

# The Impact of behavioral economics on users' privacy experience on social media

A study of the practices and challenges involved in designing behavioral change



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## **Abstract**

This thesis uses service design thinking and behavioral economics framework to investigate the cause and impact of privacy concerns in social media users. Based on the findings from a literature review, primary data, and workshops, interventions are developed to drive users toward a new behavior. Users' privacy concerns are based on their perceptions, experiences, and perceived benefits. Based on the analysis of Facebook's privacy settings, the thesis concludes that users' privacy behavior has been affected by an exogenous factor known as a network drive, which leads to behavior that leads to privacy concerns and distrust. As a result of this case study, a behavioral change tool was developed that can be used to brainstorm solutions for changing social media users' behavior towards active privacy. Finally, an example of a use case was provided to demonstrate how this study can be used.

**Keywords:** Service design, behavioral change, behavioral economics, behavioral change, and privacy concern

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# Chapter 1

## Introduction

### 1.1. Introduction and motivation

Previously, 'service' meant only exchanging goods or providing services and receiving monetary compensation between individuals. There is a significant increase in the complexity of service domains and interactions today. As the name implies, service systems integrate and combine value created within various design contexts, such as person-to-person interactions, technology-enabled self-service, computational services, multichannel, multi-device, location-based, and context-aware services (Maglio et al., 2006; Spohrer et al., 2007). A current trend in design practice is to stretch the boundaries and question the underlying basis of this new specialization. Service design encompasses more than how designers work, how products are made, and who their potential customers are. Provides experiences that evolve over time and across different touchpoints (Clatworthy, 2012).

As users, we have been using services and products that have been suggested as desirable alternatives or influenced by the choices of others around us in some way. In the past, products and services were developed based on user needs. Nowadays, products and services are manufactured and sold by businesses by creating requirements for the consumer. As a result of business and popular culture influences, we buy or use products without needing them. For example, almost two decades ago, the first smartphone was introduced. There was no need for smartphones since there were portable phones for communication, but these businesses created the need and sold them to users. However, human decisions are only sometimes straightforward. Our surroundings influence our behavior, affecting how we make decisions, like ads that encourage us to buy unnecessary items or apps that attempt to occupy our time. In other words, we are in the business of changing behavior, and behavioral science provides an essential toolkit for intentionally designing for behavior change. In behavioral science, psychologists and economists combine to gain an understanding of how people make decisions and act on

those decisions. Thus this has sparked interest in behavioral change in the design community and its intentional application.

Additionally, practitioners from various fields embrace behavioral economics theory to inform interventions to change behaviors. *Nudge theory* is a persuasive design based on behavioral economics and psychology. It is credited with its success due to its ability to produce tangible results with small investments. However, its application is limited to discrete problems, and the long-term effects are still being determined. Throughout this thesis, we will explore how behavior economics influences user experience on social media platforms and how these social media giants have influenced user behavior. Research on service design has revealed that products can influence human behavior. However, there is limited research on influence in design publications. Thus, this thesis aims to investigate how designers should use methods for behavior change (Tromp, Hekkert, and Verbeek, 2011). Recent design research and practice developments focusing on behavior change have been labeled persuasive technology (Fogg, 2002) and design with intent (Lockton, Harrison, and Stanton, 2010). In particular, behavioral economics is closely related to design since it explains how the built environment influences behavior. This thesis explores whether behavioral economic research activities can be viewed as valuable and impactful as the outcome of the design process by focusing on the research phase of the design process. This thesis contributes to advancing our understanding of service design and our role as service designers by shifting from being the primary actor in service design projects to supporting others in utilizing their design capabilities (Manzini, 2015) by generating ideas and designing concepts for behavioral change. As a case study, the thesis studies the privacy settings on social media platforms Facebook and Instagram, user privacy concerns, challenges that users face across these platforms in managing their privacy, and factors that influence their behavior. From the point of view of behavioral economics, we can see how the built-in environment of social media has influenced user behavior. As well as how users and social media platforms weigh in on the privacy calculus scale. What makes this topic of interest from a service design perspective? Consequently, as a service designer, I would like to apply my skills to assist users in making better choices by providing information about the ongoing behavior economics employed by these social media platforms.

## **1.2. Learning objective**

According to Aalborg University's official learning objectives, the thesis will aim to accomplish the following objectives. This paper documents the knowledge, skills, and competencies acquired during the master's program at AAU Copenhagen in Service System Design. In addition to the many learning objectives established by AAU, this thesis emphasizes the following:

- Solid understanding of design theories and methods relevant to advanced and complex product-service systems.
- The ability to work independently, identify the major problem areas (analysis), and effectively address problems and opportunities (synthesis) is necessary.
- Demonstrate the ability to analyze, design, and represent innovative solutions.
- Assesses and synthesizes major organizational and business issues that emerge during product-service system design.
- Ability to initiate and implement discipline-specific and interdisciplinary collaboration on an independent basis and assume professional responsibility (synthesis)
- Engage in technological development and research and independently apply scientific methods to solve complex problems.

# Chapter 2

## Literature review

### 2.1. Privacy Concerns and Self-disclosure on social media

#### 2.1.1. Privacy Concerns on social media

Numerous studies have examined the privacy issues associated with social networks, including analyzing shared content (Bauer et al., 2013). Traditionally, privacy refers to a person's right to be alone. The practice refers to preventing the disclosure of personal information to others. Burgoon et al. (1989) classified privacy into four dimensions: physical, social, psychological, and informational. A person's physical availability for others and their need for personal space refer as the *physical dimension*. Physical contact without the consent of another person, for instance, violates this right. People can violate the *social dimension* by violating conversational norms and interacting with others often and over a long period. The *psychological dimension* is about retaining control over cognitive and affective inputs and outputs, including whether and with whom thoughts are shared. Injuries or manipulations (i.e., inputs) affect output/behavior, disrupting the dimension. Besides the psychological dimension, the *informational dimension* considers that individuals do not always have control over their information. It is because a law or a service requires them to disclose. DeCew (1997) defines an *informational dimension* as the item to be protected, such as financial or health information. It is not just offline that people violate their privacy. Several privacy concerns are rising from internet usage and related services, including social networks like Facebook and Instagram (Madden, 2012). Informational concerns increase through social networking sites and other online services (Joinson & Paine, 2012). Individuals need to have complete control over who may access their personal information.

As per Lanier & Saini (2008), users have three primary privacy concerns.

- Notification, many users like to be informed about how organizations collect and use their personal information;



- Control, users like to have the ability to control the collection and sharing of their personal information with other organizations;
- Security, users require assurances that the information stored online will remain secure.

As mentioned above, users are concerned when their information is misused or when it is unknown how it is used. Moreover, third parties may only be able to purchase users' information if they notify the users about who is receiving it and how it is being utilized (Nowak & Phelps, 1995; Phelps et al., 2000). Moreover, users have privacy concerns when they voluntarily or involuntarily send their personal information to Web servers. It is pertinent to note that social media networks trade the private data of individual users for an exchange service (Acquisti et al., 2015). As well as implicitly collecting user data, social media sites use tracking software or cookies to monitor consumers' online behavior and learn about their interests and preferences (Liu et al., 2004). Although social media sites' purpose is for social connection among families, friends, and communities (Cameron & Webster, 2005), explicit or implicit disclosure of durable private data can have different intended or unintended negative consequences for users. Most social media sites generate unharmed but potentially annoying effects, including spam messages (Prosser, 1959). Generally, privacy cases fall into four categories: **intrusion**, **private facts**, **false light**, and **appropriation** (Hwa & Sheng, 2022). An intrusion is a high-level offensive physical or non-physical intrusion upon another's sphere. Private information is information published without consent about another individual. Appropriation is misusing another's data (for instance, their name). In addition, lacking data literacy resulting in the unintentional disclosure of private data, also poses a threat to the usage of social media sites (Bartsch & Dienlin, 2016). Moreover, the digital age has made it possible to store data that is impossible to remove. Therefore, social media users are at risk of data collection years after the data has been collected (Mayer-Schönberger, 2011).

Users' privacy concerns are negatively affected by their intentions to participate in social media and social commerce sites (Wang & Herrando, 2019). Online privacy concerns are significantly influenced by trust in the online platform (Chen, Beaudoin, & Hong, 2016). Social media platforms attempt to alleviate users' concerns by increasing their perception of privacy controls. In 2014, Stern & Kumar found that platforms gave users control over their privacy, reducing their concerns. However, it has been demonstrated (Hallam & Zanella, 2017) that users' attitudes toward privacy choices differ when they have not experienced a privacy breach or are psychologically detached. In other words, when users share a violation of their privacy, their use of the social media platform will be impaired due to a reduction in trust. In light of the discussions, information security awareness is a

problem, with most users either needing to be aware of the extent of data surveillance or apathetic toward it. Regardless of the outcome, social media use will continue, which leads to an array of unintended consequences, including behavioral effects.

### 2.1.2 Self-disclosure on social media

The privacy risks associated with social networks are tied to personal information and, more precisely, to the exposure of personal information. Sharing personal information with others is called self-disclosure, which requires interaction between individuals and organizations (Cozby, 1973). Information disclosure occurs when shared between two or more people or between individuals and groups. Altman and Taylor (1973) differentiated between three layers of personal information based on how sensitive they were (e.g., **biographical information** like age), the **intermediate layer** (e.g., attitudes, values), and the **core layer** (fears, needs, beliefs). Joinson and Paine (2012) offered other approaches to categorizing information, including contextual factors or individual perceptions of vulnerability and this categorization scheme. Specifically, Krasnova et al. (2010) suggested that the roots of self-disclosure lie in the *Social Exchange theory*, which involves analyzing the costs and benefits to trade between parties. When evaluating the privacy calculus, the downsides and risks of disclosing personal information (such as losing control or information abuse) are weighed against the expected benefits (such as building relationships). Dinev & Hart (2006) and Hui, Teo, & Lee (2007) state that individuals will behave to maximize positive outcomes and minimize negative ones. However, empirical studies have repeatedly shown that people do not behave according to their privacy preferences (Lutz et al., 2018). Endogenous and exogenous factors influence self-disclosure behavior in social networks (Stutzman, Gross, and Acquisti, 2012). For example, privacy issues are based on endogenous factors: users' subjective preferences. On the other hand, exogenous factors are a decision-making process network-driven.

Privacy concerns influence self-disclosure (Madden, 2012). A user's concern increases when they see that their data is being used by a third party or for marketing (Padyab et al., 2016; Soczka, Brites, and Matos, 2015). Information about privacy and privacy guidelines are associated with lower privacy concerns (Andrade, Kaltcheva, and Weitz, 2002; Hui, Teo, and Lee, 2007; Krasnova et al., 2010). Wisniewski, Wilson, and Lipford (2011) also conclude that knowing the actual audience reduces privacy risks. Low perceived risk is associated with increased self-disclosure (Dinev & Hart, 2006; Hui, Teo,

and Lee, 2007). According to a recent study, a negative relationship between self-disclosure and privacy concerns weakened over time (Tsay- Vogel, Shanahan, and Signorielli, 2018). Additionally, trust in the provider and a sense of control are associated with self-disclosure (Krasnova et al., 2010; Masur & Scharkow, 2016). Data privacy notices and privacy settings influence both factors (Stutzman, Capra, and Thompson, 2011; Waldman, 2016). A more transparent, consistent, and user-friendly structure for privacy management abilities recommends by Krasnova et al. (2010). Joinson and Paine (2012), the authors state that users are likelier to trust the information they see shared or posted by their friends. Cheung, Lee, and Chan (2015) suggest that self-disclosure behavior is strongly influenced by the social environment (Cena et al., 2014). Users aware of the reach of shared information disclose less private information, while users with a broad reach disclose more (Masur & Scharkow, 2016). Information is kept from the public despite often needing more visibility to some groups (Karr-Wisniewski, Wilson & Richter-Lipford, 2011). Regardless of the post's reach, the user must know it to prevent unwanted self-disclosure.

### **2.1.3. Privacy calculus theory**

Social media are efficient tools for sharing and collecting information but pose a risk due to their theoretically limitless audience (Brandtzege, Lüders, and Skjetne, 2010). Social media or online platforms that allow users to maintain personal and organizational accounts creates a network of connections and interactions. This type of communication is primarily used for relationship-building or deepening existing relationships (Krasnova et al., 2010; Loiacono et al., 2012). As a result, social media addresses the desire to connect with other people and develop relationships (Stutzman, Gross, and Acquisti 2012). Users can stay updated on their friends' activities and news (Joinson, 2008). As well as disclosing their information, users can also share information about others by tagging them in posts or photos (Stutzman, Gross, and Acquisti, 2012). While excessive self-disclosure may impair relationships (Petronio & Altman, 2002), self-disclosure in social networks does facilitate relationships (Oswald, Clark, and Kelly, 2004). Similarly, shared knowledge also increases vulnerability and trust (Jonason & Paine, 2012). Disclosure of information on social media is socially informational (Ellison, Steinfield, and Lampe, 2007) and hedonistic (van der Valk et al., 2016). Culnan and Bies (2003) argued that individuals would disclose personal information if they perceived that the benefits of disclosure were equal to, if not exceeding, the risks involved. Thus, the cost-benefit analysis was equated with the privacy calculus.

Ajzen (1991) proposes that **privacy calculus** is a "rational" theory that integrates the theory of reasoned action (TRA) (Ajzen & Fishbein, 1980) and planned behavior (TPB) (Ajzen, 1991) and explains attitudes, beliefs, intentions, and behaviors of IT consumers when using technology at the expense of perceived privacy risks. Calculus refers not to a specific analytical model but to the cognitive tradeoff among situational constraints (Laufer & Wolfe, 1977)—in this case, anticipated benefits and privacy risks. Unlike TRA and TPB, a privacy calculus approach holds that behavior and subsequent actions are affected by utility expectations and negatively by anticipated privacy violations (Culnan & Armstrong, 1999). Internet users may have conflicting beliefs about whether or not to disclose the personal information required to complete successful internet transactions. It is due to personal information constitutes a set of elements in a calculus or decision process that they engage in when making internet transactions. A privacy calculus is rooted in expectation theory, which posits that people act to maximize positive outcomes and minimize negative ones based on their expectations (Vroom, 1964). When people can accept some level of risk and the benefits of sharing personal information, they are more likely to accept the loss of privacy (Culnan & Bies, 2003, p.327). The privacy calculus is similar to the expected utility hypothesis (Friedman & Savage, 1952) of game theory, where individuals bet on outcomes based on probability and impact. The rationality of individuals is presumed because they make decisions based on cost/benefit tradeoffs and are "utility-maximizing," meaning they prefer higher benefit outcomes to lower benefit outcomes (Becker, 1976).

## 2.2. Service Design

Service design emphasizes interaction as a critical concept. A creative design process incorporating different fields of expertise can stimulate the user's imagination and affect other subtle aspects of the user's experience, providing more satisfaction. A traditional design intervention focuses on designing a specific product for a particular problem context. The human-centric design aims to fulfill practical needs but neglects the user's latent and unstated needs. Unlike object-oriented design, service design should consider how to help users achieve their goals within a given context rather than focus solely on objects. People previously believed that design aesthetics would attract them if they were consistent with users' expectations leading to people changing their behavior. However, behavioral research shows that this type of analysis is often self-fulfilling and that superficial design interventions can motivate behavior and encourage engagement in the short term but not the long term. For designers, emotion is one of the most significant,

complex, and fascinating factors. As explained by Bau (2020), the seven roles of a service designer are empathizer, sense maker, creator, maker, navigator, servant leader, and storyteller. To achieve desired outcomes, service design teams must perform all seven roles throughout the innovation and design process. Some service designers will want to transition between multiple positions, while others may prefer to specialize in one or two of them. However, only some designers can perform all seven roles with high professionalism. Our focus in this study is on the role of service design as a creator based on core capabilities of generating ideas and designing concepts for behavior change.

