Mapping the use of ICT in mental health care in Norway

-A multiple case study on the use of ICT in mental health care in Norway

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“Some seek the comfort of their therapist's office, other head to the corner pub and dive into a pint, but I chose running as my therapy.”

-Dean Karnazes
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Abstract

The use of ICT in various fields in the society is highly relevant. When it comes to health care, ICT could have the possibility to change how people interact with both government and health care professionals. This thesis will examine how ICT is used in mental health care in Norway and some of the effects of this form of technology. The use of ICT in mental health care is not prominent compared to somatic health care, but is increasing. Two different cases will be used to examined to answer these research questions.

The aim of this thesis is to answer the research questions: «how could ICT affect mental health care in Norway? », by using relevant literature from STS. A combination of the two frameworks SCOT and ANT has been used throughout the analysis. The theoretical framework of SCOT, as described by Pinch and Bijker (1984), provides relevant insight concerning how ICT is constructed and interpreted. The theoretical framework of ANT provides a better understanding on how ICT affects and is affected by other actors in a social network.

The first case, the STOP-series, is an application series developed by a Norwegian company named Superego. The application series consists of four different versions for four different mental illnesses or mental problems. The aim of this application series is to help people that are beginning to develop a mental illness. The second case, eMeistring, is a self-guided, self-help program developed by Heles-Vest. The program has three different versions, one for anxiety with or without agoraphobia, social anxiety and depression. The program consists of seven modules and has a planned duration of 12 weeks. Most of the communication between the patient and the therapist takes place through the program.

Through the two cases it was explored that the use of ICT has the potential to increase the accessibility to mental health care, and to change the roles of both patient and therapist. The term «Patient 2.0», as defined by Langstrup et al (2013) as «a knowledgeable, self-caring and self-managing patient» is a relevant term for this case. It is a term used to describe the changed role of the patient following the implementation of new technologies in health care. The term is more prominent when it comes to the somatic patient. However, the study of the two cases also indicates that the term might be transferred to mental health care. The introduction of technology in health care is also related to a more democratized form of health care, where the citizen to a larger extend has the potential to shape and participate in the process of improving their own health.
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The process of writing this thesis has been interesting and amusing, but also time-consuming and exhausting. The last two years have given me insights on topics and theories I did not even know existed. Hopefully, this is knowledge that I will bring along further in life, both professional and private.

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All mistakes or errors are of course mine.

Oslo, September 2016

Henriette Borgen Johannessen
List of abbreviations:

Each of the abbreviations is written out in full the first time it is used in the thesis. Some of the abbreviations are from the Norwegian.

ANT- actor network- theory
CBT- cognitive behavioral therapy
DPS- Distriktpsykiatriske senter (Community Mental Health Centers)
DSM-5- Diagnostic and Statistical Manual of Mental Disorders, fifth edition
FHI- Folkehelseinstituttet
GP- general practitioner
ICD-10- International Classification of Diseases
ICT- information and communication technology
Meld. St.- Melding til Stortinget (White Paper)
NDE- The Norwegian Directorate of eHealth
NIFU- Nordic Institute for Studies in Innovation, Research and Education
PTSD- Post-traumatic stress disorder
SCOT- social construction of technology
STS- science and technology studies
WHO- World Health Organization
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1 Introduction

Today, a large part of our daily lives are tied up to information and communication technology (ICT) and to devices such as smartphones and computers. It would therefore be wrong to say that this form of technology not has changed both the society and the life for the individual. Through the last decades, ICT has experienced an immense development and has given rise to new possibilities in terms of communication. It has made it possible to video chat with a friend from across the Pond, share news with family, close friends and not-so close friends with only a couple of keystrokes. and make it possible to find information in just a couple of seconds. Further, it has given rise to new possibilities in various fields, such as the military, the education system and in health care. This is particularly evident in health care in terms of communication between the citizen and the government. Further, with an ageing population and fewer hands to take care of them, new forms of technology will play an essential role in healthcare in the future. The possibility to access your own patient journal and monitor your own health by using a smartphone are also examples that show the possibilities in terms of technology in health care. This is also related to the aspect of the Patient 2.0, which is a definition made to describe the changed role of the patient due to new forms for technology. Today, the use of ICT has spread to all parts of health care. This thesis will take a closer look on the use of ICT in mental health care and psychotherapy by using relevant literature from science and technology studies (STS).

Compared to other parts of health care, mental health care has not taken the same amount of the advantages in some the possibilities of ICT. There may be several reasons for this; the lack of knowledge, and scepticism among therapists serving as some examples. On the other hand, therapy via telephone has existed since the 1960s, and therapy via the internet since the 1990s. E-therapy is often used as a term to covers all forms of therapy where ICT is the main platform of psychological treatment and guidance. Today, new technologies such as the internet, computers, and in later years the smartphone, have given rise to new methods of doing therapy, for example through enabling therapist and patient to communicate regardless of time and place. Especially, the smartphone is a device that has the potential to increase the availability to mental health care. ICT could have the potential to make mental health care both more accessible and more effective. This thesis will try to acquire a better understanding of the consequences of implementing ICT in mental health in Norway. This will be done by studying two different cases where ICT has a prominent role in mental health care and analysing them by using actor-
network theory (ANT) and social construction of technology (SCOT), which are two theories that derives from Science and technology studies (STS).

1.1 Research questions

The aim of this thesis is to explore the use of ICT in mental health care in Norway. The use of ICT in mental health care in Norway is still limited and the research thus also scarce. This makes this an interesting topic to study and one of the aims with this thesis is to provide new perspectives on the topic. The thesis will use the case study research design to examine two different cases in which ICT plays an important part in the treatment. The first case is a smartphone application series developed by a Norwegian company called SuperEgo, the second case is eMeistring, which is online-therapy offered through the internet by Helse-Vest.

The aim of the thesis is to both provide a description on how ICT is used in mental health care and explore some of the effects. The theoretical framework of STS is based on the relationship between science, technology and society. This theoretical framework could bring new insights to this issue through the focus on the interaction between technology and other aspects of the society. The research question for this thesis is:

- How could ICT change mental health care?

Since the thesis is both descriptive and exploratory the research question is further operationalized into two sub-questions:

- How is ICT used in mental health care in Norway?

The first sub-research question will focus on the descriptive part of the thesis. The aim is to provide a description of how ICT is used in mental health care by studying the two selected cases.

- What are the effects of the use of ICT in mental health care in Norway?

While the first sub-question focuses on how ICT could be used in mental health care, the second sub-question focuses will take a more exploratory approach and focus on some of the effects on the use of ICT in mental health care.

1.2 The use of ICT in mental health
In the beginning of the book “From Offline to Online” the author Kit Lisbeth Jensen uses an excerpt from a text by Søren Kierkegaard, as a starting point of the book. In the text “Hjælpekunst” (direct translated to English: the art of helping) he argues that: “if one is to succeed in leading people to a certain place, you must first of all be able to find him where he his and start from there” (Jensen, 2014, p. 23). The term “place” does not refer to the physical location of the patient, but rather to the patient’s current state of mind. With this, she emphasizes the need for the health care worker to focus on what the patient is concerned with right here and now (Jensen, 2014, p. 24). This aspect could provide an illustration of the two-sidedness on the use of ICT in mental health care. Many of the critics of the use of ICT argue that the lack of cues from body language and facial expressions makes it difficult for the therapist to know the patient’s current state of mood (Manhal-Baugus, 2001; Rochlen, 2004, p. 272-274).

Today there exists a variety of different terms to describe therapy that includes some sort of technology, with e-therapy and online therapy serving as two examples. E-therapy is an abbreviation of electronically therapy and is defined as therapy provided by a licensed health care professional through the use of e-mail, video and chat technology, virtual reality technology and a combination of these (Manhal-Baugus, 2011, p. 552). Online therapy, on the other hand, is defined by Rochlen et. al. (2004, p. 270) as: “any type of professional therapeutic interaction that makes use of the Internet to connect qualified mental health professionals and their clients”. Both terms describe the therapeutically process in which technology plays a crucial role as the means of communication between therapist and patient. Today it also exists forms of therapy that not include any communication between a therapist and patient.

The use of communication technology is not wholly new in psychological treatment. Telephony was used as a method of communication between therapists and patient in the 1970s. Today, telephony has become a useful device for many therapists when it comes to scheduling, consultation and crisis management (ibid). Psychotherapy through computers is neither particular new. ELIZA, which was developed in 1966 by Joseph Weizenbaum, was in many ways the first computer program that attempted to simulate psychotherapy through the replication of a psychologist’s statement during a psychotherapy session (Mallen et. al., 2005, p. 828). This was done by using methods to analyze sentences and fragments of sentences and then answering them by using a set of pre-written sentences (Weizenbaum, 1976, p. 188). Even though the people who used ELIZA knew that it was a machine, some had problems
understanding that they were not talking to a real human being, but rather a computer program (Weizenbaum, 1976, p. 189).

Figure 1: An example of a conversation with the computer program Eliza.
(http://thoughtcatalog.com/oliver-miller/2012/08/a-conversation-with-eliza/)

With the birth of the internet in 1972, new possibilities for psychotherapy emerged. The first forms of online counselling appeared in the 1980s and expanded during the 1990s, especially after the development of the World Wide Web (www) and Web 2.0 in 1999 (Jensen, 2014, p. 25). Technology can in psychotherapy be used in a set of different ways. One example is internet-delivered cognitive behavioral therapy (ICBT), which also named computerized cognitive behavioral therapy (cCBT). This is a form of therapy where most of the contact between therapist and patient occurs through the internet. Form of e-therapy can also be used alongside traditional face-to-face therapy or as a tool for self-therapy.

With the introduction of the smartphone and smartphone applications in the 2010s, it has opened up for new methods of ICT-mediated therapy. Application or app is in this case a program made for a smartphone or tablet and contains a set of different functions. According to MediaNorge, 84 % of the Norwegian population over the age of 15 owned a smartphone in 2015 (Medianorge, 2015). Worldwide, the number of smartphone users will pass 2 billion in 2016 (Curtis, 2014). This has made the development of apps profitable and today there exist a set of different sorts of applications within fields such as health, education, food and
entertainment. When it comes to apps related to psychotherapy, there exist many different forms of applications. Some applications are directly grounded on psychological principles, for example as a tool related to therapy or as a tool for psychoeducation\(^1\). There are also some types of applications that consist of elements from psychotherapy. Applications that consist of some sort of mindfulness principles will fall into this category. As smartphone is a device that most people carry at all times, they have the potential to provide important information about the user’s location, movement, mood and social environment. With such information a therapist can see the patient’s momentary state and behavior (Pejovic & Musolesi, 2014, p. 1026).

1.3 The structure of the thesis

Chapter 2 will put the thesis in a wider context by discussing some of the consequences of mental illness, the political aspect in relation to the use of ICT in mental health, the history of psychotherapy and some of the ethical issues related to the use of ICT in mental health care. Chapter 3 will present the theoretical framework of STS, while chapter 4 will provide an overview of the methodological aspects for this thesis. In chapter 5 the empirical material is presented and analysed, while chapter 6 will summarize the findings and also provides suggestions for further research.

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\(^1\) This term will be further elaborated later in the thesis.
2 Putting the thesis in a wider context

This chapter will discuss some of the aspects related to mental illnesses; it will provide a brief overview on the history of psychotherapy and then discuss the use of ICT in mental health care, especially in relation to traditional therapy. The first section will discuss some of the consequences of mental illness. ICT can provide more people the chance to receive mental health care and it is therefore relevant to discuss some of the consequences of mental illness in order to elicit the relevance of the thesis. The next section will provide an outline of the political discussion when it comes to mental health and the use of ICT in health care. The third section will provide a brief description on the definition of normality in psychology and the diagnosing of mental illness. The fourth section will provide a brief overview on history of psychotherapy. The last part of the chapter will provide an overview over previous research on the use of ICT in mental health care.

2.1 The consequences of mental illness

Before presenting the current issues related to mental health, the term mental health will be defined. According to WHO, mental health is defined as “a state of complete physical, mental and social well-being, and not merely the absence of disease” (WHO, 2016). Further, WHO (2014) also defines mental health as a state of well-being where the individual has the potential to realize the life she or he wants and to be a part of, and contribute to the rest of the community. The term mental health thus defines a state of being that not only defines whether or not a person has a disease, but instead a state of being where a person is capable to live the life he or she wants. This is also related to the difference between the two terms psychological distress and psychological disorders, which in Norwegian can be translated into psykiske plager and psykiske lidelser respectively. The two terms are used by Folkehelseinstituttet (FHI) to distinguish between mild and severe psychological disorders. The difference between a mild and severe disorder, is according to FHI, that while mild psychological disorders will cause distress for a person, would he or she not be diagnosed, a person that experienced severe psychological disorders will be diagnosed according to the ICD-10 or the DSM (FHI, 2015c). There has also been more focus on mental health and psychological and mental illnesses in the last couple of years. This could be a result of more openness concerning mental health in the

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3 ICD-10 and DSM are two manuals used when diagnosing mental illnesses. ICD-10 is used in Europe, while DSM in USA.
According to WHO, mental illness is one of the three leading causes of disability alongside cardiovascular disease and muscular-skeletal disease (Gaston & Harnois, 2000, p. 1). International studies have indicated that many people will experience a form of mental illness in their lifetime\(^5\). Studies have also shown that psychological disorders and disorders related to abuse of intoxicants are the greatest cause for loss in years of life (Folkehelseinstituttet, 2015b). In Norway, 40% of the adult population will experience a form of psychological disorders during their lifetime (Folkehelseinstituttet, 2015a), 30% will experience a form of anxiety disorders, 25% will have a depression and 10-20% will acquire a psychological disorders related to alcohol or drug abuse (Folkehelseinstituttet, 2015b). Studies also show that there has been an increase of psychological disorders such as depression and anxiety among children and adolescents in the last couple of years, especially among girls and young women (Øya, 2012, p. 178; NOVA, 2014, p. 59). Mental illness during childhood and young adulthood could have negative consequences for the individual’s future prospects. According to a study done by NIFU, mental health problems were related to many of the reasons why some adolescents choose to quit school, such as the lack of feeling that they managed school, and anxiety and depression, both among themselves and family (Markussen & Seland, 2012, p. 45).

Psychological disorders also have an impact on the society. 1 out of 100 workdays are lost due to psychological illness and one third of disability pensions are related to psychological illness. Among people under the age of 40, half of the recipients of disability pensions were due to psychological illnesses. Psychological disorders are also one of the most common reasons why people consult their general practitioner (GP) (Statistics Norway, 2015). The social costs of psychological disorders were estimated to be 180 billion in 2010, according to the Norwegian Directorate of Health. These costs included both personal costs for the individual such as loss


\(^5\) According to a systematic review done by WHO Regional Office in Europe from community studies in countries from the EU, Norway, Iceland and Switzerland would 27% (18-65 years) of the population experience either experience depression, anxiety, substance abuse, psychoses or eating disorders during a year (http://www.euro.who.int/en/health-topics/noncommunicable-diseases/mental-health/data-and-statistics ).

\(^6\) According to APA do 25% of the adult population have a mental illness and 50% are likely to develop it during their lifetime (http://www.apa.org/helpcenter/data-behavioral-health.aspx ).
of life years and loss of life quality, and costs for the society that were related to health services, sick leaves and disability benefits (Sælensminde, Line & Olsen, 2015, p. 14). The cost of psychological disorders is thus immense, both for the individual and for the whole society. There are today long waiting lists to receive treatment for psychological illnesses. According to Dagens Medisin, 12 000 people were in the waiting line to receive treatment for different types of psychological disorders in 2012 (Bakke, 2012). Furthermore, the average time to receive an appointment at a mental health specialist for an adult person in 2015 was 55 days in Norway (Biringer, et. al., 2015).

As mentioned earlier, health technologies could have both social and economic benefits. Health technologies are often seen as one of the solutions to handle many of the challenges that health care will meet in the future. Today, there are long waiting lists to receive an appointment with a mental health care professional technology, and ICT can be used to provide more people proper mental health care. With the emergence of smartphones and smartphone applications, new methods for the treatment of psychological disorders have opened. Today, there exists a multitude of different types of smartphone applications related to mental well-being, ranging from mindfulness and mediation to different types of mental disorders. New forms of technology can both work as a supplement to traditional therapy and as a tool for self-help. However, many of these technologies and applications are not quality assurance and there is a lack of evidence of the effectiveness. Further, there exists a set of ethical concerns that often are not considered, especially when it comes to privacy. Some could also be critical to the use of technology in psychotherapy due to the loss of therapeutic alliance between the patient and the therapist that occurs during therapy.

2.2 The politics of ICT and mental health care

As mentioned in the previous section, the cost of psychological illnesses is immense, both socially and economically for both the individual and the society. However, some have argued that mental health care often is a forgotten part when politicians are discussing health related issues. Tor L. Hofgaard argued before the 2013 election in Norway that even though the costs of mental illness were higher than the costs of cancer and heart diseases, it was neglected by the politicians (Hofgaard, 2013). Since then, the last couple of years’ focus on mental health in the media have caused more political attention on the matter. Marthinsen argues in the article “psykisk åpenhet” that new forms of media such as Facebook, Twitter and blogs both have
made the political agenda more fragmented, making it easier for the common man to share his opinion with the rest, and made it easier to become more open about own mental health problems. Further, he argues that this could be important in order to raise awareness among politicians when it comes to mental health (Marthinsen, 2013, p. 14-16). It is evident that mental health care has gained more political attention in the last couple of years. In Meld. St. nr. 19 (2014-2015) *Folkehelsemeldingen* mental health was introduced as an area of priority. Here it was emphasized that more people should be able to experience good mental health and well-being and that social differences in mental health should be reduced. Better forms of treatment and more focus on presentational work were emphasized (Meld. St., 19 (2014-2015), p. 23).

