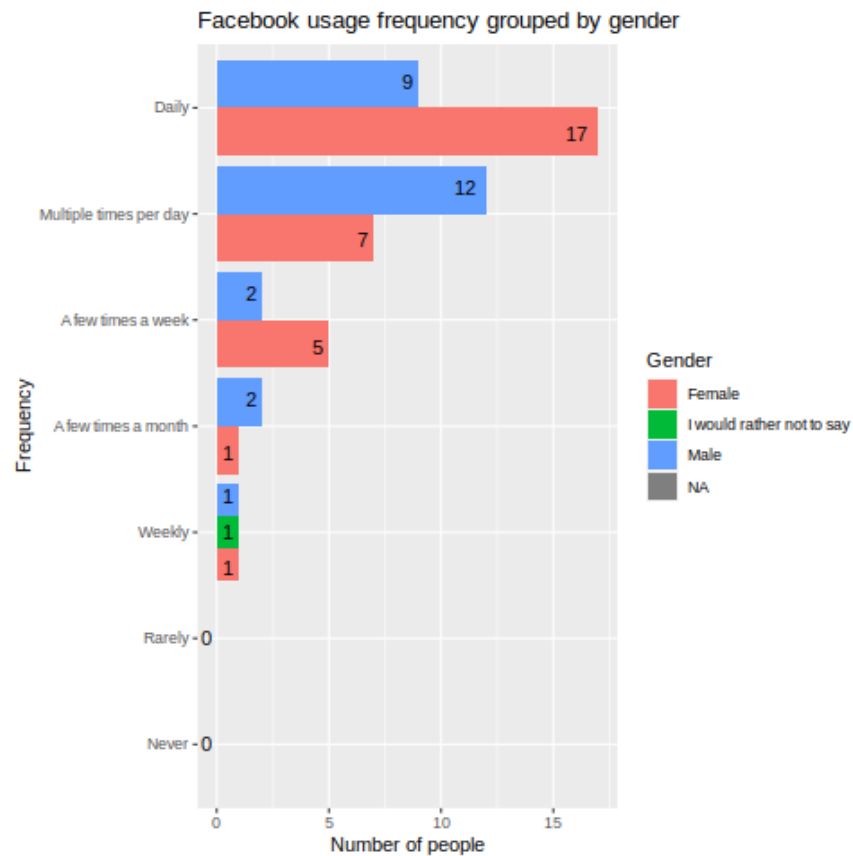
Figure 18: How many participants have same network id = same device.  
Ordered by count.

281e9ac759	2
8090451d03	2
02e0e3eae	1
432883993	1
0d872e458d	1
15f04dd868	1

## C.19 Complex Graphs

```
library(ggplot2)
library(ggthemes)
library(tidyverse)
data <- read_csv("./dataset/data.csv")
names(data)[2] <- "q1"
names(data)[9] <- "freq"
data <- filter(data, q1 == 1)
defaults <- tibble(freq=c("Rarely", "Never"), freq_n=c(0,0))
data <- data %>% group_by(Gender, freq) %>% summarize(freq_n=n()) %>% full_join(defaults, by=c("freq", "freq_n"))
data %>%
  ggplot(aes(x=reorder(freq,freq_n), y=freq_n, fill=Gender)) +
  geom_bar(stat = "identity", position = 'dodge') +
  geom_text(aes(label=freq_n), position = position_dodge(width = 1), hjust=1.5) +
  coord_flip() +
  ggtitle("Facebook usage frequency grouped by gender") +
  xlab("Frequency") +
  ylab("Number of people")
```

Figure 19: Facebook usage frequency grouped by gender



```
library(ggplot2)
library(tidyverse)
data <- read_csv("./dataset/data.csv")
names(data)[2] <- "q1"
names(data)[9] <- "freq"
data <- filter(data, q1 == 1)

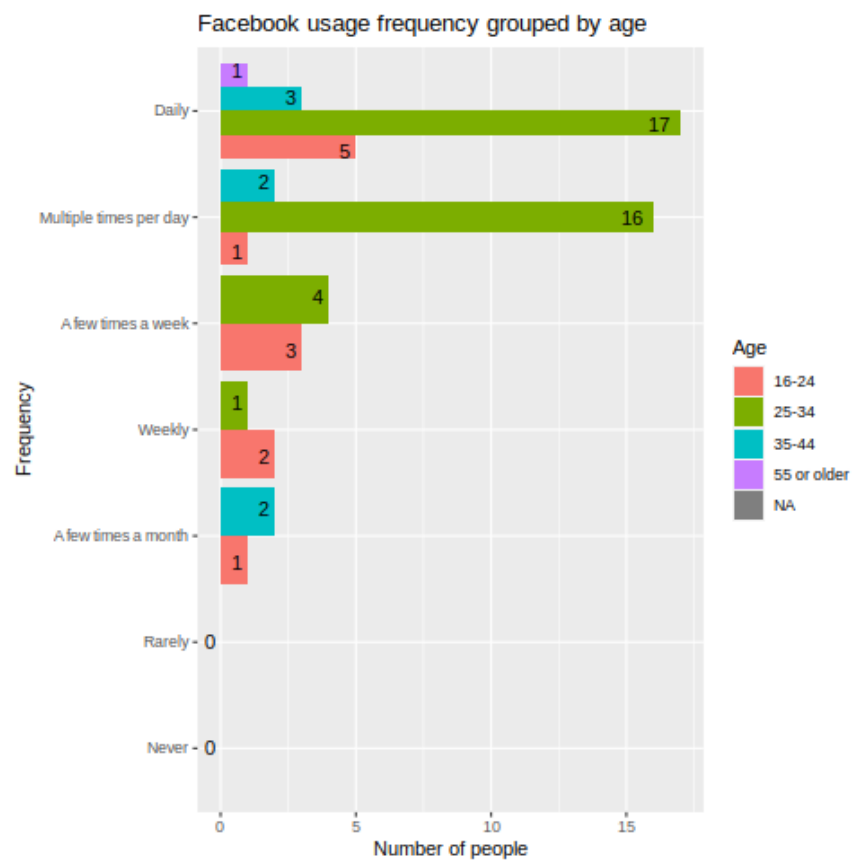
defaults <- tibble(freq=c("Rarely", "Never"), freq_n=c(0,0))

data <- data %>% group_by(Age, freq) %>% summarize(freq_n=n()) %>% full_join(defaults)

data %>%
  ggplot(aes(x=reorder(freq,freq_n), y=freq_n, fill=Age)) +
  geom_bar(stat = "identity", position = 'dodge') +
  geom_text(aes(label=freq_n), position = position_dodge(width = 1), hjust=1.5) +
```

```
coord_flip() +
ggtitle("Facebook usage frequency grouped by age") +
xlab("Frequency") +
ylab("Number of people")
```