In contrast to physical and cognitive human factors, emotion has recently been considered a critical design component with well-established measurements, theories, and applications. Emotion is crucial in our perceptions, attitudes, motivations, and behaviors. Regardless of how we feel, our emotional state influences how we focus our attention and what we expect from products, systems, and others. Behaviorally, we tend to approach positive stimuli and avoid negative ones. A direct relationship exists between our stimulation level and willingness to take action. (van Gorp and Adams, 2012, p. 70. In addition, it would be interesting to research how environmental changes can affect our choices and behavior. Designing environments that help us become more aware of our choices is possible. These environments empower us with a sense of purpose and encourage us to take action once we have made a decision. Such action is called process choice architecture or behavioral design.

## **2.3. Behavioural Economics and privacy nudging in social media**

The behavioral economics approach move beyond the notion that individuals' behavior is driven solely by rational economic decision-making, incorporating psychology and neuroscience to describe how individuals' behavior, decision-making processes, and thinking patterns can be subject to systematic bias. It includes both advertising and marketing concepts and a distinct lexicon. Terms such as 'choice architecture,' 'discounting,' and 'loss aversion' describe factors influencing individual decision-making. The word 'nudge' (the title of Thaler and Sunstein's 2008 book) has become synonymous with behavioral economics, emphasizing how people can influence each other's decisions for the better. A nudge refers to changing people's behavior in predictable ways without strongly incentivizing or dissuading them from doing certain activities.

In most research on data disclosure, individuals are viewed as rational agents with relatively stable preferences who perform a cost-benefit analysis to assess the consequences of revealing personal information to a particular service provider (Adjerid et al., 2018; Culnan & Armstrong, 1999). As the costs of the disclosure are reflected in users' perceptions of risk (e.g., opportunistic use of personal data by companies), the benefits range from financial rewards to personalization to social benefits. However, according to a growing body of behavioral research, disclosure decisions are often not rational but influenced by limits to mental resources or bound rationality (Adjerid et al., 2018). Even though individuals' privacy preferences may not be stable across contexts, the results of this study suggest that they are malleable rather than sturdy. It was also found that privacy choices are subject to heuristics and biases.

Additionally, privacy choices are affected by contextual cues, such as default settings, order effects, and framing. Acquisti et al. (2017) provide a comprehensive overview of the influence of heuristics and biases on privacy decision-making. Observations of inconsistencies in privacy decision-making, such as the dichotomy between privacy attitudes and behavior and the fluctuation in privacy concerns over time, can be explained by bound rationality (Acquisti, 2009). In social media, bounded rationality may cause users to regret disclosing personal information (Acquisti, 2009; Wang et al., 2014). Privacy nudging is another approach to support privacy decisions. Nudges are subtle but persuasive cues influencing behavior (Thaler & Sunstein, 2008). As Acquisti explains, privacy nudging relates to soft paternalistic interventions that improve privacy decisions. Using anchoring, social norms, and framing (Mirsch et al., 2017), nudges are subtle interventions designed to predict people's judgments through specific heuristics and biases in the choice environment. Libertarian paternalism says nudges should benefit the decision-maker, preserve freedom of choice, and be easily avoidable. Using well-designed nudges can make it easier for people to perform a particular behavior, such as maintaining privacy without limiting their right to make their own choices. A prominent type of nudge in social media is to give users feedback regarding their actual or potential audience or their perception of the information they share. Users appreciate this feedback, but it can quickly become excessive or annoying, so it generally does not significantly impact their sharing behavior (Jedrzejczyk et al., 2010; Tsai et al., 2009). Using default settings has limited success in nudging users' privacy decisions (Wang et al., 2013). When defaults are correctly chosen, users are freed from making information disclosure decisions to the extent that their decision is based on the path of least resistance. When defaults are chosen correctly, it is easier to choose the right action or may not even require effort. Such defaults have been shown to impact users' tendency to share on social networking sites, but only for those with high privacy concerns

(Knijnenburg & Kobsa, 2014). Additionally, inappropriate defaults (i.e., sharing more information than a user feels is necessary may heighten users' privacy concerns and lead them to disengage from a variety of aspects of sharing through social media (Wisniewski et al., 2015a).

## 2.4. Behavioral economics (BE) and its input in service design

In human behavior, we make irrational decisions based on our sense of convenience and shortcuts rather than making informed decisions.

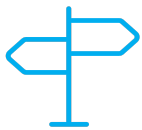


**The service designer is responsible for overseeing the entire experience. Behavioral economists are responsible for optimizing a single decision by going deep into the data.**

According to behavioral economics, people are nudged toward desired behavior by understanding and intervening at critical points in their decision-making processes. It is found that well-executed 'nudging' at discreet moments can profoundly impact, and minor behavior changes can lead to significant results. A famous example is European transplantation rates, as studied by Eric Johnson and Daniel (2003). They charted organ donations by country and saw many differences between countries. It was hypothesized that cultural and religious differences were to blame. It was discovered that countries considered similar culturally, such as Germany and Austria, Denmark, and Sweden, appeared on opposite sides of the graph with low organ donation rates. Later it was found that a default option on the organ donation form caused differences. The donation rates averaged 97% in countries with an opt-in default (check the box if you do not want to participate; otherwise, you are automatically enrolled). However, in countries with opt-out defaults (check the box if you wish to donate; otherwise, you will not be enrolled), donations averaged 15%. Following the BE Principle of Default Bias, people tend to choose the easiest option to avoid complex decisions, and defaults allow them to do so. However, most participants should have checked the box and followed whatever the default was in each country. Behavioral economists have compiled an extensive list of 'Behavioural Economics Principles to explain humans' irrational behavior. In general, each principle describes how most people behave under specific circumstances. These principles can a) help understand current behaviors and b) help change behaviors by using the right BE principles at the right time. In another industry, achieving the same results would have been much more challenging. For example, while interaction designers may have attempted to design a more engaging

donation card, service designers may have attempted to improve the delivery of the donation card to ensure better education and a more engaging overall experience—all that was needed was a change in default settings. Designing with BE can provide designers with valuable insights into the decision-making process of their users.

### What role can BE play in service design?



#### **Explore new possibilities**

BE provides a new lens to aid in identifying decision-making moments that can nudge users toward desired outcomes.



#### **Identifying invisible barriers**

Understand and correct people's inherent behavioral patterns to overcome seemingly invisible obstacles.



#### **Ensure maximum impact**

Identify crucial decision-making moments and apply them to BE principles for maximum effectiveness.



#### **Key features to consider**

Utilize the principles of BE to evaluate and rethink specific design features.

## 2.5. Research focus

The following will summarize the insights from the literature review that led to the thesis research question. Social media platforms have moved from their initial purpose of connecting people, families, and communities into a hub for business. As third parties have been observed to exchange data with social media users, privacy concerns have risen among them. Users' trust and attitude toward privacy choices influence their behavior (1.1).

Privacy risks are associated with the disclosure of sensitive information, such as biographical information (such as age and education), the intermediate level (attitude and



values), and the core level (fears, needs, beliefs). In addition, awareness of the reach of shared information and confidence in the provider is associated with self-disclosure on social media platforms (1.2).

In social media, information is disclosed based on a privacy calculus; this rational theory explains why users are willing to share at the expense of perceived privacy risks (1.3).

Traditionally, design intervention focuses on specific products fulfilling practical needs while neglecting latent and unstated needs. The behavioral tendency is to approach positive stimuli and avoid negative ones. Our willingness to take action is directly related to our level of stimulation. (2.2)

As a result of growing behavioral research, online disclosure behaviors are not always rational decisions but are influenced by mental resource limitations. Heuristics, biases, and contextual cues like default settings, order effects, and framing influence privacy choices. Privacy nudging is one of the subtle persuasive cues shaping behavior. (2.3)

A service designer oversees the entire customer experience, while behavioral economists analyze the data in depth to optimize a single decision. (2.4).

## **2.6. Research question**

**“How can service design address the privacy concern behavior of social media users? ”**

# Chapter 3

## Project context

This thesis explored an academic research question through a case study. A general introduction to social media and surveillance capitalism, which is the focus of the case study, is followed by data and knowledge, as well as the challenges related to privacy concerns among social media users. As a conclusion to the chapter, the initial problem statement is presented to initiate the design process.

The chapter has five subchapters:

- 3.1 The reach and impact of social media
- 3.2 Surveillance Capitalism and social media
- 3.3 Facebook and Instagram
- 3.4 Problem statement

### **3.1 The reach and impact of social media**

Today's most used digital platform is social media, with easy access to the internet. Millions of users worldwide are exchanging information providing massive data sources. Global social media statistics analysis from an online data analyst known as Kepios estimated that the total number of social media users is 4.76 billion as of January 2023, accounting for 59.4% of the world population Kepios (n.d.). In 12 months, Kepios accounts for 137 million new social media users. Social networking has reshaped people's interaction and exchange of information through the internet. This quick rise and development of online social networks have led to ethical concerns about the disclosure of user privacy and the rapid distribution of information in this digital ecosystem (Baier, 2019).

One of the well-known scandals of users' data is the Cambridge Analytica scandal that happened in early March 2018. The company acquired users' data by tricking users for academic purposes but later used the personal data of millions of Facebook users for a political goal. The company acquired about 87 million users' data through a Facebook

application called “ This Is Your Digital Life” (Guidi, 2020). Thus, this incident highlights **privacy issues** and problems occurring on social media platforms. Lamerichs et al. (2018) explain that racism is rising on social media using covert tactics such as the weaponization of memes and the use of **fake identities** to make racist remarks on platforms (Farkas et al., 2018). Social media platforms serve as inexpensive platforms to deliver news quickly and straightforwardly. Every day large amounts of content without having proper content validation are distributed through online forms to obtain economic and political advantage (Shu et al., 2017). Such **fake news** tends to circulate more quickly on Twitter than factual content. As per researchers, such fake news has a 70% chance of being retweeted on Twitter, influencing the first 1500 users six times (Vosoughi, Roy & Aral, 2018). Data disseminated on the web and social media grasp the concerns of users that ultimately reflect on social behavior, choices, and perceptions of people. Quickly distributing fake information without fact, check impacts users negatively (Meel & Vishwakarma, 2020). The use of private details on social media exposes individuals to several kinds of attacks differing in the light of the variety and exchange of confidential materials on different sites (Kayes & Iamnitchi, 2017). As a result, users risk losing privacy and control of their personal information.

### **3.2. Surveillance Capitalism and social media**

Surveillance capitalism is not a technology; it is a logic that imbues technology and directs it to perform its duties. In the context of the digital milieu, surveillance capitalism is a distinctive market form, but it is not the same as “the digital.” Surveillance capitalism cannot be reduced to “platforms,” “algorithms,” “machine intelligence,” or any other technological manifestation. Through communication and interaction, connections are formed. Behavioral patterns resulting from interacting socially can be directly affected by one's cultural values, the ideas of those in one's circle of influence, and one's perceptions of self-efficacy. Zuboff and Maxmin's (2004) Surveillance Capitalism concept showcase how access to data management using new technologies helped some groups to manipulate society and users to make decisions based on economic and business factors instead of social ones (Zuboff, 2015). The surveillance capitalism ecosystem explains that the decisions made by users on social networks and the internet are not based on their free will. A large technology company has trained algorithms for profitable and economic purposes (Zuboff, 2019). Zuboff argues that analyzing users' emotions and consumption patterns within a digital environment can allow companies to predict actions taken by users and change the behavior of users, also referred to as online behavior modification

(Zuboff & Maxmin, 2004; Zuboff, 2015; Zuboff, 2019). To maximize the economic benefits of their companies, technology companies will develop psychology-based strategies to increase their customers' use of technology (Boddy & Dominelli, 2017). Social media platforms are primarily designed to increase user activity and generate more data (Carlson, Rahman, Voola, & De Vries, 2018). Such data would replace money in the digital ecosystem (Literat & Brough, 2019).

Through Hegelian dialectics, social media formalize as the interplay between social cognition, communication, and cooperation. Thus, from a philosophical perspective, social media can be viewed as :

*A dynamic three-fold process in which, based on subjective cognitive processes, different systems and qualities are formed (community) (Brown et al., 2015).*

Social media-based data already exists on the platform, and location-aware surveillance is used for monitoring purposes. Since these services generate and funnel data to social media platforms, they are partly to blame (Lupton, 2012) for the information they provide. Since these data assemblages relate directly to social media users' geographical behavior, social media corporations can conduct behavioral analyses by drawing on these data assemblages. Social media combine location-based data with other social media-based data and simply monitor users' movements. For example, Google Maps (one of Google's applications) may prompt users to post a review of a location, shop, or restaurant based solely on their proximity to that location which benefit the platform and third parties with whom those reviews are shared.

In Albrechtslund's view, social media requires a certain amount of surveillance, which he refers to as a participatory process (Albrechtslund, 2008). In this setting, users voluntarily disclose personal details, connecting them with others with similar interests and views. It has been noted that social media has many definitions from an academic perspective. For example, Boyd and Ellison (2007) assert that social media should be viewed as,

*“Web-based services enable individuals to (1) create a public or semi-public profile within a bound system, (2) assemble a list of other users with which they share a connection, and (3) view and traverse their list of connections, as well as those of others within the system.”*

As a result, these connections enable social media users to socialize and grow their influencer networks (Correa et al., 2010). For this type of growth to occur, information must be transferred, which usually involves co-creating content created by users or other

users (Hughes et al., 2012). This focus on the social aspects of online communities has made social media platforms increasingly popular, with more than two billion users using social media platforms daily (Koban et al., 2018). Many users regard social media as a crucial component of their lives (Marino et al., 2016). Moreover, it is vital to modern psychosocial development (Hallam & Zanella, 2017).

### **3.3. Facebook and Instagram**

When discussing the most renowned social media platforms, Facebook and Instagram come to mind. According to the data, Facebook is the most active platform, with 2.958 billion monthly active users, and Instagram is ranked fourth, with 2 billion monthly active users. Below is a brief overview of Facebook features based on the 2022 Facebook Timeline layout. Individuals can create accounts on Facebook.com. Users can access the account after providing personal information (name, date of birth, gender, email address). User accounts on Facebook follow a highly standardized layout. Many features on the screen appear regardless of the user's account, making it easy to locate the data one is searching for. The home page and the profile page are this account's two most significant pages. Users present themselves on the profile page, also called the wall. A small profile picture appears at the top of the page, as a large cover photo, some basic information, and buttons indicating friends, photos, and "likes." Below that is the "status updates" area. Users can customize status updates, and friends can respond by liking, commenting, or reacting. Users get updates on the status, stories, and reels from friends at the top. The vertical left side of the platform consists of friends, the most recent groups, the marketplace, and many other features. There are shortcuts to group pages and a message column on the right. As a result, it automatically and chronologically displays what friends have been doing in the past few hours. A new user can search for friends and send friend requests after creating a profile. When an individual accepts the invitation, Facebook connects them by allowing them to see each other's profile pages. It also displays their activities in their news feeds. The Facebook application, therefore, acts as an online medium for visiting and being seen (Stroud, 2008) or for "prosuming": producing and consuming simultaneously (Le & Tarafdar, 2009).

Since the launch of Instagram in October 2010, it has yet to appear to offer anything innovative compared to existing media-sharing services that provide similar features, such as image editing tools, location annotations, and instant sharing. Instagram's

widespread adoption and compatibility with current cultural trends may be attributed to the congruent operation of these elements within a single mobile application and the presentation, which allowed users to create, share, and organize information using the application. Instagram's most prominent feature is geo-temporal tagging: it identifies media artifacts based on their location and time. A new user account can open a new account by providing a name, e-mail address, and date of birth or by signing up directly through Facebook. Regarding content format, online interaction, and social media shopping, Facebook and Instagram share similarities. However, there are also differences in post structure, mobile and desktop optimization, and link sharing.