The use of ICT in mental health care has been an often discussed topic in white papers the last couple of years. According to the Norwegian Government, ICT is an important prerequisite in order to succeed when it comes to create a sustainable health care service. It is argued that digital tools could create new ways to involve the patient (Regjeringen, 2016). This was emphasized in both Meld. St. 19 (2014-2015) *Folkehelsemeldingen* and Meld.St. 9 (2012-2013) *En innbygger- en journal*. In Meld St. 19 (2014-2015) it was argued that ICT could make it easier for the patient to control his or her own life and to create a health care service that could meet the needs of the patient at all times (Meld. St. 19 (2014-2015), p. 43). In Meld. St. 9 (2012-2013) it is claimed that the use of modern technologies was necessary in order to reach the goals of better quality, improved patient safety, efficiency and a more effective use of resources (Meld.St, nr. 9 (2012-2013, p. 9). Further, the paper claims that the use of new communication technologies has changed the role of the patient/user. Further it emphasizes that this form of technology makes it possible to search and share information in a whole new way. With new technology, the patient/user could to a larger extent shape his or her health care service. This could cause a more democratized health care system (ibid.). The increased attention in ICT in the health care sector is also reflected in the establishment of The Norwegian Directorate of eHealth (NDE) on the 1. January 2016 after being a sub-division under The Norwegian Directorate of eHealth. The main responsibilities of NDE are to steer and coordinate eHealth in Norway together with other health authorities and to develop and administrate digital solutions that would improve and simplify the health of the Norwegian population and the care sector (NDE, 2016).

Another aspect that has been discussed in relation to the challenges that the Norwegian welfare state will meet in the future, is the need for the individual to take more responsibility over own
health in the future. This was among others pointed out in Meld. St. 16 (2010-2011) Nasjonal helse- og omsorgsplan where it was argued that the patient in the future will take a more apparent role in own health care and that the role of the government is to promote this:

“Each individual is dependent on that the circumstances are organized for self-care. Most people want to manage oneself and to be responsible for own life situation. During diseases it is important to motivate the user to participate active during the process to become healthy or to be as functional as possible (St. Meld. 16 (2010-2011), p. 87).

In the same section, it was also mentioned that different forms of internet-based self-help programs are developed to prevent and treat depression and anxiety and that this could provide the user with more knowledge about the diseases (ibid.). The self-help aspect can also be seen in relation to the discussion on to which extend a person is responsible for own health. This was discussed in (Meld. St. 34 (2012-2013), p. 13) where it was argued that it was a social responsibility to influence a citizen’s health choices through giving information, knowledge and influence the citizen’s attitude. The self-help aspect is especially relevant when it comes to mental health and will be discussed more thorough later in the thesis.

2.3 The discussion on normality

When studying the treatment of mental illness, it is important to keep in mind that definitions of psychological disorders and the treatment of psychological disorders often are reflections of the surrounding societies and time. The division between what behaviour and thoughts that are considered to be normal or abnormal is central elements in psychotherapy. Abnormal psychology or psychopathology are the terms often used to describe people that suffer mental, emotional and sometimes physical pain (Nolen-Hoeksama, 2014, p. 4). Nolen-Hoecksema (2011, p. 6) uses the term cultural relativism to describe the role of culture in the distinction between normal and abnormal, arguing that there do not exist any universal standards for labelling a behaviour or thought to distinguish them. Cultural relativism is also implicated in the distinction between normal and abnormal when it comes to other factors such as the therapist, expectations, general assumptions on human nature, deviation from statistics and level of impairment (Passer & Smith, 2011, p. 548). History shows that psychological disorders often are artefacts8 of a certain time and place.

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8 Artefact is here defined as something that is made or constructed by humans.
In his book *The normal and the pathological*, Georges Canguilhem took a closer look at the distinction between normal and abnormal in science, in particular in biology and medicine and related them to the historical and cultural context. He focused on the normativity of life and health and argued that the threat of disease is an important part of life (Rose, 1998, p. 158). Further, he used the word pathological when referring to abnormality and he argued that people define certain state and behaviour as abnormal according to a set of negative values (Canguilhem, 1989, p. 126). Further, he argued that a pathological state could not be defined as abnormal in an absolute sense, but rather according to a given situation or environment (Canguilhem, 1989, p. 196). According to Margree could this environment in the case of mental disorders both be political, technological and social (Margree, 2003, p.308). Therefore, it would be wrong to define the abnormal according to standard deviation measurements (Margree, 2003, p. 308).

The definition on what to consider normal or abnormal is as mentioned earlier a reflection of the social context. Michel Foucault, one of the founders of post structuralism, argued that madness should be seen as a result of the surrounding society instead of being a stable situation. He further claimed that madness has been defined and judged differently throughout history (Mills, 2003, p. 98). In Ancient Greece hallucinations was less stigmatized than today and paedophilia was not considered a mental illness, whereas today it is defined as a disorder of sexual preference according to the ICD-10\(^9\). The same was true with homosexuality, which in some societies were quite normal in ancient times, but that later was seen as unnatural and a crime during the Middle Ages and up to modern time. Homosexuality was taken out of the ICD as late as 1990 and in 1973 from the DSM (Hofgaard, 2010; Encyclopedia Britannica, 2016).

Compared to medicine, there are no physiological tests that can detect psychological illnesses (Norsk helseinformatikk, 2014). As mentioned in the previous paragraph, the distinction between normal and abnormal is often depending on different elements from the surrounding environment. Since there are no physiological tests that can determine whether a person has a psychological disorder, a therapist would look for symptoms and signs in patient related to behavior, feelings, thoughts and physical reactions and compare them with a classification system (ibid.). Two of the most recognized classification system used in mental health today are the ICD-10 and DSM, where the first has been developed by World Health Organization (WHO) and the latter by the American Psychology Association (APA). Both classification

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\(^9\)Paedophilia defined as a sexual preference for boys or girls or both, usually of prepubertal age or early pubertal age ([http://apps.who.int/classifications/icd10/browse/2016/en#/F60-F69](http://apps.who.int/classifications/icd10/browse/2016/en#/F60-F69))
systems are frequently revised and reorganized. Many of these revisions and reorganizations are due because of new information gained from research.

2.4 The history of the treatment of mental illnesses

This section provides a brief description of the history of psychotherapy that is relevant for the thesis. According to Passer and Smith (2011, p. 592), psychotherapy is related to the treatment of psychological disorders with the aim to help people change thoughts, feelings, and behavior in order to be able to live the life they want. Throughout history, people with different forms of mental illness have been treated according to the knowledge and skills that existed at that time. There are evidence that people were treated for mental illness in both Neolithic and Ancient times. During these time periods, there was a common thought that mental illnesses were caused by evil spirits or by the Gods, and to treat these illnesses there was a need to expel the evil spirits or to make an appeal to the Gods. One of the oldest documented treatments of mental illness, descends from papyruses made in Ancient Egypt. Two examples are the Ebers Papyrus and the Edwin Smith Papyrus, both dated to around 1600 BCE. Even if many of these papers still emphasized magic and incantations as methods to treat mental illnesses, they also proposed the use of recreational activities.

During the next centuries there was an improvement in the understanding of mental illness. Instead of believing that mental illnesses were caused by evil spirits or by the Gods, they were thought as something that originated from processes in the body, and especially in the brain. The four essential fluids of the body; blood, phlegm, bile and black bile, were seen as important in the formation of human personalities. During the Middle Ages, an imbalance in these fluids was seen as a cause of mental illness and different types of remedies were given to set the body back to equilibrium. It was also during this time period, that the first mental asylums were established. These were institutions where people with mental illness were placed. While some people went through some sort of treatment, most mental asylum were established as a location to keep people with mental illness were separated from the rest of the population. Many of these people experienced to be chained and manacled. During the 18th century, some scientists in Europe began to argue that people with mental illness needed human care. Some laws were

passed to ensure that people with mental illness received proper care (Lister-Ford, 2007, p. 5). Psychotherapy as we know today, did not exist before after World War 2 and was passed on the ideas of Sigmund Freud (Burton, Westen & Kowalski, 2009, p. 643). Since the beginning of the 20th century a set of different approaches to the treatment of mental illness has emerged. Examples are psychodynamic, humanistic, biological and cognitive behavioral approach (CBT).

Today, CBT is one of the most used forms of psychotherapy, and most research have indicated that this form of therapy is one of the most effective when it comes to depression, anxiety disorders, social anxiety and posttraumatic stress disorder (PTSD) and bulimia. It is also the therapeutically method that is most relevant for the two cases. CBT, as known today, was developed in the 1960s and 1970s as a combination of behaviour therapy and cognitive therapy where Aaron Beck and Albert Ellis has been two of the most important contributors to this method. Both emphasized the importance of irrational thoughts when it comes to emotional disturbance. Rather than focusing on previous events and childhood, the focus should be on the present.

The theoretical foundation of CBT is the cognitive triangle where each of the edges symbolize thoughts, feelings and behaviors. These three components have a mutual influence on each other and if one of the three components is altered, the same will happen with the two others (Martinsen & Hagen, 2012, p. 15). In CBT there is an assumption that humans react differently towards an event due to differences in the interpretation of the event, instead of the event in itself (ibid). These interpretations could be due to positive or negative assumptions that an individual has gained through experiences in life. In CBT the main focus is on the negative assumptions and one of the central goals in CBT is to alter these irrational and destructive thoughts of the client. These are often thoughts that "run off" almost automatically due to habitual thought patterns. The role of the therapist is to help the client to identify, challenge and change these thoughts (Passer & Smith, 2011, p. 599).

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11 A review of meta-analysis done in 2006, which focused on effects sizes on outcomes CBT compared with effects sizes on outcomes on various control groups, indicated that CAT had a strong effect in unipolar depression, anxiety disorders, panic disorders, social phobia, posttraumatic stress syndrom, while a moderate effect on marital distress, anger and chronic pain. [http://www.sciencedirect.com/science/article/pii/S0272735805001005](http://www.sciencedirect.com/science/article/pii/S0272735805001005)

12 A review of 106 meta-analysis done in 2012 indicated that CBT had a strong effect on bulimia, anxiety disorders and anger control problems. [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3584580/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3584580/)
2.5 Previous research on the use of ICT in mental health

This section will provide a brief overview over articles and studies that have examined the use of ICT in mental health care. As mentioned earlier, technology has been used in psychotherapy since the 1960s. However, it has been difficult to provide any clear answers to the effects. Some studies have indicated that the use of internet-delivered cognitive behavioral therapy (ICBT) has equal or better outcomes compared to traditional face-to-face therapy (Anderson et. al., 2015; Richards et. al., 2015, Proudfoot et. al., 2004). Some studies and articles have also focused on the potential possibilities that technology may add to therapy (Luxton et. al.,2011; 2015; Berry & Lai, 2014). However, some studies also indicate that there is little or no effect on the use of ICT in mental health care (Gilbody et. al., 2015).

Ethical concerns are important aspects in relation to the use of ICT in mental health care. Some people are more critical to the implementation of the use of ICT in mental health care. Hollis et. al. (2015, p. 265) argue that it was important to ensure the privacy of the patient when implementing ICT in mental health care. The same concern is made by Sampson, Kolondisky and Greeno (1997, p. 209-210) who also relate privacy to the physical privacy of the patient. This refers to which extend the patient has physical privacy during therapy, e.g. if she/he is able to sit alone and without disturbances during therapy. Further, a set of other ethical concerns were listed such as the validity of the data delivered through the internet, inadequate counsellor intervention and the misuse of computer program by mental health care professionals. The two last aspects are related to the lack of involvement of the therapist. A central aspect when study the use of ICT in mental health care is the therapeutic alliance. Especially within CBT is the establishment between the patient and the therapist been seen as one of the most central aspect when it comes to the outcome of therapy.

2.5.1 ICT mediated therapy and traditional CBT

The difference in outcome between ICT mediated therapy and traditional face-to-face therapy is one of the most prominent discussions when studying the use of ICT in mental health care. As mentioned earlier, some studies have indicated that the use of technology in CBT could have positive effects. Compared to traditional therapy, where the therapist and the patient meet face-to-face, e-therapy enables the therapist and the patient to not be in the same location or not even in the same time. For many patients could therapy be both time consuming and expensive. ICT
and other forms of technology can make therapy more convenient. The therapy session and the
time used to get to and from often demands that the patient needs to leave either work or other
forms of obligations. Further, e-therapy could be an offer for people that live in areas where
there is a lack of available mental health care services or for people that have difficulties visiting
a therapist due to physical disabilities. This could increase access and convenience for both the
therapist and the patient. There has been conducted many studies that examine the difference
between ICT mediated therapy and traditional therapy when it comes effectiveness, but the
results have been varied. According to a review of two meta-studies done by Anderson et. Al
(2015, p. 58) suggested that guided ICBT can be as effective as traditional face-to-face therapy.
However, many of the studies was small and it was difficult to measure the cost-effectiveness.
The same was found in a meta-analysis done by (Barak et. al., 2008, p. 140). Here it was argued
that there was not difference in effectiveness between traditional therapy and internet-mediated
therapy. Even though these studies among others indicates better or equal results from therapy
given through technological remedies compared to traditional therapy there are studies that
indicate the opposite. In a study done by Gilbody et. al (2015) it was argued that there were no
apparent benefits of the use of internet delivered therapy without support. As indicated here it
is difficult to predict the effectiveness of internet-mediated therapy compared to traditional
therapy. Further, Gilbody et. al. (2015, p. 11) emphasized in the study that less support on
internet-mediated therapy had a lower effect compared to more supported internet-mediated
programs. This can thus indicate that some human support is important the therapeutically
process.

Internet-mediated therapy can be a solution for groups that otherwise would not engage in
therapy, even though there is no clear empirical support that proves that internet-mediated
therapy is better or worse compared to traditional therapy when it comes to outcomes. For some
traditional therapy could be stigmatized and e-therapy could be an alternative solution for them
(Mitchell & Murphy, 1998, rendered in Rochlen, 2004, p. 271). For example, e-therapy could
be appealing for men. Many men feel a stigma when it comes to mental illness and therefore
do not seek help. As mentioned earlier do studies indicate that there are more likely that women
will experience a form of mental illness. However, according to WHO, there is a tendency to
differentiate when it comes to diagnosing a person with depression, where a man would not be
diagnosed while a woman with the same score would be diagnosed (WHO, 2016c, p. 9).
Women are also more likely to contact their GP regarding their mental health, while men instead
would misuse alcohol as a remedy to ease their problems (ibid.). Further, men are more likely
to commit suicide\textsuperscript{13}. Technology could make it possible to receive treatment outside of the traditional therapy room and has thus the potential to make it more approachable for men to seek help for their problems.

When it comes to therapy offered through application it is difficult to measure the results compared to traditional therapy. One reason is that smartphone is a rather new technological object compared to the internet and therefore there has not yet been researched thoroughly. As mentioned earlier, today it exist thousands of application related to mental health in some ways and many of these are not built on empirical results. However, compared to a computer, a smartphone is more accessible as this is a device that most people carry at all times.

\subsection*{2.5.2 Ethical concerns}

Ethical guidelines are important implementations for health care professionals. Summers (2004, p. 62) defines four principles of ethics in health care: autonomy, beneficence, no maleficence and justice. Autonomy could both signify the respect for someone regardless of who they are and to the respect of an individual`s self-determination. The principle of autonomy in e-therapy could be related to the individual`s right to decide the best treatment for himself or herself. For people that do not feel comfortable in traditional face-to-face therapy e-therapy could be an alternative solution. For example, face-to-face interactions are for some people uncomfortable (Rochlen et. al., 2004, p. 271). ICT can create new forms of treatment that can be more suitable for people that do not prefer traditional face-to-face therapy.

The term beneficence refers to the obligation a health care professional has in terms of structure the treatment in a way so it would be to the greatest benefit for all (Summers, 2014, p. 49). ICT has the possibility to both provide more people access to mental illness and to make mental health care more cost-effective. One of the arguments used for e-therapy is the possibility to provide people in remote areas or people with disabilities access to treatment for psychological disorders (Rochlen et. al., 2004, p. 271; Castelnuovo et. al., 2003, p. 381; Kessler, 2009, p. 634). Further, it also extends the reach of service to outside of the regular office hours (Goss & Anthony, 2009, p. 225). Beneficence also refers to provide each patient the treatment that will benefit he/she the most, in other words net benefit. This adhere with the patient`s right for

\textsuperscript{13}This is a discussed topic among therapists. Studies have indicated that the numbers of attempted suicide are the same between the sexes, but that men have a higher change in succeeding due to more violent forms of methods (https://www.theguardian.com/science/2015/jan/21/suicide-gender-men-women-mental-health-nick-clegg).
autonomy and the right to choose the form of therapy that will be most the appropriate for the individual.

The term no maleficence refers to the word harm. Harm is for this case defined as something that worsens the conditions of the patient (Summers, 2004, p. 47). According to EFPA Code of Ethics, a psychotherapist is obligated to avoid the use of psychological knowledge or practice to cause harm, to minimalize the harm which is foreseen and unavoidable and to recognize the need to take particular care when doing scientific research or making professional judgements on people who have not given consent (EFPA, 2005). In relation to e-therapy, this can both be related to ensuring the privacy of the patient and the need of empirical information. Especially in terms of the use of smartphone in therapy, is it important to take into ethical considerations. The use of smartphone applications in mental health could have the possibility to create new methods of therapy. However, it also raises some ethical concerns, especially in relation to privacy. Most modern smartphones are equipped with a set of functions that could measure a person’s daily activities. Some of these could be related to mental health such as mood, anxiety level and sleeping habits. This has the possibility to provide the patient an adjusted form of therapy. However, it is important to ensure that these data will be stored safely. Further, as Sampson, Kolondisky and Greeno (1997, p. 210) emphasized the physical form of privacy is also important. Physical privacy refers to the degree in which the patient is assured privacy from elements that can menace the confidentiality and self-closure during therapy. Examples could be that other overhear, observe or manipulate the therapy.