Figure 20: Facebook usage frequency grouped by age



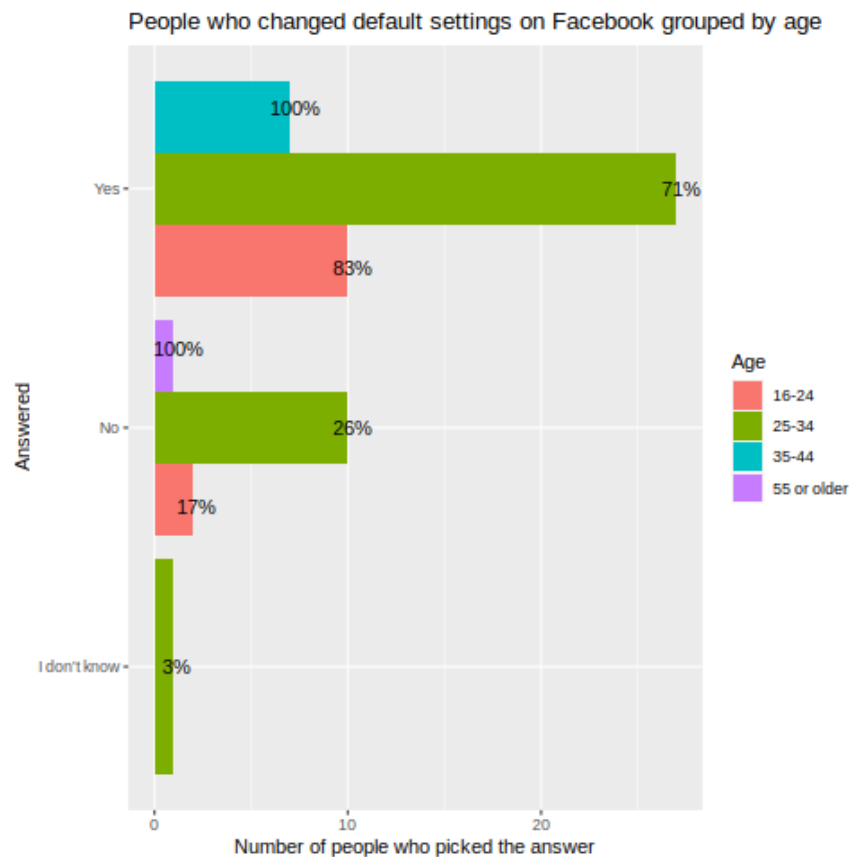
```
library(ggplot2)
library(tidyverse)
data <- read_csv("./dataset/data.csv")
names(data)[2] <- "q1"
data <- filter(data, q1 == 1)
names(data)[21] <- "freq"
```

```

data <- data %>% group_by(Age, freq) %>% summarize(freq_n=n()) %>% mutate(per=paste0(r
data %>%
  ggplot(aes(x=reorder(freq,freq_n), y=freq_n, fill=Age)) +
    geom_bar(stat = "identity", position = 'dodge') +
    geom_text(aes(label=per), position = position_dodge(width = 1), hjust=0.4) +
    coord_flip() +
    ggtitle("People who changed default settings on Facebook grouped by age") +
    xlab("Answered") +
    ylab("Number of people who picked the answer")

```

Figure 21: People who changed default settings on Facebook grouped by age



```

library(ggplot2)
library(tidyverse)

```

```

data <- read_csv("./dataset/data.csv")
names(data)[2] <- "q1"
data <- filter(data, q1 == 1)
names(data)[29] <- "trust"

data_f <- data %>% group_by(trust)

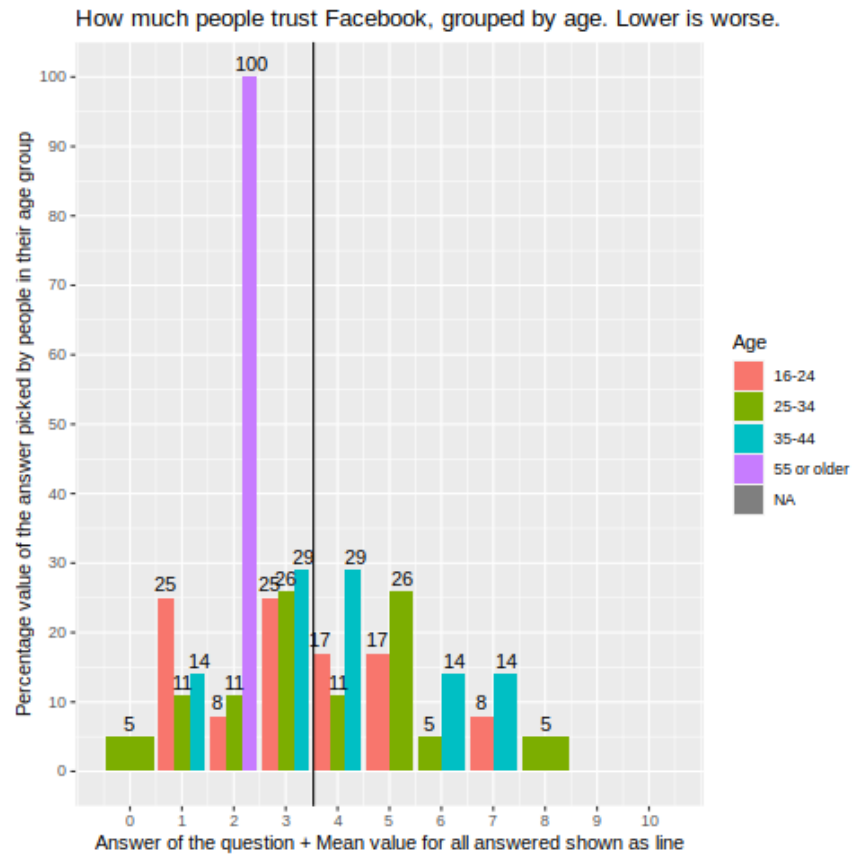
defaults <- tibble(trust=c(9, 10), n=c(0,0))

data <- data %>% group_by(Age, trust) %>% summarize(n=n()) %>% mutate(per=round(100*n/

data %>%
  ggplot(aes(x=trust, y=per, fill=Age)) +
    geom_bar(stat = "identity", position = 'dodge') +
    geom_text(aes(label=per), position = position_dodge(width = 1), vjust=-0.4) +
    geom_vline(xintercept = mean(data_f$trust))+
  ggtitle("How much people trust Facebook, grouped by age. Lower is worse.") +
  xlab("Answer of the question + Mean value for all answered shown as line") +
  scale_x_continuous(breaks = c(0, 1, 2,3,4,5,6,7,8,9,10))+
  scale_y_continuous(breaks = c(0, 10, 20,30,40,50,60,70,80,90,100))+
  ylab("Percentage value of the answer picked by people in their age group")