For example, the Facebook and Instagram business model relies heavily on advertising, which supports the claim that the creation of content by users and the communication resulting from viewing this content leads to the creation of surplus value. This surplus value, in combination with the consumption of the resultant content, allows Facebook users to be classified as prosumers (Fuchs, 2011). These users and their associated content are sold as commodities. However, unlike traditional mass media audiences, these users create and consume the commodity themselves. It is further compounded by the fact that social media corporations use their privacy policies to conceal the extent to which such user-generated content is sold to marketing firms. Rather than explicitly stating that the content is sold for profit, they merely indicate that third parties may use it to improve their services. Instagram, for example, has made it possible for users to adjust their profile so that other users and friends can view it. As a result, these privacy settings undergo frequent changes, making their use problematic as the only method of limiting the surveillance of personal information (Shore & Steinman, 2015).

Furthermore, the privacy policies associated with these mechanisms are frequently altered. In this respect, Instagram's use of users' information constantly changes. This makes it impossible for the average user to know exactly how, when, and where their data is being used. Social media collects and shares personal information via Apps available on the platform (e.g., through the App Center) and third-party Apps that connect particular apps.

### **3.4. Problem statement**

Social media is becoming a colossal data source as the most used digital platform. On the one hand, the number of online users is increasing; on the other hand, ethical concerns

about the disclosure of user privacy are rapidly rising. Users are manipulated with access to data on economic and business factors by the platform itself. Digital platforms use algorithms and technology to analyze users' emotions and consumption patterns to guide them toward desired behavior. By Albrecht's description, these forms of surveillance have been facilitated by user participation. However, users often need to be informed of how much their data has been disclosed. Furthermore, privacy policies by these platforms are complex and frequently changed, which has led to increased privacy concerns, and trust in the platforms is decreasing. Thus analyzing these points, the initial problem statement of the design process is iterated.

### **3.5. Research question**

**“How can service design help to enhance or improve trust by addressing privacy concerns among social media users?”**

# Chapter 3: Methodology

## 3.1. Double Diamond

The double diamond framework has been used in the thesis to assist the overall design process. The Design Council introduced double diamonds in 2004. The framework is primarily intended to assist companies in finding creative solutions and innovative ideas by applying design characteristics. The design process is further broken down into phases to facilitate comprehensibility and allow design teams to plan and conduct the design process (Design Council, 2015). As shown in Fig. 1, the process consists of four steps: Discovery, Definition, Development, and Delivery.

Based on Kees Dorst's frame innovation approach, the double diamond is a conceptual tool that combines design innovation and frame innovation. There are two stages in the Double Diamond framework: Discover and Define (problem space) while Develop and Deliver (solution space). In the problem space, designers explore the complexity of the problem and end with a clearly defined solution. Most unique design characteristics and values lie in creative and uncertain elements. This is followed by the solution space, where ideas are generated, visualized, and prototypes are tested (Elmansy, 2021). This stage culminates in creating the final product delivered to the end user. There has been criticism regarding the need for a co-creative design process with Double Diamond, although it does provide a framework for defining a problem and creating a solution. However, it needs to explain who designs during the divergent and convergent phases of the design process. Following criticism, the Design Council revised the model and created the Framework for Innovation (Design Council, 2019). A vital component of this framework is still the Double Diamond model. However, it is extended to include four fundamental principles to ensure effective processes: 1) put people first, 2) communicate visually and inclusively, 3) collaborate and co-create, and 4) iterate. Though the thesis follows the old double diamond methodology for simplicity and familiarity, there will be continuous efforts to use the revised version of the double diamond as a guideline for improving the design process.



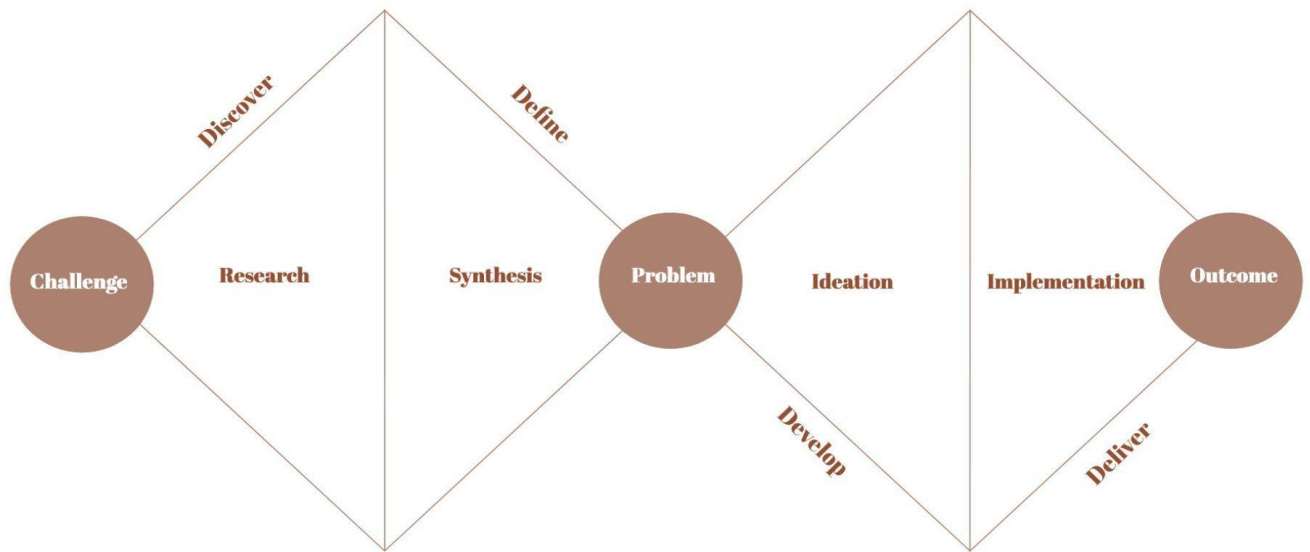


Fig.1. Double diamond model

# **Chapter 5**

## **Case study**

This chapter aims to document the process of developing a case study on social media privacy concerns among social media users for the thesis. The case study aims to contribute to the user's privacy concern for informed consent and privacy awareness, as discussed in Chapter 3. The Double Diamond methodology divides the chapter into four phases - Discover, Define, Develop, Deliver, and document the steps involved. Finally, case study insights and outcomes, and reflections are presented.

The Discover and Define phases are critical to explore the research question and problem statement. Development and definition activities were primarily conducted to address the problem statement during the design phase. To provide profound insights relevant to the research question, the first two stages of the design process - Discover and Define - were deliberately more elaborate and in-depth than the final stage.

The chapter is divided into four phases:

- 5.1. Discover
- 5.2. Define
- 5.3. Develop
- 5.4. Deliver

### **5.1. Discover**

Understanding social media and privacy perceptions was crucial to the design process. An information-gathering process is conducted using desk research. In Stickdorn et al.'s (2018b), desk research is described as the collection, synthesis, and summarization of previous research. Various sources, such as research papers, reports, websites,

whitepapers, and documentaries, are used to gain knowledge about privacy concerns on social media. The desk research results are synthesized and summarized in the literature review and project context of chapters 2 and 3, respectively. The knowledge gained provided a helpful starting point and a means of facilitating more informed conversations throughout the design process of online questionnaires and semi-structured interviews.

### **5.1.1. Online questionnaire**

The importance of data in research must be considered. Regardless of the methodology, every research study relies on reliable quality data, which is then analyzed and interpreted to yield results. Primary data is the most common source of data for research. Surveys are the commonly used method of collecting preliminary data. It became a standard empirical research tool in the social sciences, marketing, and official statistics in the 1930s due to the application of probability sampling. Behavioral analysis is often carried out by psychologists and sociologists using surveys. According to privacy calculus theory, users' online behavior is influenced by cost-benefit research. Therefore, a positive result encourages users to disclose information. Three factors are associated with privacy concerns on social media: confidence & enticement, willingness to act, and risk beliefs (Dinev & Hart, 2006).

Thus, these factors were considered to discover the privacy concerns of online users. The survey questions are based on the Mobile users' information privacy concerns scale (MUIPC) (Xu et al., 2012), an adaptation of the Concern for Information Privacy scale (Smith et al., 1996) for mobile users. As part of the scale, three dimensions of privacy concerns are considered: perceived surveillance (Xu et al., 2012), perceived intrusion (Xu et al., 2008), and secondary use of personal information (Smith et al., 1996). The questionnaire was created to measure respondents' privacy concerns, and these were renamed as respondents' need for data assurance, respondents' privacy & security concerns, and respondents' beliefs & attitudes. There are 20 questions in the survey (Appendix-A). An exploratory phase that included literature reviews and articles from previous studies helped frame the survey questions. In the questionnaire, respondents were initially asked for demographic information and their social media usage habits. The second section focuses on understanding users' level of assurance towards social media data. Research from previous studies revealed three types of assurances: adverts-related assurances (Wang et al., 2015), institutional assurances stated in privacy policies (Gefen, 2002), and the processing of data (Kobsa, Knijnenburg & Livshits, 2014). The third section included questions about privacy and security. These questions and options are

from a study by Bracamonte, V., Pape, S., & Loebner, S. (2022). The fourth section of the survey asked about beliefs and attitudes toward social media.

The data was collected through an online survey (which later complemented for semi-structured interview), and significant numbers of respondents were accumulated to get general results. Survey XACT had 20 questions, and respondents had to choose answers from limited options. Most of the questions were multiple-choice and five-point Likert scales. A Likert scale is most commonly used in questionnaires to determine participants' preferences or level of agreement with a statement or set of statements. The technique does not use a comparative scale and is unidimensional (measures only one characteristic). Sociologist Rensis developed this method to produce attitude measures that could be interpreted as measurements on a proper scale (Uebersax, 2006). respondents use an ordinal scale to determine whether they agree or disagree with a statement. In most cases, a five-point scale ranges from "Strongly Disagree" to "Strongly Agree" with "Neither Agree nor Disagree" in the middle; however, some practitioners advocate using seven- and nine-point scales for more granular results. In this study, a 5-point Likert scale, ranging from "strongly agree" being 1 to "strongly disagree" as 5 points, has been used.

Social media platforms such as Facebook groups, survey exchange websites, and LinkedIn were used to distribute the survey questions. In addition, several Facebook groups were used to get more responses to the survey questions, including Det sker på Østerbro, GJK Opslagstavlen, Spørgeskemagruppe/Surveygroup, KUA, and Survey Exchange – Find participants for research studies (for dissertation, thesis, market research. The survey was conducted for educational purposes, with no monetary incentives or rewards given to respondents for answering questions. Thus, the survey was voluntary, informed consent was clearly stated before respondents responded to our survey questions, and the respondents were anonymous.

## **1.1. Insights from the online questionnaire**

One hundred and thirty-three participants completed the survey, **121** completed it thoroughly, and **12** partially completed it. The questionnaire results confirm some of the findings in the literature review, namely that users are concerned about privacy. However, their actions do not align with their privacy protection measures.

2. I trust that social media like Facebook and Instagram allow users to set their privacy preferences.

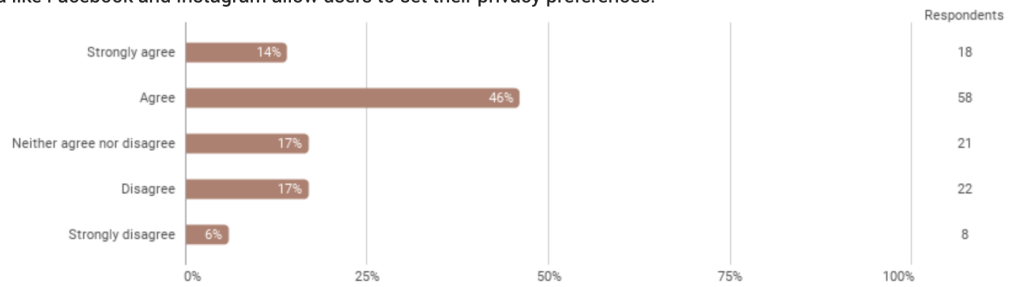


Fig.2.Questionnaire response (Need for data assurance)

Following up, users' privacy and security concerns were measured by six statements that measured respondents' willingness to act on privacy concerns. Several participants expressed concern about the tool's data collection in general and the possibility of the tool tracking them. According to the statement, *"I agree that my data can be shared with social media sites like Facebook and Instagram so that they can offer me certain services or products."* In response to this statement, 52% agreed, and 14% strongly agreed. Participants also expressed concerns about collecting more personal data regarding sexuality, sickness, and health. They agreed that the platform should not be used if such actions occur. 62% of the participants agreed with the statement. The statement, *"In my opinion, nowadays it is challenging to use social media platforms such as Facebook and Instagram without being tracked in some way."* 56% of respondents strongly supported, 34% supported, and 0% strongly disagreed, suggesting that participants are aware of privacy concerns arising from social media platforms.

5. I think that nowadays it is very difficult to use social media like Facebook and Instagram without being tracked at least in some way.

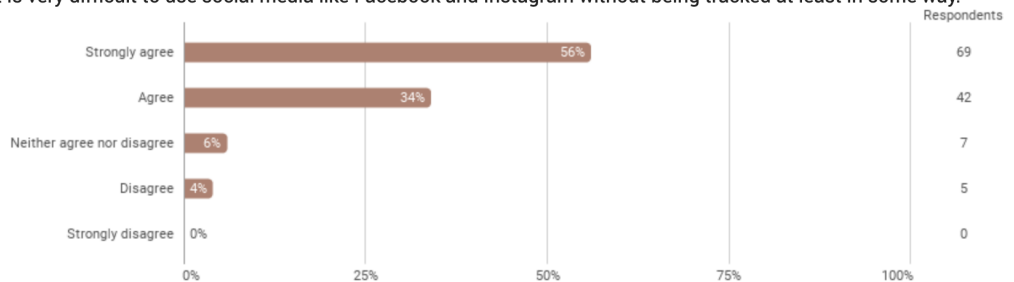


Fig.3. Questionnaire response (Privacy and security concern)

6. I am concerned that the content I post on social media like Facebook and Instagram could be misused.

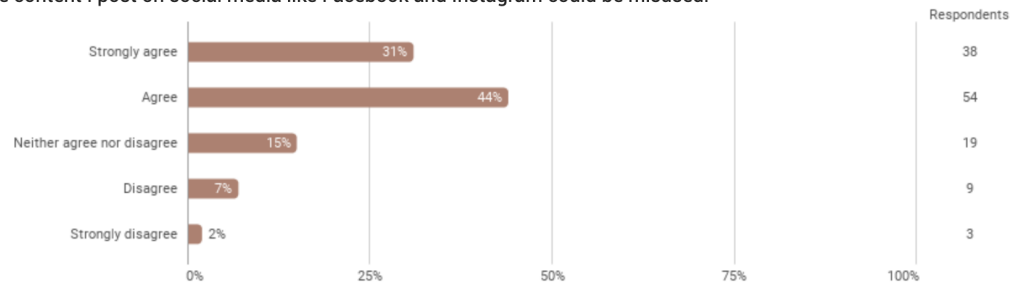


Fig.4. Questionnaire response (Privacy and security concern)

As a final step, five statements were used to assess user beliefs and attitudes toward privacy risk. Social media users were asked about their attitudes toward trust, privacy mindset, and perceived control. These answers were often found in conjunction with participants' concerns about data collection, sale, and misuse. A statement regarding privacy mindset is covered by number 5, *"I always have privacy concerns, but I can not do anything about it,"* where participants indicate they are generally concerned about privacy. The results suggest that 65% of respondents agree with the statement about privacy concerns, of which 20% strongly agree. Survey statement number 3 describes how users are resigned to privacy violations and aware that they exist but feel powerless to do anything about it. On the given statement, 85% of respondents agreed, with 22% strongly agreeing. The first statement, *"I do not worry about privacy since I usually pay attention to what I post on social media,"* describes self-reflective participants as having the ability to avoid privacy risks. There are 57 % of participants agree with the statement, while 24% disagree and 20% do not agree or disagree. Most respondents that are 76%, agree that free social media services may generate revenue by selling user data.