Justice is the last of the four principles. In short, the word refers to the moral obligation to act according to fair adjudication between competing claims. In terms of health care, the word can be use to describe three different forms of justice: distributive justice, rights based justice and legal justice (Gillon, 1994, p. 185). The first term is used to describe the fair distribution of resources, the second term describes the respect for people’s right and the third term refers to the respect for the moral acceptable laws, also referred to as legal justice (ibid.). In terms on the use of technology in psychotherapy this could be implicated in many different ways. As mentioned earlier, there are today long waiting lists to receive treatment for psychological disorders. In many of the reviewed articles this is often a used as one of the benefits with e-therapy (Rochlen 2004; Richards et. al., 2015). New technologies could make it possible to treat more people and thus make a fair distribution. E-therapy would also increase the number of alternatives of therapeutic methods for the patient and thus make it easier for the patient to choose a method that would fit his or her needs.
2.5.3 The therapeutic alliance

The relationship between the therapist and the patient is an important factor in psychotherapy; this relationship is often defined as the therapeutic alliance. The therapeutic alliance was first introduced by Sigmund Freud (Ardito & Rabellino, 2011, p. 1). The therapeutic alliance is achieved when the patient feels comfortable with the therapist. Further, it makes it possible for the patient to speak about her or his emotionally significant experiences (Burton, Westen & Kowalski, 2009, p. 643). According to Bordin, the term alliance can be divided into three emotional ties between the therapist and the client (Martinsen & Hagen, 2012, p. 19). In short, this means that the alliance between therapist and patient both is dependent on a shared goal and some sort of an emotional tie. According to Eysenck (2004, p. 887), the notion alliance emphasizes that both the therapist and the patient are actively during the therapeutic process. This means that the therapist and the patient together will work through the patient’s problems. This acquires that the therapist and the patient build some sort of relationship, where there is a mutual understanding and acceptance. Studies have indicated that the therapeutic alliance is one of the indicators of the outcome of the therapy (Horvath & Symonds, 1991; Safran & Muran, 2000).

There are no clear answers to the extent of therapeutic alliance in internet-mediated therapy. Mallen et. al. (2005) found that traditional therapy was superior compared to internet-mediated therapy in establishing a relationship between the therapist and the patient. However, other studies have indicated that there is no difference compared to internet-mediated therapy and internet-mediated therapy in relation to the therapeutic alliance (Prado & Meyer, 2004; Reynolds, Stiles & Grohol, 2006;). While these studies demonstrate that there is not significant difference between traditional therapy and internet-mediate therapy. It is a question whether or not the therapeutic alliance plays the same facilitative role in interned-mediated therapy compared to traditional therapy (Richards & Vigano, 2013, p. 1001). Anderson et. al. (2012) reported that it was not significant relationship between the therapeutic alliance and the outcome of the therapy in ICT-mediated therapy, which could indicate that the therapeutic alliance was less important in internet-mediated therapy compared to traditional therapy. Further, Clarke et. al., (2016, p. 9) did a study on whether a therapeutic alliance can develop with an internet-delivered self-guided intervention. This study indicates that many of the participants felt a connection with the program. This could indicate that the participants felt a partnership to the program. As some ICT-mediated forms of therapy are solely based on non-
human interactions such as text, videos or audio tracks, this means that some people will feel an alliance with the program, instead of a therapist.

Kraut et. al. (1998) did in the article “Internet paradox- A social technology that reduces social involvement and psychological well-being?” study how internet affected human interaction. Even if the article was written in the late 90s and some of the arguments may seem irrelevant today, the article provides some interesting perspectives on the role of technology in psychology. Among others it argued that many of the activities done on computers (and today also perhaps on smartphones and tablets) such as private entertainment, accessing information, developing technical skills and conducing transactions could make people less social. However, the article did on the other hand argue that internet can be used for social purposes as well such as chatting with friends and family (Kraut et. al., 1998, p. 1018). The emphasize on the changes that technology may cause in human interaction can be one of the reason why some people are skeptical to the use of ICT in mental health care. Humans are social individuals and even if the spoken language is quite developed compared to other animals, most of the communication still occurs through body language. The lack of face-to-face interaction could cause misunderstandings. However, some studies have indicated that the therapeutically relationship is as good in e-therapy as in traditional face-to-face therapy.\textsuperscript{14,15}

\textsuperscript{14} A study from 2013 that compared the therapeutic relation e-therapy (Augmented Reality Exposure therapy) and traditional therapy (In Vivo Exposure Therapy) in the treatment of cockroach and spider phobia indicated there were no difference between the two conditions (http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=8934795&fileId=S1352465813000088 ).

\textsuperscript{15} A study from 2003 with 15 participants indicated that online therapy did have the same effect as traditional therapy (http://online.liebertpub.com/doi/pdf/10.1089/109493102753770480 ).
3 Theoretical concepts

This chapter will outline the theoretical concepts of Science and technology studies or Science, technology and society (STS), which is relevant for this thesis. As the name implies, the central concept of STS is the relationship between science, technology and society. Two of the most central approaches in STS and of relevance for this thesis, are social construction of technology (SCOT) and actor-network theory (ANT). With the focus on how a technology goes through a process of social shaping, SCOT can provide new perspectives on how a technology is enclosed in its social context and how the interpretation of ICT in mental health care. ANT, which focuses on the role of a technology in a network of human and non-humans actors, can bring new perspectives in relation to how ICT could affect mental health care. Before describing the two approaches, a brief outline on the history and definition of STS will be provided. At the end of the chapter, the two approaches are described separately. The last part of the chapter will provide an outline of the interpretation of technology in health care.

3.1 What is STS?

STS theoretical framework is constructed on theories from different academic fields such as sociology, history and science studies. It evolved in the 1960s and 1970s and was influenced by movements emerging as a reaction to the use of technology and science in warfare and conflicts such as the knowledge in nuclear physics to produce weapons of mass destruction and to the use of science and technology during the Vietnam War (Asdal, Brenna & Moser, 2001, p. 10). Two of the most influential movements at that time, was The Radical Science Movement and the Sociology of Scientific Knowledge (SSK). While the main goal for The Radical Science Movement was to understand the political, economic and social forces that constitute the development of science and technology, the Sociology of Scientific Knowledge focused on the process and work of scientific knowledge in a social and cultural context (Asdal, Brenna & Moser, 2007, p. 11-13). Many of these concepts still play an important part of the STS framework today.

Due to its interdisciplinary, it is difficult to provide a clear definition of STS and its areas of focus. Brunn Jensen, Lauritsen and Olsen (2007, p. 8) argue that instead of studying the fragmentation of topics, methods and theories that lies in STS, it is more useful to look at STS as a way of study. One of the central themes within STS is, as the name refers to, the relationship
between science, technology and society. Instead of study technology as a separate entity, isolated from the rest of the society, is should rather be seen as an integrated part of the rest of the society (Bijker & Law, 1992, p. 3). Bruno Latour introduced the concept technoscience as a definition that explains that there are no boundaries between what should be considered to be science, technological, social or personal. He stated that: “I will use the word technoscience from now on, to describe all the elements tied to the scientific contents, no matter how dirty, unexpected or foreign they seem” (Asdal, Brenna & Moser, 2001, p. 9). To understand science and technology, and their processes, one has to study society and vice versa. Asdal, Brenna & Moser (2007, p. 27) use the term seamless web to describe the relationship between science, technology and society, arguing that technoscience is something that shapes social reality. According to STS, the whole society ought to be a part of the analysis when studying a technological phenomenon.

Technology is an important concept in STS and for this thesis. The word technology derives from the two Greek words “technē”, which mean art or craft, and logos, which mean word or speech. During this period of time, the word was related to applied and fine arts (Buchanan, 2014). In the 20th century the definition was changed to define the use of scientific knowledge to change or manipulate the human environment (ibid.). Even if technology is based on scientific knowledge, is there still a distinction between them. Whereas technology often is linked to the real world, in other words politics, military and business, science is more related to the laboratories (Collin & Pinch 1998, p. 4). Akrich (1992, p. 205) also supports this view when she argues that where science is concerned with a world that is unfettered from the social world of the humans, technology is instead an integrated part of the social world. This makes the study of technology more complex and heterogeneous (ibid.).

### 3.2 Social construction of technology (SCOT)

SCOT can be defined as a theoretical framework that describes the process and development of a technological artefact. It was developed by Trevor Pinch and Wiebe E. Bijker in the 1980s and according to this theory; technological artefacts are culturally constructed and interpreted (Pinch & Bijker, 1984, p. 421). When describing this process, a multi-directional model is used, instead of the linear model used in many innovation studies. According to Pinch and Bijker, this is done because the multi-dimensional model makes it possible to see which variants of an artefact that will survive and which variants that will die (Pinch & Bijker, 1984, p. 411).
In their outline of the SCOT theory, Pinch and Bijker divide the process and development of a technological artefact into three stages. The first stage is called interpretative flexibility and focuses on how different relevant social groups interpret a technological artefact. The term “interpretative flexibility” means that there is no right answer on how to interpret a technological artefact, instead it is flexible. Here it is necessary to remark that this term both refers to the analytical framework of SCOT and to the objects of analysis, the technology and its social shaping. This means that a technical artefact is viewed differently between different groups of people and that there exist many different ways to design an artefact. These differences are often radical and the content of the artefact is often involved. How the different relevant groups interpret the content of the artefact will lead to new developments (Pinch & Bijker, 1984, p. 423). This concept is based on the principle of symmetry formulated by Bloor. According to this principle, sociologist should be impartial to what is true or false of beliefs when study scientific knowledge. A truth is true because of the social circumstance of its conception, not because of the content (Bijker, 1993, p. 119). The same goes with technological artefacts. The artefacts itself is not the cause of the success of the artefacts, but instead the social accept in relevant social group (ibid.). A relevant social group is defined as a group or groups that in some ways are related to the artefact. It could be users of the artefact, but also less obvious groups, for example anti-users. Each group will have their own interpretation of the artefact. Here a requirement is that all members of the same social group share the same meaning of the same artefact, which defined the group as homogeneous. If the group is too heterogeneous, it could be more effective to divide the group into two groups (Pinch & Bijker, 1984, p. 414).

Each of the relevant social groups has a different interpretation of a specific technological artefact. One example given by Bijker, is the high-wheeled bicycle. It was developed in England in the 1870s. For some it could look as a mistake where instead of making a bicycle based on the construction of Leonardo da Vinci with chain, sprocket and gears, one built a bicycle with a high front wheel that both where difficult to climb and use. For women and older men, the bicycle was recognized as dangerous and difficult to use, but for young men this was an object that indicated real strength (Bijker, 1993, p. 118). In this case, women, old men and young men were three different relevant social groups with different interpretation of the high wheeled bicycle. Besides revealing the different interpretation each of relevant social groups relates to the technological artefact, it is possible to find the problems and solution each group has with the technical artefact (Bijker, 1993, p. 119).
Figure 2: An illustration of the social construction of a technology, here with the Penny-Farthing as an example.

The second stage of SCOT involves the stabilization or closure of the artefact. The relevant social groups' acceptance of the technological artefact can be measured by stabilization (Bijker, 1993, p. 121). The more similar viewpoint the social groups have of the artefact; how easier it is to stabilize the artefact (ibid.). This process is in many ways dual. It both includes a process of irreversible closure and a growing and diminishing process (Bijker, 1993, p. 122). To achieve stabilization there are different types of closing mechanisms. Rhetorical closure is one example. Here the main goal is to get the relevant social groups to see the problem being solved. One way to achieve this is through advertisement (Pinch & Bijker, 1984, p. 427). The other method
is to redefine the problem, in other words to alter the focus on one problem to another problem (Pinch & Bijker, 1984, p. 428). If a technology is not accepted by the relevant social groups, the technology can be translated into a solution for another problem. In the third stage the aim is to relate the technical artefact to a wider context. Through the sociocultural and political situation of the relevant social groups, different sets of norms and values is shaped, which again will affect the way they interpret the technological artefact (Pinch & Bijker, 1984, p. 428).

### 3.3 Actor network-theory

As with other concepts in STS, ANT has a short history. It was developed in the early 1980s by Bruno Latour and Michel Callon. A central concept of ANT is that society should be seen as multi-dimensional, rather than two- or three-dimensional. By doing that, it is easier to understand on the society works. As the term *actor-network* implies, the two terms actor and network have a significant role in the theoretical framework. An actor can both be human and non-human and an important aspect with ANT is that non-human actors are considered to be of mutual importance in a network as a human actor. There would be no society without all the different parts of the heterogeneous network and in most cases there will be used some sort of non-human objects when humans interact, even when it comes to lovemaking (John Law, 1992, p. 381-382). All of the elements are equal important in the network and if one of these elements is removed, the whole structure will change (Callon, 1986, p. 30). According to ANT, technology is a result of heterogeneous elements that work together. A technology is participating in building heterogeneous networks that consist of both humans and non-humans. To understand these networks, it is important to study the conditions and mechanisms that define the society and the knowledge of the society, which is done by moving constantly between the technical and the social world and inside and outside of the technological object (Akrich, 1992, p. 206). Being a part of the social world, a technology is a part of a larger system consisting of users, developers, money, other technologies and politics, often called a technological system. These technological systems are both socially shaped and shaping the society. In relation to the two cases in this theses, this means that the two technologies are both affected and are affecting other relevant actors in the network.

Each technology consists of a chain of different materials or actors in a network. This network is extremely complex. As Callon (1986, p. 31) argues: “if we wish to construct a graphical representation of a network by using sequences of points and lines, we must view each point as
a network which in turn is a series of points held in place by their own relationships”. This means that society has a fibrous, thread-like and wiry character that is difficult to capture through levels, spheres, structure and systems (Latour, 1996, p. 3). This means that when studying the two different technologies presented in the two cases, a multidimensional view will provide a more profound understanding of the technologies. During the interaction with other actors, the technology goes through a process called social shaping. When the technology is socially shaped it also goes through a process called “inscription” where the society is scanned in order to make a prediction of the surrounding of the technology (Akrich, 1992, p. 208). Pols and Moser (2009, p. 162) argue that technology could be analysed in the same manner as a movie or a play where there is script for each of the player. In the same way as this script contains information about who character they are, their needs and wants and what they should do when. The script of the technology describes a prescription on the use of the technology. On the other hand, this script does not tell anything about how the technology is used (ibid.). To do this, it is necessary to follow the negotiations between the innovator and the user and to study how this negotiation affects the technology (Akrich, 1992, p. 208).

New technologies have the potential to both create new orders of humans and things, and create new knowledge about the world through generating new forms of orders of causality (Akrich, 1992, p. 207). Since the dawn of humanity, technology has played a crucial role in the development of human society and civilization. In the last century, information and communication technologies such as the telephone, computer and the internet have had a great impact on the development of the modern world. These technologies have made it possible to interact with other people over larger distances. Today, the internet and increased access to communication devices such as computer and smartphones have made it possible to share and find information in only a couple of seconds. These aspects must be seen in relation to the interaction between technology and society.

3.4 The interpretation of technology in healthcare

This section will take a closer look on how technology, and in particular ICT, are interpreted and understood in the healthcare sector. As STS focus on how technology and society affects each other, this could provide an interesting framework in terms on how technology affects this sector. As previously mentioned, technology could give rise to new possibilities in several fields in the healthcare sector. For example, new technologies could change how a health care worker
and a patient communicate and make it possible for the patient to search for information concerning his or her health and it has in many ways become easier for the patient to participate in his or her own health situation. This section will discuss this aspect in relation to the health care sector in general.

3.4.1 A more efficient health care system

One of the advantages that often is mentioned in terms of the use of technology in healthcare, is the potential to make health care more efficient, both time wise and economical (Rochlen, 2004; Hollis, 2015; Eysenback, 2001). With an increasingly older population and people with chronic diseases, the costs in the health care will rapidly increase in the future. One of the strategies that have been used, is to reduce the number of hospitalised patient and to ensure that these patients also stay in hospital for the shortest time as possible (Brodersen & Lindegaard, 2015, p. 74). In Norway this is reflected in the introduction of Samhandlingsreformen16 in 2012.

ICT has the potential to be an appliance that can make health care more efficient and thus ensure that the cost of health care services would not increase to a level that is not sustainable. ICT has the potential to do this both through making it easier for patient and health care worker to communicate without being in the same location and through enable more of the procedure that occurs in the hospital to take place in the patient’s home, such as measuring blood sugar or blood pressure. This could be seen in relation to the theoretical framework of SCOT and how technological artefacts are socially constructed. Here some groups have defined technology and ICT as something that could make health care more efficient. On the other hand, it could be groups that see technology and ICT as something that have negative effects on the health care system, for example in relation to the relationship between the health care professional and the patient. How the different relevant groups interpret and whether or not they accept the technology is therefore of importance.

3.4.2 Patient 2.0

The use of technology and ICT also has the possibility to change the role of the patient. According to a report from Global Future of Foresight, new technologies have the potential to revolutionize the hospital-patient relationship, giving more of the responsibility to the patient

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16 Samhandlingsreformen was introduced to reduce the pressure of the hospitals through transfer some of the health services to the municipal health care services (https://snl.no/helse-og_omsorgstjenesteloven ).
The term Patient 2.0 is used to describe the expectations on the effects of ICT in healthcare, where the patient is defined as “a knowledgeable, self-caring and self-managing patient” (Langstrup et al., 2013, p. 45). ICT will here play a crucial role where it causes an increased, legitimate and productive participation of patients in treatment and knowledge production in healthcare (ibid.). Through increased access of the internet, everyone is invited to see what is happening in their lives and in the healthcare system in general and through this add their own ideas (Brodersen & Lindegaard, 2015, p. 74).

That changer role of the patient can be seen in relation to the work done by Parson (referred in Langstrup et al., 2013, p. 46) in the 1950s, which studied the relation between the clinical encounter and individual notion of self. Even though this was a study on the relationship between the patient and the physician, this also is transferable to the case of the patient and the therapist. In this work, Parson emphasized that the patient has a central function in the overall social structure, while the physician is the agent of this structure, authorized through his socially verified role to relieve the patient of his or her responsibilities related to other functions in the structure while they were inflicted with disease. The patient is, on the other hand, defined as the sick person. Carl May has argued that this view still frames the understanding of the clinical encounter in which the power and knowledge flow in a linear manner, from the physician to the patient (ibid.). Langstrup et al. (2013, p. 46) argue that ICT has the potential to change this structure and make a more empowered patient.