```

Figure 22: How much people trust Facebook, grouped by age with mean indicator as a line.



## D Semi-structured interview

### D.1 Protocol

#### Consent

- Do you agree that this conversation will be recorded.
- Make of a transcription for usage in research, which will be anonymized
- Do you use Social media Facebook ?
- Country - What is your country of residence ?
- Age - What is your age ?
- Gender - What is your gender ?

- Education - What is your highest achieved education ?
- Usage frequency - How often do you use Facebook ?
- Would you describe yourself as regular user of Facebook ? if else describe
- Have you read Terms of Service ?
  - if no -> Why ?
  - if read
  - Is there anything which you don't like in Terms of Service ?
- How would you describe your understanding of Terms of Service on Facebook ? Overall understanding of rules.
- Is there anything you would not agree to when agreeing to Terms of Services on Facebook and would it bother you if you would not be able to access your account unless you would agree to these rules ?
- Would it bother you if you would loose access to you account ? Describe why.
- What do you think Facebook can do with your content ?
- What do you think Facebook can do with data it collected about you ?
- Why do you think Facebook needs “non-exclusive, royalty-free, transferable, sub-licensable” license to your data ?
- Do you think Social media Facebook claim ownership of your content ? What does ownership of the content mean for you ?
- How would you describe your peception of control on your data and ownership on Facebook compare to ownership and control elsewhere (private photo)?
- Do you think you are in control of the content you create ?
- Do you think you are in control of the data Facebook is collection about you ?
- Does your perception of ownership change when you upload content on Facebook ?

- What is the main purpose why you decide to upload content on Facebook ?
- Do you think Facebook influences what you see ? and to what extent you can influence what you see yourself ?
- Do you want more control on Facebook over ... ?
- Does Facebook limit you in any way ?
- Do you think that your content on Social media can be censored or removed ?
- Is there anything which bothers in way you experience Facebook ? What would you want to change ?
- Do you trust Facebook with your data and explain why yes/not ?
- Do you think Facebook is collecting too much information ? and which information do you think should not collect and collects ?
- What settings you changed in Facebook and why ?

## D.2 Subject 1

- Researcher

Okay. Do you agree that this conversation will be recorded and it will be used for research and will be transcribed.

- Subject

Yes, I agree.

- Researcher

First question. Do you use social media Facebook?

- Subject

Yes. I use Facebook.

- Researcher



First, we have a couple of questions which just generalize and group you into some groups.

- Researcher

What is your country of residence?

- Subject

I'm from Slovakia.

- Researcher

what is your age ?

- Subject

I am 27 years old.

- Researcher

What is your gender?

- Subject

Female.

- Researcher

What is your highest achieved education?

- Subject

A MA Degree - Secondary High Education.

- Researcher

How often do you use Facebook? Describe your usage of social media Facebook. Would you describe yourself as a regular user or Facebook or if else describe.

- Subject

Yes. I'm very frequent user of Facebook, I use it everyday.

- Researcher

have you read Facebook's Terms of services?

- Subject

I don't think I have.

- Researcher

Now, do you have any idea why you haven't read it?

- Subject

Why I haven't read it? I guess it's too long.

- Subject

And there is nothing that I can change in it anyway.

- Researcher

Why do you think so?

- Subject

Well, should I just not agree with terms of Facebook and not use it or agree but complain?

- Researcher

Those are two options.

- Subject

Why would they change rules in terms of conditions only for me?

- Researcher

But maybe they would consider or change the rules because too many people complain. Would you say so?

- Subject

But in such case, I would only complain when I would be in the mass of people complaining about something, because now I don't see a reason of complaining.

- Researcher

So if there would be any way to complain to some parts of terms of services, will you complain? Like if there is, for example, at the end of the terms of services or next to it, it will be like, is there anything you don't like? Describe what you don't like or specify chapter or so. Would you do that?

- Subject

No.

- Subject

I don't think I would. I would only complain in a case that they would change terms and conditions in a way that it wouldn't be right in my beliefs or it would harm me in any way. I don't know. Let's say if Facebook would come up with the terms and conditions that only men can use Facebook and then I would complain.

- Researcher Is there anything which you don't like in terms of services?

- Subject

Well, I haven't read it.

- Researcher

But do you have anything in your mind which you wouldn't like if it's there or if it would be in the future?

- Subject

I haven't really thought about that. Nothing comes to my mind. I mean, if there would be, you know, discrimination, or if I would have to pay for it, then I probably would stop using it.

- Researcher

How would you describe your understanding of Terms of services on Facebook? Overall understanding of rules. It's not like, you said that you haven't read it, that's fine. But how would you describe your understanding of rules? What can be done, what cannot be done, from Facebook point of view and from yours?