1. I do not worry about privacy because I usually pay attention to what I put on social media.

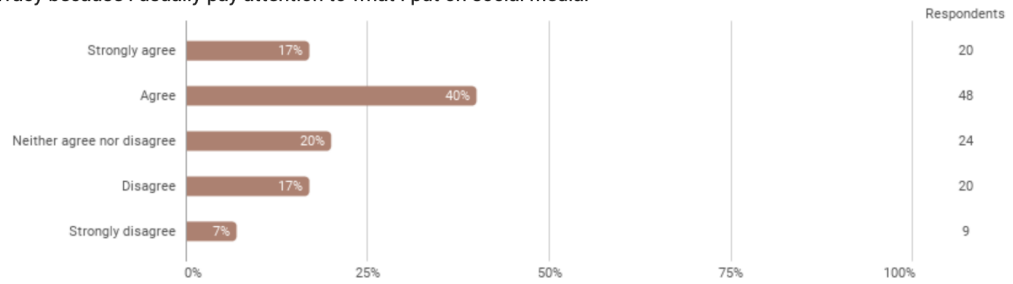


Fig.5. Questionnaire response (Belief and attitude)

2. The fact that Facebook and Instagram are free makes me worry that they might sell my data to advertising services to generate revenue.

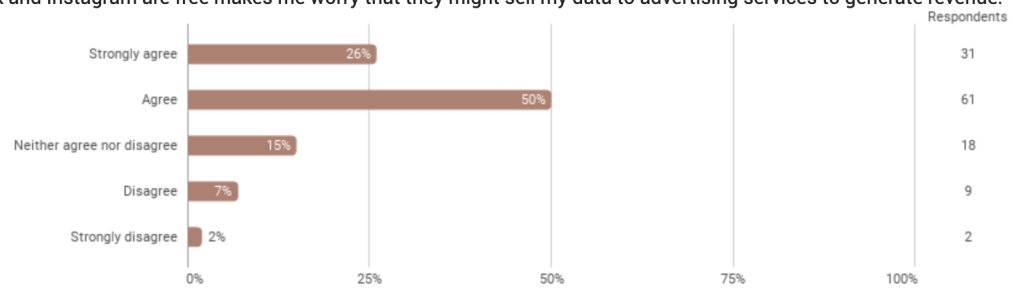


Fig.6. Questionnaire response (Belief and attitude)

5. I always have privacy concerns, but I can not do anything about it.

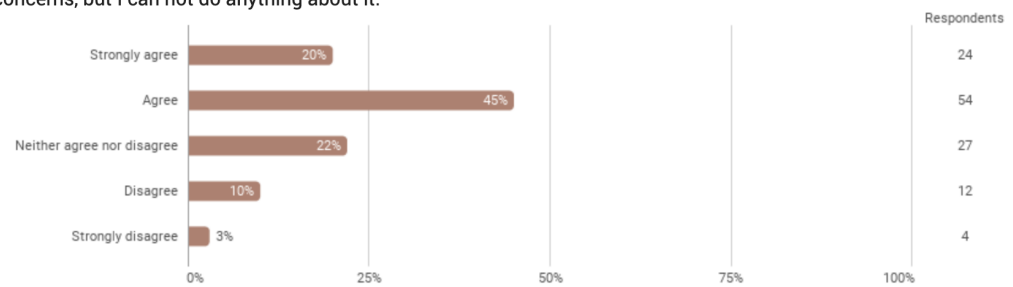


Fig.7. Questionnaire response (Belief and attitude)

## 1.2. Findings from the survey

Following the analysis of survey data, key findings were summed up, progressing the study toward semi-structured interviews.

- Privacy concerns exist on social media platforms.
- Social media users have low trust in social media regarding their personal information.
- Social media users know third parties' data use (a glimpse of surveillance capitalism).
- Social media users know the privacy settings available on social media platforms.

**Figure 8.** Displays the factors that influence social media usage, where direct influence comes from engagement gained on social media, such as posts, tweets, impressions, direct messages, and connections with close friends. Consequently, social media users' perception of privacy and control, trust in platform privacy settings, and personal interests indirectly influence the overall social media experience.

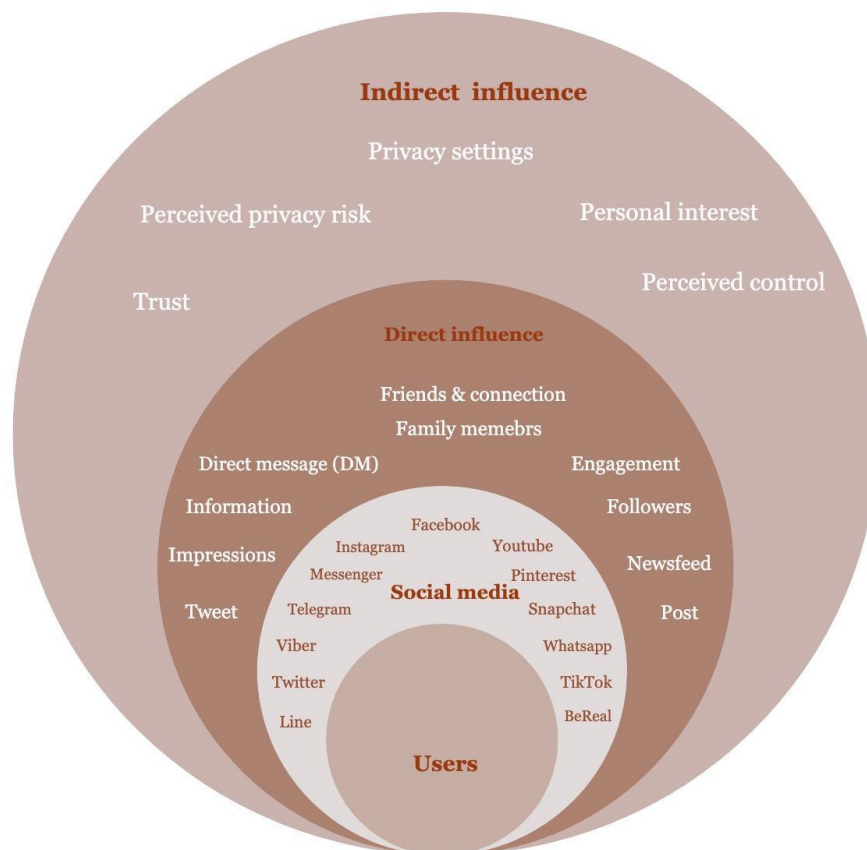


Fig.8 Factors influencing social media usage



### 5.1.2. Semi-structured interview

Even though the survey responses agree with the literature review findings that users have privacy concerns on social media platforms, in-depth user privacy concerns were still lacking. Therefore, as my next step, I conducted semi-structured interviews with 7 participants, which took 3 hours, 30 minutes 4 seconds. The participants were friends of mine, so recruiting them was easy. However, there were initial criteria for participants, such as participation in social media, such as Facebook and Instagram.

A semi-structured interview is widely used in qualitative research to explore participants' perceptions, experiences, and attitudes to explain why people behave in a particular way (Harvey-Jordan & Long, 2001). As well as generating ideas, they help change or develop practices. In addition to being used for data collection, they can also be used for informal evaluation. For example, to understand the results of quantitative studies, such as structured surveys, qualitative methods can be used, or they can be used to clarify results from quantitative studies.

According to the literature review, trust in the online platform significantly influences privacy concerns (Chen, Beaudoin, & Hong, 2016). As explained by Stern & Kumar (2014), media enabled users to control their privacy, thus reducing concerns, but the lengthy privacy statement, in turn, exacerbated them. As a result, users often need to pay more attention to privacy policies because they need to be more readable, aggravating the issue. Furthermore, as Jafar and Abdullat (2011) observed, most policy and privacy statements were only accessible to people with a tertiary degree. Thus, these points were considered for a semi-structured interview.

### 2.1. Overview of interview questions

A semi-structured interview consists of questions about Facebook and Instagram **privacy settings** and **nudges**. The discussion started with general information that participants shared publicly on the platform, such as name, age, date of birth, education, work, and relationships. Then, a follow-up question was asked regarding the consequences of

disclosing such information. Ultimately, the goal was to discover whether users had encountered interaction from unknown individuals to explore good or bad experiences. Afterward, the questions regarding privacy settings were asked to know users' familiarity with the privacy center and navigation experiences. Similarly, to determine whether participants trusted the privacy control provided by the platform, participants were asked what measures they took to ensure privacy security (Stern & Kumar, 2014).

In most cases, the participants were asked about their interest in privacy settings and whether they had ever checked out the privacy center. It is an attempt to test the **default bias** described in **behavioral economics**. The BE principle states that people select the easiest option to avoid complex decisions and remain loyal to the available option to make it quick. As part of the study, participants were asked whether they believed privacy alerts from Facebook and Instagram were useful—users' views on these privacy nudges. Furthermore, the participants were asked if personal customized information prompted them to engage on social media. Lastly, users acknowledge the existence of surveillance capitalism that has been pushed upon users by platforms utilizing their data and their attitudes toward it. Questions regarding third-party apps or browsers accessing their information were asked if they knew about it and their view. Finally, participants were asked about the benefits they perceive from sharing their data to analyze tradeoffs perceived by users.

## 2.2. Findings from semi-structured interview

The findings from the interview have been classified into four different categories:

- Settings for privacy, default privacy, and third-party apps and browsers
  - Nudges
  - Surveillance Capitalism's Influence
  - Trust in the platform
  - Calculus of Privacy and tradeoffs associated with social media
- a. Settings for privacy, default privacy, and third-party apps & browsers

All participants know the privacy features available on the platform but have yet to read all privacy policies due to their lengthy and complex nature. They thought that reading privacy policies took a lot of time and only prompted them to check privacy features if they required it. The most used privacy features are change of passwords, filtering friend

requests, and changing the audience for posts or stories. Most participants agreed it was easy to navigate **privacy settings** as they have been using social media for a long time. Likewise, participant D says, *"Privacy check is complicated and hard."* But as per, participant E encountered specific difficulties in finding the exact privacy settings and had to do his investigation.

Regarding privacy and safety concerns, participants were asked about their view on privacy alerts provided on the platform that notifies about unknown activity on user social accounts. All participants agreed and said that such small nudges help them to secure their privacy by taking prompt action. Privacy settings by default from the new Facebook account were presented to get users' perspective on the settings used in default, like personal information like *phone numbers, email, who can send a friend request, relationship status, location, friends list, and pages, people or profile followed* being public. As the participants were known to these settings, they had changed them but agreed that all default settings should be private only for friends and provide users options to choose themselves. Participant F says, *".. as most users do not know how to check their disclosed information on these platforms, so default setting should be private, and users who want to make it public can turn it public."* Regarding third-party apps or browsers accessing information from users' social accounts, 4 participants out of 7 said they did not know about such interaction, and the remaining 3 said they knew how to access that information to remove access to unknown apps or browsers. Participants E and G use Gmail to access other apps or browsers and remove unknown apps.

#### b. Nudges

In semi-structured interviews, discussion on privacy nudges such as privacy alerts and personalized notifications to increase engagement on the platform was considered. An example of a custom nudge could be referring users by name to perform tasks such as *"Welcome to Facebook, Alisha, learn about your privacy settings."* In addition, an engagement notification about a user's content, such as a story, indicates how many views the story received. By its definition, this slight notification account nudges as it attracts users' attention and alters their behavior.

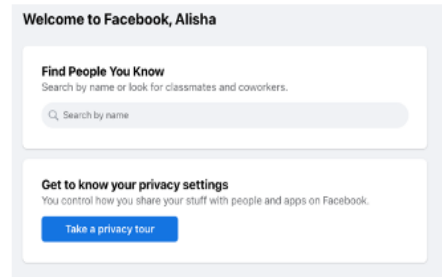


Fig.9. Notification to check privacy (personally customized nudge)

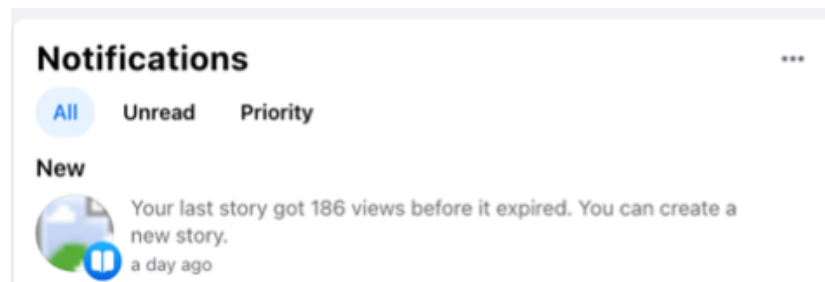


Fig.10. Notification of content engagement shown on the Facebook profile of the user (personally customized nudge)

Even though most participants disagreed that such a slight nudge would inspire them to engage with or follow the suggested behavior, a few participants, like participant A, who regularly posts on social media platforms, agreed. She said such nudges somehow motivate her to create content on the platform. Notifications about privacy, such as personal customization messages or nudges, will not motivate them to check their privacy, but only if a nudge, like a privacy alert alerting them about an unknown user logged in to their profile, nudges them to act. A privacy alert nudge was seen by all participants and found beneficial. Participant B says, "...yeah, it gives a safe feeling for using this platform. It makes sense, and it is good that we are getting a notification on our social media platform if it has logged in somewhere else ." One participant spoke interestingly regarding nudges. She revealed that her relationship status was single and that information was kept private only on her Facebook profile. However, she received ads to connect with people on Facebook to try dating. Such acts suggest the presence of surveillance capitalism and nudge in the platform.

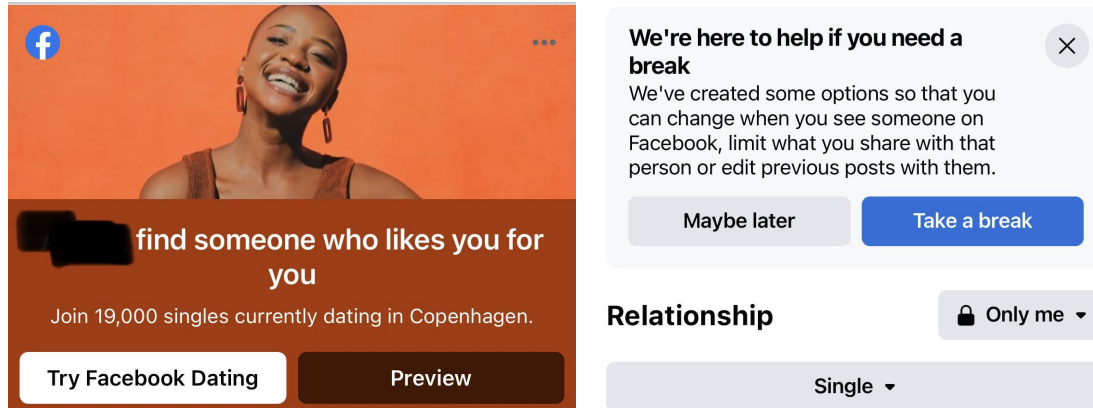


Fig.11. Facebook showing information to try dating (showcase surveillance capitalism and nudging)

### c. Surveillance Capitalism's influence

As for surveillance capitalism, this specific question was asked. "Do you think social media violates your privacy by suggesting products and services you like or dislike based on your data?" Adapted from a survey where 64% agreed that social media violated their privacy somehow. The question was asked to all participants in an interview to obtain a more detailed answer. According to all participants, social media platforms have used their data to offer them products and services based on their search history, liking certain pages or pictures, or simply talking among themselves. Participants A and E have felt that social media recognizes their voices and offers them the required products. During one conversation, participant A recalled talking about bags with friends. Eventually, she received two or three advertisements for bags on her Facebook and Instagram profiles. Likewise, participant E said, *"Yeah, recently, I think we had an incident like my friend and me. We are talking about a thermos flask bottle that keeps hot water. Suddenly, after I thought 1 minute or so, my friend opened up Instagram. Moreover, it was already there, like advertising about a thermos flask. The weird thing is that not even the data has not been recorded or like, okay, you get information or something, or even not written about that."*

Survey results and in-depth interviews suggest that surveillance capitalism operates on the platform and feeds on user data. Some participants find it useful; however, the majority feel there needs to be more bombardment of this type of information. They feel such act violates their privacy.