Felt (2015, p. 184-185) points out some of the positive transformations that the internet has brought upon us; the possibility to access information from all around the world, access to up-to-date information and the possibility to find information quickly. Nielsen (2015, p. 30) argues that the use of technology in healthcare has the potential to create a win-win situation because the involvement of the patient could improve the quality and the efficiency of the care. Further, it argues that technology both could lead to more standardization and customization. However, while e-health can give rise to new possibilities, there exists a lack of evidence of its efficiency. One of the reasons for this is that it requires a lot of work from both the patient and the therapist (ibid.). Brodersen and Lindegaard (2015) discuss some of the challenges with the Patient 2.0. In their qualitative study of three different cases, they saw that the patient did not get cured of their illness, but rather became a chronic patient that never became healthy (Brodersen & Lindegaard, 2015, p. 86). They further argued that when the patient became too empowered, meaning that he/she understood the technologies and want to manage their illness, the doctor loose some of his or her power (Brodersen & Lindegaard, 2015, p. 87). Even though ICT has
the potential to improve health care and to make it more efficient, there are also some challenges. As there is lack of evidence of its efficacy, it is important not to move too fast with the implementations. Further, there are also some challenges in terms of the relationship between patient and healthcare worker. Brodersen and Lindergaard (2015, p. 87) argue that with the introduction of ICT and other forms of technologies in healthcare, a physical distance between healthcare worker and patient may be created, where the healthcare worker rather than observing the patient, instead analysing numbers at a distance.
4 Methodology

This chapter provides a description of the choices that has been made during the writing of the thesis. It presents a description of the research design and method, on the data collection and concerns in relation to validity, reliability and ethical concerns. As mentioned earlier, this thesis takes the form as a multiple-case study of two different cases and the first section will start by providing an outline of the case study and how this form of design can be used to elucidate the research question(s). As the research question(s) already have been discussed in section 1.3, there will be no further elaboration on the questions in this chapter. The next part will provide an outline of the qualitative research and the relation this has to the thesis. The last part of the thesis will discuss concerns when it comes to validity, reliability and ethical issues both during the collection of data and the data presented in the thesis in this paper.

4.1 Qualitative research

When doing research studies, certain concerns need to be taken into consideration. One of them is whether the study wants to go broad or deep or not. As mentioned earlier, the aim of this thesis is to study how ICT could change mental health care in Norway. The qualitative research method, as in comparison to the quantitative method, tends to focus more intensively on a few units. Therefore, this method is well suited to provide new perspectives and knowledge on a topic that has not been studied thoroughly. Ragin and Amoroso (2011, p. 123-124) used the term “data enhancers” when describing qualitative research and comparing this with the enhancement of a photograph. When a photograph is enhanced, it is easier to see the parts more clearly. The same will happen in a social research project where the data is enhanced; things that otherwise would not be noticed would come into the light. This aspect fits well with the intended plan for this thesis as the aim of this research is to go profound into two cases to find new aspects on the use of ICT in mental health care.

A qualitative research project often begins with selecting relevant cases or sites, and then identify certain concepts and empirical categories during the research and in the end of the research elaborating one or more analytic frames (Ragin & Amoroso, 2011, p. 116). This was also the case with this research. During the research process different concepts was created and then analysed together with existing literature on the use of ICT in mental health care. To collect data in qualitative research, a set of different techniques are used. These can be divided into
three sub-groups: oral (interviewing), written text (documents, newspapers, fiction books and films) and observations, where oral often is the most used method (Winchester & Rofe, 2009, p. 8-9). For this thesis, the empirical material consists of interviews and documents.

4.1.1 Interview

Interview is the most applied form for data collection in qualitative research method since it is considered to be the method that provides the most profound knowledge of people`s perceptions, meanings and construction of reality (Punch, 2014, p. 144). Through an interview, it is possible to achieve a profound understanding on how people interpret and understand a case or a topic. Further, in comparison to a text or a document, it is possible to ask questions or to provide feedback during an interview. For this thesis, the use of interview as method was in particularly appropriate in order to answer the second of the research questions.

Figure 3: Lists of informants

<table>
<thead>
<tr>
<th>Number of the informant</th>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20.03.2016/20.05.2016</td>
<td>60 min interview and e-mail correspondents, the main founder of the company and the applications series</td>
</tr>
<tr>
<td>2</td>
<td>01.03.2016</td>
<td>60 min interview conducted at eMeistring, psychologist/psychiatrist</td>
</tr>
<tr>
<td>3</td>
<td>01.03.2016</td>
<td>30 min interview conducted at eMeistring, psychologist/psychiatrist</td>
</tr>
<tr>
<td>4</td>
<td>01.03.2016</td>
<td>45 min interview conducted at eMeistring, psychologist/psychiatrist</td>
</tr>
<tr>
<td>5</td>
<td>10.01.2016</td>
<td>Develop at SuperEgo, 60 min interview on Skype</td>
</tr>
<tr>
<td>6</td>
<td>27.04.2016</td>
<td>Researcher at UIO, 60 min interview on skype</td>
</tr>
</tbody>
</table>

All of the interviews were recorded through a tape recorder and were later transcribed in HyperTranscribe. Interviews number one, five and six were conducted by using Skype, while the rest of the interviews took place in at the eMeistring office in Bergen. Patton (as referred to in Punch, 2014, p. 145) defines three forms of interviews: the informal conversation interview, the general interviews and the standardised open-ended interviews. These three forms of interviews exist on a continuum where the first is defined as the less structured form of interview and the latter as the most structured. In this thesis, six interviews were conducted and they varied when it comes to form of interviews. Interview 2-5 took the form as a general
interview where the questions were constructed and sent to the informants before the interviews took place. This was done in order to both give the informants the possibility to deliberate their answer beforehand and for me as the interviewer to have the possibility to steer the interview according to the intended plan. When it comes to interview number 1, this was a combination of e-mail correspondents and a mix of the informal conversation interview and the general interview as the interview to some extend was based on the previous questions from the e-mail. The informant in interview 6 was not related to either of the two cases, however the informant gave some interesting perspectives that were found relevant for this thesis and is therefore added. Further, the empirical material in Case 1 also consists of a set of questionnaire that has been answered by some of the users. The questionnaire has only been answered by 25 people and it is therefore to small a number to make any generalization. However, I think that some of the information has the potential to provide some interesting perspectives in relation to the other empirical material.

4.1.2 Documents

In addition to the conducted interviews, the empirical materials also consist of documents such as the webpages for both the two cases\(^\text{17}\) and political documents. According to Punch (2014, p. 158) documents, can together with other forms of data, be used to triangulate a case. This means that the documents can be used to support the information given in an interview (Yin, 2009, p. 103). In both of the two cases the main sources of documents are their respective webpages, which both have been used to triangulate the information given in the interviews and to provide further information in the empirical material. Further, in an ethnographical study, documents can be used to make some further analytic questions related to how the documents are written, for whom they are written for and on the purposes of the documents (Punch, 2014, p. 159). These are questions that are be important to study in order to acquire a better understanding of the two cases and the aim of the technologies.

Political documents such as white papers (Meld.St.) also are of relevance for this thesis. They have the potential to provide relevant information on how the use of ICT in health care in general and in mental health care specifically are understood by the government. An important aspect of STS is that technology, politics and society mutually affect each other.

\(^{17}\) Case 1: [www.superego.as](http://www.superego.as), Case 2: [http://www.helse-bergen.no/no/OmOss/Avdelinger/psykiatrisk-divisjon/emeistring/Sider/side.aspx](http://www.helse-bergen.no/no/OmOss/Avdelinger/psykiatrisk-divisjon/emeistring/Sider/side.aspx)
4.2 Case study

As mentioned earlier, this thesis will take form as a multiple case study of two different cases. This thesis will lean on the Yin’s (2009, p. 53) view and consider case study and multiple-case study to be a part of the same methodological framework. Therefore, this section will first provide a general description of case study as a methodological framework before describing the multiple-case study as a particular variant of the case study design. An important remark is that the case study is not a method on how to collect data, but rather a methodology on what and how to do research (Baxter, 2010, p. 82). To collect data, there could be used a combinations of different form of qualitative and quantitative methods and different types of analytical strategies such as grounded theory or/and discourse analysis (Baxter, 2010, p. 95).

According to Gerring, as reported by Baxter, could a case study be defined as: “an intensive study of a single unit for the purpose of understanding a larger class of (similar) units” (Baxter, 2010, p. 81). A case study could also be defined as an empirical inquiry that has an in-depth study of a contemporary phenomenon in a real-life context where the boundaries between phenomenon and the context are not clear (Yin, 2009, p. 18). It is thus a study that both try to
understand aspects of a certain phenomenon and to expand further theoretical concepts (Baxter, 2010, p. 95). When it comes to the thesis, all of these aspects are relevant. First, the aim of the thesis is to achieve a better understanding of a case. Secondly, the use of ICT in mental health care has still not been studied thoroughly, and it is therefore necessary to go deeper into the topic to achieve a better understanding and to broaden the knowledge. Third, as mentioned, the aim of the thesis is to achieve a better understanding of the topic to give suggestions to further research.

According to Yin (2003, p. 13) do case studies inquiries concern with a specific situation where there are more variables of interest than there are data points and thus depend on a set of different sources of evidence that needs to be triangularized and which benefit from former theory that can guide data collection and analysis. When doing a case study, certain components should be included (Yin, 2003, p. 21). The first one is the study question or the research question. A typical research question in a case study would consists of “how” or “why”-questions (Yin, 2003, p. 5). The next component is the study propositions. Here the main focus would be to make propositions that gives attention to something that would be studied. Unit of analysis is the next component and concerns the definition of the case. This is often linked to the research question and the selection of an adequate number of units to analyse. The fourth component is the linking of data to propositions. One way to do this is through “pattern matching” where a set of different information from the same case may be related to theoretical proposition. The last component is defined as the criteria for interpreting the results of a study. Here the main focus would be one’s understanding of the degree to which a match has to be in order to be considered a match (Yin, 2003, p. 22-27).

It is often argued that it is not possible to make any generalization based on a case study; meaning that the result of the case study could not be transferred to other instances. However, a case study can develop propositions. This means that case studies can develop new propositions in relation to a concept. It does in many ways change the traditional process of research, meaning that instead of beginning the research by developing a hypothesis, the hypothesis comes at the end of the research (Punch, 2014, p. 123). This is especially relevant for this thesis because it studies a topic that has only been slightly researched and therefore is difficult to make any hypothesis before the research. An in-depth study case study can provide new understanding of the different aspects in a new research area (Punch, 2014, p. 124).
4.2.1 Multiple-case study

Compared to a case study, a multiple-case study focuses on more than one case. It could be comparing two similar cases or it could be a study of many studies where certain phenomenon is investigated and analysed. By using a multiple-case study, rather than a single case study the result could be more robust (Yin, 2009, p. 53) and thus has the potential of a more in-depth knowledge (Ragin & Amorose, 2011, p. 117). A multiple-case study may provide perspectives on how a phenomenon appears in different contexts (Stake, 2006, p. 27). On the other hand, a case study of more than one single case could give rise to new questions. Yin (2009, p. 54) argues that multiple-case study should by based on the principles of replication and not sampling logic. Replication does in this case refer to the presumptions of the results of the cases, based on the understanding on previous studies, while sampling logic refers to the selection of cases in relation to a certain part of the population or to a set of cases based on a representative sample of the population (Thisted, 2013, p. 210). This means that each case must be selected so that the cases either will predict the same result (literal replication) or contrasting results but for anticipatable reasons (theoretical replication) (Yin, 2009, p. 54). A multi-case study starts with recognizing what concepts or ideas that connects the different cases together. Often will the research question provide important clues (Stake, 2006, p. 23). According to Stake (2006, p. 26) it is more important to find cases that are relevant for the research question and the opportunity for more knowledge, than finding cases that would provide a variety of perspectives and that would add balance to the result. This is also the case for the two cases in the thesis.

4.3 Ethical concerns

Ethical issues will occur throughout a research process, causing the researcher to take ethical concerns into consideration during the whole process (Kvale, 2007). The Belmont Report has made a list of principles and guidelines that apply for social research, which will lay a foundation of the ethical principle for this thesis. The first of the principles is defined as the respect for the people involved in the research, and applies to the autonomy for each individuals and the requirement that each person enters the research “voluntarily and adequately informed”. This could be proved by obtaining informed consent (Ragin & Amoroso, 2011, p.88-89). In my thesis this was ensured by describing for each of the informants what the aim of this study was, both oral and written. A draft of the thesis was also sent to the informants previous before the thesis was handed in.
The next principle is the “beneficence principle”, which is related to the requirement of the researcher to ensure the well-being of the humans subjects involved (Amoroso, 2011, p. 89). For this thesis, this is relevant when it comes to the privacy of the informants. Before conducting the interviews, a description of the thesis was sent to *Norsk Samfunnsvitenskapelig Datatjeneste (NSD)* for approval. NSD approved the research project based on the information given and was given the project number 46700. Because it is difficult to provide enough information about the two cases in the research, I chose not to anonymize them. When it comes to the SuperEgo application I also chose not to anonymize the developer of the application, Svein Øverland, because this is information that nevertheless can be provided using the program’s webpage. When it comes to the eMeistring program, I chose to anonymize my informants to ensure their privacy.

As the aim of this thesis is to provide a greater understanding of the use of technology in psychotherapy this could also provide the informants with some new perspectives. This principle can be seen in relation to a micro- and macro-ethical perspective on (Kvale, 2008). The micro-ethical perceptive refers to the beneficence principle, meaning that this perceptive focus on the possible implications that the study will have on the relevant subject. The macro-ethical perspective on the other hand has a much broader perspective and refers to the wider social consequence of the research. As there exist a political appeal to make mental health care accessible for more people.

Assessment of risks and benefits is the next principle and are related to the previous ethical guideline. This principle refers to the balance between benefits and risks in the research. According to this principle, the benefits gained through the research should outweigh the risks to the subjects (Ragin & Amoroso, 2011, p. 89). The next principle is referred to as the justice principles, and address the equal distribution of benefits and burden in the research. This is also relevant in relation to the last principle: the fair selection of subjects meaning that each of the informants is selected based on the research and not because of their availability, positions or manipulability (ibid.).

### 4.4 Access to case studies

After I decided that the aim of thesis was to investigate the use of ICT in mental health, I began to do some online-search on the topic. As the use of ICT in mental health care in Norway is still in development, it took some time before finding relevant cases to could be relevant for this
research project. When it comes to the first case, the company SuperEgo and the STOP-series. It was found by a coincidence on LinkedIn and from there I got in contact with the founder of the company, Svein Øverland. For the second case, the Meistring program, I sent the coordinator an e-mail and through some correspondents, it was agreed that I came to conduct the interviews in March 2016. I then decided to do a multiple-case study where I used both cases to illuminate the research questions.

### 4.5 Reliability

Reliability both refers to consistency over time, meaning that if others were given the same instrument under the same circumstance, but in a different time, they would achieve the same results and internal consistency. It thus refers to the possibility for repeating the operation of the study with the same results (Yin, 2009, p. 40). To ensure this to happen, a case study protocol and a case study database may be used (Yin, 2009, p. 45). The first element is particularly important when doing a multiple case study and presents both the introduction of the case study, procedures of the data collection and the different case study questions (Yin, 2009, p. 79-80). The second element emphasizes that the use the documentation from a study consists of both the data collected in the study and the report made by the investigator (Yin, 2009, p. 119). For this research, the reliability has been ensured through a brief introduction of the case study, both of the procedures of the study and the case study questions.

### 4.6 Validity

Validity refers to the extent to which the findings in the research are a reflection on what they attempt to find (Punch, 2014, p 239). Validity can be divided into three different forms of validity: construct validity, internal validity and external validity. Construct validity refers to how well a measure conforms to theoretical expectations (Punch, 2014, p. 240). This can be especially challenging in a case study because it is difficult to develop a measure set that is operationalized (Yin, 2009, p. 41). However, construct validity can be ensured in a case study through the use of multiple sources of evidence, chain of evidence and by having the draft study reviewed by key informants (Yin, 2009, p. 42). In this research construct validity is ensured through the use of a set of different sources such as interviews and documents and through describing the research procedure in the thesis. The informants have also had the changes to review the draft of the empirical results during the research. Internal validity refers to the
concern on whether or not a study is capable to explain why $x$ led to $y$. This form of validity is relevant for explanatory case studies (Yin, 2009, p. 42). As this research mainly takes the form as a descriptive and exploratory research, this form of validity is not applicable for this thesis. The third form of validity, external validity refers to the extend which the results of a study are generalizable (Yin, 2009, p. 43). For a case, analytic generalization is the most relevant form of generalization. This refers to the generalization of the results to some broader theory (Yin, 2009, p. 43). This is also the case for this research as the aim of this thesis not is to make any generalizations, but to provide new knowledge to a topic.
5 Empirical findings and discussion

The use of ICT in mental health care in Norway is still limited, and the research on this topic is thus scarce. The aim of this chapter is to investigate how ICT is used in mental health care and to study the effects on ICT in mental health care. The findings in the empirical materials are structured according to the main research question and the two sub-research questions. The first part of the thesis will present the empirical findings in relation to the first of the research questions. The empirical findings of the two cases are presented separately and then discussed together in a summary. The second research question will lay the foundation for the next part of the chapter where the two cases are used as the empirical material. The last part of the chapter will aim to answer the main research question by combing the analyses of the two sub-research questions.

To answer the research question(s), a combination of the theoretical framework of SCOT and ANT is used. A central aspect in STS is that technology is a part of the society and a network that consists of a set of different actors that can be both human and non-human. The different actors in the network that surrounds the technology will both affect and be affected by the technology. A central notion in ANT is that the non-human actors play an important role in the network that surrounds a technological artefact. Further, the focus on heterogeneous networks in ANT is also relevant for this thesis. According to the theoretical framework of ANT, a technology is a part of a larger network consisting of both human and non-human actors that interact with one other. For the two cases, this is relevant when it comes to how the non-human actors affect the human actors in the network. The non-human actors can “determine” human action through encourage, permit and suggest (Latour, 2005, p. 72). However, as Latour (2005, p. 72) further argues, the term “determine” does not apply that the non-human actors cause or impose humans to act, but that they instead work as a backdrop for human actions.

The three steps in SCOT will play an important role in the analysis, especially when it comes to the ethical concepts that are presented in relation to the two cases. They are not always used together or in a synchronous order. With its emphasize on the development process of a technological artifact and the use of a multidimensional model, SCOT can provide new perspectives to the two cases. Further, could provide interesting perspectives in relation to how different actors interpret the use of ICT in mental health care.
5.1 How is ICT used in mental health care in Norway?