- Subject

Well, I think it is mostly about them having information about me, and that I agree with them. And I think there might be a chapter about harassment and hoax and that I'm not supposed to do that. And what else?

- Researcher

Maybe racism, maybe discrimination, would you say?

- Subject

I don't think so. I don't know. I don't think Facebook is so far ahead that they would ban racism and discrimination on their platform.

- Researcher

Okay. I think there are some cases of that, but I don't know how well or good they are in that, but definitely.

- Researcher

Next question - is there anything you would not agree to when agreeing to terms of services on Facebook? And would it bother you if you would not be able to access your account unless you would agree to these rules? We already touch upon that. But would it bother you that they would put something in the terms of use and you disagree so much that you would lose access to your account?

- Subject

Now I'm thinking that I really wouldn't be for Facebook selling my pictures for others to buy. I mean, not that anybody would want to buy my pictures, but that's not nice. On the other hand, the whole society can have my pictures for free since my profile is public. But, you know, earning on my pictures. That's what I wouldn't.

- Researcher

Would it make you mad if I would tell you that it's possible?

- Subject

No. It would make me mad if I would find out about it. Like if I would really have a nice picture all of a sudden it's on commercial somewhere.

- Researcher

So it wouldn't make you mad that they can do it. But it would make you mad if they do it.

- Subject

Yeah.

- Researcher

Okay. Would it bother you if you would lose access to your account from a different way? Not because you disagree with terms of use, but you would get banned, for example. Or there are cases where Facebook needs to verify your identity, and they require passport or government ID to approve you to regain your access to your account.

- Subject

On one hand, I want to say no, that I wouldn't mind if I would lose the access to my account because it's some sort of freeing, you know, that I'm free and away from Facebook, and I wouldn't bother to set it up again. But on the other hand, I would be really mad because, well, many of my friends there most of my data are there, meaning my past. Like, you know, this is what you've been doing last day. Plus, I work on Facebook. I am managing social media. So it would mean probably that I would lose the possibilities work.

- Researcher

But let's say your personal account, if you would lose access to your personal account, you can actually still download the data and history and friends list.

- Subject

Well, in that case, I think I would be mad and I would stay away from Facebook for a while, but knowing me, I would probably return.

- Researcher

Okay. Next question. What do you think Facebook can do with your content which you created? So you upload pictures or text or videos?

- Subject

Well, what I think they do is that they track what I do and then they sell this information to the companies and they can then locate the Advertisement on my Facebook and that's about it. I don't think they care enough about my pictures or something like that.

- Researcher

There is a part and license that they are allowed to do research on your data, your content. And for example, if you allow automatically analyzing pictures to identify your face, they can have that.

- Subject

Well, Iphone already has that. So I don't really mind. Okay.

- Researcher

What do you think Facebook can do with the data it collects about you? You already mentioned that.

- Subject

Yeah, I think they sell it.

- Researcher

For Advertisement you said yes.

- Subject

Well, technically, I don't think they sell it per se, but they get the money from the Advertisement. And in my opinion or how I see it is that they make sure that when you pay for this Advertisement, it will get to the people who are most likely to buy it. So they are not selling information. But they are making sure.

- Researcher

That is correct. They are not selling information directly but they are creating these very narrow groups which you can then target with Advertisement. So they are not selling your data directly, but indirectly.

- Researcher

Why do you think Facebook needs nonexclusive, royalty free, transferable, sub- licensable license to your data?

- Subject

I have no idea.

- Researcher

Okay, should I translate this.

- Subject

Neither of those. I understand.

- Researcher

Non exclusive means that it's not only for Facebook, but it can be used elsewhere.

- Subject

Okay, so Instagram as well.

- Researcher

Royalty free means that they will not give you any money and you can't require them to pay you. Transferable, that means that they can transfer license from place to place. Sublicensable - they can sub license so they can change the license and they can earn money on the content you provide with different license.

- Subject

Okay, well, as I see it, Facebook needs that and how you just described it only for them to have the information on me.

- Researcher

So why would they need such a license where they can sublicense change, get pay for the content you provide?

- Subject

I don't know. I really have no idea.

- Researcher

It's very, very non restrictive license. They can restrict it more if they wanted to. Why wouldn't they. Does that bother you?

- Subject

I don't have any opinion on this.

- Researcher

Are you confused about the definition?

- Subject

I am totally confused why would they need that.

- Researcher

Or are you confused about why they need such a loose license?

- Subject

I don't understand the loose license to be honest.

- Researcher

It gives a lot of power to them. So they can have, for example, exclusive license instead of the non-exclusive. So it's only for them so they can't sublicense elsewhere.



- Subject

But I don't understand why they need to?

- Researcher

Does that bother you?

- Subject

That I don't know?

- Researcher

Yes. And why they need this license and not like more strict license where it's clearly defined what they can do, what they cannot do and so on.

- Subject

No, it doesn't bother me.

- Researcher

Okay. Now thing social media Facebook claim ownership of your content. What does ownership of the content mean for you?

- Subject

I don't think they claim it per se, because I don't think they care about my data that much. So it is in a way still mine, but on their platform. So we share my information, basically.

- Researcher

So let me rephrase this so we understand. In the Facebook license in terms of use, they use very loose license, which they require you to accept, which we already said nonexclusive royalty free, transferable and sublicenseable. But they also say that you are the owner and you are the responsible person. So if there is any trouble with the content you provide, you are the only responsible person.

- Subject

Yes because I create the content.

- Researcher

But they earn money on it.

- Subject

Well, good for them?

- Researcher

Yeah. So it's basically they get control or real content so they can do anything. But yes. How would you describe ownership? What does it mean for you?

- Subject

Well, owning something.

- Researcher

Yes. What does mean to own what power does Facebook give you? Yeah. So let's say you own text or piece you create or picture. Let's say picture, you created picture, right? You own the picture because you created it. What does it mean to own picture?

- Subject

That's very philosophic.

- Researcher

What power does it give you to own the picture? Right.

- Subject

Well, as I'm saying, when I post a picture, I know that it can go anywhere.

- Researcher

Well, if you post a picture on Facebook, you are no longer in control of that. That's the point.

