

TECHNOLOGICAL IMAGINARIES & TECHNOLOGICAL DETERMINISM: ALGORITHMS MEDIATING A BETTER TOMORROW?

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MA Thesis

November 2020

Tiedekunta – Fakultet – Faculty Faculty of Social Sciences		Koulutusohjelma – Utbildningsprogram – Degree Programme Master's Programme	
Tekijä – Författare – Author Julia Granroth			
Työn nimi – Arbetets titel – Title Technological Imaginaries and Technological Determinism: Algorithms Mediating a Better Tomorrow?			
Oppiaine/Opintosuunta – Läroämne/Studieinriktning – Subject/Study track Social and Cultural Anthropology			
Työn laji – Arbetets art – Level MA Thesis		Aika – Datum – Month and year November 2020	
		Sivumäärä – Sidoantal – Number of pages 84	
<p>Tiivistelmä – Referat – Abstract</p> <p>In my MA thesis I explore the Finnish people's relationship to technology and especially to information communication technology by discussing technological imaginaries. Imaginaries guide attention toward collective sense making while they convey shared social values, norms and identities that are performed in different speech acts. Everyday algorithms are the starting point of my thesis. I framed the topic of algorithms and the technological imaginaries they produce with the theoretical discussion of datafication and dataveillance. As the influence of technology is only growing in our Western society, I am interested in observing its potential sociopolitical impact. My research question is how technological imaginaries affect the society. I am interested in questions how a technology-related future narrative exists and how these narratives are constructed—and what they tell about the Finnish society. My goal is to create holistic understanding of living with quantified data and to analyze what values technological imaginaries might reveal.</p> <p>The research approach is anthropology of technology. The ethnographic focus is in Helsinki, Finland and the ethnographic material consists of 39 semi-structured interviews, which are divided between two reference groups, which I named as 'everyday algorithms' and 'digital marketers.' The interviews were conducted in 2017 and 2018 and the ethnographic material was systematically analyzed with content analysis. The interviewees' affective and analytical responses depended on the topic at hand and from the different perspectives the interviewees saw them through. Technological determinism and dataism, which represent faith in technology as the source of progress and faith in data as objective, rational and good, were themes that emerged in the interviews. What became apparent is that technology is viewed to mediate social utopias, such as social equality, even when actual technology mediated practices might not support those desires.</p>			
Avainsanat – Nyckelord – Keywords Social and cultural anthropology, algorithms, datafication, technological imaginaries, technological determinism, modernity, surveillance capitalism			
Ohjaaja tai ohjaajat – Handledare – Supervisor or supervisors Sirpa Tenhunen			
Säilytyspaikka – Förvaringställe – Where deposited Helsingin yliopiston kirjasto, Helsingfors universitets bibliotek, Helsinki University Library			
Muita tietoja – Övriga uppgifter – Additional information			

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1. Introduction

In my MA thesis I will explore the Finnish people's relationship to technology and especially to information communication technology (ICT) including the internet with various online services as well as appliances for using the internet such as computers, smartphones, and smartwatches. At times, the discussions also include artificial intelligence and automatics. I conducted my ethnographic fieldwork in Helsinki with 34 interviewees during 2017-2018. The first 25 interviews were carried out with people who had average ICT-knowledge. The interviews focused on their mundane experiences of algorithms in order to understand how people experience them. Interviews conducted after were with digital marketers about their work and relation to technology because for many interviewees in the first group, algorithms became noticed in targeted advertisement. In this thesis my aim is to create holistic understanding of living with quantified data and to analyze what values technological imaginaries might reveal. My approach draws from the anthropology of technology. Traditionally, the objective of anthropology of technology has been to view how technological introductions and innovations affects societies and how culture has an effect in those introductions and innovations. As the influence of technology is only growing in our Western society, I am interested in observing its potential sociopolitical impact. My research question is how technological imaginaries affect the society. I am interested in questions how a technology-related future narrative exist and how these narratives are constructed—and what they tell about the Finnish society. Technological imaginaries appear when technology or its development is used as a method to imagine the future. Technological imaginaries are thus related to future imaginaries. Imagination becoming an imaginary requires few features. I will discuss them in the subsequent chapters, but I will only note now that the first feature is that the imaginary needs to be shared by a group of people. The conversations about the future have been conducted from everyday technological user experiences.

Everyday algorithms and datafication are the starting point of my research. Algorithms are sequences of code that serve a specific function. These functions can differ from simple tasks such as clicking on one's computer and getting the result that the click is supposed to give to

more complicated ones like self-learning algorithms in appliances that use artificial intelligence. Algorithms can also be referred as a tool for people to communicate with machines. By everyday algorithms, I refer to algorithms that help shape and mold our everyday experiences with information technology and technology in general. Datafication, in turn, is a term used to signify the generalized use of collected data in information technology (Bucher 2012; van Dijck 2014). This consists of gathering of data, analyzing the collected data, and mining it before selling access to it for third-party buyers. With datafication online behavior and social relationships, such as friendships, emotional responses and interests are turned into processable algorithmic relations (Bucher 2012; van Dijck 2014).

1.1. Anthropological Relevance of Technological Imaginaries

The topic requires anthropological approach because today many societal changes are carried out by implementing technological services and datafication, for example, with the help of appliances using Internet of Things (IoT). In other words, future societies and communities are already being created with the help of quantified data. As mentioned, my attempt in this thesis is to share light on holistic understanding of living with data and to share my interviewees' thoughts on technology. Pfaffenberger (1992) argues that because of the holistic approach anthropology is well equipped to deal with technology and material culture. With the holistic approach it is possible to question the Standard View that can be referred also as technological determinism. According to Pfaffenberger (1992), the Standard View is an image of a unilineal technological development, beginning from simple tools that progress to complicated machines. This unilineal progress simultaneously steals the "human authenticity" and feeling of control as the production is scaled bigger and out of individual grasp. The unilinearity that is part of technological determinism takes away agency as if technology would appear without human capacity to appropriate it to people's needs. Pfaffenberger (1992) argues that anthropology is capable of examining technological development because it has wide and practical view of the society and its functions.

Technology is not mystically created outside of culture, but instead created by people for other people and in order to be deployed a technology needs to have social readiness. Technological progress is not only about fine-tuning technics or artefacts but how this progress adapts agency around it. If the social context is not receptive toward new technology or the new technology does not respond to an actual need, technological innovations will not succeed. Pfaffenberger depicts sociotechnical systems as heterogenic constructions that need co-operation with social and unsocial actors in order to function properly (Pfaffenberger 1992: 498). Without actual need or usefulness technological developments will not be adapted just as much as they will fail, if implemented the wrong way without consideration of social surroundings (Latour 1996). However, existing power hierarchies have an impact in determining what can be described as need or how innovations should be implemented.

I am interested in studying imaginaries because of what they might reveal about the Finnish society and its technopolitical relation. What are the shared social values that shape our relationship to the tangible and intangible world of information technology and what gains are we expecting from this relationship that will materialize in the future? The future societies are being built today. The framework of imaginaries can help explain “why societies differ from one another, how they evolve through time, how powerful visions move through space, and how they in turn burrow into human identity and subjectivity” (Jasanoff 2015: 338). Jasanoff (2015) writes how imaginaries can help detect societal change by asking how reality is constructed in day-to-day situations, rather than taking for granted social structures. The main idea of imaginaries is to guide attention toward collective sense making and the silent knowledge that help collectives “hold together in understandable, sustainable, livable modes of being.” With the concept of imaginaries, it is possible to view stability and change (ibid.). Because technological imaginaries are not only about envisioning through the material of technological devices but ways of envisioning what such ideas as “science” or “technology” are, analyzing these imaginaries emerge as a political narration that can remind us that seen reality is not the only one which we can dream about (Jasanoff 2015: 338-340).