The use of ICT in mental health care in Norway is still limited. However, there exist some programs where ICT is used either in parts of the treatment or as a method of treatment. For example, researchers at the University of Tromsø have adjusted the interactive self-help program MoodGym\(^\text{18}\) to the Norwegian market. According to the program’s homepage the aim of the program is to help the user to recognize and to relieve negative emotions and to help the user to develop coping strategies for the future (University of Tromso 2016). The program can both be used as a remedy for self-help by a person that is not participating in therapy, or as a tool in guided self-help (Norsk forening for kognitiv terapi, 2016). It is also possible to download different types of self-help application from Apple Store or Google Play developed in other parts of the world.

In chapter 1.2, three different ways in which ICT may be used in mental health care were presented. The first is when ICT is used as the sole method for communication between therapist and patient, a second is when ICT-delivered therapy is used as a supplement alongside traditional therapy and the third is when ICT is used to create self-help tools. The eMeistring program would fall into the first category, as almost all of the contact between the therapist and the patient occurs through the internet. The MoodGym program would fall into both the second and the third category, depending on how it is used, while the STOP application series would fall into the third category. The differences between the two cases could therefore provide some interesting perspectives. While the “receivers” of the therapy in the eMeistring program are defined as patient, they are defined as “users” in the STOP-series.

5.1.1 STOP-series

STOP application series, also referred to as Case 1, is developed by the company SuperEgo. According to the company’s webpage, the main idea behind the company is to help people through the use of technology (SuperEgo, 2016a). As it is explained on the series webpage, the term *superego* derives from Sigmund Freud’s division of the three parts of the human consciousness: ego, id and superego, and refers to the part of the consciousness where our ideals meet our wishes and actions (SuperEgo, 2016b). In addition to the STOP series, the company

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\(^{18}\) A program developed at Australia National University. It consists of five modules where each of the modules takes approximately 45 minutes to complete.
has released other forms of smartphone applications related to mental health. One example is Snakketøyet, which was launched in 2013. The aim of the application is to be a digital tool to help health personnel and other people that work with children that have parents that either are mentally ill, addicted to drugs or have somatic illnesses. Another application developed by SuperEgo is Happytap, which was launched in 2016. It is a self-help game where the player is supposed to find the smiling person. This will in turn help the person to be distracted from negative thoughts (SuperEgo, 2016b). According to the application’s webpage, it is grounded on a therapeutic method named Cognitive bias modification (CBM), which is an experimental psychological method and is a blending of a game and self-help (Happytap, 2016).

The first version of the STOP-series only consisted of the STOP-Selfharm version. This version is also referred to as STOP 1.0. Later, the application was expanded with three new versions: STOP-Bulimia, STOP-Panic and STOP-Jealousy. This version was named STOP 2.0. All versions of the application are available on AppStore and Google Play to download for smartphone and are free of charge. According to the webpage, this is the first interactive self-help-app for mental illnesses that has been developed in Norway and where the content also is in Norwegian (SuperEgo, 2016c). To this point, approximately 700 people have downloaded one of the versions of the application series. According to the developer, the application is grounded on principles from psychoeducation and CBT.

When studying the company’s webpage, it is apparent that the company emphasizes the positive aspects of the use of technology in health care, for example that technology enables more people to receive help (SuperEgo, 2016). Further, it is emphasized that applications and digital remedies have the potential to make it easier to receive help and support when a person needs it (SuperEgo, 2016b). These aspects can be related to Akrich (1992, p. 207-208) and her argument that the innovators inscribe a certain vision about the world that surrounds the technological object. In an interview with Stavanger Aftenblad Svein Øverland argued that:

«I have been working as a psychotherapist for almost 18 years. When people go to therapy they feel that they are ready to talk about their problems. However, I have in many occasions heard from the patients that the time they needed me the most, was that time I wasn’t available (Risa, 2013).”

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19 A further discussion on this term will be later in the thesis
20 Informant 1, interview
21 Informant 1, interview
Through his experiences as a therapist, he has experienced that many of his patients have wanted additional support between therapy sessions. As a therapist, Øverland has first-hand knowledge of what people want out of therapy and from this, he has made certain assumptions. The realization of this technology when it comes to the relationship between the application series and its surroundings actors is an attempt to determine the settings that the users of the applications have imagined (Akrich, 1992, p. 208).

A general interpretation of the application series

The empirical data for the case consist of two interviews, a questionnaire filled in by the users and the application’s webpage. The two interviews were conducted through Skype and are interviews of Svein Øverland and the technical developer. The interview of Øverland also consists of an interview done through e-mail, however both this and the interview conducted on Skype will be referred to as informant 1 in the thesis. Through the application’s webpage the general interpretation is that the aim of the application series is to be a tool for people to help themselves and is therefore foremost a self-help application (SuperEgo, 2016).

Even though the data from the questionnaire is rather limited, it provides some interesting information that is relevant for the thesis. Almost all of the respondents were women in the age of 18-49 years and this would most likely reflect the distribution of user of the applications. Most of the respondents said they have downloaded STOP-Selfharm and STOP-Bulimia. This also corresponds with the number of downloads for each of the versions. Through the questionnaire, it was evident that some of the functions in the application were more appreciated than others. It seems that most of the respondents thought that the audio tracks were the function that has been most helpful. In regards to the other functions such as the FAQs and the links, many of the respondents answered that they did not know if the functions were helpful. This could indicate that the respondent did not understand the content of these functions. As previously mentioned it would be difficult to make any generalization of such a small sample. However, as a conclusion regarding the questionnaire, it may seem that the audio tracks have been the function that was regarded as the most helpful.

The application is foremost a self-help application, meaning the application series can be used as aid for a person that wants to overcome own problems. The Norwegian Ministry of Health

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22 Informant 1, interview
revised in 2014 Den nasjonale planen for selvhjelp\textsuperscript{23}. This plan introduces a set of visions introduced by the Norwegian government in relation to self-help. One of the visions is that everyone in Norway ought to know the term self-organized, self-help implies and how they can use this tool when they have trouble in life (Selvhjelp Norge, 2016). According to this plan, there are two different ways to define self-help. The first one is related to guided self-help offered through the public health service. The second term refers to a more self-organized form of self-help that recognizes that everyone has the capability to be activated, recaptured and mobilized when they experience challenges in life (Helsedirektoratet, 2014). Even though the application series is developed by therapists, is it more related to the second definition of self-help. The user has the possibility to download the application and use it as an aid to work on their own problems. It is also a resource for the user to be able to understand what to do when they face mental problems in their lives.

**How the application works?**

Even though the application series is not interactive in the sense that it enables communication between e.g. a patient and a therapist or between user and developer, the application series is according to the developers interactive in that sense that it enables the user to provide feedback to the developers about the content of the application\textsuperscript{24}. While the first version only had a couple of offline modes such as audio tracks and articles that were not possible to edit, it has been developed an administrator panel for the current 2.0 version that makes it possible for the developers to edit at all times\textsuperscript{25}. For example, new functions such as new audio tracks or new FAQs can be added.

\textsuperscript{23} In English: The national plan for self-help.
\textsuperscript{24} Informant 1, interview
\textsuperscript{25} Informant 5, interview on Skype
The examples above are taken from the STOP-Bulimia application, but the framework in the application is the same in all four versions and there are only some differences when it comes to design and content. As the three pictures above show, the application contains a set of six different functions. The picture on the left hand side shows the main menu and the different functions in the application. One of the functions is a set of audio tracks recorded by Øverland. This was also the function that has been most appreciated according to the developers\textsuperscript{26}. As the picture on the right shows, the audio tracks consists of different contents such as “stopp grublingen din” (stop your pondering) and “når du er bekymret” (when you are anxious). The aim of these audio tracks is to help when the user feels distressed or anxious and consist of a set of different forms of psychological techniques that are meant to work as a mean for the user whenever and wherever he/she feels the need for it. It is also possible to make your own audio tracks and to schedule them when you want to listen to the tracks. The picture in the middle shows the different facts and questions (FAQs) related to the application series. These FAQs consist of different information related to the mental illness for each of the application series. For example, the STOP-Bulimia version of the application series has questions that concerns around hospitalization and committal. In the block called \textit{link} the developers may publish

\textsuperscript{26} Informant 1, interview
videos and articles or redirect to other websites or books that are related to the mental illness. In the block names *help*, there are numbers to different emergency institutions.

Compared to MoodGym, the application series does not contain any measurement of the user. Further, the application series does not promote any activities to the user. The aim of the different functions is rather giving the user relief during difficult periods such as when the user is experiencing anxiety or wants to throw up. It further deliver information concerning the different mental illnesses, and how and where the user can receive help.

**STOP series as a technological artifact**

According to SCOT, the development process of a technological artifact can be described as an alternation of variation and selection. This in turns will create a multidimensional model (Pinch & Bijker, 1989, p. 28). During the development of the application series, certain considerations are in need. The choice to use the smartphone as platform for this application is one example. According to the developers of the STOP-series, the aim of the application series is to be a tool for people for self-help. This aspect together, with the aim of the application series to be available at all time, makes the smartphone to be more appropriate platform for this technology compared to a computer. A smartphone is both more accessible and more private and personal compared a computer. This could make it less stigmatizing to download the application to the smartphone. The choice to make the application free is also a consequence of the aim to make the application series available to more people. However, this makes the developers dependent on other forms of financial support to maintain the application series and to this date, the application series has been financed through the developers’ own pocket or from grants from Innovation Norway. This has also made it difficult to promote the application and may be the reason why the applications series only has been downloaded 700 times.

According to Bijker and Law (1992, p. 3), technology is a reflection of the surrounding society and therefore must not be studied as a separate entity. This means that when studying the STOP-series, it should be studied in relation to its surroundings. In the last couple of years, smartphone and smartphone applications have become an important part in many people’s daily lives. As the smartphone is a device that most people carries at all times, this is in many ways the perfect platform for this type of application because it enables the user to use this technology regardless of time and place. The application series is in many ways a reflection of the surrounding society

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27 Informant 1, interview
where the smartphone is interpreted as an integrated part for both the society and for the individual, and where a larger part of our activities occurs through this device. Both the interviews and the application series’ webpage emphasized that this form of technology is something new and that it has the potential to change the surrounding society, but that it is difficult to imagine how. The introduction of this form of technology enables the user to take more control over own health. Through the program, the user can easily access help regardless of time and place. This can be related to the aspect of Patient 2.0 that previously has been discussed.

How this form for technology, may affect the society is difficult to predict. This was also discussed in the interview:

“That is why technology is so fascinating. The introduction of technology changes things, but you don’t know how before it is introduced. When personal computers were introduced, people argued that no one would buy them. That was wrong. People also said that cars would never be common. But when the car was introduced it changed the whole world. The internet has changed the banking community; it has changed a lot of things. Technology changes things, we know that, but we don’t know how. People tend to underestimate technology because it is difficult to imagine a reality that is different from the one today.”

Here Øverland discuss how new technologies can change the society and how difficult it is to predict the outcome. The introduction of ICT has changed how people communicate and access information, but it is difficult to predict how this this form of technology will change health care in the future. According to Maheu (as referred to in Jensen, 2014, p. 40), the smartphone is considered to be the technological platform that will be most used in health care in the future. Today, health related smartphone applications are among one of the most downloaded applications.

### 5.1.2 eMeistring

eMeistring is the second case that will be studied in the thesis and will also be referred to as Case 2. According to the program’s webpage, eMeistring can be defined as guided treatment offered through the internet. It is offered by Helse Bergen to people diagnosed with panic disorders with or without agoraphobia, social anxiety and depression. It began as a three-year

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28 Informant 1, interview
29 Informant 1, interview
30 The feeling of fear for certain places and situation where escaping could be difficult such as public transportation, public space and shopping centers.
project in 2012 and became a permanent offer in 2015 and is today financed by Helse Vest. It is grounded on the same principles found in traditional face-to-face therapy and, is according to the program’s webpage, grounded on research (Helse Bergen, 2016a). Similar treatment programs have been implemented in Sweden and England with good results (Helse Bergen, 2016a). In 2016 the program together with the project Intromat together with two other health projects, were granted financial resources for further research (Valmot, 2016).

To be eligible to the treatment the client must be over the age of 18 and received a referral from his/her GP (ibid.). Most of the patients that are eligible have been sent from their GP to DPS or already are receiving treatment from other therapists that have referred the patient to eMeistring. This program is foremost an offer for people that lives near Bergen, but is also available for people that do not have such an offer close to where they live. According to the program, guided internet treatment could make it possible to reach out to people that otherwise would not engage in this form of treatment, and hence support the goal to increase the availability of health care services (Helse Bergen, 2015). According to one of the informants, the interpretation is that the numbers of dropout in the eMeistring program is not greater compared to traditional therapy.

E-therapy in practice

The empirical material for this case consists of three interviews, the program’s webpage and some articles that are related to the program. The general understanding through the three interviews that were conducted, is that all of the informants think the program is successful. In the interviews, it was in particular emphasized that the program makes it possible for a therapist to treat more patient during a day. According to one of the informants, each of the therapists has the capacity to treat 10-12 patient each day, which is three to four times as many compared to traditional face-to-face therapy. Further, it was also emphasized that since the therapists are located in the same office during the therapy, it is easier for a therapist to consult other therapists when he/she is unsure of a case. As one of the informants describes it: “otherwise is it easier to discuss things. It is unusual that you can discuss things in beforehand. But here you are able to have a little discussing of a case before you do anything”.

Even though it was not asked explicitly, the informants did not express any concerns about the hazards of this program in relation to the patient’s health. However, it was mentioned that the

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31 Informant 4, 3.1.2016
32 Informant 4, 3.1.2016
33 Informant 2, 1.3.2016
program is not suitable for people that have severe forms of depression or anxiety. Due to the structure of the program, the patient is a lot on his own, which requires a high degree of independence from the patient. All of the informants also emphasized that the program was relatively structured. This makes it possible for the therapist to see what the patient has done and learned during therapy. All of the three informants had previous work experiences from traditional therapy or counseling. One of the informants had been working in DPS for almost 15 years, while one of the informants only had been educated a psychologist for a year. It seems that all of the therapists started in eMeistring due to coincidences.

The structure of the program

This section will provide a brief description on the structure of the program. eMeistring is divided into three programs where there are a version for each of the psychological disorders panic attacks with or without agoraphobia, social anxiety and depression. The treatment lasts for 14 weeks and consists of a set of modules; between 8-9 depending on the program. The patient must finish each of the modules before proceeding to the next module (Helse Bergen, 2016a). As previously mentioned, eMeistring is grounded on the principles of CBT. One of the fundamental principles of CBT is how our thoughts affect our behaviour and feelings, this is also emphasized in the program. The program has much of the same content as traditional therapy, however in this program, all of the content are available at all times and the program is also more structured.

The modules define the structure of the program. In the first module, the patient has to develop a set of goals for the treatment. Furthermore, the patient needs to present what he/she wants to achieve of the program. In each of the modules the patient is reading relevant information about his/her diagnose and then does exercises as a part of the treatment. After each of the modules, the patient has to do assessments that repeat the information given in the modules and fill out a questionnaire that will map out that the patient’s symptoms on the diagnoses (Helse Bergen, 2016b, p. 1). One part of the treatment involves that the client systematically exposes him/her for situations that cause these thoughts and then analyse how he/she interprets and perceives the situation and the thoughts arisen from the situation. The role of the therapist is to provide feedback on how she or he feels the patient carries out the program and to answer question that the patient might have. This is not a synchronous form of communication. The therapist usually

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34 Panic disorders, anxiety disorders and depression.
will log into the program once a week and then go through what the patient has done since last time. When he/she responds back, the patient will receive a message on her/his cell phone.

Almost all of the communication occurs through the eMeistring program, however most of the patients will have a meeting with the therapist before entering the program. This is done to ensure that the patient has one of the three diagnoses that are needed to be approved for the program. Face-to-face therapy is also available if the patient requests it. In the cases where the patient lives to far away from the eMeistring office, the therapist and the patient will have a conversation over the phone in order to detect whether or not the patient could be approved for the program.35

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35 Informant 2, 1.03.2016
Figure 6 and 7: These two sheets show some of the assessment which the patient is given in the first module for the program for depression:  http://www.helse-bergen.no/no/OmOss/Avdelinger/psykiatrisk-divisjon/emeistring/Documents/DEP_Modul1_eMeistring.no.pdf

The two sheets above show some of the question and exercises in the first module in the depression program. In the first sheet of paper, the patient needs to fill in a list of both general and specific goals. An example of a general goal may be “være mer aktiv” (I want to be more active), while an example of a more specific goal could be “besøke venner og familie” (visit friends and family) and “dra på kino” (go to the movies). In the second sheet of paper, the patient is to answer some questions after he/she has finished reading the material in the first module and will thus work as a summary for this module. Here the patient has to reflect over own mental health and motivation to participate in the program.

**eMeistring as a technological artefact**

As mentioned in the discussion of the STOP series as a technological artifact, a technology should be studied as a part of the society, rather than a separate entity. Bijker and Law (1992, p. 3) argue that technology is a mirror of the complex society. The request for a more efficient and available mental health care system has existed for many years. This is can also be related to the development of this program. Technology opens up for new ways for therapist and patient to communicate. The aim of the program is to enable the therapist and the patient to
communicate regardless of time and place. The technology also enables the therapist to treat more patient compared to traditional therapy and thus make therapy more efficient both time wise and economically. As it was mentioned in chapter 2.2, there is today a political goal to increase the availability of health care through the use of technology. This program is an examples of this process.

As a technological artefact, the eMeistring program is participating in building heterogeneous networks that consists of both human and non-human actors. The most important human actors are for this case are the therapist, the patient and the developers, while the most relevant non-human actors are the program itself, the computers that is used to log into the program and the physical space in which the therapist and the patient sit when they use the program. Compared to the traditional therapy room, technology is the main source of communication and the program does in many ways replace the therapy room. This is where most of the communication between the therapist and the patient occurs and where the therapist and the patient can discuss the patient’s problems privately. However, the communication is asynchronous, and it is not possible for the therapist and the patient to give direct responses to what the other writes. Further, all of the information between therapist and patient will be saved. All of these aspects redefines the role of the other actors in the network. This will be discussed in the next part of the chapter. Because the program is the main source of communication, there are some requirements. The technical requirements such as a computer or a tablet and internet access are of importance. The patient must also be able to use the technical equipment in order to use the program.