- Subject

I am aware of that.

- Researcher

Does it bother you that you are losing control of what can be done with your picture?

- Subject

No.

- Researcher

Okay. How would you describe your perception of control on your data and ownership on Facebook. To open question?

- Subject

Yes.

- Researcher

Okay. You already described it. It doesn't bother you that basically once you upload the picture, you are giving away certain control for benefit of uploading sharing and reaching. Right. And that even though you had ownership before, you still have ownership on Facebook, but you are losing certain controls. Is that correct?

- Subject

Yes.

- Researcher

So I just wanted to figure out how you would describe your perception. Do you think you are still in control? You think you are losing some control or you are not controlled at all?

- Subject

To be quite honest, I don't think about that.

- Researcher

Okay, that's fair answer. Alright, let's go to next one. Do you think you are in control of the content that you create?

- Subject

Yes, I am in control of that, in my opinion, because before I create it and post it, I think twice about doing that because I'm aware it can get anywhere. It can be I don't know sold, stolen, mocked, I don't know anything. So in that sense I have control of the content I create. The question is whether I have the control after. I don't know, I created I posted and then I don't have the control of it. I can only delete it or edit it. And that means I still have the control.

- Researcher

And you still can control who can see that post, right?

- Subject

Yes. I think I have control.

- Researcher

Okay. Next question. Do you think you are in control of the data Facebook is collecting about?

- Subject

Not at all. Well, because there are so many things I do on that Facebook, and basically they can collect every single click I do every turn I make. Apparently they are also collecting how much time I spend looking on one picture.

- Researcher

That's correct.

- Subject

No, I'm not in control of that. And I don't think I can because these are only two things I know that they're controlling when I click and how much time do I spend. And there may be many more other things that they do.

- Researcher

Does it bother you that they are doing it?

- Subject

No.

- Researcher

Even if you consider that they are optimizing it in the way that you spend more time on it.

- Subject

Yeah, that sucks. When you say this way I'm bothered.

- Researcher

Does your perception of ownership change when you upload the content? I'm aiming with this question. Do you see a difference when you have, for example, picture once it's on your device, for example, and compare it with the picture which is on Facebook uploaded. Do you see a difference in ownership?

- Subject

Yes.

- Researcher

What kind? Could you describe it? Could you elaborate?

- Subject

When I have it on my photos, my gallery, my albums, it's only mine and technically Icloud's, but none of the strangers can take it. Facebook cannot sell it if they would be doing that. So that really is mine and it's private. But the minute I posted it can get anywhere.

- Researcher

Do you see difference between sharing pictures with your friends and sharing pictures through Facebook with your friends in closed group.

- Subject

Yes. Because when I send it via messenger, it's only going to them. In my opinion, even though I know that Facebook can take it. But that would be really like disruption of my Privacy. But when I'm posting it on Facebook or to Facebook directly, I'm aware that I'm sharing my ownership with Facebook and others.

- Researcher

Okay. I understand you use Facebook as more like a blogging platform, which everything is public.

- Subject

Yes, because my Facebook page is public. It is open for everyone.

- Researcher

It's not for everybody like that.

- Subject

I know, but it was my decision.

- Researcher

Yes. Let's go next. What is the main purpose? Why you decide to upload content on Facebook when you upload it? Do you have major motivation?

- Subject

Well, many times when I actually do post something, I either think that it will make people laugh, so it's a status or something that will make them happy after they read it. And when it's a picture, on one hand, I'm presenting what I'm doing like, hey, look, I'm cool. And on the other, I post pictures when I look good on them or when I want to raise an issue via my activities. So let's say I'm planting a tree. So I post it because I want more people to plant the tree. But I don't post that many things, to be honest.

- Researcher

Thank you. Do you think you're in control of the content you see?

- Subject

No. Well, in a way, technically, because I pinned some of the newspapers up, and I don't know whether that feature still works, but a while ago I could set up newspapers that I like or any page that I like to be the primary I see on the top of Facebook. But then when I scroll it's just random shit, basically. And sometimes I am surprised what I see, like how this ended up here. Why, this is so random.

- Researcher

Okay. Next question. Do you want more control on Facebook?

- Subject

Yeah, I would like that.

- Researcher

On what? On what you see, or?

- Subject

Well, control for myself or for the government?

- Researcher

More like what you can control on Facebook. Right. So either what you see or how Facebook is using something. So if you gain more control over, for example, design.

- Subject

I would like to have a control of the design and oh, yeah, control over what I see a bit more to be honest, because that bullshits which make me stay there are useless. But they work. So I'm staying to see useless things. And I really don't want that.

- Researcher

Does Facebook limit you in any way in the regards to content you create and consume? So you already said that kind of, that it does influence what you see. But this is more question, if it limits you. Does Facebook limit you in any way?

- Subject

I don't know. It limits me. The number of people on Facebook being this big, especially among my friends. It's limiting because when I want to posting somewhere else, I'm less likely to do it because of my friends would see it because they are not on another social media.

- Researcher

Do you think that your content on social media can be censored or removed?

- Subject

Yes.

- Researcher

Are you okay with that?

- Subject

Yes.

- Researcher Do you think Facebook influences what you see and to what extent you can influence what you see yourself.
- Subject

Yes.

- Researcher

Is there anything which bothers you in a way you experience Facebook? What would you want to change?

- Researcher
- Subject



Is there anything? Well, I don't like seeing things I don't like. I really don't like that, ou yes, that bothers me a lot, actually. They always change something.

- Researcher

Okay.

- Subject

And it doesn't make any sense in a way how you use it. So I don't think Facebook is user experience or experience user friendly or whatever it's that phrase called. It just sucks. I mean, sometimes some things that worked, they change, and there are no options for that. And it looks different, which I'm okay with, but it doesn't make any sense. It makes you annoyed. Yes. And then you spend hours looking. How can you do that? One simple thing that you've been used to doing for ages and now you even cannot do it.

- Researcher

Would you want to control it? Whatever you want. Update to the user experience or not?

- Subject

I mean, I wouldn't mind update, but they have to keep all the options. They cannot just skip one tool when they upgrade.