1.2. Starting Point of the Thesis: Field and Ethnographic Data

The point of departure to my thesis are the interviews I carried out about everyday algorithms for the “Becoming Data Citizens” initiative in the Centre of Consumer Research at the University of Helsinki. I was employed to do fieldwork in Helsinki, and later during the second interview set carried out with digital marketer reference group, it seemed only logical to continue the research in Helsinki in order to get reliable data on people’s relation to algorithms and technology in general. I know that in anthropology studying one’s own culture can be deemed as undesirable due to lack of social distance and the difficulty of an uncontrolled area, which can be said to affect objectivity. According to Passaro (1997) by sketching a certain cultural area, a researcher assumes a specific Otherness to be found there in opposition to oneself with pre-determined informants. Passaro (1997) criticizes the epistemology of Otherness as a way to achieve objectivity. Instead, she argues that objectivity is attained through theoretical approach to the research subject and not by distances or assumed Otherness that could be named as social distance (1997: 152-153). My basis for gathering ethnographic material did not rest on a certain closed site but instead on how people of the same nationality, with different backgrounds and age, would speak about various topics relating to algorithms and the future. I constructed my field on assumed differences between the informants to find patterns and similarities in their speech that might reveal something on the Finnish relationship to information technology and ideas towards it. My research field is spread across examining service users, market actors such as data companies as well as political actors, which is why my thesis will be moving on the surface of these different actors and the discussion topics that arise from them. The way algorithms can be perceived is by viewing its meaning to individuals, companies, or by widening the perspective to the society and state (Lindgren et al. 2019). In total, I have conducted 39 semi-structured interviews, all of which are anonymized to protect the privacy of my interviewees. Even when my research topic is not politically sensitive or delicate, I avoided writing such personal details of my informants as names or contact information. The only personal details I have collected are the interviewees’ age, gender, education background and profession. I also wrote down place and date of the interview and gave each interview a number to know how many interviewee a person was. When conducting an interview, I recorded the situations, but after writing an interview transcript, I

deleted the recordings. The transcriptions are kept in a USB flash drive that is held in a safe place. I used content analysis as a method to analyze my ethnographic data. This meant that I systematically went through the collected ethnographic material and arranged it thematically.

The first set of interviews about everyday algorithms were conducted during the summer of 2017 in Helsinki, Finland. The ethnographic data consists of 25 semi-structured interviews carried out with people who have an average user knowledge about technology. My aim was to interview people who differed from one another as much as possible. I conducted the interviews in people's homes, cafés or at the University, depending on what the participants felt comfortable with. The age gap of the informants ranged from 19 to 56-year-olds, although most were between the ages of 25 to 30. Out of all the participants 14 were women and 11 men. Their educational backgrounds differed from having only comprehensive school level to a doctoral degree and professions ranged from a chef, practical nurse, photographer, post-doctoral researcher, students of various fields (e.g. microbiology, journalism, philosophy, sociology, and mathematics) to people who were unemployed. Although, one of the unemployed informants described himself to be a free-spirited artist and a lifestyle hippy. The informants were contacted first by using my own Facebook-network to try and find people who were willing and interested in talking with me about algorithms and to share their views. After the first few interviews I was able to use the snowball method to find more interviewees.

The aim of the interviews was to find out if people know what algorithms are, where do they find out about them, in what situations do algorithms become visible, how do people react to them and do people try to influence the algorithms in any way. The discussions about everyday algorithms brought up targeted advertising and social media newsfeeds as well as contemplations about Big Data, information surveillance and the possible outcomes of information technology. Algorithmic functions were reacted to in many different ways, both in positive and negative light, which is why one of our methodological approach was surveying of emotions. One of the things we noticed with my research leader Minna Ruckenstein was the contradicting hopes about collected data and its usage. Generally, people are not happy with how the collected data is being used and whilst they do not want to increase it, there is a hope for better usage of the collected data since one cannot or necessary do not even want to prevent

the gathering of data online. Based on this knowledge we wrote an article called *Algorithms, Advertising and the Intimacy of Surveillance* (2019). In the article, we used Fourcade & Healy's (2017) work on how the market is teaching the consumers to see themselves via targeted advertising and how the consumers react to this seeing. One of our not so surprising argument in this article was that targeted advertising is not so well targeted as it still is based on crude assumptions based on age, gender, location and the latest search engine search.

The research project relating to marketing continued in the summer of 2018 as I began interviewing people working with digital marketing based on the everyday algorithm interviews. The total amount of informants in this group was 9, from which 6 were men and 3 women. The average age of the participants was 31. This group of informants were contacted via Finnish Facebook-group *Markkinointi Kollektiivi* (Marketing Collective), sending an interview request to business school Haaga-Helia's and the Helsinki School of Economics and Business Administration's mailing list and by being in touch with people I knew had a background in marketing or economics and using the snowball method. I also conducted 5 follow-up interviews with informants from the first reference group who had knowledge in marketing. My interest was the digital marketer's relationship to technology and their ideas about it. The ethnographical material between the two different reference groups differed from each other as the emotional responses toward algorithmic functions disappeared in the digital marketer reference group. For the marketers algorithms are primarily tools to help them do their job. However, when asked how the digital marketers imagined how technology influences societal progress, both groups expressed similar views. I found it intriguing that despite all the differences between the interviewees in their level of knowledge of algorithmic functions, they still expressed a coherent discourse about future. The goal of the MA thesis is to analyze these technological imaginaries and values they reveal.

When going to the field I did not have a specific research question for this thesis. I was only following the topic of how algorithms are viewed and experienced in everyday situations. It was not until I came across similar answers to questions about algorithms and the future that I became interested in the topic of technological imaginaries. I do not know if I would have answered any different from my interviewees and I am intrigued about how unaware we are

about the origin and the intrinsic value of these future-oriented stories. I find it important to examine them because the values and meanings we assign to imaginaries guide the society.

1.3. Outline for This Thesis

In the next chapter, my focus is on the theoretical background discussion of datafication and dataveillance that framed my interviews. Datafication is the phenomenon where new aspects of life are becoming quantifiable, while dataveillance depicts how this quantified data is being used. The discussion of datafication is important because new forms of (social) structures are being built on data, without perhaps the necessary contemplation on how the data is currently being used. The monetary logic behind the collection and use of data is currently the prevailing logic. This refers to data as a currency with which services are bought, while various companies analyze and trade this data in order to gain profit. Even when data is framed according to some preset categories, it is usually viewed as self-evident and objective, which represents dataism. As algorithmic decision-making is becoming more common, we should also contemplate how existing data biases might affect these decisions. Will they produce new forms of digital inequalities or strengthen the existing ones? The discussions about algorithms with my interviewees are focused on how datafication becomes phenomenologically felt and experienced as the interviewees contemplated their mundane encounters with algorithmic action. These encounters shape my interviewees' relationship to algorithms, while the relationship formulates their technological imaginaries.

In chapter three I will continue to discuss technological imaginaries in further detail. Technological imaginaries represent how encounters with a specific technology can shape people's visions of not only about technology itself but also about the surrounding society. The prerequisite of an imaginary is that a group of people must share it. This is why I argue that technological imaginaries are conceptual frameworks that situate technology in moral and social landscapes. The imaginaries brought forward time conceptions, such as modernity, that can be said to express lived experience and practice or to function as a distancing method from the past. I will explore how the concept of modernity is related to technological development and the felt

necessity to pursue it. In the ethnographic data, technological determinism emerged as a theme that appeared when the interviewees emphasized technology's importance in societal progress and the need to adapt to technological innovations. By sketching an image of how modernity is related to technological determinism, I hope to reveal the hidden evolutionistic worldview.