### d. Trust in the platform

The survey on trust in the platform covered questions regarding trust in personal data and privacy preferences. There was a majority agreement of 60% and 75%, respectively. As a result, I am inspired to ask this question during an interview. Participants felt confident to share their names, education, dates of birth, and locations; however, a few still needed to share their relationship status. The disclosure of such information did not harm them. In response to a follow-up question, I asked them if they feel confident disclosing their confidential or personal information like a sickness. All agreed that such information should be kept private since the platform is untrustworthy. In addition, users only share information they feel comfortable sharing, such as general information and posts about their daily activities. The participants replied that the privacy preference is trustworthy as they observed the consequential effect. However, they were unaware of all the available privacy preferences because it requires time to review them, which has affected their privacy exposure on the platform.

e. Calculus of Privacy and tradeoffs associated with social media

It is evident from literature, surveys, and interviews that the platform has some extent of privacy violation. Despite this, users continue using it, as privacy calculus theory implies. Users disclose information only when they find the cost of data disclosure is favorable to them. During the discussion of this topic, participants were asked to consider the benefits they believe are beneficial from their perspective in balancing their data disclosure. The most common answer was connecting with friends and family.

In contrast, participant D stated that she uses it for business communications with stakeholders and customers. Similarly, participant E found social media helpful as he is starting his food vlog and has connected with people with similar interests, which is helpful as he can now get inspiration from such connections. On the other hand, participant C says, *"Social media is like a photo album for her as I can store videos and pictures for her memories in the future. I also value connection with loved ones as gain as I reside outside my home country. Sometimes I find social media useful to kill boredom as entertainment to get testimonials relating to beauty products information or anything like songs or health-related or fitness."*

## **2.3. Reflection and Outcome of the discover phase**

To conclude, the discovery phase of the double diamond, survey, and semi-structured interview helped shape the research question to build trust in social media actors. Data from a survey and literature were used to frame a semi-structured interview. Even though the data from the survey were already related to literature findings, there needed to be more detailed insight, which led to the interview. In the discovery phase, an in-depth answer was found to the research problem of privacy concerns in social media platforms. The following quantitative data was used to examine the associated factors associated with privacy concerns on social media: confidence and enticement, willingness to act, and risk beliefs (Dinev & Hart, 2006). The data has embarked on the project's starting point, characterized by a double diamond as a divergent phase.

## 5.2. Define

### 5.2.1. A preliminary analysis

Based on insights from a semi-structured interview, this section analyzes the challenges users face to protect their privacy when social media platforms continuously attempt to take advantage of them. While users are aware of privacy issues and have taken steps to protect their privacy, there are still setbacks. Based on an empirical study by Stutzman, Gross, and Acquisti (2012), users' online behavior highly depends on endogenous and exogenous factors. The *endogenous* factors include the users' subjective preferences, which can be described as their adapted preferences for choice. The *exogenous* factors, on the other hand, are those caused by network-driven processes or the built-in environment that affect a user's behavior. Taking a nudge concept from behavioral theory, it is the positioning of privacy settings and accessibility that impact users' decision-making processes. Participant C explained that as someone who is privacy conscious and interested in adapting secure privacy choices, checking privacy could be complex and take considerable time. As a result, she often only uses a privacy check, a shortcut privacy center available on Facebook providing privacy information relating to fundamental privacy concerns, such as who can view posts, staying secure, finding friends on Facebook, data and settings, and ad preferences. Despite covering all the areas of concern from the users' perspective, she finds the information on marketing and ad preferences needs improvement. It is not just participant C's experience on the platform; it is the experience encountered by billions of Facebook users. Nowadays, privacy concerns are not just about the misuse of identity or photos but also from a commercial perspective. How businesses and commercial organizations use, collect, and nudge users to perform their behaviors. Below are the challenges users encounter on social media platforms:



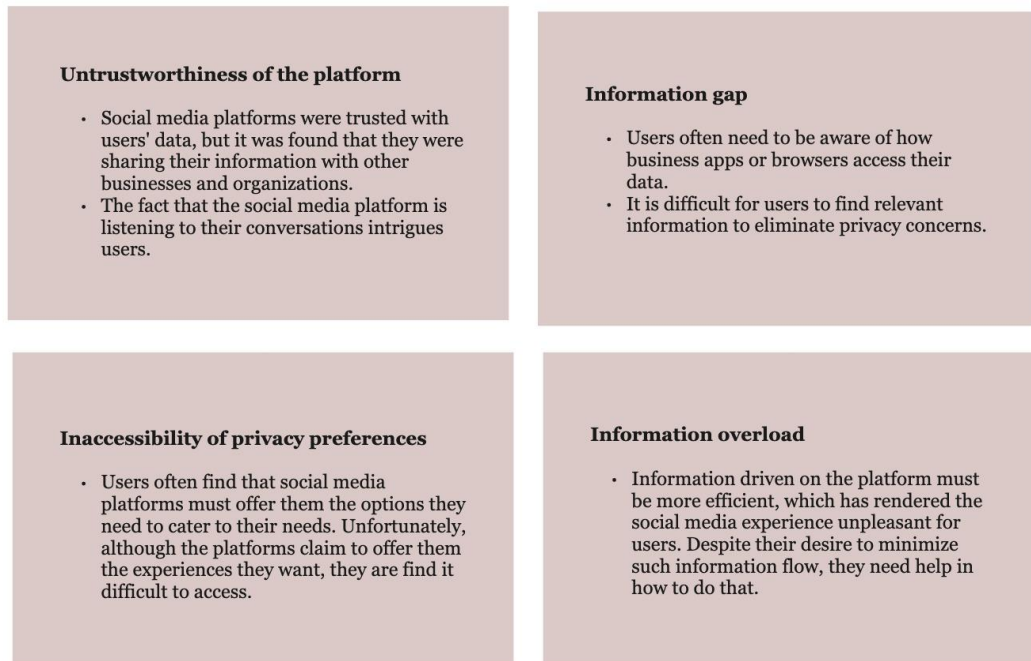


Fig. 12. Preliminary analysis

## 5.2.2. User stories

A user story is one of the tools used in service design to detail the features that should be considered in developing a service from the user's perspective. This is helpful to the other design teams, such as the developers, who will use it as a reference throughout developing the overall product vision. As part of this project, it will be used to develop a scenario for mapping the survey results and interviews. There are four use cases used in this project.

*“Anna is an active social media user who is less concerned about her privacy since she uses it for social interaction. She knows about privacy settings and recently changed her Instagram profile to private. Regarding privacy, she knows only who are friends and followers, and she uses passwords as logging in security. The engagement received on the platform encourages her to produce more content. As per her experience, sharing location while sharing photos or other content should not be done, as she has encountered interaction from people to join her. She believes long privacy terms lose interest in checking privacy, and she would consider looking at them if the terms were short and precise.”*

*“Usha is an entrepreneur and food enthusiast who enjoys cooking and sharing her culinary inspiration via social media platforms with other users. In addition to using social media for business purposes, she also uses it for personal purposes. Usha is concerned about her privacy as she conducts business on the platform. Furthermore, she is concerned about disclosing information to third-party apps or browsers. Therefore, Usha strongly expressed concern regarding a privacy breach on a social media platform. According to her, as a consumer, she has the right to know what has been done with her data. To keep track of her data, filtering information on the required topic of interest and deleting access information would be beneficial.”*

*“Maria is an introverted and shy person who dislikes divulging much personal information. Instead, she uses the platform to connect with her friends and family. Also, testimonials of health, fitness, and beauty products are an excellent way to kill her boredom. Frequently filtering unwanted friends and changing passwords are among her privacy habits. While she has a basic understanding of privacy, she must learn to protect herself against third-party apps or browsers. Despite being a highly conscientious privacy user, she does not enjoy reading through every privacy policy and guide. From her point of view, this poses a privacy risk since she lacks the necessary knowledge to block such information.”*

*“John is a high-tech guy working in the IT industry. He is an introverted individual who does not disclose much information about himself. His only benefit from using social media is to stay connected to his close friends. Otherwise, he prefers to use it sparingly. He says social media has become too much of a business-oriented tool pushing products and services to end users. In his view, social media have lost their original purpose of facilitating interpersonal connections. Based on John's understanding, surveillance capitalism is getting out of hand on the platform as it recognizes users' voices.”*

### 5.2.3. Persona

As a result of findings from the survey and semi-structured interviews, four initial personas were developed as a narrative. The personas were created to represent users' privacy concerns from different groups. The personas are fictional characters developed using key learnings, research insights, and data patterns from the previous Discover phase (Nielsen, 2019). During the development of the final solution, these personas were considered.

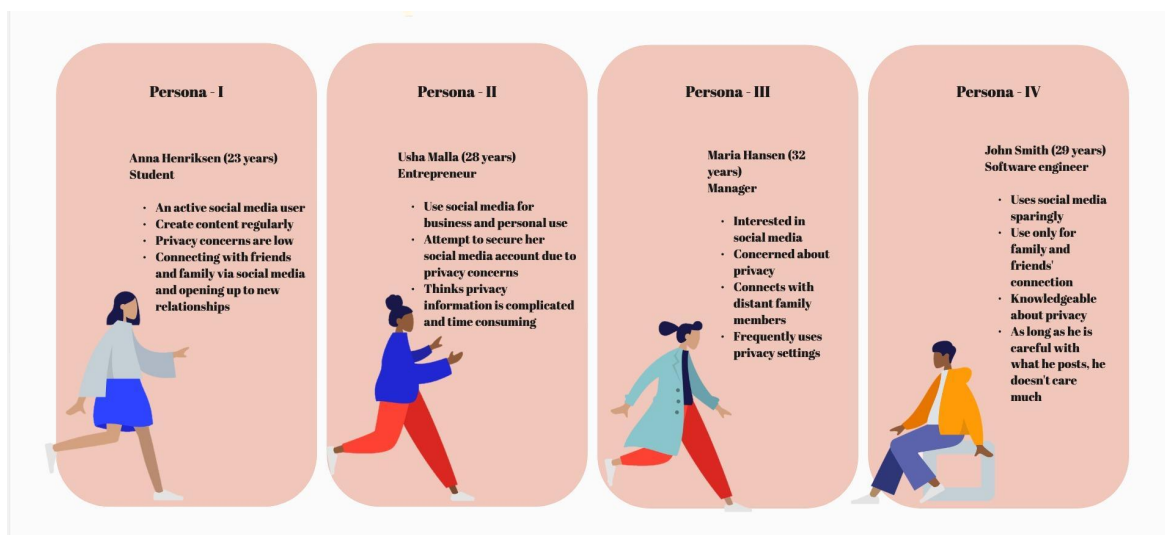


Fig.13. Personas

### 5.2.4. Social media platform privacy stakeholder map

This section will examine the privacy ecosystem to understand privacy better. An additional round of desk research was conducted to identify and explore the critical actors involved in privacy management on social media platforms. This research was conducted to explore their contribution to maintaining privacy on the platforms. The process considers the role played by stakeholders in the data management process. Data producers, commanders, handlers, and protection authorities are the main stakeholders in collecting and processing personal information (Arfi, 2021). In addition, data observers play an essential role in helping users manage their privacy and are considered stakeholders in the data privacy ecosystem. The results were visualized as a stakeholder

map (Stickdorn & Schneider, 2012). In addition, the stakeholder map allows service designers to visualize the entire system to generate a better understanding, analysis, and communication of research and envision and develop new solutions (Giordano et al., 2018). In service design, stakeholder maps overview the various stakeholders (Stickdorn & Schneider, 2012).

a. Data producers

*Data producers are individuals or social media users who produce that individual information.* As per data and privacy law in the EU, data owners should be aware of the handling of their data, the time and duration of data storage, and how it is stored, and if any third parties are involved, they should be informed of the process. Furthermore, data producers have additional rights, including the right to delete and access their data, the right to complain about data processing, the right to obtain and extract their data, and the right to correct any incorrect personal data.

b. Data commander

*Data commanders are organizations or companies that determine the processing of personal data as defined by the European Commission.* It is the responsibility of data commanders to protect data for the security of data producers. Through their privacy policy, they ensure that the rights of data producers are handled securely. Additionally, the data commander should confirm the identity of any third parties who will handle personal data entrusted by the producer or user to prevent data misuse.

c. Data handler

*A data handler is a company or organization that processes personal data only on behalf of the controller, as defined by the EU Commission.* A data handler's obligations include providing sufficient assurances regarding their data protection practices as they act on behalf of the data controller.

d. Data Protection Authority

*The EU Commission states that Data Protection Authorities (DPAs) are independent public authorities with investigative and corrective powers that supervise the implementation of data protection laws.* As well as handling complaints, they provide expert advice on data protection issues. These organizations guide companies and

individuals, and increasingly heavy fines are imposed against businesses that fail to comply with their applicable privacy regulation(s).

e. Privacy observer

In addition, several associations are dedicated to protecting people's privacy and have done so for many decades. The Electronic Frontier Foundation, for example, provides comprehensive guidance on its website. Most privacy observers are very friendly to individuals with personal information and tend to address their advice to individuals primarily.

The desktop research covered privacy concerns from a broad perspective, considering direct and indirect relationships that might impact privacy risks for users. Among them were device manufacturers, IoT solutions, and third-party application developers (Perera et al., 2015). Even though device manufacturers are not directly involved in privacy risks occurring on platforms, they have an indirect influence since they embed privacy-preserving technologies into users' devices. In particular, manufacturers must develop mechanisms to ensure data storage, deletion, and access control during firmware development. In addition, they are responsible for explaining the type of data processing that will be employed and how and when data will be extracted from devices.

On the other hand, IoT cloud services directly involve privacy concerns for users as they provide advanced data analysis support for local software platforms by providing a cloud-based service. However, for consumers to choose which cloud provider to use, such providers must adhere to common standards. Additionally, third-party application developers indirectly impact privacy risks or concerns for social media users since they are responsible for certifying their apps to ensure they do not contain malware. The developers are also responsible for providing users with clear and accurate information to obtain explicit consent. The stakeholder map is presented in Fig.14.