- Researcher

Okay. Last two questions. Do you think Facebook is collecting too much information and which information do you think should not collect or collect?

- Subject

I don't know what is too much. And I cannot really judge that because I don't know how much information they are getting. You know, are they really collecting on everybody? What if somebody is not using it and they're boring and they're not spending time there at all. So I don't think they're collecting on that really low time users. And what if they are not collecting every single click I do?

- Researcher

What information do you think should not be collected?

- Subject

It's hard to say, because if there is information, I don't want to be on my wall, I'm not going to share it because I know it's going to get collected.

- Researcher

So I mean, private conversation.

- Subject

All that shouldn't be collected.

- Researcher

And then anything which you don't basically share, right?

- Subject

Yes. anything that doesn't go to a public dashboard or fanpage or whatever.

- Researcher

Imagine this. They collect and track your usage, right? If they would share. For example, new update on the profile, and they would share your usage of Facebook would that bother you? Imagine that you watch some videos and they analyze what you like to watch, and they would highlight that on your profile.

- Subject

That they would tell everybody? No, I would hate that. That is so embarrassing. No.

- Researcher

Okay. Last question. Have you ever changed default setting on Facebook and what settings have you changed and why.

- Subject

I changed who sees my post and I tend to change it quite regularly. Yeah, this is what I change. And I should change my password now.

- Researcher

Alright. Thank you very much.

- Subject

Thank you.

### **D.3 Subject 2**

- Researcher

First of all, I need to ask you for consent. Do you agree that this conversation will be recorded and later I will make a transcription for usage in research. It will be analyzed.

- Subject 2

I do.

- Researcher

Perfect. First question, do you use social media Facebook?

- Subject 2

I don't I have before I deleted my account four months ago.

- Researcher

Okay. Could you talk about your experience with Facebook before? But first, I need a couple of questions. What is your country of residence?

- Subject 2

Slovakia

- Researcher

Was your age?

- Subject 2
- 
- Researcher

What is your gender?

- Subject 2

Female.

- Researcher

What is your highest achieved education.

- Subject 2

High school diploma.

- Researcher

Let's talk about usage frequency now so how often do you use Facebook?.  
But do you use Messenger?

- Subject 2

I do daily.

- Researcher

Next question, how would you describe yourself, what kind of Facebook user  
you are?

- Subject 2

Just a regular user who is using Facebook for communication mostly.

- Researcher

Have you read the terms of services on Facebook?

- Subject 2

No, I did not. I only accepted them.

- Researcher

Why?

- Subject 2

Because it was long thing to read. And usually these things pop up, like in every application or every stuff that you are logging in or signing up. And I never read any of that. So I know it's a mistake. And I should read that before.

- Researcher

There is nothing wrong with any answers. How would you describe your understanding of terms of service on Facebook? You said you didn't read them, but you have some kind of understanding. Something understanding of what can be done, what Facebook can do to your data, to your content, to what it collects. Overall understandable of rules. What are those?

- Subject 2

Well, rules of Facebook, right?

- Researcher

The terms of services.

- Subject 2

Well, if you accept them, that means that Facebook will have the information about you that you're posting. Probably they can have the conversations also that you're, you know, exchanging with people. They see the pictures, they see everything that you do based on what you like, based on what you share, then they recommend you stuff like, you know, things to buy based on what you like, based on what you are talking to with other people. So you basically agree with Facebook that they can know everything about you if you don't set up the security stuff correctly. For example, my profile was like, I set it up that only my close friends can see the post, no one else. If they tag me on the Photo, I have to accept it. So I kind of minimize the stuff that the Facebook can do, but I know that they can do a lot.

- Researcher

Next question, is there anything you would not agree to when agreeing to terms of services on Facebook? And would it bother you if you would not be able to access your account unless you would agree to these rules? So imagine something which is like really breaking. You would not agree with this. What is that? And will it bother you if you would not be able to access because they require you to agree to the terms of use?

- Subject 2

Let me think. I think the sharing or the visibility of the stuff that you post. I didn't know it or I didn't think about it before I logged in or sign up to Facebook. But if I would knew it and I probably had to read the terms and conditions, I wouldn't sign up. But I did. And I know that I am not able to now delete the Facebook account like completely. They will have some kind of information, but at least what I did was that I locked off. I deactivated it and I'm not using it anymore because I don't want people to see the stuff the personal stuff that I am experiencing. I would put it that way.

- Researcher

So you use Facebook Messenger so it's more private?

- Subject 2

Yes, exactly. I'm not posting anything. I'm just keeping in touch with friends or colleagues from my work and my family and that is it.

- Researcher

Would it bother you if you would lose access to your account? Imagine that you use Messenger. So if there something happens? So for example, if you would share something which is against the rules in Facebook or Messenger and they would block your account, would that bother you?

- Subject 2

No. With the people that I'm talking to, I have their numbers or I have them on other applications. Like Whatsapp and stuff like that. So if they will block me, okay, I can find another way to talk to them. There's no issue about that.

- Researcher

Next question. What do you think Facebook can do with your content? But you are not uploading content to Facebook but you do to Messenger.

- Subject 2

Well, I'm sure that they can see what I'm sharing with friends or they can track the communication. I know that they can use the application to track if something happens to someone, but I'm not sure what they are doing with the information. If they are doing analysis on that. And based on the stuff that we're talking about with friends, they can then also share the advertisements and stuff like that. I'm not sure about that. What they can do inside the messenger. It's easier to do that with Facebook and the wall that you have that you're posting stuff. But messenger not sure.

- Researcher

This question kind of overlaps. But what do you think Facebook can do with data it collected about you. More like how can it be used? You already said advertisement.

- Subject 2

Advertisement, research, the analytics that maybe they can measure something based on what people post, they can see what they like, what they are interested in and based on that, the same things can be recommended to their friends as well. So probably these things will be the major ones.

- Researcher

Next question, why do you think Facebook needs nonexclusive, royalty free transferable sub-licensable license to your data. So this is taken from terms of use, terms of services. And there is a quote "nonexclusive, royalty free transferable, sub-licensable. Do you know what does mean? No, okay. So non exclusive - it's not exclusive to Facebook, so it can be, for example, for Instagram.