Far-reaching algorithm aspired future imaginaries will be contemplated in chapter four. As the future is connected to imagination, anticipation and planning, it is immersed in temporalities and essentially an affective state. The past, the present, hopes and fears have an impact how the future is perceived. The chapter is focused on the contemplation of technology-related dystopias and utopias. In general, dystopias represent fear and concern while utopias represent hope and desire. Themes of surveillance, political influencing and lack of privacy surfaced when the interviewees displayed their concerns on what negative consequences algorithmic functions could produce if used by an antidemocratic regime. Dystopias were connected to this fear of a dictatorship even when such a political change was felt unlikely to occur in Finland. The interviewees' relations to the state and the market offer a viewpoint to how different actors react differently to similar surveillance, algorithmic influencing and to the threat of losing one's privacy. Commercial actors behind these activities do not stir any major reactions whereas state action does elicit strong reactions. Market actors, such as Big Data companies, are not contrasted to these dystopian fears; even despite data scandals such as Edward Snowden files and the Cambridge Analytica case make it apparent that dataveillance is not organized apart from agencies that regulate them (van Dijck 2014: 203). Dataveillance and surveillance capitalism are viewed as profit generating models for companies producing free services; alternatively, services free from monetary transaction. When the algorithmic fears were connected to control, algorithmic hopes were connected to liberation from repeated, dull work through automation. The interviewees visualized a world where humans could focus on issues that require creativity, social interaction and innovations. They viewed that with the help of technology, changes in production and employment could create societal change that would lead to an ideal society. The utopias were connected to the ideology of Nordic equality as interviewees deemed an ideal society was possible if it is founded on social values. Technology and empathy were depicted as complementary to each other.

In the concluding chapter I will attempt to answer my research question based on my analyses and research. I will explore how specific ideals and historical trajectories, which include technological determinism affect the way progress is perceived, before moving to examine how technology is seen to mediate access to the imagined ideal societies of the future. In the concluding chapter I will contemplate on the likelihood of reaching these technology-aspired futures from the perspective of recent research on datafication and surveillance capitalism. As the desired futures that technology is seen to render possible emphasize social values and equality, I wonder how the fact that most technological innovations and implementations are privately owned by various corporations affects the prospect of gaining them. Finally, I will examine other ways data can be taken advantage of besides business and marketing purposes as ethical approaches to data collection and use are being developed, and benefits from datafication are examined as part of new multidisciplinary units.

2. Theorizing Algorithms & Data

In this chapter I will introduce the themes of datafication and algorithms. My intention is to explain the theoretical background to my analysis of my ethnographic data. In the discussions I had with my informants, datafication was not a theme that emerged as such. Instead, different encounters with ICT that highlighted various aspects of the theoretical discussion did emerge when we spoke about the informants' experiences of everyday algorithms. In this chapter, I will first present the theoretical discussion on datafication and view the role of the market, where data is seen as currency, before moving to analyze my ethnographic data, which is mainly focused on mundane experiences of living with algorithms and data. I demonstrate how new structures that are mostly seen to be objective are being built on information technology and quantified data representing dataism. In order to give the reader a better understanding of the new structures, I will discuss the problem of data biases.

2.1. Datafication and Dataveillance

Datafication is a phenomenon that emerges as aspects of life that have not been quantified before become such. As many aspects on human life become quantified, the varied amount of gained information is referred as Big Data (Mayer-Schönberger & Cukier 2013: 29). This may include minutes spend on a certain website, how far you read a news story, how many minutes of deep sleep you gain per night if you are using any health monitor devices, how many emails you get per day, and how many of those you open, spontaneous reactions on social media, and with whom you are most connected with in your digital social network. Datafication should not be mistaken as digitalization, which refers to converting analog contents like books or photographs into digital information. This means that analog content is turned into a sequence of one and zeros that the computer can read. In datafication all aspects of life are turned into data, making it a much broader activity than digitalization (Mayer-Schönberger & Cukier 2013: 35). This shift from a particular kind of data to all form of data, that is derived voluntarily, involuntarily or as a side product of intended activity, can cause another change that is referred

as *from causation to correlation*. From causation to correlation represents “a move away from always trying to understand the deeper reasons behind how the world works to simply learning about an association among phenomena and using that to get things done” (Mayer-Schönberger & Cukier 2013: 31-32).

When I conducted interviews with the second reference group of digital marketers, a few of them discussed how, for example, target audiences are constructed by finding people with similar interests or social network with those who their client is trying to reach. A correlation forms the basis for the construction of target audiences. In the work of marketers, causation might not be always so relevant in getting messages across to designed groups. Currently, much of the quantified data is being used in business and marketing. Datafication is connected to a phenomenon called dataveillance (van Dijck 2014; Andrejevic 2014). This term signals a shift in the market where new modes of surveillance are being acquired. By collecting data, online platforms are able to monitor users with various tracking technologies, such as IoT-devices. With this collected quantified data, it is possible to make profiling's that help form predictions, for example, how likely someone will behave in a certain manner or how likely they will buy a certain product or need a particular service. Action is thus transformed into quantified data that allows real-time tracking and predictive analysis. The predictions, however, rely on behavioristic assumptions where past actions are assumed to correlate with future actions (van Dijck 2014; Andrejevic 2014; Zuboff 2015). This makes people seem like the prisoners of their past.

While action might be hard to predict, studies have shown that private traits and attributes are predictable from digital records of human behavior (van Dijck 2014: 200). With the help of algorithms, it is possible to predict accurately from Facebook likes personal attributes, such as, happiness, sexual orientation, religious and political views, personality traits, use of addictive substances, parental separation, ethnicity, age and gender (Kosinski et al. 2013: 1; van Dijck 2014: 200). This kind of information is being used to give online platform users personalized services and content, not to mention personalized advertisement. Kosinski et al. (2013) have argued that this kind of information could give social scientists, for example, social psychologists massive amount of data that they could not gain otherwise (Kosinski et al. 2013: 1; van Dijck 2014: 200). Datafication has become a new paradigm for understanding sociality and social behavior by

making human interaction quantifiable. The belief that quantified data is the missing source of behavioral knowledge is supported by not only tech-industry but also by researchers. Datafication advocates assume that the links between a person and data are self-evident. Datafication is viewed as a legitimate mean to access, understand and monitor people's behavior (van Dijck 2014: 198-199). This view does not take into consideration that data can be also inaccurate, insufficient or misinterpreted as "raw data" is analyzed and connected with other data. How data is gathered and combined is not as objective as the algorithm might count that you are especially interested in person X's social media post or a particular news article, when in fact you left your computer to go grab a cup of coffee. Technology and data infrastructure are also built by humans, so they do not exist on an objective sphere outside human interpretation and history (van Dijck 2014: 201). A huge amount of data is not self-evident, but, indeed, needs to be processed, which means that correlations do not emerge but are induced by an implicit question framing the inquiry (van Dijck 2014: 201). In many cases, the categories that interpret collected data are designed first, which might make them assumptive (e.g. Pink & Lanzeni 2018).

Cheney-Lippold (2011: 167) has argued that data are cultural objects, which are "embedded and integrated within a social system whose logic, rules, and explicit functioning work to determine the new conditions of possibilities of users' lives." The promoted idea that data and metadata simply trace human behavior and that platforms are neutral facilitators are at odds with the known practices of data filtering and algorithmic manipulation for commercial or other reasons (van Dijck 2014: 200). Different online platforms measure and manipulate online human behavior in order to monetize it. The belief that data reflects "human behavior as it is" ignores the fact that there are attempts to influence this behavior (ibid.). If specific consumer habits are detected, this is usually used to create demand (Andrejevic 2011). However, there is no singular algorithmic logic, similar as there is no singular human logic (Seaver 2018: 382). Seaver (2018) conducted his research with programmers and viewed how social interaction between the programmers and their customers are important in developing technological services. Seaver argues that algorithmic systems are more human than we often think and not a seemingly outside force that can affect the society in either positive or negative light from an objective plane (2018: 382). The way algorithms function depends on the specific task they are coded for, the programmer, and

the company or institution that owns the algorithm. Algorithms are molded by human and non-human interaction, which is why they can be called an endless feed-back loop between these actors (Seaver 2018).