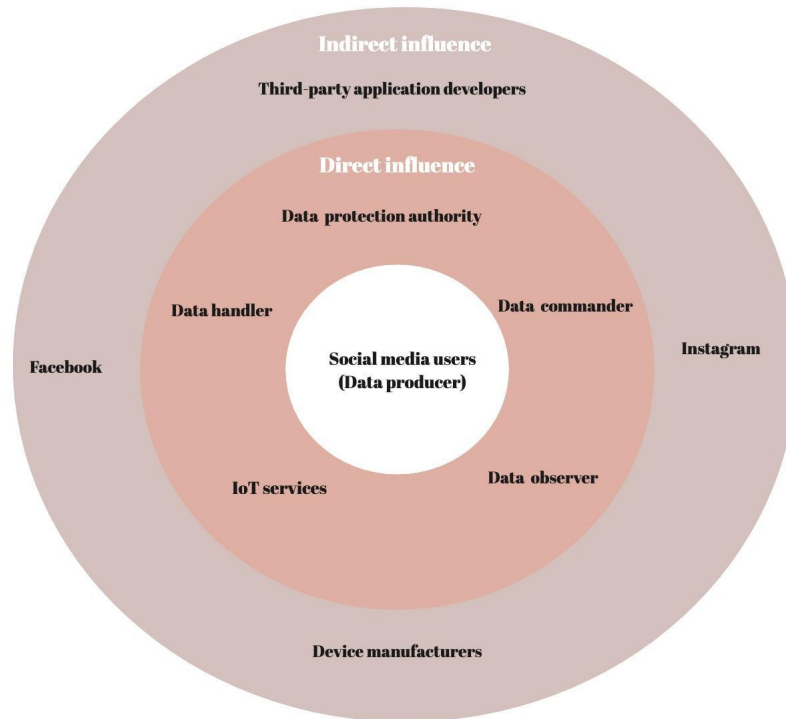
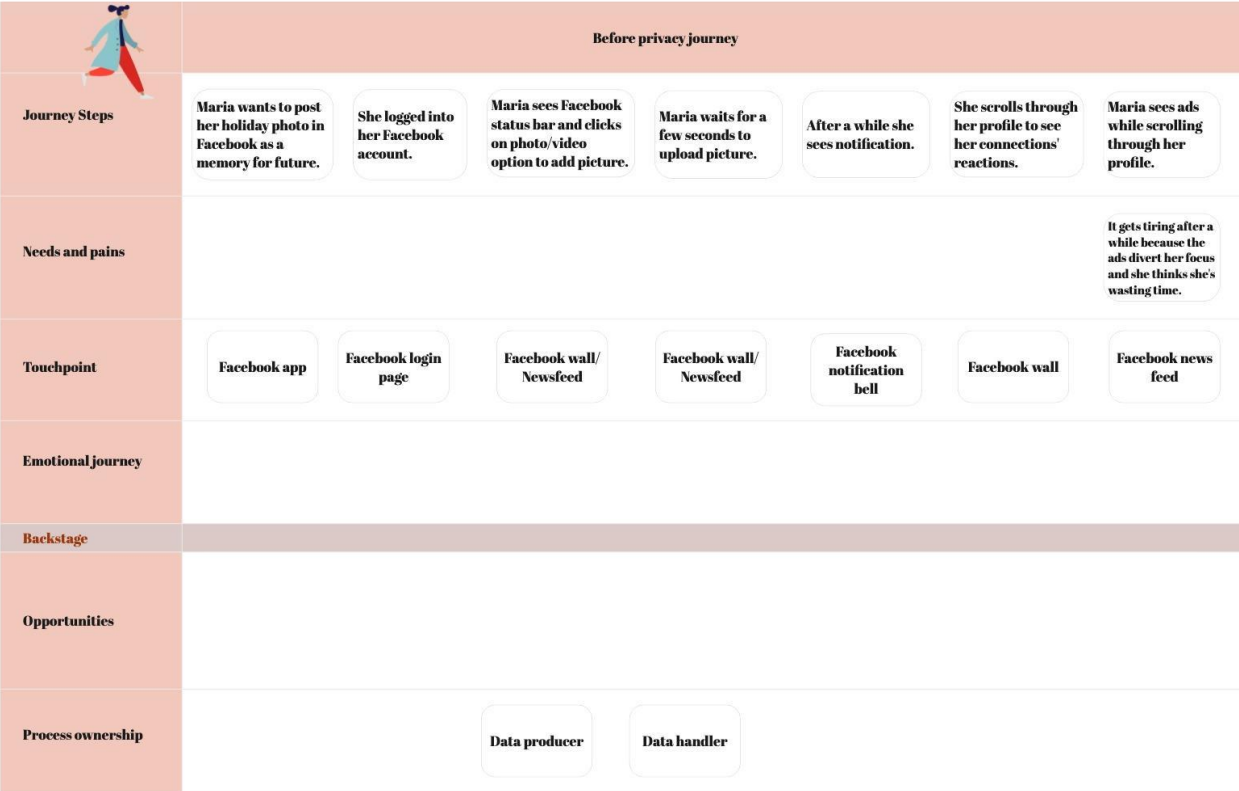


Fig.14. Stakeholder map

### 5.2.5. User Journey

The journey maps the user experience based on Persona Maria, from when she posts her holiday picture to when she encounters privacy settings. Each action maps needs, pain, touchpoints, emotions, opportunities for change, and process ownership that occurred during her privacy journey as it provides an overview of the process involved in privacy management.



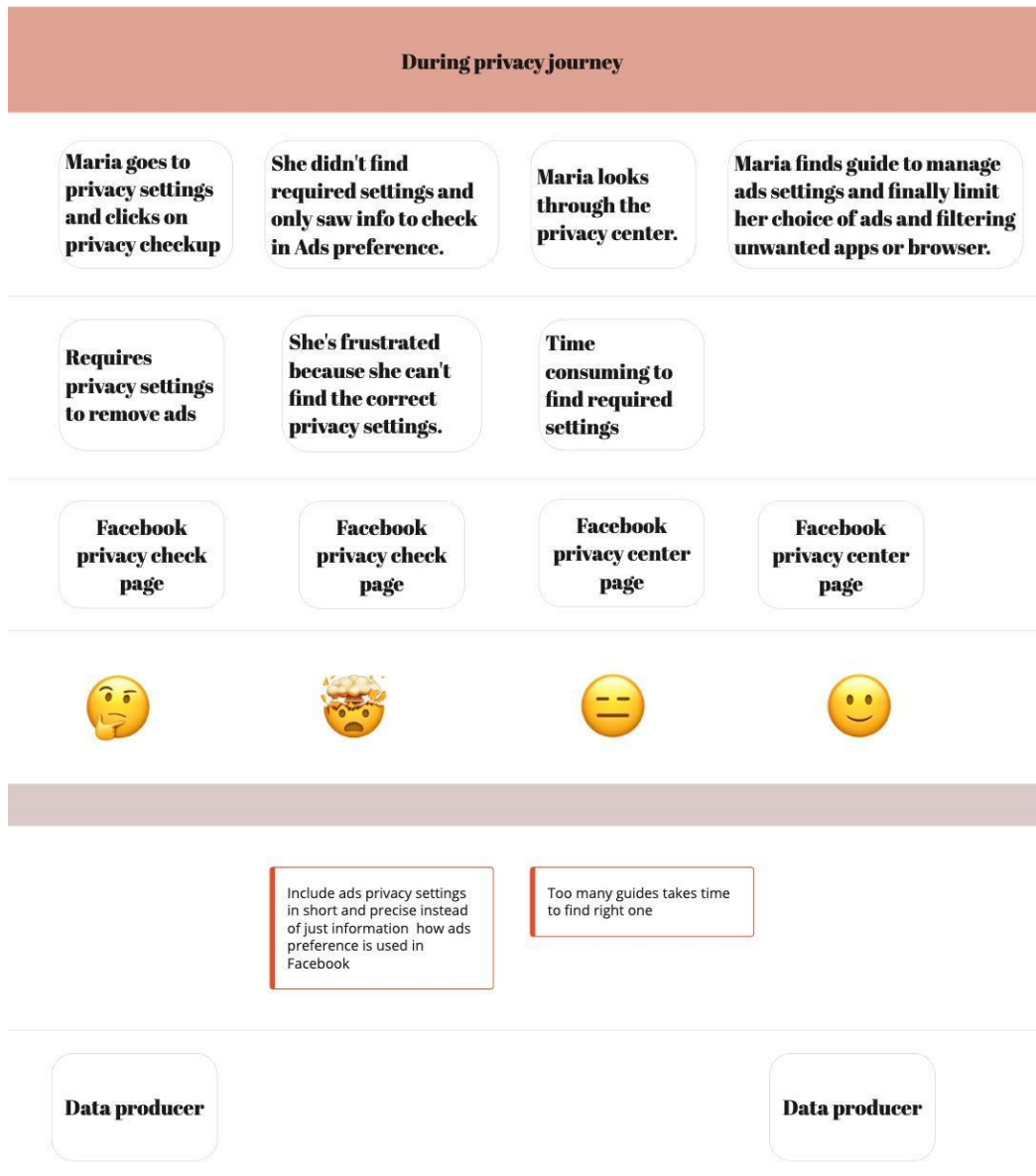


Fig.15. User journey

## 5.2.6. Part II of the literature review

After analyzing the methods used in the discovery phase and the ongoing process in the defining phase, I needed a second literature review to map the design process. My goal was to find what should be considered a vital point for developing a solution for social media users to help them build trust in social media by overcoming privacy concerns.



Thus, another literature review was conducted to dissect the design of the service system from the designer's perspective. It also included what could be used in the upcoming design process.

Service design practices focus on theoretical frameworks and methodological approaches to understanding service as a social system (Morelli, 2007). *In addition, service design* is a design practice that focuses on humans and other relevant actors to conduct an iterative approach to service innovation (Wetter-Edman et al., 2014). Also, it serves as input for creating systems and services that are useful, efficient, effective, and desirable for users (Penin, 2017). As service design works in systemic orientation and behavioral challenges, designers designing in behavioral design are often more influenced by applied behavioral economics than design, as found in Dorst's (2015) study of problem-solution co-evolution. Thus it is essential to stay within behavioral economics. However, the theory should guide the design process through abductive reasoning, from analyzing past behavior to proposing desirable behaviors, lifestyles, or systems. In this process, behavioral economics considers only particular aspects of service and excludes behaviors happening as a system that changes over time. As the literature review explains, BE is a tool to identify new possibilities and overcome barriers by applying behavioral economic principles. The insights gained from this approach to behavior can be used to understand how a product or system functions and how people interact and make behavioral choices. The behavior economics theory (or nudge theory) offers an alternative to designing behavior change by accounting for intuitive thinking to help people make better decisions. In commercial strategies, designers create environments that extensively use biases to boost sales (e.g., Welch 2010). By positioning alternatives closer or farther, designers can exploit the availability bias to nudge desired behavior.

Likewise, in the context of privacy settings in social media platforms, designers play a vital role in determining privacy behavior. According to Yang Wang et al. (2014), nudging is a powerful mechanism for preventing unintended disclosures (Yang Wang et al., 2014, p. 2375). Acquisti et al. (2017) also argue that nudging is helpful and justifiable against opponents of such soft paternalistic approaches if it reduces regret or supports the realignment with privacy preferences. However, Laziness and a tendency to stick with current settings prevent social media users from taking advantage of privacy protection features (Goldstein et al., 2008) even when they know those settings do not reflect their preferences (Madejski, Johnson, and Bellovin 2012). Moreover, available privacy controls and privacy-related nudges may overwhelm users since they need more understanding and proficiency (Wisniewski, Knijnenburg, and Lipford, 2017).

So **how can behavior be changed**, which impacts users for positive change? Behavioral change requires the application of applied science together with behavior science, social science, and ecological science (Aunger & Curtis, 2016). The theory of change is used to facilitate the design and development of interventions, as per the behavior change design framework (De Silva et al., 2014). The design of behavioral change is oriented toward single-minded behavior within physical, social, biological, and temporal contexts. To develop an effective intervention, the design should consider how people behave, think, and make decisions (Datta & Mullainathan, 2014). The acceptance of invention becomes high if the design and delivery acknowledge decision-making processes and does not impact individual tradeoffs (Banerjee, Duflo, Glennerster, & Kothari, 2010). According to the theory of change, there must be a chain of causes and effects for change to occur and to produce desirable results (Aunger & Curtis, 2016). An intervention must be designed to produce changes to the existing environment that will prompt a reaction from the target audience, resulting in a behavior change. Different theories of change have similar prominent sequences, such as the expectancy-value theory based on the Theory of Planned Behavior (Ajzen, 1991) and the communication-based behavior change approach (Figueroa, Kincaid, Rani, and Lewis, 2002).

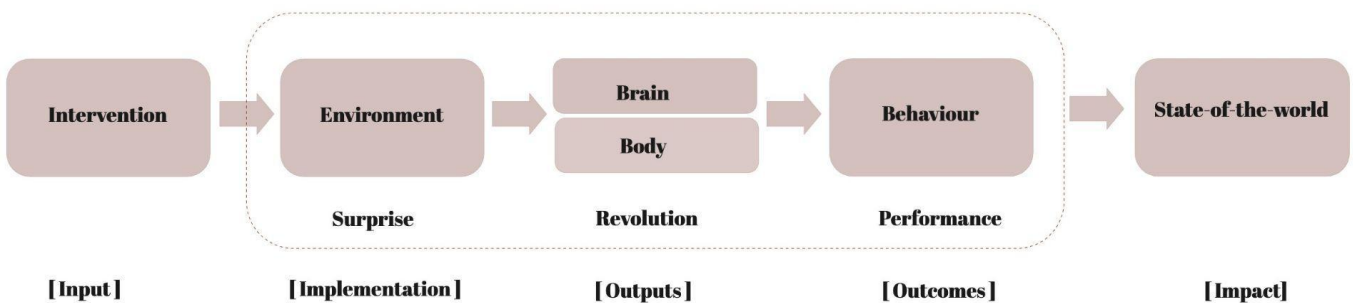


Fig.16 Behaviour change design adapted from (Aunger & Curtis, 2016)

## 5.2.7. Problem area

Aunger & Curtis (2016) state that behavior change is deeply rooted in the principles of behavioral science, which is a branch of science that studies human behavior through systematic experimentation and observation. As a behavioral science discipline, behavioral economics focuses on the psychological, social, and emotional factors that

impact decision-making. Behavioral economics provides insight into how products or systems operate and how people interact and make decisions influenced by emotions, social norms, and cognitive biases. This project examines social media, social media users, and the challenges users face regarding privacy concerns. The behavioral economics principle has been applied especially because social media platform is nudging users for their benefits of economic gains by directing businesses towards them and altering their privacy choices. Thus users become vulnerable to protecting their privacy from such businesses and organizations. A behavioral economics approach can assist in understanding the irrational behavior of users. A behavioral economic approach helps to understand current behavior and helps to guide design solutions to change behavior at the right point in the decision-making process.

In Figure 15, a user privacy journey map has been created based on insights from the survey, interviews, and desktop research. In this case, the opportunity for change arises from two actions Maria took - first when she could not find the necessary settings to limit ads on her profile, requiring her to access the privacy center, which took her some time to access. However, the persona in this scenario is not acting irrationally as other users who would give up if it did not include severe cases like unauthorized access. Instead, her privacy behavior is influenced by an exogenous factor, which in her case is Facebook. Using Maria as an example, we know that social media platforms indirectly impact privacy regarding business or economics. Users do not take privacy checks for business or marketing and do not understand how to minimize or delete access from their profiles. Thus such an act has influenced a well-educated, knowledgeable person who can navigate the privacy settings. Due to this, many social media users risk being violated by businesses regarding their privacy.

The behavior economics principle helps recognize patterns of how social media drives users for this privacy behavior. Intervention development has to occur as a measure to change this behavior, i.e., users lacking motivation or laziness for this behavior change, as implied by the behavioral design framework. This chapter only covers the behavioral economics principle used by social media businesses to impact user privacy behavior, as shown below:

**Default Bias: This principle suggests that people choose the easiest option to avoid making complex decisions.** In the case of Facebook, users stick to privacy by default choice and choose privacy check over privacy center unless there is a need for privacy. For example, when users register, the default settings allow access to their phone number and email address, and anyone can send a friend request to them. These are some

examples of the default settings. The John Smith persona represents this example, in which he does not bother to change settings unless necessary. Thus, the first identified problem users face, which results in privacy concern behavior, is their need for more motivation to change the settings.