- Researcher

Royalty free is that if they use content in any way or advertize based on your content and earn money on it, you do not sue them to get money out of that. Royalty free means you don't get anything out of it, and then it's transferable and sub-licensable. They can sub license and change the license of the content they take for a certain purpose. It's very loose license. Why do you think Facebook needs such loose license? Because it could be exclusive. It could be non transferable and without sub-licensable so they can re-license and it's only exclusive for them for a certain purpose. But no, they use such a lose license. Why do you think they need that?

- Subject 2

To keep them safe probably, you know they have their own policies. They have their own rules. And that's why they have to protect themselves, like the company and the stuff that they do and the way that they do it. So I would say protection for sure.

- Researcher

Okay. Next question. Do you think social media Facebook claims ownership of your content? What does ownership of the content mean for you? So first you need to kind of define what you think ownership is. And then do you think Facebook is claiming ownership of your data? So imagine I would like to compare it. For example, imagine you take a photo, you save it on the phone, what powers or control you have, what you can do with that photo and imagine compare it to your post on Facebook or share on Facebook.

- Subject 2

Well, in that case, then they have ownership of everything that people do, because if you post something on Facebook and you delete it at whatever, after a day or two, it doesn't mean that the Facebook doesn't have it somewhere in their back end let's say, so if you post anything, or share anything they own it. I'm not sure if I can say like they own your profile as well and all the information they put there, but probably yes, because they I think they keep a record of every person and every detail you put in there with your consent. So yes, they do own your stuff, and you should have the privilege or the right to delete it, like permanently.

- Researcher



There is EU law which forbids this kind of behavior. If you decide to remove something, they need to remove it.

- Subject 2

Okay.

- Researcher

Next question, how would you describe your perception of control on your data and ownership on Facebook compared to ownership control. Do you think you're in control of the content you create this? Now, the control. What can you do and what you cannot do with control of Facebook? When you share it on Facebook, for example?

- Subject 2

Well, I know there are certain rules that you can adjust, like you can share a photo only with yourself. You can share your birthday only with yourself so nobody can see it. You can control what other people see or which people you want to see. I know that sometimes I did the thing that I posted something and I excluded my mom or someone to not see that. So you can do limited stuff with rules. But, yeah, there are rules for sure.

- Researcher

So boundaries.

- Subject 2

Yes, that one. That's the worst.

- Researcher

Next question, do you think you're in control of the data Facebook is collecting about you? So it's not what you post, but what they collect about you.

- Subject 2

I don't think so. I don't think I'm in control of everything or anything on Facebook. If you put something out there, there you go. You can do whatever with that stuff.

- Researcher

Next question, does your perception of ownership change when you upload content on Facebook? Do you see a difference in ownership between something which is on your, for example, your phone locally and then when posting it on Facebook?

- Subject 2

Yeah. Because if you post it on Facebook, then you're losing part of the control over it because other people can share it. I'm not sure Facebook can do something like that, but if you put something out there and people see it, they can share it and send it to someone else. So it's not private. Like if you keep it on your phone so you are losing for sure most of the control of the stuff that you post, even if it's a photo or details, whatever. If you write something, you comment, it's out there. No control.

- Researcher

Next question, what is the main purpose why you decide to upload content on Facebook? So when you decide to upload something, why is it and what type of content is it?

- Subject 2

Well, when I started with Facebook, I usually posted everything that was on my mind. When I was checking my last statuses and photos it was very hilarious for myself to check on that. But then when I understood the social media more, I restricted as much as possible. I deleted, let's say, 400 people, which I didn't talk to. Because I didn't want them to know what I'm doing or where I am or what I want to say. So then it was like from 600 people to 150 now, it was even less. And that was usually close, friends, colleagues and family. And I used Facebook mostly to share., I think most of the time, photos. And if I saw something interesting on the Internet, like videos, funny stuff, something educational so I posted it there for people so they can like it or see it or learn from it and that's it.

- Researcher

next question. Do you think Facebook influences what you see and to what extent you can influence what you see yourself?

- Subject 2

Yes, I do think that they can influence what you see or what you don't see and stuff like that.

- Researcher

Why do you think so?

- Subject 2

Because as I said previously, they can track what you do. They can see what you do and they will affect what you will see in the future, and they can track your behaviors.

- Researcher

So do you feel controlled in some ways?

- Subject 2

Oh, for sure. Maybe control is like a strong word, but, manipulated.

- Researcher

Okay. Do you want more control on Facebook over (insert the most preferred)?

- Subject 2

Well, it will be for sure very helpful to have more control and to set up more strict rules.

- Researcher

What kind of control are you missing?

- Subject 2

I'm not sure if control is a right word, but I would like to know that if I post something or share something, it's only within my cycle and it's not going anywhere else. Not like people that I don't know cannot share it. If I have a Facebook group or Facebook page, which I know that only my people will see that's enough. I don't need to have a person in Egypt. Some posts will go all the way to another planet and they can see it.

- Researcher

You don't want Facebook to see as well.

- Subject 2

Yes, only my private private circle, let's say or group. Yeah, that's better word. So imagine if you have like a Facebook like it is, and then you can select, like mini Facebook where you have borders. You will post only this and it will go that way that way.

- Researcher

Does Facebook limit you in any way? It's not like what you want to control more but would you want to do something, but you cannot.

- Subject 2

I don't think there is limitation. They allow you to post, to write, to call, to message or whatever you want to do. You can join groups, you can talk to other people. I don't see any limitation. Maybe the limitation is that the visibility of your context.

- Researcher

Do you think your content on social media can be censored or removed?

- Subject 2

Yes, I think so. Can be blocked, can be whatever they wanted to do with the stuff.

- Researcher

And why do you think they do it?

- Subject 2

Well, if they find something offensive that I post or something which is abusive, they have the right to control it or remove it from Facebook.

- Researcher

And do you think it's transparent?

- Subject 2

I do.

- Researcher

is there anything which bothers you in the way you experience Facebook? What would you want to change? So more like appearance, usability and this kind of stuff.