2.2. Dataism, Data Bias and Automated Decision-Making

Dataism is a belief that data is objective and exists outside of any preset social structural frameworks, which makes data objective (van Dijck 2014). Dataism also represents a *belief and trust* that collectors of data will use it with good intent even though companies are constantly pushing the limits of legality and intelligence agencies like NSA defy court rulings on data use. In the context of institutions, dataism appears as a belief that system integrity is an assigned task of “the state” and platforms are the ones that comply with government agencies (van Dijck 2014: 202). Interviews included all these forms of dataism. The people I interviewed believed that as human action is transformed into mathematical forms, the received data would be objective. Because the quantified data was processed by calculating machine logics, it was considered as rational and objective because human biases, like emotions or values, would not blur the results. Thus, the infrastructure and mechanisms that collect, analyze and reproduce data were considered objective. This would also make the institutions behind dataveillance objective. They believed that states collected data for security and companies for business. The belief that data extraction by tech companies was under governmental laws came up quite a few times. Maybe this is why state dataveillance was considered more worrisome than the corporate dataveillance. Tech-companies were seen as neutral actors. By analyzing the Snowden files, van Dijck (2014: 203) argues that the files should have taught us that institutions gathering and processing Big Data are not organized apart from the agencies that have the political mandate to regulate them. Currently, corporate, academic and state actors are each vested in gaining access to metadata for different reasons. However, when government agencies and academics adopt commercial online platforms as a part of their operation, they transfer the power over data-collection and interpretation from the public to the corporate sector (van Dijck 2014: 203). Dataism is quite successful as a belief since people naively or unwittingly trust their information in the hands of supranational corporations (van Dijck 2014). Quite a few of my interlocutors posed questions

related to how data was being collected, how it was being used and expressed hope that the data is not being misused. Yet, most of the interviewees were not acutely worried or stressing over datafication or dataveillance because they felt that there is nothing they can do about it. At the same time, my informants reminded that using services like Google is crucial in their day-to-day life.

Safiya Umoja Noble (2018) discusses how search engines, such as Google, are embedded with racial and gendered biases that uphold silent racism and sexism. Noble points out that the private interests of certain websites prevent the free circulation of ideas, identities, and activities, which creates data discrimination. As we know, Google's search results are impacted by paid results, location, popularity of a site, and personal search history. Noble (ibid.) compares different search results and analyzes what these results tell about the society. One of the comparisons was between typing 'black woman' and 'white woman.' With 'black woman' the first search results often represented different porn sites that maintained exotic and over sexual stereotype. The search results for 'white woman' were more modest in comparison. The digital infrastructure does not treat everybody equally. Srinivasan (2017) makes an effort to show the reader and make them re-imagine what the internet, mobile phones, or social media services would look if made from the perspective of other, non-western cultures. Currently most technological services and devices are designed for the western consumers and taking into consideration how the new technologies shape labor, economics and politics, this reinforces the marginalization of those who are already suffering from the digital divide.

Criado-Perez (2019) has shown how as a male dominated industry, technological innovations tend to be designed from a male perspective for other men. In some cases, this leads to minor annoyances when smartphones are too big for women to use with one hand, to some life-threatening ones – for example, when pacemakers, which are inserted to the heart to help patients suffering from cardiac arrhythmia, are designed by and tested only on men. This has caused incidents where pacemakers have not been able to take into calculation that a pregnant woman's heartrate might change quite drastically, even when the heart is working fine. This can cause the pacemaker to give a miscalculated shock to a healthy working heart, causing a form of heart attack to the pregnant woman wearing the pacemaker. Of course, the goal is not to make

anyone's life more difficult or at risk by designing devices or software that are hard to use, give wrong information or lead to bad practices. Criado-Perez's (ibid.) main argument is that the existing scientific and technological data is biased because existing data about humans is mainly based on occidental men. In order to gain more knowledge and make the world more equal, the range of scientific data should be expanded to include other genders and ethnicities. This is extremely urgent because the world is increasingly more dependent on algorithms that use and make conclusions based on this data. If algorithms continue to 'create reality' based on biases, they will continue to repeat and perhaps even fortify those biases even further.

Fixing data biases is important because automated decision-making (ADM) is becoming more common. In ADM decisions are derived by algorithmic deduction by using only automated processing of data, which means the displacement of people from decision making. These decisions are based in profiling and using score-systems and giving decisions based in these. Already multitude of various software applications utilize ADM and many of these expertise algorithms remain hidden – for example, many investment and loan decisions are already automated with many other decisions. If these decisions are made based on data biases and crude stereotypes, as some of the targeted advertisement or search engine results are, ADM might deepen existing structural inequalities by creating discriminatory practices (AlgorithmWatch 2019). This shows that empirical data is still crucial. It can expand the range of knowledge much further than simple numbers can on human related issues, because it is not based on singular views. Empirical data can guide us to problematic practices that need fixing. Transparency is also important but this means that companies should make public their score-systems and personalization processes to avoid data biases that can lead to discriminatory practices.

Algorithms can shape perceived realities by making specific representations about reality and by enticing these worldviews (Milan & Van der Velden 2016: 63). These representations of reality are usually quantified and presented as neutral and infallible, and they can be reified in automated decision-making. Big Data constitutes a new, powerful system of knowledge with its specific way of framing, presenting and activating information and knowledge (ibid. 2016: 63). Ian Hacking (1999) has examined how statistics and categories are making up people. Hacking

has identified how scientific and technical dynamics that intermediate processes by which this making up is done. To turn Bucher's (2017) algorithmic imaginary around where people imagine what algorithms are or should be, same way as people imagine algorithms, algorithms are creating imaginaries of people. With quantified data people are imagined and they are assigned certain attributes upon which identities are created. With these machine-induced identities, or profiles, decisions over what content to show or what automated answer to send are produced.

2.3. Surveillance capitalism

Surveillance capitalism is a new form of capitalism that rests on dataveillance. In this case dataveillance is used in order to create more profit for commercial companies by using individual and collective consumer dataflows. Surveillance capitalism is described as *a hidden practice where all human experiences are treated as free raw material* that can be turned into *commercial activities* (Zuboff 2019). This is done by first extracting data from service users that can be analyzed. It is believed that the analyzed data can be turned into predictions of what a person is likely to desire, purchase or how a certain product should be marketed at them, due to their profiling, in order to create sales. This makes the users raw material and the source of surplus, while the companies that trade data are trading in "human futures" (Zuboff 2019). Zuboff (2015) examines the shift of capitalism from Fordism to surveillance capitalism by focusing on Google Inc. and two separate articles written by Google Chief Economist Hal Varian that display the logic of surveillance capitalism. Fordism notion of capitalism has the perspective of a "virtuous circle" where worker-consumer is valued by companies as an essential component of working capitalism. This produces a reciprocal relationship between the labor and the employers so that increases in company profits will result in salary rises that will balance price increases during economic upturns. The balancing ensues better living standards and a broad middle-class. However, in surveillance capitalism this balancing does not occur, which results in the concentration of wealth and information to the Big Data companies creating the big data divide. The big data divide represents the asymmetrical relationship between those who collect data with those who produce it (Andrejevic 2014). Zuboff (2015) argues that this is due to the logic of accumulation, which is a "one-way process" that does not entail reciprocity. In surveillance

capitalism data is collected from ordinary user-consumers and this information is used as material to increase profits by selling access to it for commercial and other purposes. As a company, Google displays indifference on what the accumulated information is. This is meant to be a good thing but Zuboff reasons that this shows that the consumers are not valued (Zuboff 2015: 77-79). Every bit of information that can be turned into profit is turned into profit.