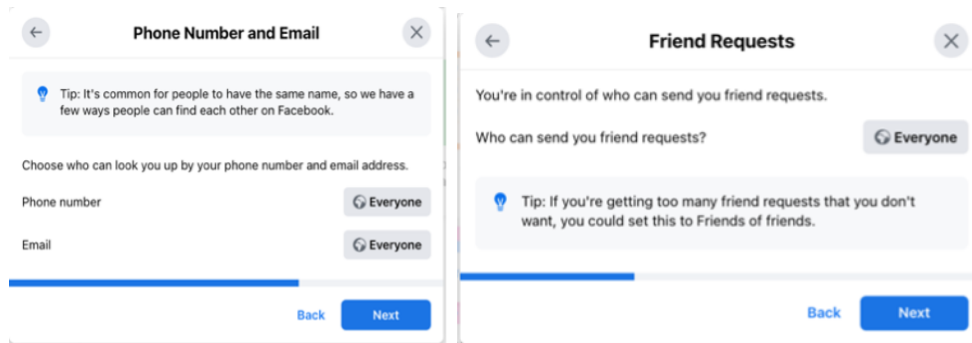


Fig.16 Picture showing default bias used by Facebook

**Friction costs:** This principle implies that people will be willing to avoid taking action if they encounter small barriers. An Example of this principle is the positioning of privacy settings in two categories: privacy check and privacy center. On Facebook, privacy check is a preferred option for users as it takes less time. However, if they needed relevant information like settings to remove apps or browsers and did not find that, they would likely give up that action unless it was essential to them. Thus, social media users will likely quit their privacy-checking journey if they encounter any small barrier, the second problem resulting in their privacy concern behavior.

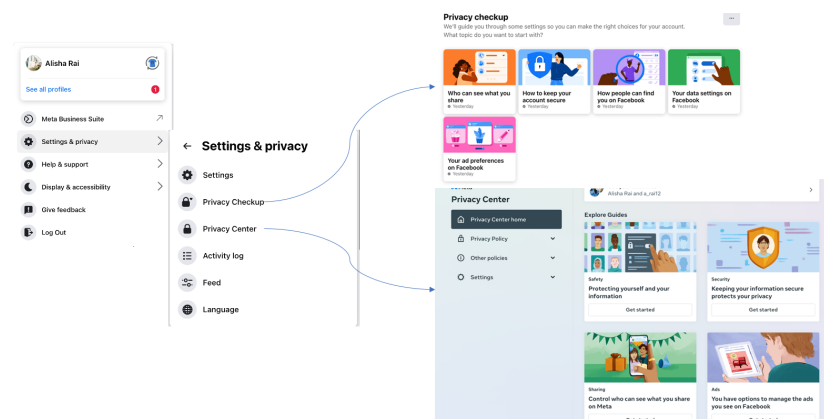


Fig.17. Picture showing friction costs bias used in the Facebook platform

### **5.2.8. Final research question**

The final research question was narrowed to one social media platform to ease the process.

**“How can we design behavioral change to motivate Facebook users to adopt active privacy behavior?”**

### **5.2.9. Reflection of the design process**

As a reflection of the define phase, the process has assisted in selecting and evaluating the idea that will be processed in the next phase of the design process, which is the development phase. The data and insights gathered from the discovery phase were analyzed and studied, which allowed the design process to be converged into a specific problem, leading to the formation of the final research question. The persona, journey maps, stakeholder maps, and a second literature review help to narrow the problem and determine the required direction for the solution.

## 5.3. Develop

### 5.3.1. Ideation for solution

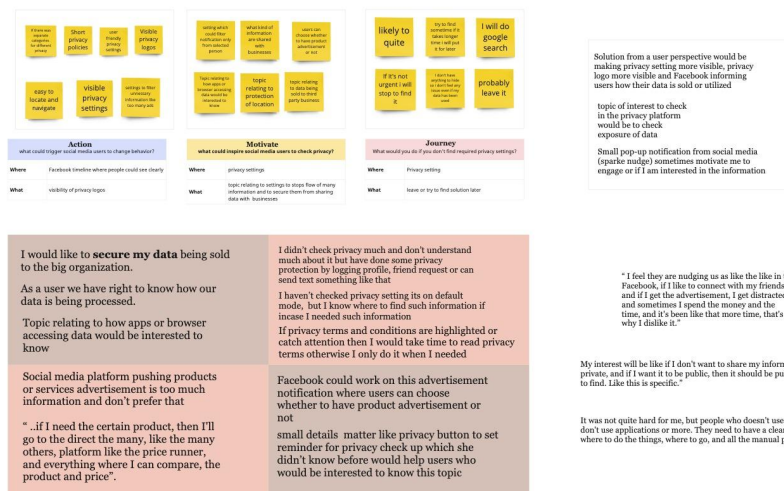
After completing the research question, which was based on designing a behavioral change to motivate Facebook users to change their privacy behavior influenced by exogenous factors by Facebook in behavioral economic terms, the biases resulting from social networking were classified as default bias and friction cost bias. Co-creative sessions were held with interview participants to develop a solution from the users' perspective. Unfortunately, there were only four of them who were able to participate.

Personas, user journeys, and stakeholder maps were shown on the Miro board. As one of the participants had never used Miro before, the process was explained to him. In this session, participants were provided with detailed information regarding the personas and user journey and their implications for the design. A stakeholder map was explained at a basic level to understand users better. The research question was presented as a guideline for the ideation process. The participatory session was divided into four steps starting with the question, *"What could trigger social media users to change their behavior?"*. For ten minutes, the participants wrote on sticky notes. Then, users were asked, *"What could motivate them to check their privacy?"* Ten more minutes were allotted. Moving up to the next step was primarily focused on extracting the behavior of social media users from the journey. Participants were asked, *"What would you do if you could not find the correct privacy settings?"* Participants were given time to write their responses. Following a 5-minute pause, the participants were asked to share their opinions on the following categories defined during the user interview: Settings for privacy, default privacy, third-party apps, browsers, Nudges, Surveillance Capitalism, Trust in the platform, and Calculus of privacy and tradeoffs. The process took only 15 minutes. Figure 18 shows the result of that short discussion. The session ended after that. The presentation of a small prototype followed the analysis of the findings. To determine whether users can understand and relate to the solution. A participant mentioned that she found the solution easy to understand and that it might be the ideal solution she was seeking. Other users

find it user-friendly and said they would probably use it if such settings were available. They believe that how privacy settings are presented in the platform is similar to finding a treasure map. The prototype was developed based on data gathered from interviews and participatory sessions. It was a prototype of the privacy settings that could provide users with easy access to the ads preferences settings that cover settings related to apps and websites that connect with your account, ads-specific settings, and filter ads topics to make it easier to change settings as desired.

### 1. Ideation

How can we design behavioral change to motivate Facebook users to adopt active privacy behavior?



I think like it. This privacy settings will be more visible and users need to be given deep knowledge about this private settings. Like most people don't know like where to find required information.

Fig.18. Ideation with users

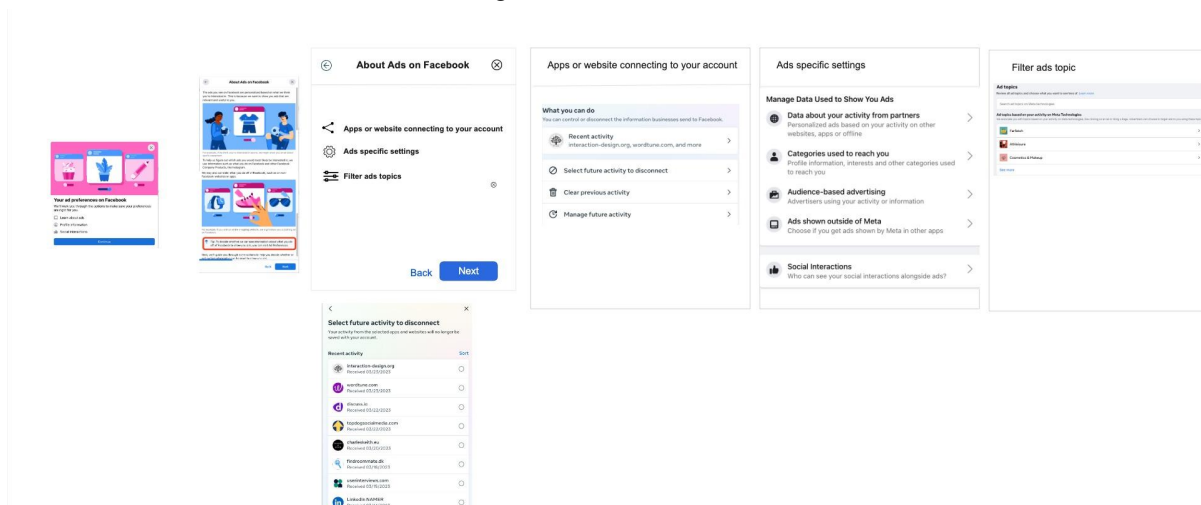


Fig.19. Prototype for privacy settings

### 5.3.2. Key insight

The participatory session revealed that users sought solutions based on platform settings that would make their privacy journey easier. From the user's perspective, the platform complicates their privacy. Nevertheless, we must recognize that users also make such decisions. Based on the study of behavioral economics principles, these user behaviors are described as follows:

**Confirmation bias:** It is common for people to analyze information and seek out information in a way that supports their current beliefs and understanding.

**Default bias:** To avoid complex choices, people choose easy options.

As examples of each identified behavioral principle, users take shortcuts in checking privacy and do not change the problematic settings. According to the user's perspective, such behavior does not constitute an irrational decision. However, from the behavioral science perspective, it implies that human decision-making is based on a series of irrational or quick judgments that are highly affected by the environment. Therefore, social media platforms and businesses carefully influence human behavior to benefit themselves. As my project outcome, I decided to create a solution that could prompt users to follow active privacy behaviors since the other stakeholders from the privacy management did not participate in the process. As a result, creating a solution solely based on the user's viewpoint was considered insensible.



## **5.4. Deliver**

### **5.4.1. Final Persons**

Finally, the personas represent users with different aspirations to use social media, their challenges, and how their experience with privacy has impacted their level of privacy concerns. There are four different developed personas with other characteristics: one who uses social media to build relationships, one who is not fond of social media, one who shares knowledge and information, and one who uses it to socialize.

## Meet ..the social butterfly...,

Anna Henriksen (23 years)  
Study International Sales and Marketing  
Extroverted and outgoing

She uses Facebook and Instagram most of the time in her daily life.  
She shares daily activities and events that she attends on social media.  
There's always something good going on in her life, and she has a lot of friends.

### Goals

To meet new people and have more contacts.

### Needs

Short and clear privacy terms within my eyesight range to have necessary information on privacy

### Opportunities

Connectivity and sense of belonging  
access to information

### Observations

I open up to new social connections and have successfully made good friends in real life too.

### Tasks

Post photos, videos, and stories  
follow up trends  
keeping updates with followers and friends

### Barriers & Frustrations

Facebook keeping information of search history is a bit of privacy concern for her

### Key points in the journey

Uses social media to connect with friends, family and new people

Shares an updates of her daily activities

Uses privacy setting sometimes to hide story from certain people

Unknown people have reach out to her to ask about her education but haven't had a bad interaction

Used to share the story with location when dining out at a restaurant

Positive engagement of her content inspire her to engage in social media

### View on privacy and privacy settings

Who am I following? Who is following me? Besides that, I have yet to do any privacy checks. Spending time to check is a bit much, and I only do it if it shows any big sign of danger, like someone is using my account. Previously I used to share the story with the location when dining out at a restaurant; there has been an encounter with some people asking me to join as they were nearby, which made me realise such information should not be disclosed.

" I have not checked privacy terms and conditions and would be willing to look at privacy if it was short and clear within eyesight range thinks that there is too much information."

## Meet ..the passionista...,

Usha Malla (28 years)  
Studied Food Technology and  
Innovation  
Entrepreneur and epicure

Active on social media uses Facebook for private use to connect with friends and families. Facebook page for her business profile but often uses Instagram; as she finds it more engaging as compared to Facebook

### Goals

To connect with a closed one but now use it for business to connect with stakeholders.

### Needs

Filtration of information that users would like to know

### Opportunities

To grow business and reach out to customers and connecting to like-minded people

### Observations

Facebook and Instagram are not so different in their purpose; only their goal is different, like targeting more people in different prospects, but overall privacy setting is the same.

### Tasks

Communicating with relevant stakeholders providing product information, and keeping updates with food enthusiastic

### Barriers & Frustrations

Privacy check is complicated and challenging as information is overloaded.

### Key points in the journey

Use social media for private and business connection

Connecting with people working in food-related and were able to share a passion

Lengthy privacy terms have somehow impacted her ability to know how these platforms utilize data.

She would like to know how these third-party business-like apps or browsers access data.

Facebook privacy alert notification provides safety assurance, but I do not trust platform fully.

Facebook's greeting does not nudge her to check her privacy; thus, she does it when needed.

### View on privacy and privacy settings

I would like to secure my data from being sold to the big organisation as they are taking advantage of my data, and as a user, we have the right to know how our data is being processed. Due to their lengthy privacy terms and conditions, I have yet to do a detailed privacy check.

"I think making privacy logo more visible and categorising settings into different categories would help users to choose the information they would require to manage their privacy."

## Meet ..the listener...,

Maria Hansen (32 years)  
Guest experience manager  
Introverted and shy

She uses Facebook for friends and family but prefers Instagram most of the time. She has not disclosed much information on Instagram but sees information about other people as she enjoys reading news about beauty products, fitness, and entertainment.

### Goals

She uses these platforms to keep in touch with loved ones while living outside her home country, as well as to kill boredom through entertainment

### Needs

User friendly privacy settings that is easy to navigate and informative in shortcut

### Opportunities

Connecting with people around the world and finding helpful beauty and fitness tips

### Observations

It was not quite hard for me, but people who do not use Facebook so often need precise information like, you know, way to where to do the things, where to go, and all the manual privacy information.

### Tasks

Posting photos and videos for future memories and finding relevant testimonials for beauty and health

### Barriers & Frustrations

Constant notifications distract you from your work and encourage you to check it constantly

### Key points in the journey

She uses privacy settings often and recently changed Instagram privacy settings; for Facebook, she changes passwords occasionally and filters friend lists.

Upon receiving numerous friend requests from unknown individuals and advertisements for various products, she becomes proactive in respecting her privacy.

Follow news feeds, read testimonials related to beauty and health products, and connect with friends

Only posts a few videos and pictures for future memories, otherwise she does not post anything that makes her uncomfortable on social media

Change passwords once or twice a year and perform privacy checks

Whenever I see a notification of an unknown log-in on my social media account, I immediately take action to remove access.

### View on privacy and privacy settings

As a long-time social media user, navigation of privacy settings was OK. However, since most users do not know how to check the information they disclose on these platforms, the default setting should be private, and users who wish to make it public should be able to do so. As far as social media privacy settings go, I am familiar with these like those who can see my posts, password change, and if they want to store my information is a big no for me. Other than that, I do not know much.

"If privacy terms and conditions are highlighted or catch my attention, then I would take time to read privacy terms; otherwise, I only do it when I needed."