- Subject 2

Let me think, appearance is fine. I don't care how the stuff looks like. I don't think there's something that bothers me. Maybe the notifications like if you turn them off, it means that all of them will be turned off. And now that you will still receive some, it happened to me before, but no, nothing like very specific that would bother me with that app.

- Researcher

Do you trust Facebook your data and explain why? Yes or no?

- Subject 2

No, I don't. That's why I stopped using it. Because I know that it's not private and it can be analyzed. It can be monitored, it can be controlled and stuff like that. So I didn't feel the ownership of my data online. And that's why I did the steps that I did that I removed the Facebook. I didn't go on it. And the only thing that I kept was the messenger for the communication.

- Researcher Last two questions. Do you think Facebook is collecting too much information and which information do you think should not collect and collect as well?

- Subject 2

I think they collect everything that you post. And I don't think there is a limit what they can or what they cannot, it is your decision. So if you put something out there, you know that it will be collected. You know they will do something with your stuff. So I would say that it depends on person. If

you are the person who lives on social media, you will put everything there, so you're okay that people will know everything. But if you like me, for example, I didn't have any personal information on there. I didn't post any personal stuff. So I was okay with what I was posting and I was okay that other people will see it.

- Researcher

Last question. What settings have you changed in Facebook and why? Have you changed default settings?

- Subject 2

I changed them. I set up some post that I can only see. I removed the visibility of my birthday. What else did I do? I removed everything that I posted before. So like, my whole history because of my presentation. So everything that I posted since I joined Facebook, I don't remember the year. And I set up also the rules that some people are not able to see any of my posts, so I block them for safety.

- Researcher

That's all.

- Subject 2

Nice talking to you.

## **E Thematic analysis - codes & themes**

### **E.1 Initial codes**

- have not read terms of service - (*pattern or common code*)
  - too long - (*code*)
  - confusion about license
  - Facebook is protecting self to have such license
- inability to change anything
  - helplessness

- privacy
  - feeling of being watched
  - use only as public medium
  - not using Facebook - privacy concern
  - removed history
  - removed personal information
  - unsure of what Facebook can do with information it collects and have
- control
  - feeling of lost control once data is shared
  - feeling of being manipulated
  - fine with giving away control
  - dislike changing functional parts of the product
  - desire of more control over visual
  - desire of more control over feed content
- using alternative
  - would get annoyed by using alternative but it is fine (if lost access)
  - only use Facebook if it is free
- censorship
  - transparent
  - fine with censorship
- lack of trust in Facebook

## **E.2 Themes**

- lack of understanding of the license
  - not reading it
  - being too long
  - not understanding the technical terms and what they mean
- lack of control over data on SNS

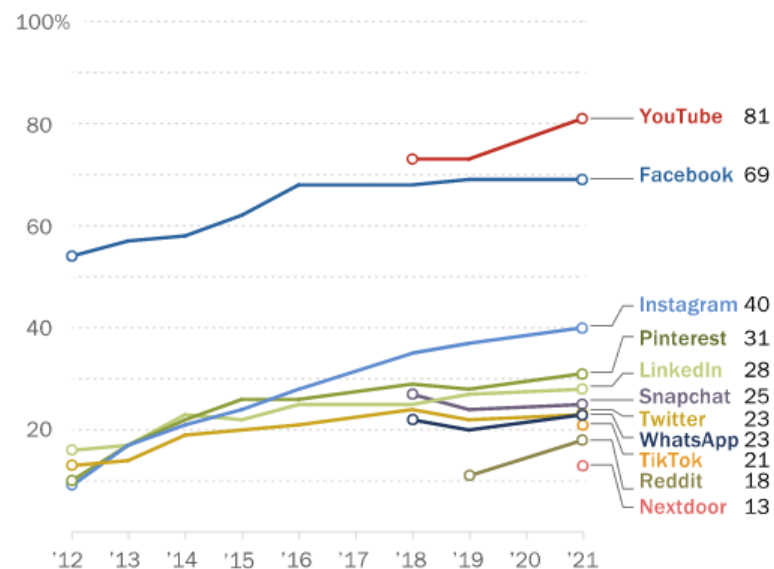
- helplessness
- lack of control once data are shared
- disliking of automatic changes to UI & UX of SNS
- Lack of control over visual aspect of SNS
- Lack of control over what is shown
- lack of trust in Facebook
- privacy concerns
  - lack of control once data are shared
  - feeling of being watched
  - being forced to use SNS as public medium
  - Stop using it because of Privacy concerns
  - Removed old contact due to privacy concerns
  - Removed personal information due to privacy concerns
  - Confusion about what Facebook can do with information it collects and have



## F American Usage of social media

### Growing share of Americans say they use YouTube; Facebook remains one of the most widely used online platforms

% of U.S. adults who say they ever use ...



Note: Respondents who did not give an answer are not shown. Pre-2018 telephone poll data is not available for YouTube, Snapchat and WhatsApp; pre-2019 telephone poll data is not available for Reddit. Pre-2021 telephone poll data is not available for TikTok. Trend data is not available for Nextdoor.

Source: Survey of U.S. adults conducted Jan. 25-Feb. 8, 2021.

"Social Media Use in 2021"

PEW RESEARCH CENTER

Source: Auxierand and Anderson, 2021

## G Approval of Literature

Thesis proposal for 10th semester, Rethinking social media, advice



Florian Maximilian Meier

Today, 8:19 AM

Hi Daniel,  
Looks good! I hope you are able to weave all those articles together nicely in your related work part!  
Your literature list is hereby approved.

Best,  
Florian

-----  
Dr. Florian Meier  
Department of Communication & Psychology, Aalborg University Copenhagen  
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URL: <https://people.aau.dk/florianmeier/> | Twitter: @meier\_fm



Daniel Rafaj

Yesterday, 3:29 PM

Florian Maximilian Meier · 15



Reference list bookkeep... ✓  
24 KB

Download

Hi florian,

as promised I am sending you literature list I used in the project.

When copying sometimes space was removed so some of the text is next to each other, If it is an issue let me know I will go over the list again and fix all the spaces.

Daniel.

---