When contemplating monitoring and contracts, Varian has noted how computer-mediated transactions can make it possible to write contracts based on behavior that were previously unobservable. This means that new business models can be built on computer-mediated transactions (Varian 2014: 30). Zuboff (2015) introduces two different examples that Varian has spoken about. One of them is how insurance companies could monitor their clients and based on their clients behavior continue or change the contract they have made. This kind of monitoring and contract making is a theme that I will return later in chapter four as one of my informants shares a pilot program she has been working on with an insurance company. Zuboff (2015: 81-82) notes, however, that this is not a new form of contract but in fact an un-contract because to make a contract there needs to be at least two parties in making a decision over it. The computer-mediated contract is one-sided, lacking consent and it eliminates the need for trust. Instead of being social the new form of contracts is made into machine processes. Zuboff (2015) creates a concept of Big Other that represents sovereign power in the near future that annihilates the freedom achieved by the rule of law. Big Other represents a new regime that lacks trust, which is why independent and independently controlled facts supplant the need for contracts, governance, and the dynamism of a market democracy (Zuboff 2015: 81-82). Dataveillance is thus a far-reaching proposition with profound consequences for the social contract between corporate platforms and government agencies, on the one hand, and citizens-consumers, on the other (van Dijck 2014: 205). As dataveillance aims at predictive and prescriptive outcomes in terms of human behavior, this suggests a new range of consequences for the market-consumer and even the citizen-state relationships. With dataveillance and surveillance capitalism companies are able to create a structural independence from consumer-citizens, and so far, there are no over-sight mechanisms in place (e.g. Zuboff 2019).

2.4. The Internet Revenue Logic

Nowadays people are quite comfortable with trading their data and metadata for services. It is viewed as a form of currency with what people can access information and social media. In her article van Dijck (2014: 197) deconstructs the ideological grounds of datafication, arguing that it is based on problematic epistemological and ontological claims. The discussion on dataveillance begun in 2013 after Edward Snowden became the whistleblower on NSA's routine activities of surveillance on ordinary citizens. Metadata was intercepted from over three billion phone calls and interactions recorded by major tech companies, such as Google, Facebook, Amazon, Apple and Microsoft. Snowden himself has called this penetrating invasion of privacy as "architecture of oppression" (ibid.). Online platforms owners do not gather data only for themselves but share their data with third-party buyers. Dataveillance signals mode of surveillance that monitors users through social media and online communication technologies with advanced tracking technologies, and a shift it has caused in the market (e.g. van Dijck 2014; Andrejevic 2014; Zuboff 2019). User-based data is currently the center feature of the world's most profitable companies' business logic: users are the products being bought and sold. Those companies that are not able to extract and gather their own user-data are dependent on buying it from companies which business is focused on it, and this has changed contemporary enterprise activities.

Revenue generating model of data companies were discussed in some of the interviews. This theme arose more often in discussions with marketing professionals, because they felt that the critique posed by the first reference group toward targeted advertisement was due to lack of comprehension of the business logic of "free services." Whenever this side of algorithmic action and gathering of data would be brought up, the revenue logic would be used as a reasoning why data is being collected. The simple idea is that one pays of "free" services with one's own data. An interviewee working in an IT-company's sales department commented: *"The old saying 'there are no free lunches' applies even to this day."* The exchange value system is not based on currencies but on data that people using the services provide. This revenue logic did cause some reservations in the minds of my interviewees on both reference groups but it was regarded as necessary so people could continue to use the services. The informants were happy that they did

not have to pay for the diverse services that the data companies provide, and noted that in order for the companies to function, they need to generate profit somehow. The exchange relationship caused reservations because it was felt somewhat faded by the data companies. Some of the informants were remembering how in 2008 and around that time when social media services began, there was no information about data being collected and sold. Not even then, when commercials started appearing on the websites and when the first targeted advertisement came. Even now, the exchange relationship has many open questions since there is no information available what data is being collected and how. One interviewee told me that if one thinks about it, it is quite “fucked up.” The informant defined that the deranged part is not the fact that information is being collected but that it is being sold and that anyone can buy it. He continued by using a phrase he had heard somewhere:

“If there is no service price, then you are the product.” – Vlogger

Another interviewee commented how now it seems “too late” to stop using the services because they already have all the information. Eventually, gathering data and selling it forward to third-party members, such as advertisers, was seen as “a necessary evil.” The reason why it was deemed as unavoidable was that the services were seen crucial in the modern world. If one wants to work in the society like a normal person, one has to use these services. They are required in working life as much as in maintaining social relationships. Some of the interviewees told that breaking up ties with these services would be equated with breaking up ties with the society. This is quite a heavy statement but I believe it captures the essence of this subject. I am calling the statement as heavy because it shows the power of big data companies.

In the 2017 everyday algorithm interviews and in the 2018 digital marketer interviews, a few informants were wondering about the possibility of deepening the exchange value system, so service providers might pay something back for the service users – specially for active users making original content that keeps other users in the services. These kind of active users were described as for example bloggers, YouTubers (*tubettajat*), podcasters, or people making many social media posts a week, such as “Instagram babes”. As one interviewee noted: *“It is the users who bring the extra value to the service. Without the users the services value would be at zero.”*

When discussing about the evolution of social media services, people recollected how around 2010 there was a time when everyone was posting everything online, and without any hesitations. After the discussions and news of data collection and use, which originated from Edward Snowden's case, people have become more cautious on what they post. This was at least what the informants thought and it might be one reason behind the shift to more "branded posts" on social media and self-moderation online in general. A mathematician told me that due to the knowledge of surveillance, he thinks closely what he says or does on social media because this is the only way of influencing the collected data. Other informants mentioned similar techniques. Some, however, wondered that perhaps, if service users would be paid by a percentage of what they produce in service, they might be more willing in making more posts. Paying users a percentage from the profits gained from data collection were contrasted with royalties in the music industry. This would mean that social media platform providers would assess users "data value" and create a current account based on every users worth for their companies.

This might sound alarming because of the direct hierarchical differentiation of service users but it is not new to the business world. Companies, and not only ICT companies, are already assessing customer worth in how likely someone is to use their service or to use it again. When, however, this user value assessment is taken back to online-companies and for example, Facebook, this logic is already in use. Attention economy was one subject that surfaced from the revenue logic. In social media sites and on Google, bloggers, streamers, news sites and marketing projects are all competing for attention. In order to be seen, one needs to acquire reactions, clicks, comments, and shares. A few marketers named this "the auction logic." The more one reaches attention, the more visibility one gets, which again will result in more reactions. This makes different actors competing against one another as well as co-working as certain topics circulate online and become viral. Be it a mishap of a video blogger, commercial campaign gone wrong, or an opinion splitting news story. Ultimately, as one content producer told, the best way of getting results and visibility is by paying online services to show that content. Good content is not enough, and especially not if the uploader is a company. Freelance based actors online might have it different, but even then for visibility they need to have many viewers and sponsors of some sort.

Some informants wondered whether service users as data providers would have more control over their personal data – for example, users could choose to which firms they exchange their data with. This would mean that monetization of data, in which data is converted into economic value, would also profit the users. This is partly already in use as there are many services that can be bought with data, but giving more control to service users might be more equivalent. This would mean a development of a new type of labor market in which behavior data would have a price that the data provider could sell forward. Not all thought this was required since the services used are already bought with data. Service terms and privacy policies were used as a ratification for data company revenue logic. Most informants stated how in accepting terms and conditions they have presumably accepted the use of their data. Accepting the terms were yet again seen as a necessity, although an insidious one because as a user one does not get to choose what data is being given or how it is being used. If one wants to use the services, one must accept the terms, or is forced to “fall behind” since not using the services is not an option anymore. One interviewee, a scenographer, whom I asked about her feelings toward the internet revenue logic answered:

“As such, I prefer free services because I am a poor person, but then again when it is linked to information security, privacy policies and somehow humans’ basic character is that it rarely gives unless there is return, so... I do not know.”

This sentence captures how most informants felt about the revenue logic. Reactions behind were polarized. This is what a senior product-marketing manager answered when asked about his feelings toward the current revenue logic of the internet:

“At the moment, I am slightly undecided, for personal reasons. In a way internet as the way it is would not be possible without the ability to advertise on websites. On the other hand, the internet was existing before we began making all these unethical things. In which case the premise is that we could take a couple of steps back and try not to take advantage of people and data as ruthlessly as we are doing now. Instead, take it slightly more into an ethical direction when it would be more ok. I of course am supportive toward all these micro-transaction type of things and, for an example, those services that I am using on a regular

basis; I am willing to pay for those. In a sense, if the services quality is so poor that you are not willing to pay for it, then maybe that service should not exist. That is my starting point.”