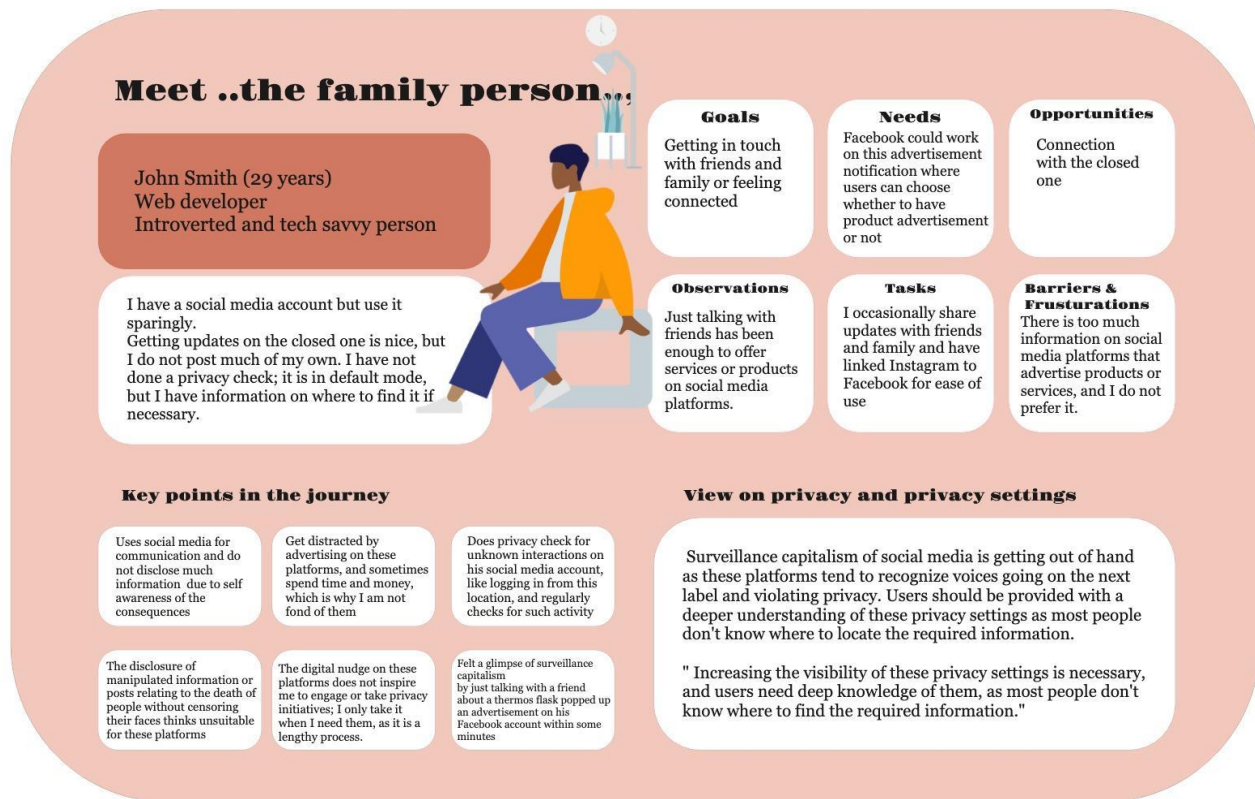


Fig. 20. Final Personas

## 5.4.2. Tool for facilitating behavioral change

Behavioral change tool utilizes behavioral insights derived from research to solve design challenges based on human behavior. This project focuses on social media users and their privacy habits on social media, resulting in their privacy behavior. Thus, the project's outcome should fit within this context of behavior and design. Figure 22 illustrates a behavioral change model that illustrates the process of initiating behavior change. Based on the theory of change, the model posits that some causes and effects lead to behavior changes (Aunger & Curtis, 2016). In the first step, the behavior is observed, analyzed, and evaluated, which leads to the identification of behavioral principles influencing that behavior that positively or negatively impacts them. Based on a case study conducted in this project, social media users' behavior could be more beneficial.

It also depends on the benefit social media users consider, as explained by the privacy calculus theory (Ajzen, 1992). By examining human behavior from the decision-making

process, behavioral economics provides insights into the irrational decision-making process of users. During the design process, the intervention may intentionally or systematically affect human behavior by persuasion. Such tailored interventions are used to impact behavior or to simplify behavior change. As an outcome of the project behavioral change tool has been developed, as shown in figure 21. The behavioral change tool provides guidelines for service designers to follow in the behavioral design process, from understanding behavior to optimizing it, resulting in behavior change. Based on the study by Datta and Mullainathan (2014), behavioral change tool attempts to provide an approach for applying behavioral insights to the development of interventions, in which behavioral insights assist in defining and diagnosing the problem and finalizing the design of interventions.

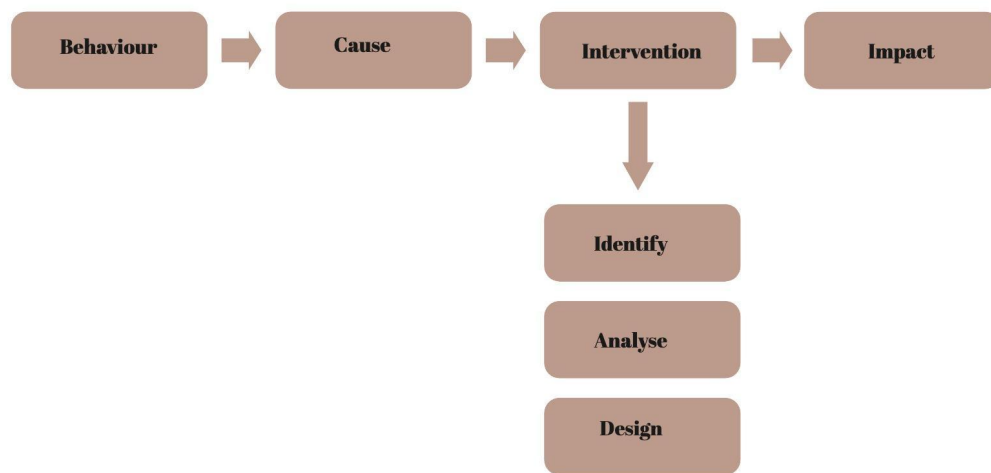


Fig.21 Behavioral change model

Behaviour	Cause	Intervention	Impact
<b>Whose</b> behavior do you want to change?	<b>What</b> causes this behaviour?	<b>How</b> does the environment influence this behavior by the context BE principle?	<b>What</b> is the potential outcome of new behavior?
<b>What</b> is there current behaviour?	<b>What</b> are the reoccurring behavior ?	<b>When</b> should behaviour be changed?	<b>How</b> effective has the new behavior design intervention been?
<b>What</b> are the consequences of the behaviour?	<b>Why</b> is this behavior occurring?	<b>What</b> might be the suitable BE principle for behavioral change?	<b>Whether</b> the changed behavior be implemented in the design?
<b>Why</b> is it necessary to change behaviour?	<b>How</b> does BE principle relate to the problem?	<b>What</b> might be a desirable solution?	

### 5.4.3. Example of intended use

The behavioral change tool is intended to be used during ideation and prototype development of the design process. A description of the design process followed in this project is provided to illustrate how behavior change can be achieved using behavioral design and principles. It starts from the **Behavior** that specifies the target audience whose behavior the design wishes to change, e.g., social media users who are not accustomed to checking their privacy settings. In their current behavior, users are not checking privacy settings on their profile but instead using once in a while when needed and are likely to leave if they encounter barriers—finally, specifying the problem that results from this behavior. Under the **Cause** section, the proposed behavior is viewed through the lens of the decision-making process to identify factors influencing the behavior. This study found that users' behavior of taking shortcut privacy checks and not changing default settings are based on default bias and friction costs behavioral principle as depicted in the define phase. Next, the **Intervention** design phase is carried out by designing solutions using behavioral principles to influence the identified behavior. An example of changing user behavior impacted by default bias which is users sticking to the settings from the platform can be changed if interventions like privacy-checked notifications from their connection are presented to users; they are more likely to check privacy as explained by behavioral theory by human behavior desire to be a part of a crowd or having a sense of belonging which drive their motivation for change. After the **Impact** phase, intervention or designed behavior is used in the design process to change the current behavior. Later it is observed, evaluated, and a final decision is made regarding adopting this behavior in the design process.



Behaviour	Cause	Intervention	Impact
<b>Whose</b> Users of social media who are not accustomed to checking their privacy settings.	<b>What</b> As an excuse, social media users claim that it is time-consuming and that they are unaware of the data used by these businesses for their purposes.	<b>How</b> <b>Default Bias:</b> By including some personal information public by default <b>Frictional costs:</b> Making privacy choices in two categories short and indepth guides with limited information is provided in the short privacy guide, leading users to stop in the middle.	<b>What</b> <b>Herding:</b> The users who did not check privacy will likely do it just to fit in with the crowd. <b>Loss aversion:</b> The users who likely to quite privacy check journey from small barrier will likely to continue to prevent loss of their data.
<b>What</b> Most social media users do not check the privacy settings on their profile, and they are more likely to leave the service if they encounter any obstacles.	<b>What</b> Most social media users use the default choices and the privacy settings they are generally aware of.	<b>When</b> Behavior should change when users don't check their privacy or complete the required privacy journey.	<b>How</b> effective has the new behavior design intervention been?
<b>What</b> Social media users lack the expertise to protect their data from being divulged to other companies.	<b>Why</b> A lack of motivation among users is preventing them from changing their behavior.	<b>What</b> <b>Herding:</b> People tend to copy other people to be considered part of a group. <b>Loss aversion:</b> A person's reaction to a loss is greater than their reaction to a gain.	<b>Whether</b> the changed behavior be implemented in the design?
<b>Why</b> As a result, social media users become more susceptible to being nudged by these businesses and platforms.	<b>How</b> <b>Confirmation bias:</b> It is common for people to analyze information and seek out information in a way that supports their current beliefs and understanding. <b>Default bias:</b> In order to avoid complex choices, people choose easy options.	<b>What</b> <b>Herding:</b> By using <b>social proof</b> tools according to behavioral design, such as informing connected users of their privacy practices like " <b>Anna has done a privacy check. Have you checked your privacy this week?</b> " <b>Loss aversion:</b> By using <b>sunk costs</b> as tools for informing users of the value of their data and ensuring they are aware of the consequences of losing their data.	

Fig.23. Use case of the designed tool

## 5.4.4. Reflection on the design process

As a designer, I struggled with this phase and what I should present as a solution for a complex topic like behavioral change. Understanding research papers, academic articles, user insights, and supervision helped me develop the outcome. However, to validate this behavioral design tool, I had to get an expert in behavioral design to review it, which was impossible due to time constraints and difficulty in getting such an expert. Thus, the outcome

is solely a result of the data, theories, and feedback provided by the users during the development process.



# **Chapter 6**

## **Discussion**

### **6.1. Reflection of the design process**

From the initial idea to address privacy concerns on social media and the impact of users' self-disclosure behavior, the design process for behavioral change became overwhelmed by the wide range of possibilities. By combining divergent and convergent thinking, the double diamond model assisted in navigating the design process. As designers, we generate many ideas and view the problem broadly, considering all possible issues that are taking place or will take place surrounding the subject of the project in the future. As the project progressed through the divergent design phase, it became evident that privacy concerns arose due to the users' attitudes, motivations, and beliefs regarding social media privacy. Since the advent of social media, privacy issues have improved significantly after continuously recognizing problems and needs. However, as a result of the most recent incident in privacy concerns involving social media by Facebook in 2016, which involved extracting users' information without their consent to promote a political campaign, the debate surrounding social media and their policies regarding privacy has heated up. Many studies have been conducted and are currently being conducted, but the topic of interest may no longer be identity theft or hacking of user profiles. However, social media platforms must be made aware of such problems. However, they have now taken steps to protect themselves by creating chains of safety measures, such as two-factor authentication in Facebook, which allows users to be alerted to unrecognized devices and browsers attempting to log in.

Additionally, this privacy alert was used in the interview to identify users' viewpoints on these privacy practices in the later stages of the design process. The users are aware of these privacy issues and are willing to take immediate action when they become aware of them. A literature review was the starting point of the design phase. The findings identified during this phase prompted the collection of data. To measure users' attitudes toward privacy concerns, quantitative data was collected. In light of the findings, it has become evident that privacy concerns on social media are still a topic of concern among

users, which negatively impacts their trust behavior. The second data collection was conducted to gain an in-depth understanding of their behavioral practices, focusing on their behavior and knowledge of privacy security. The users in both processes were the sole data contributors and helped co-create the design by providing their input. As a result of the define phase, findings focused on one specific design problem area. During my desktop research on privacy behavior, the exploration of behavioral science was identified, which was associated with the research that I was conducting. Therefore, the behavioral economics approach was considered for exploring the solution.

Based on the results from users' data, privacy concerns were recurrent from businesses and marketing, where users recognized that it was a problem but were not taking any action to stop it. DiClemente & Prochaska (1982) describe such behavior as falling under pre-contemplation, i.e., users lack the intention to take action and do not recognize that there is an issue. The second type is contemplation, where the user is aware of a problem but is contemplating whether to take action. Privacy concern behavior reflected by users in the study demonstrates these points of willingness to change (DiClemente & Prochaska, 1982). Then design moves toward the convergent phase of the double diamond, development, and delivery phase. The development phase explains the ideation process of a design to change the privacy behavior of social media users through the lens of behavioral economics. In a behavior research study on the disclosure of information by users, they discovered that their privacy choices are influenced by heuristics and biases from their environment, i.e., social media (Adjerid et al., 2018). The opportunity for change was identified based on the users' privacy journey. This eventually resulted in the developing of a behavioral change tool, as illustrated in Figure 1. 22. This tool provides guidelines for those designing interventions for behavioral interventions change. The tool could be handy for designers to make iterations of prototypes to choose the correct behavior to consider in design.

## **6.2. Conclusion**

Behavior science has made substantial progress in identifying key cognitive processes that trigger behavior change by designing and developing interventions based on behavioral science. The project utilizes both behavioral economics and service design frameworks. A service design perspective looks at solutions from a broader perspective, considering social, economic, and cultural contexts to produce an inclusive solution. This process created personas, user stories, user journeys, and stakeholder maps as outputs,

contributing to developing behavioral insights. For example, user journeys are handy for visualizing the experiences and perceptions of Facebook users concerning privacy.

As a consequence, it provides insight into the behavioral drivers that were influencing user privacy behaviors. The implications of behavioral economics contributed to exploring user behavior through the lens of decision-making processes influenced by cognitive behavior, resulting in irrational behavior. Using behavioral economics, we analyzed how social media users' choices are framed, what behavioral patterns they are showing, and opportunities to adjust behavioral patterns through nudges or adjustments. The study focuses on exogenous factors that influence the user, which is generally network-driven, including the privacy choices offered by Facebook to users that have somehow affected their privacy behavior. In the context of Facebook registration, default bias and friction costs are cognitive shortcuts that influence users' privacy choices, whereas altering the privacy guide into two separate categories has been identified as a small barrier for users to check their privacy settings for ads preferences, and is referred to as friction costs in behavioral economics. It has been identified that these causes are impacting user behavior when it comes to their final privacy behavior, precisely, an insufficient understanding of privacy concerning businesses and organizations who benefit economically from their users' data. An intervention to change user behavior was designed using a behavior change tool, which designed a new behavior that could be used to change user behavior. Users not accustomed to checking their social media privacy could change their behavior if they are informed that their connected ones are performing a privacy check and are the only ones left. In other words, it is similar to people following trends to become a part of the crowd. Considering that Facebook already has alert privacy notifications, the implications of the privacy-checked notification may assist in influencing user behavior in checking their privacy settings.

### **6.3. Limitation and future consideration**

Research related to behavioral diagnosis and intervention design has been conducted rigorously, as implied by (Richburg-Hayes et al., 2017). This study has taken inspiration from these behavior design approaches. The study's outcome is determined by the case study conducted on the social media platform Facebook, which was the most frequently used social media platform according to the survey data collected. As part of the project's discovery phase, Instagram was also considered, but during the define phase, it was decided to focus on one platform to facilitate the process. As the same company owns

them, users found little difference between these two platforms. Most participants in the project were between the ages of 20 and 40, living in urban areas, educated, and already using privacy settings to protect their personal information.

Consequently, the solution to change user behavior focused on Facebook's particular ad preferences that needed to be better understood by users was considered. A study incorporating users from various premises regarding age, education, and geography may have resulted in a more fruitful outcome. The final design outcome has been addressed solely through the understanding and knowledge acquired during the master's degree program. This factor significantly influenced the final result because privacy is a complex topic based on people's perceptions. This study followed the ethics guidelines, and the data collection and handling were done with full consent from the participants, which was included as an appendix with other materials used and found during the design process.

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