5.1.3 Summary

Today, ICT-delivered therapy is not a common method to offer mental health care in Norway. There are roughly three ways in which ICT can be used in mental health care. The first method is to offer therapy through the use of ICT, a second method is to use ICT-delivered therapy alongside traditional therapy and the third method is more related to ICT-mediated self-help programs. For both of the cases, ICT has a prominent role. For Case 1, ICT creates a self-help aid that is more accessible compared to a book or a computer program. The application series can be downloaded to a smartphone and from there accessed at all times. The application series consists of a set of different functions such as audio tracks and FAQs related to the mental illness. Even though these are functions that are not dependent on ICT directly, the applications series makes they more accessible. For example, there is a set of different self-help books that
can be used. However, it is often more time consuming and more stigmatizing than using an application on a smartphone. Smartphone often is a personal item that is easier to hide from other people.

The eMeistring program is an internet delivered therapy program that lasts for 14 weeks and consists of eight different modules. The communication is asynchronous, and the therapist goes into the program once a week to provide feedback on what the patient has done. It has many similarities with the therapy room, where the therapist and the patient can communicate privately. However, compared to traditional therapy, the program enables therapist and patient to communicate in a new way. The patient is not required to meet to therapy, but can instead work with the program at home.

5.2 The effects on the use of ICT in mental health care

While the previous chapter gave a description on how ICT was used in mental health care in Norway, this chapter will take a step further and look at some of the effects on the use of ICT in mental health care. This section will use the two cases to study some of the effects on the use of ICT in mental health. To do this a combination of the theoretical framework of SCOT and ANT is used. SCOT will in this part provide insight in relation on how different social groups interpret the technology and to the development of the technological artefact in relation to the effects. ANT, on the other hand, has the potential to provide new perspectives when it comes to the role of the technology in society.

With the introduction of technology, both the role of patient/user and therapist will change. To achieve a better understanding of the introduction of ICT, it is important to understand the whole process in which the different actors affect each other. Both the technology, therapist and patient/user will mutually affect and be affected by each other. Through this process, a redefinition of all of these actors may occur. In both of the two cases, it is evident that technology has the possibility to redefine the role of the patient/user.

5.2.1 Analysis of Case 1

In the previous chapter, it was emphasized that the STOP-series is defined as a self-help application where the aim of the different functions are to provide information and to support
the user during difficult situations. This section will discuss how this form of technology could influence mental health care and how other actors shape the application series. It will further discuss some of the controversies and ethical issues related to this form of technology.

According to the theoretical framework of ANT, technology is the result of larger heterogeneous elements that work together in a network. The network may consist of both human and non-human actors. For Case 1, this will mean that the application series is a result of a set of different heterogeneous elements, which are both human and non-human. Both the user, developer, the program itself and a smartphone are important actors in the network that surrounds the application. As Akrich (1992, p. 205) argues, technology is an integrated part of the social world. This means that when studying the STOP-series it must be seen as a part of the society and not something that has been developed separately. Today, smartphone is a device that most people carries at all times, by using this as a platform for the application it is a potential to increase the access of the technology.

**Accessibility**

According to Øverland, the lack of access to mental health care is one of the reasons why the applications series have been developed. As mentioned earlier, he received the idea for this thesis through his practice as a psychologist. In the interview he provided a further description:

> “if you have the voice of your therapist available and this can be played when you experience and anxiety attack or when you wish to cut yourself, is this more important than have a therapy session on the next Tuesday”.

Here Øverland argues that for some people it could be more important to listen to another person’s voice when the person feel the aim to do destructive habits, compared to have an available therapist session in the near future. Furthermore, in an interview, he argued that the main goal with the application series is “to be where the kids are” (Moe, 2014). In the interview, this was also tied up to have access to a professional health care worker: “the urge to throw up, to do self-harm and the feeling of jealousy are feelings that suddenly appears, and then it could be a long wait for a therapy session- if you are lucky to get one”. This was also the aim of the audio tracks:

> “The main founder was if someone is in an awkward situation or she or he knows that he or she is going to a party or to a bar or to another place where it would be some awkward situations or going to be issues to his or her mental conditions, she

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36 Informant 1, interview
37 Informant 1, e-mail correspondances
or he can play it. So then you can schedule it. That was the main goal with the application series\textsuperscript{38}.

Here the developer provides a further description of the aims of the application. In an interview in Stavanger Aftenblad, it was emphasized that the aim of the audio tracks is to be an external influence when people experience hard feelings (Risa, 2013). The possibility to hear the psychologist’s voice when you experience an anxiety attack could for some people be of more importance than to have a therapy session in the near future. This aspect has previously been studied in other instances as well. For example, in a study of military veterans with symptoms of PTSD answered that they needed a tool whenever their symptoms arrived, for example when they were in line at the supermarket, when asked about their needs (Anthes, 2016, p. 21).

In a research that studied the users’ view regarding the utility and effectiveness of the smartphone program myCompass\textsuperscript{39}, many of the users reported that the accessibility of the program was one of the main reason why they were using the program. One of the participants argued that “I find it’s a lot easier for me to use the program when I am commuting or when I have spare time, but if I had to log in to the applications and sit in front of the computer, I don’t think I would use the program” (Harrison et. al., 2011, p. 518). One other aspect with this form of application is that this is not therapy between a professional health care worker and a patient, but rather between a user and the machine. The application replaces the role of the therapist. The user can access the program whenever she/he wants, and would not wait for the respond from the therapist. On the other hand, the patient is more on its own. Some studies have indicated that the use of self-help programs with little or no support from a therapist will decrease the effectiveness of the program (Newman, et. al., 2011, p. 100; Farvolden et. al., 2005). Further, as many applications related to mental health care are not certified by professional health care workers, many of these applications either can have little effect or be harmful for the user.

On its webpage, the applications series is defined as “help when you need it” (SuperEgo, 2015). Here the developers create an image of the applications series. This could be seen in relation to the inscription process of the application as discussed by Akrich (1992, p. 207-208). In this process, assumption of morality, technology and economy will evolve in a certain way (Akrich, 1992, p. 208). As a part of a larger system, the application is shaped by others actors in the network. The emphasize on the accessibility of the application series does in many ways define

\textsuperscript{38} Informant 5, interview

\textsuperscript{39} A smartphone application related to mental health.
the application series. Pols and Moser (2009, p. 162) used the term “movie script” to describe this process in which the script of the technology provides a prescription on how the technology is supposed to be used. The inscription of the technology defines the application as a tool that is available when the user suddenly needs help. This is evident on the application series’ webpage where it is emphasized that the STOP-Selfharm application contains pre-recorded audio tracks that can be played when the person feels the need to harm oneself (SuperEgo, 2016). By defining this technology in this way, the developers may try to predetermine the settings that users are asked to imagine of the technology (Akrich, 1992, p. 208). The technology is not only determined through the inscription of the developers, it is rather defined through the correspondence of the actors and the network that surrounds the technology (ibid.). As mentioned, is the application series interactive in that sense that the user can provide feedback to the developers on the different functions in the application series. According to Akrich (1992, p. 208-209) it is necessary to go back and forth between the developer and the user to fully understand the technology to be able to de-script the technology.

**Self-help**

As mentioned earlier, this application series will be defined as a self-help application. According to Oxford Dictionary, self-help is defined as: “the use of one’s own efforts and resources to achieve things without relying on others: a reduction in the role of the state and an increasing reliance on self-help” (Oxford Dictionary, 2016). The term “self-help” thus implies that a person uses own resources to overcome problems. The importance of self-help is also a political matter. As it was discussed in chapter 2.2, Meld. St. 34 (2012-2013) *Folkehelsemeldingen* emphasizes that it is a social responsibility to influence a citizen’s health choices through the distribution of knowledge. In the same chapter, it is also argued that self-help programs can provide more knowledge and help to prevent diseases among a person. The numbers of different forms of self-help applications has increased in the last couple of years and the development of this application can therefore be seen in relation to this.

The self-help aspect is also relevant in terms of the changed role of the patient, or in this case the user. In the interview, Øverland uses the term *empowerment* to describe the process in which ICT enables the patient to take more control over own health. The term empowerment can

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40 Used as example.
41 The STOP-Selfharm version.
42 Informant 1, interview
both be defined as a process that aims to increase one’s ability to think critical and to act autonomously, and to the sense of self-efficacy caused by this process (Andersen & Funnell, 200, p. 278). The term Patient 2.0 is also related to the empowerment of the patient. The term Patient 2.0 is used to define the knowledgeable and independent patient. The internet and web 2.0 have made it possible to access relevant information in only a couple of key strokes. Instead of rely solely on the traditional health care system, a person can instead take more control of his or her own health by the help of different technologies.

The aspect of self-help is highly emphasized on the application series’ webpage where it is argued that the application series is “the first interactive self-help application made for mental problems in Norwegian” (SuperEgo, 2016c). The aim with the different functions is to be a tool when a person experience negative emotions. For example, the aim of the audio tracks is to be helpful when a person suddenly experiences negative emotions. This is again tied up to accessibility. When a person experience negative emotions, the aim of the application series is to be a tool that can be used there and now to help the person to overcome his/her problems. According to the interview, the aim of the application series is to help people that are on the way to acquire a mental disorder:

“in psychology we often distinguish between normality, psychological distress and psychological disorders. Psychological distress defines a state where you have some of the symptoms of a disorder such as the urge to drew up, but you don’t have bulimia, and it is a difference between being sad and being depressed. Between those two you will find psychological distress. The application is made for people that fall into this category. People that are on the way to acquire a psychological disorder and which therefore need some help to avoid this.”

Here Øverland argues that the application series is meant for people that are on the way to require a mental illness. However, this is not mentioned on the application series webpage or in the application. Rather some of the FAQs are related to issues that will be more relevant for people that experience mental illness, such as involuntary commitment. On the other hand, this could be information that is relevant for people that do not will be diagnosed with a mental illness. Also, some of the applications are related to behaviour that is considered to be more normal, such as jealousy and panic. This inscription process can thus also be related to the discussion on what is considered to be normal. As mentioned in chapter 2.2, the distinction between normal and not normal is related to historical and cultural context. A pathological state is defined according to an environment that could be political, technological and social.
The definition of the application series as a tool for people that are on the way to acquire a mental illness refers to both a social and a technological environment. However, not all of the application are directly related to a mental illness. One of the applications, STOP-Jealousy is developed to help people to overcome jealousy. The definition of jealousy as something that is considered to be either normal or abnormal is connected to the social environment that surrounds our modern society. Further, the distinction between normal and abnormality is connected to a technological environment where different mental illness is defined according to a set of measurements.

**Ethical concerns**

One central aspect when studying the use of ICT in mental health care is the ethical concerns in relation to the technology. As mentioned in chapter 2.7.2, there are four ethical principles in health care; autonomy, beneficence, non-maleficence and justice. Some people have expressed concerns regarding the use of ICT in mental health care in general. This aspect can be seen in relation to the first stage of SCOT, interpretive flexibility. According to interpretative flexibility, different actors will interpret a technological artefact in different ways. The term technological frame can be used to describe the different elements that influence how a certain social group defines a technology and can explain why a social group constructs a technology in a certain way (Lauritsen, 2007, p. 48). This can explain why some people are critical to these forms of applications, while others have a more positive attitude. According to Pinch and Bijker (1989, p. 41-42), since the content of a technological artifact is interpreted differently between different groups, this will lead different chains of problems and solutions between the social groups. For Case 1, some people will tend to focus on the positive aspects of this form of application such as accessibility and that it is easy to use, while others will have more negative attitude and argue that an application alone could not improve a person’s life.

The emphasize on the positive aspects can be related to the first of the ethical principles; autonomy. This form of technology can increase access to new forms of therapy and thus provide the individual with more choices. It can also be related to the second principle; beneficence. The application series can provide informative information and helpful functions that has the potential to reach out to a large number of people. The acceptance of the use of smartphone application can also be related to the second stage of the development of a technological artefact. This can happen in a set of different ways. One is called rhetorical closure and refers to how a group of actors try to convince other actors that the technology is
unproblematic. For the STOP-series this is apparent on the series’ webpage where it is emphasized that the application series is developed by professional therapist. This could increase the acceptance of the application series. A method is by changing the focus from one problem to another. This could be done by move away from problematize the application series to instead focus on the lack of professionals in mental health care.

There could be many reasons why some social groups are skeptical to this form of technology. Monica Andersen at the Regionalt Kompetansesenter for spiseforstyrrelser in Stjørdal, argues that an application could not create the support that a person diagnosed with mental illness will need. Further, she argues that a person that is diagnosed with bulimia needs to establish stable and clever relationships, which a smartphone application is not able to provide (Minsaas, 2014). This can be related to the therapeutic alliance between the therapist and the patient. It has often been argued that the relationship between the therapist and the patient is one of the most important factors during therapy and that technology alters this relationship. Some of the same concerns are also shared by the developers who said that one danger with this form of application is that some people could use this as a simple solution instead of seize the problem and try to seek a therapist\textsuperscript{44}. This aspect can be related to the third ethical principle, non-maleficence. According to Torous and Flirth (2016), many people feel a strong connection with their smartphone and place particular expectations upon their capabilities and it is difficult to interpret to which degree the smartphone in itself gives an effect or if it is the use of the application that causes the changes. The term “digital placebo effect” created by John Torous and Joseph Firth is used to describe the placebo-like effects experienced from mobile health interventions. They claim among others that it could be difficult to distinguish how much of the efficacy that is attributed to the treatment itself or the expectation of the high-tech treatment and the empowerment, which the patient could experience through the mastery of these self-management devices (Torous and Firth, 2016).

Øverland, on the other hand, argued that people tended to put too much attention on the negative aspect on the use of technology in health care:

“people are concerned with all the negative aspects of the digital, especially when it comes to social media. I recognize these aspects, but it is also some parts that are not utilized according to their capabilities among other within digital mental health and in digital health in general\textsuperscript{45}.”

\textsuperscript{44} Informant 1, interview
\textsuperscript{45} Informant 1, interview
Here Øverland reasoned that even though many people are concerned with the negative aspects of the use of ICT in health care, there are in general a lack of utilization of the capabilities of ICT in health care. Even though close relationships with other humans are important when it comes to the life quality for most humans, it is also a need to look for different types of artefacts that could improve people’s life. This can be related to the fourth ethical principle: justice. New forms of technology could be helpful in order to create a fairer distribution of resources.

5.2.2 Analysis of Case 2

This section takes a closer look on how ICT can change mental health care by study the eMeistring program. It will follow the same structure as the chapter on the STOP application. It will first discuss some of the differences of this form of therapy compared to traditional face-to-face therapy and then look at some of the ethical concerns that lie behind this form of therapy. According to William-Jones and Graham (2003, p. 273) actor-network is a system of alliance that is brought into existence by the actors involved, and includes both human and non-human elements. With the introduction of the program, the role of both patient and therapist is altered. The empirical material for this case is more comprehensive, which also reflects the length of this section.

**A more structured form of therapy**

All of the informants mentioned that the eMeistring program was more structured compared to traditional therapy. One of the informants expresses it in this manner:

“one of the differences is that in internet-guided therapy the structure is built into the program. In traditional therapy you usually have made a plan and has a clear structure for the therapy, but it is easy that it slips aside and you have to work to keep the structure.”

Compared to traditional therapy, the program enables therapist and patient to follow the intended plan, which through the interviews seemed as an appearing trait with the program. One of the informants describes what a typical workday looks like:

“On a typical day I have a list of patients. Something like 10-15 typically that I go through. The journal and the eMeistring-program where I see what the patient has done since last week. It is very structured and you can see what they have handed in and the questions day they have asked. Then I comment what they have done and

\[ 46 \text{ Informant 2, 1. 3. 2016} \]
perhaps remind the patients that haven’t been active. I sort of keep up a dialog through the program.”

In the program, the therapist is able to see what the patient has done and the progress from last week. The modules make it easy to follow the intendent plan and the therapist will know where and what the patient has been working on. One of the other informants further elaborates the communication between the therapist and the patient:

“Then it is just to log into the program and to see who of the patients that has sent a message, see what they have handed in since last week, look through and provide feedback on what they have handed in. Give them advices on how to work on the exposure and activities. And then we have a message board where we communicate with the patient. So there we answer incoming questions and requests and provide further advice\textsuperscript{47}. “

As both of the informants emphasize, the program enables the therapist to see and control what the patient has done since last week. In the traditional therapy session, where the therapist and patient are sitting in two chairs, facing each other, and where the patient is telling about his or her problem and the therapist is giving respondents and advices, could it be difficult to follow the intendent plan. The session may evolve into a conversation where the therapist asks questions that the patient could misinterpret or the patient is talking about issues that are not related to his or her problems. In the eMeistring program, the therapist is able to see what the patient has worked on since last time. As the patient is able to go into the program at all times, it is also easier for him/her to ask questions and to get them answered. However, according to one of the informants, the program could lead to some challenges:

”You are more structured in e-therapy. The patients receive a module where they first are to read about psychoeducation and the next is about thoughts. You follow a certain path. It is absolutely an advantage with e-therapy, however you also lose the possibility to customize the treatment to each patient. A person that doesn’t need to have activities still goes through this in the modules. So it is often better in traditional therapy where you have better possibilities to adjust the treatment for each patient\textsuperscript{48}.

As this informant argues, could the strict structure of the program make it difficult to customized for each of the patients. On the other hand, the therapist has the possibility to make the program more tailored. As one of the informants says it:

“I have the possibility to see when they have been logged in to the program, what they have been reading, what they have handed in and things like that.

\textsuperscript{47} Informant 3, 1.3.2016
\textsuperscript{48} Informant 3, 1.3.2016
And if they have asked any questions I have to understand it and try my best to formulate a useful response49”.

As the program makes it possible for the therapist to see when and what the patient has read, it is possible for him or her to provide feedback that will match what the patient has done and read through the week. Here the informant discusses an important aspect in relation to how the different actors in the network that surrounds the program affect each other. The program makes it easier for the therapist to follow a plan, however, the therapist is not able to customize the therapy for each patients.