Gathering of data is much more acceptable with the knowledge that otherwise there would not be certain services and information available for everyone with access to the internet. People are reluctant to pay for services, such as Facebook or Google, because they are seen as a necessity for everyday life. If the services would cost money, it would also raise questions about equality between users, not to mention that users value algorithmic recommendations, which are achieved by collecting data, because they make life easier by streamlining service use.

2.5. The Platform Society

In *The Platform Society*, van Dijck et al. (2018) try to explain how the world is organized in a connective online world and how various sectors of society have become completely dependent on the big five platforms: Google, Apple, Facebook, Amazon and Microsoft (GAFAM). The way informal lives are organized in the Western societies makes it hard or even impossible to imagine life without these platforms. Our transactions, communication and interaction online are dependent on these big platforms. Beside private sector, this includes also public sectors, for example, how we organize urban transport, news, education and in some cases even healthcare. Facebook and some of the other social media platforms have become important mediators in distributing news, although national differences do occur. This makes them an important force in sectors like education because many learn by reading news. In Finland compared to many other countries, we still have quite strong media companies and the Finns tend to read news stories mainly from their websites instead of reading the news through Facebook links (Reuters Digital News Report 2018: 76-77). Mediating news is not the only connection GAFAM has to education. In Europe and in the United States a lot of hardware and software are being used that links these big platforms to school classes and university lectures – for example, Chrome laptops or Microsoft Office (van Dijck et al. 2018). These bring along elaborate tracking systems or administrative systems straight into classes and to education systems. The most popular tracking systems are, however, in healthcare as tracking systems have become popular in fitness and wellbeing (van Dijck et al. 2018). Mobile phones can measure your heartbeat or steps, give

suggestions what and how much to eat, and there are endless amount of online apps, for example, for women to keep track of menstruation cycles and give exact dates of ovulation.

In these instances, platforms have become facilitators to help our daily lives: they connect us to each other, to news, and to marketing and advertising (van Dijck et al. 2018). Simultaneously, while platforms connect us, they get to collect our data, because for many of those platforms data is the currency we pay them with; consequently online platforms get to control daily lives by dataflows. The biggest platforms, GAFAM, oversee so many platforms that they have the ability to combine data derived from different services – for example, combine our health data with our educational data and data of consumed news and make personal profiles that, of course, can be compared with other people’s similar data (ibid.). This gives the platforms a lot of knowledge and with it power. Data and dataflows can be an input to generate new knowledge with analysis methods. Van Dijck et al. (2018) ask how we can anchor public values in an online world that is increasingly depended on how platforms help to organize that society. Public values are a set of normative consensus that help to formulate the rights and benefits that citizens should have, organize obligations between citizens and society and function as principles on which governments and policies should be based. The authors give examples of values of privacy, transparency, accuracy, security, and safety. The question about anchoring public values is a difficult one because online platforms are globally organized. In the United States they are organized from the Silicon Valley perspective. The platforms are for-profit centralized organization: the values and rules are embedded in the platforms. If we in Europe become depended on Silicon Valley-based corporations organizing our democratic processes, it becomes tricky because we do not know who is responsible for dataflows. Data scandals, such as Cambridge Analytica, have created a discussion on who is responsible for organizing our online society. Platforms are not alone; we should also look at the mechanisms and the organization of society, how democratic processes are anchored, organized and what the platforms do to disturb them. Online platforms have not replaced traditional institutions, like the state, but instead work around them. Yet, they can be claimed to disrupt critical social functions like politics and journalism (van Dijck et al. 2018).

2.6. Algorithms

To surface back from the theoretical discussion of datafication and dataveillance to a more mundane topic, let us think about algorithms for a moment. Even when datafication and dataveillance are themes that touch the lives of everyone using ICT, they are rarely noticed as such. Algorithmic action is the part of datafication that people can become aware of in their daily lives and thus phenomenologically felt. Bucher (2017) has examined the spaces and situations where algorithms are met by interviewing people and reading tweets about stories of the Facebook algorithm. Her goal was to understand how algorithms make people feel and to show that algorithms are experienced. Bucher's aim is to help provide an understanding of the cultural imaginaries and ordinary affects of algorithms by developing the notion of the algorithmic imaginary. These are to be understood as the way how people imagine, perceive and experience algorithms and what these imaginations make possible (2017: 31). Algorithmic imagination is a way of thinking what algorithms are, what they should be, how they function and what these imaginations in turn make possible. Even when people tell they do not *know* what the algorithm is, they might have ideas or theories what it is or should be (2017: 39-40).

When I reflect on this based on my research, the algorithmic imaginary varied between the two interview groups, which I named as 'everyday algorithms' and 'digital marketers.' As Bucher (2017: 40) has noted: "The sites and situations through which people encounter and experience algorithms arguably shape ways of thinking, talking and feeling about them." For the first group, the algorithmic imaginary was more diverse and included emotional responses than for the second. The emotional responses in the first reference group were not necessarily directly about the algorithms, but what it is possible to do with them. Similar to Bucher's findings, some said they are not sure what algorithms are and found the term very theoretical but figured it was some sort of code or something that can be used to target advertisement or to organize ones' social media newsfeed. Words like creepy, artificial intelligence, science fiction, surveillance, social and information bubbles, and tools were related to algorithms. Others felt algorithms are humankind's way of evolving whereas some felt cautious because algorithms have a huge impact on everything we do, and not only online. Some of the everyday algorithms reference group told me how they attempt to ignore how much data these platforms have of us. Getting irritated,

scared or angry about it would only make one's life harder and it would not change anything. One of the informants told me that if they become aware of some kind of misuse of information, they report it to EU's consumer protection officials. Most felt that algorithms are themselves neutral but depending on how they are being used can make them good or bad. Most encounters with workings of algorithms were on social media, with advertisement, and with search engine results. Interviewees recollected strange coincidences how Facebook suggests a friend request with a person you just met for the very first time, without having any mutual friends on Facebook or how specific products have appeared on ones' smartphone screen just as they had discussed something related to the product. These strange coincidences were the cause of doubts where did the service get that information, if smartphones are able to gather data from microphones or GPS that is not on. Targeted advertisement can bring into question the clear separation of public and private (Bucher 2017) while the market attempts to teach the consumers how to see themselves through targeted ads (Fourcade & Healy 2017).

In the article which availed some of the same ethnographic data as this MA thesis, we (Ruckenstein & Granroth 2019: 14) explored intimacy of surveillance that the targeted advertisement revealed. By following the failures of online marketing, we underlined limitations of algorithm-driven targeting and how that targeting was experienced. We were able to trace three distinct emotional dimensions: irritation, fear and pleasure. These emotions were, however, mixed and depended on context. Same person who describes on one occasion that they feel uncomfortable with too closely targeted ads might be on another occasion happy that they were suggested a new store that sells their style of clothing. Fear toward algorithmic action circulated around themes of misuse of information, hacking, identity thefts and most of all uncertainty toward how much and what data is being collected and who owns it. Sometimes people felt their personal space was being invaded. Even when most gave their consent to collection and use of their data, these negative reactions were toward the violation of the social contract when there was no way of being sure how the data was gathered (ibid. 2019: 18-19). Irritation toward targeted advertisement was especially common when it was based on more traditional form of marketing that relies on stereotypes, such as gender and age, and normative values. Many female interviewees were annoyed with pregnancy tests and diaper ads because

this conflicted how the informants see themselves (2019: 19-20). With quantified data algorithms can be said to construct categories of identities (Bucher 2017: 40-41) by detecting personal attributes and creating profiles. In these instances of irritation the machine logic was not reading my informants right and instead was placing them in a category they were not comfortable with. Beside stereotypes, the time lag irritated many, when the informants got advertisement for products already bought. The pleasurable encounters with advertisement was when personalization is done right. Many interviewees noted that if you are giving data, it is better to get good content (even if it is an ad) alongside a “free” service (Ruckenstein & Granroth 2019: 20). When these different encounters of targeted advertising are brought together, they are not anymore individual reactions, but instead, tell a generalizable story how corporate surveillance becomes experienced in mundane situations (ibid. 2019: 17).

For the second reference group of digital marketers, algorithmic imaginary was focused on algorithms being tools, lacking any major emotional responses. For the marketers there was nothing trivial about algorithmic function as user-consumers give the signal what the algorithms will show. Some of the younger marketers, the age of 20-30, felt that quite many already know how to manipulate their online behavior so the algorithm will show better content. The digital marketers thought people might have negative feelings if they do not understand the working mechanisms of algorithms and they might be scared of the unknown or scared of becoming numbers that are treated as grey, faceless mass. One of my interviewees, a growth hacker, summarized:

“They might not understand how the targeting is done. Plus, the poor targeting might not be due to the machine but due to the [ad] maker. As long as the targeting is indistinguishable, which means it is good enough, then of course people will accept it more easily. Then when you get one [advertisement] at the wrong time at the wrong place, it irritates people. Then they wonder: ‘Why am I seeing this?’ But it is also connected to the question of understanding. They do not understand how the system works.” – Growth Hacker.

The marketers were not wrong to deduce that it was uncertainty that caused negative feelings toward surveillance capitalism. A content strategist commented how: *“It probably causes emotional stir how long your digital trace is following you online.”* However, these uncertainties

were not shared by the digital marketers as they felt confident that they know how data is being collected and used. The discussions about algorithms with this reference group focused on their work and pondering the reactions of 'everyday algorithms' reference group toward targeted advertisement. Marketers criticized the common idea that they only go online and select their target audience. Instead much of the work is making assessments what makes an impact and how. Sometimes their work involves guessing what the algorithms are like and this is why they have to make tests to see what works and what does not. The work also includes predicting what people like so their work and message will become visible for many. They commented how poorly targeted advertisement is poorly done advertisement and it might not have anything to do with the machine. Incorrectly targeted advertisement or an advertisement displayed at the wrong time were seen as mistakes. Yet, working algorithms were seen important in directing content and utilizing given data. Some of the marketers shared irritation caused by poorly targeted advertisement or content. A content strategist gave an example how Yle Areena and Spotify were not able to put him in a correct target audience, even when the services had data what content he is consuming.

"They are not utilizing my music history when they are making the suggested music feed but instead are forming them based on other things. So, basically their algorithm is not working. . . This, the functionality of algorithms will be a factor that determines what services thrive and what do not. If they make it work properly it does not matter what the product is. Be it a car service, a TV stream service or a music stream service. If it serves the customer, then they will make use of it. And another way around, if it [algorithm] is not working properly, then it becomes irritating and consumer will likely move on to another service."— Content Strategist.

In these kind of instances where, for example, entertainment services are at stake, profiling and automatically directing content based on other things, rather than actual behavior, might not be so serious. If these kind of automated decisions, however, are used in evaluating risks of different institutional public or private services, the question of accuracy of data becomes more important.

2.7. Conclusion

In this chapter I have discussed the theories of datafication and the algorithmic imaginaries of my interviewees. By representing my interviewees' views on the topics of algorithmic functions and the internet revenue logic I have given the reader a taste of my interviewees' premises based on which they imagine algorithms will affect our society. Experiences of and views on algorithms, data and technology in general shape the way people feel toward them and this affects technological imaginaries. In the next chapter, I will continue to examine the subject of technological imaginaries in further detail and contemplate how felt reality and temporalities are related to these imaginaries.

3. Technological Imaginaries & Modernity

In this chapter, I will discuss informants' technological imaginaries, which are connected to their views of progress and modernity. In technological imaginaries, people use some form of technology to create social and future imaginaries. The technology functions as a tool of thinking from which imaginaries are molded either by imagining through the technology or with the help of user experiences. In the case I am studying the technological point of departure is algorithms. The reason why I am separating social imaginaries and future imaginaries is that the concept of modernity is itself an outcome of social imaginary while future imaginaries are more focused on the future. Imaginaries can help detect societal change by asking how reality is constructed in day-to-day situations, rather than taking for granted certain social structures (Jasanoff 2015: 338). The main idea of imaginaries is to guide attention toward collective sense making as they embody shared social values, norms and identities that are performed in different speech acts (ibid.). Placed in the future, technological imaginaries tend to be positive, collective and portray hope, as well as display larger narratives (e.g. nationhood, concept of modernity, stories where we as a society are heading, working together to reach a certain aim, the role of trust). I view technological imaginaries as conceptual frameworks that situate technology in moral and social landscapes.

3.1. Conceptualizing Modernity: Mean to Differentiate

Modernity can express lived practice and experience (Probst et al. 2002: 3) and it can be a way to situate oneself to the present and distance from the past (Arce and Long 2000: 4). Arce and Long (2000) argue that as means for distancing past from the present, historical or pseudo-historical continuities are therefore constructed and justified. During the renaissance of 1700–1800 centuries, modernity was reinvented to characterize science, rationalism and pursuit for progress (Arce & Long 2000: 4). This idea seems still quite persistent. The idea of modernity has been used in various ways as a form of governmentality and a universalizing project (Inda 2005).

As a practice of colonization during the early 1900's, main concern was how to modernize the colonial territories of the West (Arce & Long 2000). Arce and Long (2000) discuss how the strategic idea of modernity was organized around attitudes and policies based on a sense of superiority of those nations that had successfully modernized themselves. Hierarchies of power between colonial and colonized nations and centuries of abuse were of course neglected in this perspective. Rather the idea of a modern nation became a synonym for civilized where unmodern referred to barbaric. Conversation about modernization was centered on how the third world countries should "catch up" and acquire the Western way of living in order to become modern (Arce & Long 2000: 4-5). In other words, the concept of modernity has roots in self-other dichotomy and ethnocentric, evolutionistic worldview. Modernization theory, that is an evolutionary taxonomy of five stages, by W.W. Rostow (1960) exemplifies it. The lowest stage represents "a traditional society" that is based on subsistence economy and agriculture, while the highest stage is a capitalistic consumer society with a large service sector.

Scott (2005: 30) argues that modern power is not so distinctive from colonialism than modernization theorists would want to believe. Modern power's point of application is different for it is *the conditions* in which humans are to live and to define their lives, not *the body* of the sovereign subject (ibid.). Modern power is interested in dismantling nonmodern ways of life by rearranging conditions to oblige subjects to transform themselves in an improved direction (ibid. 2005: 31). Collective society, religion or exchange economy could be seen as examples of nonmodern living as these are representations of ways of life that the Enlightenment era rose against. During Enlightenment era, civil society was constructed as a space between the newly founded state and the church. This new public sphere was a product of new commercial relationships that involved depersonalized, secularized state, commodity exchange and social labor with its own regularities effecting the convergence of private interest and public good (Scott 2005: 32-33). Ideas of individualism and private ownership were seen as liberating factors from the estate system; consequently, liberalism is associated with freedom and individual rights.

3.2. Consumer Cultures Relation to Modernity

Consumer culture is entangled with modernity as the practices, institutions and infrastructures originated in the early modern period (Slater 1997). Also, the entanglement occurs with the idea of modernity that by consuming certain things a person is a contemporary, free person who gets to individually and rationally make their own consumption decisions (ibid.). Slater (1997) notes how consumer culture is important in respect to the modern Western culture with its emphasis on choice, individualism, and market relations. Consumer culture can be seen as a flagship for the advance of western business, western markets and “a western” way of life. Consumer culture has both global pretensions and global extension as an aspect of the universalizing project of western modernity (ibid.). Slater (1997: 8-9) argues that the idea of consumer culture includes the dichotomy of the civilized west against the rest of the world as consumerism is represented “modern, progressive, free and rational.” This was a way of asserting dominance of the west as righteously affluent (ibid.).