The role of the patient

Both the interviews and the program`s webpage describe how the program redefines the role of the patient. As mentioned in chapter 5.1.2.2, the program causes the patient to take more responsibility in the therapy by reading and doing exercises. One of the informants also emphasizes this:

“The patient is more active in his/her own therapy. The patient needs to do assignments and to create own tasks related to exposure50 for instance. So it becomes more of a collaboration. In traditional therapy it is more like I sit and tell about therapy and that I am the one that gives the most, while here the patient takes more responsibility51”.

Here the informant describes how the program has made the patient more active in the therapy. Instead of sitting in the traditional therapy room where the patient is told about his or her problems and the therapist is giving advices on what to do, the program enables the patient to take more control of the treatment. On the other hand, this also requires more of the patient and the patient is more one its own. According to (Brodersen & Lindegaard, 2015, p. 77) becoming a Patient 2.0 requires that the patient takes more care of oneself and the patient also must understand the information that is provided to him/her. With more responsibility, there are also more demands and people that have severe depression or anxiety are excluded from the program. As one of the informants says it:

” That we thought is that some demands are made to the patient. You may not be too depressed because then you, you do not have the motivation to work on your own, you are not that independent. If you have problem concentrating it would

49 Informant 2, 1.3.2016
50 Means that the patient exposes himself or herself to things and places that causes psychological distress as a part of the therapy.
51 Informant 4, 1.3.2016
make it difficult to get a grasp on the content in the program and you will instead be offered a spot in the polyclinics.52

Here the informant describes how the structure of the program makes a distinction between those that are capable to follow the program and those that are too depressed or anxious. A person diagnosed with a heavy depression or anxiety is not allowed to enter the program. It is the therapist that decides who that is allowed to begin the program, this provides the therapist some authority. Further, the therapist is still important through giving advice, answering question and making sure the patient has followed the program. However, compared to traditional therapy, the patient takes more responsibility in the eMeistring program. This stands in great difference to the Parsonian interpretation on the clinical encounter mentioned earlier, where the power and knowledge transfer occur in a linear manner that causes an asymmetrical shaping of the involved actors (Lupton, as referred in Langstrup et. al., 2013, p. 46). The impression from the interviews is that the asymmetrical relationship that was expressed by Lupton (ibid.), is not that apparent in the eMeistring program.

The changed role of the patient is a result of many different actors that both affect and are affected by this technology. The program redefines the role of the patient, by give him/her more control over the treatment through the content in the modules. This enables the patient to take more control over own treatment and to acquire a better understanding of the causes of mental illness. This can be seen in relation to the definition of the Patient 2.0 as described by Langstrup et. al (2013). To understand this process it is necessary to have a multi-dimensional approach towards this network to see how the different actors affect each other. Even though the program has transferred some of the control from therapist to patient, the therapist still has an important role in this process through the communication with the patient. One of the informants describes it in this way: “(…) they send in questions and comments and I will then try to understand and formulate the most useful feedback.53”. Through the feedback, the therapist will to the patient present an interpretation of his/her understanding of the development of the therapy, which in turn may affect the patient`s interpretation on the treatment. The patient also has an impact on his/her role in the therapy. Even if both the program and the therapist transfer more of the responsibility to the user, it is not said that the patient will take more responsibility. Some patient will also feel that this form of treatment has too much requirements and therefore drops out.

52 Informant 3, 3.1.2016
53 Informant 2, 3.1.2016
**Changed role of the therapist**

As the program enables the patient to take more control of his/her treatment, the role of the therapist is sub-consequently also changed. One of the informants provide an elaboration:

“If you are treated by a therapist it is more self-guided so it does in many ways fit with CBT because it is a lot of cooperation between the therapist and the patient. It is not that authoritarian in a way. It is even less authoritarian compared to traditional CBT therapy. (…) One of the ideas behind this program is that we work together. We sit together and discuss the problems and then we agree on how it is connected and what the patient should do onwards. Compared to more traditional therapy where the therapist sits there and the patients there. Just like being on your GP’s office where you are told what is wrong with you and what should be done and then you just do that. Cognitive therapy is to a small extend hierarchical to begin with. It is built around an independent patient. In self-guided treatment this is even more emphasized. More of the responsibility lies on the patient. You [the therapist] becomes more of a guidance than a therapist.”

Here the therapist describes how the program has changed the role of the therapist compared to traditional therapy. The therapist uses the term “self-guided treatment” to describe the therapy, which further emphasizes the changing role of the therapist. The term guided describes the changed role of the therapist, where the therapist has become more of a guidance rather than merely a therapist. As more of the responsibilities lies on the patient, the therapist takes a less authoritarian role during the treatment. However, it is important to mentioned that the program does not determine that this will happen, but that it instead makes the alternation possible. The patient and the therapist still have the possibility to define their roles in the program. For example, if the patient wants more support, it is possible for the patient to receive extra support by the therapist.

One of the informants describes how the program changes the way in which the therapist and the patient communicate:

“I tend to ask what you could do in a certain situation, what you can do to challenge it, or that the patient just does it. Through the program I can see it afterwards. But it could also be that I make suggestions if the patient asks for help or is stuck, then I am happy to make suggestions or provide further explanations to the text. But the text is often plenty in itself. Many patient experience sort of an alliance to the text, that the text gives what the therapist would normally provide.”

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54 Informant 2, 1.3.2016
55 Informant 4, 1.3.2016
Here the informant describes the communication between the therapist and the patient. The therapist asks questions as a way to help the patient to find the right path. It seems here that the therapist is more in the background compared to traditional therapy, while the patient takes more of an active role. Even though the patient sometimes asks questions and the informants then make suggestions on what to do, it seems through the interviews that the therapist has less control of the therapy compared to traditional therapy. The informant also argues that the text in many ways works as a substitute for the therapist. One of the other informants also supports this:

“I feel that it sometimes is a mix between a therapist and a guidance, you both explain how the therapy works, and sometimes it is more therapy where we together try to find a solution. The therapist is more supporting.”

This therapist supports many of the same arguments as the previous informant and argues that there is a mixed role where depending on the situation, the therapist takes the role as both therapist and guidance. It seems through the informants that the role of the therapist is more fragmented; sometimes the therapist only needs to tell the patient how the therapy works, but sometimes the therapist needs to take a more supporting role where the therapeutically role become more clear:

We sit together and talk about the problems and discuss it and then try to come to an agreement on how it adheres and what is smart to do ahead, in contrast with traditional therapy where the therapist sits in one chair and the patient in another one. Much like when you are in your GP’s office where your GP tells you what the problem is and what should be done next and then the patient should just do this. CBT is in a very small extend hierarchical to begin with. It emphasizes that the patients are active during the therapy. In guided self-help this is to a larger extent underlined. More of the responsibility goes to the patient. One becomes more of an adviser than a therapist.

The informant here describes some of the differences between the eMeistring program and the traditional GP-office. The structure of the program makes it less hierarchical and authoritarian. The informant describes it in this manner: “One of the ideas behind the program is that the therapist and the patient are supposed to work together. We sit here and talk about the problems and discuss them and then agree how it adheres and what is wise to do ahead”. The changing role of the patient and the user can be in relation to the program itself. Compared to traditional

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56 Informant 3, 1.3.2016
57 Informant 2, 3.1.2016
58 Informant 2, 3.1.2016
therapy where the therapist has most of the information, the program provides the patient with more knowledge. This enables the patient to participate more in the treatment.

**More people could receive treatment**

One of the clearest benefits with eMeistring and e-therapy, is that this form of therapy makes it possible to receive treatment without being in the same location as the therapist. According to the program’s homepage, this has the potential to strengthen the offer for people with psychological disorders. This form of treatment also has the potential to reach out to groups of patients that otherwise would not seek help for their problems (Helse-Bergen, 2015).

Furthermore, for many people it is difficult to go to therapy due to other commitments such as work, school and family. One of the informants also emphasized this: “And this whole internet thing is very nice because then they [the patients] can work according to their schedule. They don’t need to go to the polyclinics every week, which for many is a lot of effort”. The eMeistring program has enables the patient to work with the program according to their schedule. Further, as previously mentioned, the program enables a therapist to have more patients and thus increasing the availability for each of the therapists. Because of that, this form of treatment could allow more people the possibility to receive treatment.

Further, some people do not feel comfortable in traditional therapy, and the eMeistring program could be a good service for these people. The technology (the program) enables the patient to receive proper mental health care a home, which for some people are more comfortable. The patient has the possibility to sit at home, reading and doing the assessment required in the different modules. Being able to receive proper health care at home could also cause fewer stigmas. Through the program, the patient is able to communicate with the therapist without see him and for some people can this be more comfortable. One example could be boys and young men. Studies in Norway have indicated that women to a larger extend tend to consult help for their mental problems (WHO, 2016b). According to one of the informants is it often easier for young men to write about their problems instead of talking about it face-to-face.

**Psychoeducation**

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59 Informant 3, 1.3.2016
60 Here defined as mental health care delivered by a professional health care worker.
61 Informant 3, 1.3.2016
ICT opens up for the possibility to send information in writing in just a couple of seconds. As almost all of the communication between the patient and the therapist occurs through the program, most of the communication is in the written form. This opens up for new possibilities to share information. This aspect also is related to the term psychoeducation. According to *helsekompetanse.no*, psychoeducation is a term used to define a systematical, structural and didactical form of treatment where the aim is to teach the patient and relatives about the mental illness. The fundamental notion behind this treatment, is that through learning about own disease, the patient will be able to manage the condition (Stiftelsen NOR, 2016).

As for the eMeistring program, the program is based on many of the principles of psychoeducation. One of the fundamental principles of eMeistring is that the program is based on learning. This has, according to the program’s homepage, many positive effects. According to the program’s webpage, knowledge that is learned become a natural part of the reaction system and this knowledge will be saved and used after the treatment is finished (Helse Bergen, 2016a). According of its previous patients, eMeistring is the first form of therapy that has given them proper explanation on the mental processes that occur during depression or anxiety (eMeistring Intro, 2015). This is also emphasized by Jensen (2014, p. 48). She argues that written guidance increases the user’s self-understanding because the patient becomes more aware of his/her thoughts. This can in turn increase the understanding of the aims of the treatment.

**Ethical concerns**

As with Case 1, the eMeistring program present some ethical concerns. The four ethical principles autonomy, beneficence, non-maleficence and justice are discussed in relation to the eMeistring program. The program can be a choice for people that do not feel comfortable in traditional therapy. This aspect can be related to the principle of justice. The program also enables the therapist to have more patient, which could increase access to mental health care. It also makes it possible for people to go to therapy without take time of work or school. These two aspects are related to the principle of beneficence and to the principle of distributive justice.

Compared to traditional therapy the therapist and the patient communicate in written form. As written communication has the possibility to make (almost) everything that is ever said to be permanent, this requires that the therapist is more aware on how to communicate with the patient. One of the informants expresses it in this way:
“It is a little bit different from face-to-face therapy. It does something to write things down, it will be permanent, everything will be saved in the program so I have been noticing that I have paid more attention to how I express myself and that I use more time, especially in the beginning. It took a little time to be comfortable to talk with the patients through [written] text.”

Here the informant expresses how the program has made the process of corresponding back more time-consuming. This is also supported by one of the others informants as well:

”It could be a little difficult sometimes that you send messages to the patient and you do not meet them. It requires a lot of a therapist when sending messages to a patient, things could easily be misunderstood, so you have to be extra conscious about that. We use a lot of time on this.”

Further, as the structure of the therapy is different compared to traditional therapy, it is necessary to take different considerations. In written communication you will lack cues such body language, mimics and intonation when trying to understand what the other person wants to say or when trying to see the response to the other person. It is easier to make hasty decisions and to make wrong assumptions (Jensen, 2014, p. 62). As one of the informants express:”(…) we don`t see the patient when we are writing, so we don’t know how the patient will react and have the possibility to go further on with the issue. Mostly it is okay. We encourage the patients to provide an honest feedback as well. The ways which eMeistring is structured could also make the patient`s problems more distanced. As one of the informants says it:” it does not feel that intense. If you have a bad day it would not make as much impression when you receive a message compared to when you see it with your own eyes. Further, the use of written communication also gives the possibility to reflect more over what the other one writes and to respond back (ibid.). This is also supported by one of the informants:

“the respondents are perhaps a little bit more thought through because you do not need to answer right here and now. In traditional therapy, it is more focus on the present details, but it is a difference. You need to think more before you answer. Perhaps it is more distance compared to a regular class.”

As the informant argues, the program creates a greater distance between patient and therapist. This allow more time to reflect over how to respond back. It also allows more distance to the problems. If the patient has had a severe outbreak, it is difficult for the therapist to see to which degree this has affected the patient only through read what the patient has written. These aspects

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62 Informant 4, 3.1.2016  
63 Informant 3, 3.1.2016  
64 Informant 3, 3.1.2016  
65 Informant 2, 3.1.2016  
66 Informant 2, 3.1.2016
are related to the third of the ethical principles, non-maleficence. Non-maleficence is also related to the aspect of privacy. It is important that the content conversations between therapist and patient is stored safely. Furthermore, the therapist is able to log into the program through their own computer, it is important that they log out of the program after they are finished.

Some of the challenges by the lack of important cues such as body language and mimics can be weighted up by using other forms of cues. One example is smileys. One of the informants says the use of smileys can compensate for the lack of body language. However, it has some challenges:

”When it comes to smileys the patient in a way controls this. I am not the first to use smileys, but if the patient uses them I would use it back, but I try not to use them that much. (...) It is important to be professional and not loosen the tone too much. (...) I never use smileys that indicate anger and sadness, even though the patient uses it a lot. I am very conscious about that. I usually use smileys when something is positive, or to show that I support something I think is good”.

Here the informant discusses some of the concerns in relation to the use of smileys in therapy. For example, it is important to see the use of smiley in relation to the role as a professional health care worker and that some sorts of smileys therefore should be avoided. This view is supported by Jensen. Even though she argues that smiley could be used to avoid misunderstandings, the therapist may be seen as little emphatic and frivolous when using them too often (Jensen, 2014, p. 54). As mentioned earlier, some patients have problems with the program itself. For some people, especially older people, it could be difficult to use a computer and especially if the program is difficult to understand. The program could be in obstacle in itself both because it requires certain knowledge of the patient and because the program sometimes experiences technical problems. According to one of the informants are most of the patients not that critical towards the software, even though it sometimes takes time for some of the patients to get adjusted to the program.

5.3 How can ICT affect mental health care?

As seen in the previous part of this chapter, both cases have given insights in relation to the use of ICT in mental health care in Norway. This section will use some of the findings from the two cases to answer the main research question: “how can ICT affect mental health care?” The

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67 Informant 4, 3.1.2016
68 Informant 2, 3.1.2016
question already creates some forms of assumptions. According to Latour (2005, p. 6) the introduction of a new technological artifact will make us reshuffle the conceptions of what has been previous associated together. The introduction of ICT in mental health care will redefines previous associations, where the association between the therapist and the patient will serve as one example. For Case 2 this is particular evident where the introduction of the program redefines both the role of the therapist and the patient. According to Oudshoorn (2008, p. 273), technology plays an important role in the delegation and redistribution of roles among health care workers, between health care workers and patient and between humans and non-humans.

According to Brodersen and Lindegaard (2015, p. 75) the introduction of technology will “transform the patient-healthcare relationship into a patient-machine-healthcare professional interaction”. Here the two researchers describe how technology changes the relationship between the therapist and the patient in which technology works as a mediator between the two actors. Mort et. al. (2003, as referred in Brodersen & Lindegaard, 2015, p. 75) uses the terms “remote doctors” and “absent patients” to describe this process. These two terms are used to describe how technology can create a physical distance between patient and health care worker. This aspect is in particular evident for Case 2. For Case 1, the two terms can be seen in a much wider perspective. New forms of smartphone application have the potential to change how therapist and patient communicate.

5.3.1 Access to mental health care

Increases access to mental health care through the use of ICT was emphasized in both cases. In Case 1 this can be seen in relation to how the application series is created to be a tool for people that needed help when they are on the go or for people that needs an extra tool to help them work through their problems. As it mentioned before, the aim of the application series is to be a device for people that suddenly experience symptoms of mental illness, such as the wish to throw up, to do self-harm or anxiety attacks. It also deals with the issues around stigma. For some people can these forms of application be the first step to seek help before they feel comfortable enough to consult their GP (Anthes, 2016, p. 21). For Case 2 the aspect of accessibility is two-folded. First, it enables each of the therapists to treat more patients compared to traditional face-to-face therapy. It is thus more time and cost-effective, because it makes it possible to treat more patients with the same numbers of therapist. Second, the program makes it easier for people to go to therapy because it does not require the patient to take time of job or school to go to therapy. It could therefore make therapy more accessible. The program
can also bring more people to therapy. Jensen (2014, p. 49-50) suggests that the shame that some people feel when they are not able to manage their own life works as a barrier to seek help. This form of therapy may feel more comfortable for those people. It is easier to be more anonym and the person is spared the situation to sit in the waiting room and to feel being observed (ibid.).

ICT has the potential to make mental health care more available by simplifying the communication. It further has the potential to change mental health care through introducing new forms of techniques. There are many ways in which ICT can be used in mental health care and the two different cases represent two different examples. However, in both of the two cases, as with other forms of ICT, the technology is only used as a remedy. This is especially apparent for Case 2, where the program enables the therapist and the patient to communicate even though they are not in the same location. The program simplifies the communication between the therapist and the patient. According to Latour (2005, p. 71), this defines the technology as an actor or participants in the course of the action. It does not mean that these actors determine the action to the other actors, but rather that they serve as tools that can steer the action of the other actors (Latour, 2005, p. 72). For Case 1 this is relevant when it comes to how the technology is developed. The aim of the application is to be an extra device for the user for particular difficult situations. However, the user can still choose whether to download it or to use it.

According to Pinch and Bijker (1989, p. 40) technological artefacts are culturally constructed and interpreted. Today, a large part of the modern society is dependent on ICT. The interpretation of ICT as an actor that can make mental health care more accessible, is a reflection on how social groups defines the technology. As mentioned, some people are more skeptical to the use of ICT in mental health care, while others are more positive. The process of the stabilization of ICT is the next step. As Pinch and Bijker (1989, p. 44) argues, there are two different methods in which an artefact is stabilized: rhetorical change and redefinition of the problem. When it comes to the use of ICT in mental health, the first method can be related to research, as more research support the use of ICT in mental health care, more likely it could be that more people support it. The second method is related to the argument that ICT can increase access to mental health care. It becomes a solution for another problem (Pinch & Bijker, 1989, p. 46).

The emphasize on ICT in health care is also a political matter. The Norwegian government underlined in Meld. ST. 9 (2012-2013) Én innbygger- en journal, the importance of exploiting
the possibilities that lies in technologies in order to achieve the health political goals that have been set. Further, in Meld St. *Folkehelsemeldingen*, the Government pointed out that it is important to exploit the possibilities that ICT could create in relation to a smoother meeting with the public sector with unlimited hours, higher quality standards, an increase in economic growth and better solutions (Meld. St. 19 (2014-2015) p. 43). The use of ICT in mental health care has not yet achieved the same amount of attention. However, Meld. St. 19 *Folkehelsemeldingen* (Meld. St. 19 (2014-2015), p. 23) emphasizes that more people should be able to experience good mental health care independently on social status and that better forms of treatment and more focus on preventive work must be emphasized. As the last sections has discussed, the definition of ICT as an entity that could increase the access to mental health care is a reflection on how different parts in society play an importance in this interpretation.

### 5.3.2 A more structured form of therapy

In the eMeistring program all of the informants claimed that the program is more structured compared to traditional face-to-face therapy. As the program is following a series of modules, it is easier to follow the indent plan. In the interviews, it was emphasized that in traditional therapy it is easier to make digressions during a therapy session, while the eMeistring program made it easier to keep up with the intended plan. Further, it was also emphasized that it is easier to see how the patient progresses throughout the therapy. While a more structured form of therapy was for the most part defined as a positive trait, it was also argued that this could make the therapy less personalized and that this could cause some people to drop out of the program. Through the conducted interviews, the impression is that the program creates a more fixed form of therapy because it has a build-in structure. The program undertakes some of the responsibility that the therapist has to lead the therapy. The program also enables the therapist and the patient to go back and see what previously have been done and said. In both of these aspects the technology takes over some of the responsibility of the therapist.

### 5.3.3 Patient 2.0

The use of ICT can give rise to potential new ways to receive therapy. It also enables the patient to take more control over own health. Both of these aspects are tied up to the concept of the term Patient 2.0. Langstrup et. al. (2013, p. 45) use the term Patient 2.0 to define the changed role of the patient caused by the introduction of new forms of technology. Further, they argue that the introduction of ICT can lead the patient away from the traditional Parsonian definition
to a more “a knowledgeable, self-caring and self-managing” patient (Langstrup et. al., 2013, p. 46). Through the access of information, the patient will become empowered (Brodersen & Lindegaard, 2015, p. 74). This is especially evident for Case 2. Here it was emphasized that the program is structured in a way that makes the patient takes more control during therapy compared to traditional therapy. The term Patient 2.0 is here apparent through a form of therapy that is structured in a way that enables the patient to take a more active role in own treatment. During the program, the patients are supposed to read and to exercises by themselves, which grant the patient more responsibility of own treatment. The therapist, on the other hand, is more of a guide, compared to traditional therapy. This symbolizes a changed role, both for the patient and the therapist.

Mort et. al (2003, as referred to in Brodersen & Lindegaard, 2015, p. 75) uses the two terms “remote doctors” and “absent patients” to describe the changed role of the therapist and the patient caused by the introduction of ICT. These two terms imply that technology creates a physical distance between the health care professional and the patient. This can also give rise to new challenges. According to Oudshoorn (2008, p. 273), ICT can make the professional health care worker miss the possibility to physically see the patient and thus run the risk of missing important information about the patient’s health. Further, for the patient this may imply that the relationship with the professional health care worker becomes less long-term and well-established (ibid.). The last aspect is closely related to the therapeutic alliance. Without the possibility for the patient to establish a close relationship with the therapist, it is difficult to establish any form of alliance. However, the introduction of ICT has the potential to create new forms of relationships. According to one of the informant in Case 2, the text is often enough in itself. Many of the patients feel sort of an alliance with the text and that the text provides what the therapist would normally provide. This was previously discussed in section 2.5.3, where it was argued that the therapeutic alliance was less important in ICT-mediated therapy and that the of the patients/users instead felt a connection with the program.

Even though the term patient is only applicable for the second case, the term Patient 2.0 also is transferable to Case 1. The application series creates a new way for a person to access support and thus enables the person to take more control over own health. According to Brodersen and Lindegaard (2015, p. 74), new forms of technology has the potential to give rise to a more empowered patient. This was also emphasized by Øverland. He argued that the possibility to

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69 Here: mental health care worker  
70 Informant 4, 3.1.2016
listen to the audio tracks could be a part of the empowerment of the patient. Further, he relates accessibility to the empowerment of the patient. This was also emphasized by Hollis et. al (2015, p. 263) who argue that e-mental health is not only about technology, but also about cultural change where the patients are empowered to take greater control through the use of 24/7 online psychological interventions. New technologies such as sensor technology, mobile applications and remote video consultations have the potential to make mental health care services more flexible and tailored for each individual needs (ibid.). For Case 2 this is evident through the structure of the program. The program enables the patient to follow the treatment according to own schedule. The program also grants the patient more control over own treatment.

Another aspect that is relevant in relation to Patient 2.0, is that ICT has the potential to make a better offer for people according to their needs and preferences. As mentioned, for some people could ICT-mediated therapy be more preferable compared to traditional therapy. This aspect was discussed by the informants in Case 2. Here it was argued the program enables the patient to go to therapy which did not conflict with other parts of their lives such as work, school and family. Further, some people may prefer to write to their therapist instead of express themselves orally. ICT makes it easy to communicate in the written forms between therapist and patient. Further, some people may find it uncomfortable to talk to a therapist face-to-face and would instead prefer to communicate more at distance. The use of ICT can strengthen the self-determination of the patient by enable the patient to decide when and where she/he wants to receive therapy. It also grants the patient more control over own therapy.

5.3.4 The role of the therapist

The term “remote doctors” does in many ways describe the changing role of professional health care workers that technology may cause. Instead of sitting in the traditional therapy room where the therapist and the patient have predefined roles, ICT has the potential to alter these roles. In Case 2, one of the therapists argues that it is less authoritarian compared to traditional therapy71. This was also supported by one of the other informants: “I can be a little bit more controlling in traditional therapy, while here I let the patient take more control72”. Both of the informants argue that the program has made them less controlling. What mechanisms that are behind this

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71 Informant 2, 3.1.2016
72 Informant 4, 3.1.2016
change, are difficult to know from the empirical material from this thesis. However, the program changes the structure of the therapy both through enabling therapist and patient to communicate regardless of time and place and through provide the patient with more knowledge and control over own therapy.

For Case 1, the role of the therapist is not that relevant. However, the application series can work as an example on how technology enables professional health care workers to pass their knowledge to a much broader audience. Further, it can serve as an example on how technology could make the professional health care worker “less important”, in that way that the person using this application does not need to consult a therapist to listen to audio tracks and find information. New forms of technology such as heart rate monitoring and mood tracker have the potential to both provide health care professional and patient with more knowledge about the patient’s mental health. These forms of technologies also provide the citizen with possibilities to track own health without consulting a therapist.

What consequences ICT may have on the role of the therapist is difficult to predict. There has in the last couple of years been a discussion on how technology could change the labor market in the future. Many types of occupations such as telemarketer, sales personnel and clerks are prone to disappear in the future. According to a research done by Stiftelsen för Strategisk Forskning in 2014, psychologist is one of the occupations that are less likely to be replaced by computers or robots (Stiftelsen för Strategisk Forskning, 2014, p. 13). Even though that it is less likely that therapist will be replaced by robotherapist\(^73\) in the near future, there are a great possibility that technology, and in particular ICT, would change mental health care and the role of the therapist in the future. The possibilities for therapist and patient to communicate regardless of time and place and for the patient to monitor own health have the potential to make changes in the way people receive therapy.

5.3.5 Democratization of mental health care

This section will move a bit further and discuss some of the consequences that ICT may cause in relation to democracy in mental health care. The term democracy has a set of different meanings. Statsvitenskaplig leksikon defines democracy as a term that refers to both liberty and equality. While the term liberty refers to a collective self-governance where each of the

\(^73\) A term that is constructed by the words «robot» and «therapist» and that describes a robot that works as a therapist.
individuals in a community decides the content of the decisions that they follow, the term equality refers to the principle that all citizens should have the same amount of influences to legal decisions (Palle Svenson, 1997, p. 39). Both of these two terms are relevant in relation to the use of ICT in mental health care.

The first term for democracy, liberty, is for this case related to how ICT has made it easier to share information and knowledge. As referred to Marthinsen in section 2.2, social media platforms such as Facebook, Twitter and blogs have both made a more fragmented political agenda and made it easier to be open about own mental health. Both of these elements have given rise to more attention on mental health. Throughout the history the definition of normality has been changed. Further the treatment and knowledge of mental illness has changed; From consider people with mental illness as someone that should be excluded from the rest of the society, to build a health care system that treated them according to empirical research to make it easier for people with mental illness and mental distress to take a more active role in their own treatment. ICT has the possibility to provide more people a chance to share information about own lives and thus also give rise to more acceptance regarding mental illnesses. Many people feel that it is easier to share information about their problems on the internet.

The second term for democracy, equality, is for this case related to how ICT has changed the relation between the therapist and the patient. As previous chapters have discussed, the use of ICT in mental health care changes the role for therapist and patient. One of the informants argued that the use of ICT can lead to a more democratized mental health care. New forms of technology can interrupt and change the role of both the patient and the therapist. Technology both enables the patient to seek information about own health and to monitor own health. Especially the first aspect is important. The introduction of ICT enables the patient to take more control over own health and thus make the relationship between the therapist and the patient more equal.

The use of ICT in mental health care may create a form of therapy that is less dependent on the therapist’s opinion and knowledge. As mentioned earlier, ICT could open up for new approaches to share knowledge, and the use of ICT could thus lead to a more equal form of therapy where the patient has more knowledge about own health. More accessible forms of knowledge could also affect the therapist. This aspect was also discussed by (Hollis, et. al., 2015, p. 264), who argued that assessments and diagnosis often are based on subjective judgements often grounded on the patient’s symptoms and behaviors, while new forms of
technology have the potential to make this process more objective. While this aspect is more related to diagnosing, this also could be seen in relation to a form of therapy that is more in accordance with research instead of on the therapist’s personal preference. This was also mentioned by one of the informants in Case 2:

“(…) technology in therapy makes information more accessible. The patient receives more information. They can search for information and see what that exists. This could make therapy more streamlined. It becomes easier and more common that the therapy is more based on facts and less on the preference to the therapist”.

Here the informant supports the statement to Hollis et. al., that ICT both enables the patient to find information that could help him/her find the best suited treatment and that it could make it easier to create forms of therapy that is more in accordance with research. ICT can grant the patient more influence on the form of structure of therapy and make it possible to develop forms of therapy that is based on research.

74 Informant 2, 3.1.2016
6 Conclusion

In today’s society, mental illness is one of the three leading causes of disability in the world, and causes immense costs for both the individual and society. However, it is today a lack of health care professionals and there are long waiting lists to receive mental health care. This causes many people to wait in line for a long time before they receive therapy. Today, there is an ongoing discussion on how ICT and other forms of technology could make health care more time and cost-effective. When it comes to mental health care, there has not yet been the same amount of attention when it comes to the possibilities in the use of ICT. Furthermore, some also argue that mental health care until recently has been in the shadows of other parts of the health care sector. However, the has been an increase in focus of mental health care, both in society and in politics. In Meld. St. 19 (2014-2015) Folkehelsemeldingen, mental health care was introduced as an area of priority. It also emphasized a need for better treatment and an increase in attention on prevention work.

ICT has changed the way people interact and search for knowledge. This is also apparent in health care. New forms of technology enable people to communicate with health care professionals in new ways and to gather information about own health without consulting a specialist. This thesis has taken a closer look on how ICT is used and how it affects mental health care. As the two indicates, ICT has the potential to both change the role of the therapist and the patient and to provide better access to mental health care. The theoretical framework of STS has given new insight in how technology both affects and is affected by actors in mental health care.

5.1 How could ICT change mental health care?

The two cases differ in how ICT is used. The first case, the SuperEgo application series, is a smartphone application developed with the aim to help people that are on the way to acquire a mental illness. The second case, eMeistring, is a program developed by Helse-Vest, with the aim to treat people with different forms of mental illnesses through the use of an internet delivered program. As discussed in chapter 1.2, there are three different ways in which ICT may be used in mental health care. For Case 1, ICT makes it possible to develop an accessible tool for self-help that only requires that the person has access to a smartphone. In Case 2, ICT enables therapist and patient to communicate without being in the same location and regardless of time.
One of the most evident consequences on the use of ICT in mental health care, is that it could make mental health care more accessible. In Case 1 this is evident through the use of the smartphone as a platform for the technology. As smartphone is a device that most people carries at all times, this is a platform that has potential to has the potential to reach about to more people during all sorts of situations. In the case of eMeistring, the program both makes it possible to go to therapy without taking time off work or school and to potential be an offer for people that do not feel comfortable in traditional face-to-face therapy.

As a form of technology, ICT affects other actors in the network. The term patient 2.0 has previously been used to define the new and emerging role of the somatic patient, who both is more knowledgeable and who takes more control over own health. This thesis has indicated that this term also is applicable for mental health care. In Case 1, this was evident in how the application could make it possible for the user to receive help and to listen to pre-recorded audio tracks of a psychologist; whenever; wherever. In Case 2 the informants emphasized how the program made the patient seize a more active role in their own treatment compared to traditional therapy. Through technology, a new form of patient could emerge, who is both more knowledgeable and independent. This could also be seen in relation to the ethical discussion concerning patient’s autonomy.

With a more participating patient, the role of the therapist also could be redefined. In Case 2, it was argued that the eMeistring program has made the therapist less authoritarian compared to traditional therapy. The therapist is not merely a therapist, but also a guidance that is more in the background. New forms of technology have the potential to alter the role of the therapist. ICT also enables the therapist to share their knowledge to a larger audience. To understand this process, ICT as a non-human actor has to be studied in the same manner as the human actors in this network.

The changing role of the patient and the therapist can also be seen in relation to a more democratized form of mental health care. ICT both makes information more accessible and easier to share information and stories about own mental health. This can lead to more openness regarding mental health care. The term democratization also refers to a more equal form of therapy, where the patient is participating more in own mental health care, through the access of information and the possibility to monitor own health.
5.3 Concluding remarks and suggestion for further research

It is evident that ICT has the possibility to change mental health care. This is especially apparent when it comes to the changing role of the patient as characterized through the term Patient 2.0. This indicates a move from the traditional patient role, defined as the Patient 1.0. Furthermore, the use of ICT could also increase accessibility to proper mental health care, whereas today, there is a long waiting line to receive help. ICT can also be used as a remedy for people who are developing problems. This thesis has also given rise to new questions and ideas for further research. Some examples are the need to study more profound how ICT changes the role of the patient and the instruments that cause this. A more thorough study of the term Patient 2.0 in mental health care, is also an interesting topic for further research. Further, there is also a need for more research on the patient/user’s interpretation of ICT in mental health care.

As a concluding remark, it is evident that the use of ICT has potential to increase access to mental health care. However, it is still difficult to provide a clear answer to its effectiveness, and further research is therefore needed. Furthermore, ICT in mental health care also raises some ethical concerns in relation to privacy and the empirical support of programs, applications and other forms of technological artefacts that aim to improve the mental health for people.
7 References:


Clarke, J. et. al. (2016). Therapeutic Alliance With a Fully Automated Mobile Phone and Web-Based Intervention: Secondary Analysis of a Randomized Controlled Trial. *JMIR Mental Health*, 2016 Jan-Mar; 3(1): e10


8 Appendix:

Appendix 1: interview guide with the therapists at eMeistring:

Spørsmålsguide til terapeuter:

Intervjuet vil være et semi-strukturert intervju bestående av overordne spørsmål omkring ulike temaer, med tilhørende stikkord under.

1. Bakgrunn:
   - Utdanning.
   - Jobberfaring.
   - Tidligere erfaring som terapeut.
   - Tidligere erfaring med e-terapi/bruken av teknologi i terapi.
   - Hvordan kom du bort i dette prosjektet?

2. Jobben som terapeut på eMeistring:
   - Forklar kort hva du gjør på eMesitring.
   - Fortell litt om en typisk arbeidsdag for deg på eMesitring.
   - Kommunikasjon mellom deg og pasientene.
     i. Hvordan foregår dette?
     ii. Har du møtt pasientene på forhånd?
     iii. Hvilken erfaring har du med tilbakemelding til pasientene?
   - Hvordan forholder du deg til diagnoseverktøy (ICD-10 f. eks) i behandlingen?

3. Erfaring omkring e-terapi:
   - Hva er din erfaring med e-terapi som en terapiform?
     i. I forhold til ulike diagnoser (depresjon, angst, panikklidelse).
        1. Graden av en lidelse.
     ii. I forhold til tradisjonell terapi (her definert som et fysisk møte mellom terapeut og pasient.
     iii. Hvordan føler du at din rolle som terapeut fungerer i eMeistring?
     iv. Har du fått noen tilbakemeldinger fra pasientene om denne formen for terapi?

4. Bruken av teknologi i psykoterapi (denne delen vil fokusere mer på generell bruk av teknologi i terapi):
   - Hva er ditt generelle forhold til bruken av teknologi i terapi?
   - Hvordan stiller du deg til kommunikasjon mellom pasient og terapeut via smarttelefoner?
   - Hvordan stiller du deg til bruken av nye teknologier som f. eks virtual reality i terapi?
   - Hvordan ser du for deg at psykoterapi vil foregå i fremtiden (tidsperspektiv: 20-30 år)?
Appendix 2:

Response from Norsk samfunnsvitenskapelig datatjeneste AS regarding on the project description.