Slater (1997) argues that modernity is immersed with consumer culture by two ways. The first is focused on time aspect as the main institutions, infrastructures and practices originate in the early modern period. The second aspect focuses on how consumer culture is connected to the *idea* of modernity. How the lived world is experienced and how the experience of consumerism is both exemplary of the new world and integral to its making. There is no need to be governed by tradition but by world produced through rational organization and scientific know-how (1997: 9). Eternal newness in consumption is the reason why Slater (1997) relates the history of consumption beginning from the 1980’s with the rise of neo-liberalism that exemplifies individual consumer choices. During this decade, production was subordinated to consumption by marketing, design, retail and advertising. Consumer culture gave way to targeted and niche marketing in which personal identities would be playfully constructed by image, style, signs and desires, making it separate from work and political spheres. The ideological consumerism of the 1980’s is based on radical individualism and privatism that highlights meanings and signs gained by purchases instead of needs or wants. The neoliberal ideology with its superficial consumeristic tendencies is bound together with the values and promises of modernity: the promises of

personal freedom, economic progress, civic dynamism and political democracy (Slater 1997:10-11).

3.3. Neoliberal Competitiveness and the Dominant Image of Technology

As the ideals of neoliberalism and privatization strengthened in the 1980's, this gave birth to the doctrine of competitiveness that spread fast (Downey 1998). Downey (1998) discusses how the doctrine of competitiveness made technological advancement crucial. As the world became imagined by autonomous, independent nations competing against one another, competition centered around economic growth that could be boosted with improved technological innovations that could, for example, improve productivity and efficiency (ibid. 1998: 3). This picture of competing nations has not changed. The doctrine of competitiveness is mixed with the concept of modernity. Technological and economic status, measured by GDP, are thought to be signs that signify a nation's level of development. This reflects the contested *modernization theory*. Doctrine of competitiveness according to Downey (1998: 7-9) is related first to the image of outside threat of economic defeat and secondly to isolated problem of "productivity" as the site of weakness. To increase productivity, one needs to either gain the same amount of product with less labor or more product with the same amount of labor. The image of technology as the source of progress is incorporated into the doctrine of competitiveness with the logic of productivity as problem (ibid.). When searching solutions for problems, be they human or other, technology seems an appealing option. All in all, this is quite a capitalistic problem-solving method if one thinks about it. Aspiring to create solutions with people working less, while producing more to increase industrial profit to better conditions. Simultaneously, the idea of a progressive, external force hides other human experiences and realities that are subordinated under it (Downey 1998: 10).

Downey (1998) has discussed technology's dominant image and advocated the idea of anthropology's role as making visible what lies behind these images. For this reason, Downey (1998) carried out his ethnographic fieldwork among computer engineers to show the realities of the people working with the machines. By expressing the computer engineers and computer

engineer students' experiences, the aim is to break the assumptions of technology as an external force (Downey 1998: X). In the field of computer-assisted design (CAD) and computer-assisted manufacturing (CAM), the dominant image is rescuing humanity or guaranteeing human progress through automation. This automation is envisioned to make a revolution in manufacturing and bringing more wealth that will increase living conditions, reduce uninspiring routine work and to render more leisure time available (Downey 1998: 3). In the dominant image of algorithms that was spoken by my informants, the theme of rescuing humanity or guaranteeing its progress was also present. Although, over twenty years has passed since Downey (1998) wrote his ethnography I found a similar vision and narrative about the promise of technology as Downey did even though we studied people's relationships to different technologies. The technologically deterministic view that technology is the solution to our problems remains. Perhaps, the fear of becoming inferior if technological advancement is not "up to standards" and losing one's global position by falling unmodern might be the reasons for the prevailing of technological determinism.

CAD/CAM was the "hype" technology of its heydays (ibid. 1998: 4), much like algorithms seem to be today. CAD/CAM was imagined to automate manufacturing and design, breaching the social gap between manufacturing and design engineers. Because the technology was seen as an outside force to human society, it was believed that it could fix social problems among engineers and improve the economy (ibid. 1998: 38). Automation is seen as an instrument to improve national economic competitiveness by improving productivity. In the United States, CAD/CAM products were marketed as a savior from "outside economic threats" that especially Japan represented (ibid. 1998: 6-8). A high GDP is viewed as representing a better quality of life, and beside this economic view, automation was believed to enable more leisure time and more interesting work opportunities. The realization that CAD/CAM would not bring a solution to problems did not threaten the dominant image of technological determinism. Constraints in one technology would not diminish the image of all technology. Perhaps the next form of technology might be the one that solves all problems. Only the gaze changed direction to other prominent technologies. As Downey (1998) notes: "The industrial world altered strategies from acquiring and implementing automation to adapting humans and organizations to the new technologies

by whatever means necessary, including restructuring and the downsizing of labor.” Technological hype is more than superficial elements. Created images make easily things, like infrastructural inequalities, visible or invisible. Dominant images can control and guide mundane imaginations of possibilities and thus everyday theorizing (Downey 1998: 5). Dominant images work by changing agencies between human and machine. Technology's progress in bringing capability lies in its effects viewed as “an external force to humans” (Downey 1998: 10). Technologies are seen developing according to some internal logics within scientific and technical communities. Because these internal logics are shaped in specific technical communities, they are thought to be “free of cultural content” (ibid.). Dominant view of technology sees technology as an independent variable and society as the dependent one. The solutions technology brings to social problems are imagined to be catalyst to liberating change (ibid.). Every generation has its utopian visions of how the society will progress by advancement of science and technology. Technological determinism is attractive because it offers simple solutions to complicated issues.

3.4. Technological Determinism and Reverse Adaptation

As technological imaginaries can be viewed to express human's social understanding of technology, technology was placed alongside Enlightenment eras values of rationality, pragmatism and progress. While conducting my interviews, it became clear early on that my informants viewed technology as a vehicle for progress, which brings me to technological determinism. Technological determinism is a belief that societal evolution occurs by technological enhancement and that society's technical base conditions social existence (e.g. Marx & Engels 1976 [1845]). This means that technology determines social change. Unilineal history concept is part of technological determinism, which means that progress is seen as a two-dimensional, one-way road and it is linked to evolutionistic worldview that has been used in differentiating societies from each other based on how developed or undeveloped a society is based on their technology. This easily diminishes end purpose or choice in having a technology or innovation if not having it has a risk of becoming backward. There are many cases, in which technological enhancement has not led to wanted results but after the new technology has been

acquired, it has not been abandoned. In technological determinism technology itself is seen as the power of progress and not the human agency (Pfaffenberger 1992). Surrounding life might have to adapt to the technology in order for the deemed problems like productivity to be fixed. In reverse adaptation (Winner 1977), technological determinism goes even further. First technological solutions serve a specific human need or problem but if these solutions begin to reframe the original idea and ignore sections that do not correspond to the technological solution, then we can call it reverse adaptation (ibid.). The machine aspect becomes the primary one. Reverse adaptation occurs when technology begins to structure our lives by shaping human thought and activity to conform to the structure and organization of the built software or hardware. When a society becomes adapted to a certain technological advancement to such a degree that not using it becomes unfeasible (Winner 1977).

In the interviews made, the informants discussed how technological development was inevitable and how this was humanity's way of evolving: *"Technology in general is continuation for evolution."* Biological evolution was deemed too slow and psychological aspects of being a human, such as emotions, were seen as something that might jeopardize growth. Technological innovations were perceived as a tool for this growth to happen and to take societies next step further. In other words, the interviews conducted during summers of 2017 and 2018 reflected technological determinism. An internet entrepreneur/life coach who was extremely interested in the subject summarized: *"Computers are humanity's future."* He had strong beliefs that humankind is supposed to continue growing, evolving and thriving and computers as well as other machines are important in fulfilling those goals.

3.5. Informants' Views of Technological Determinism: Agency between Machines and Humans

When it comes to theories of technological determinism, the life coach I mentioned above had many interesting discussions to analyze. In this chapter, I will focus on the two separate interviews conducted with him (first interview and follow-up interview). He had the ability to summarize many themes that were emerged in the discussions with other informants but also

interesting personal viewpoints. The life coach's premise was that humankind always functions from the best information available and that progress is inevitable. Our interviews were mainly focused in everyday algorithmic action, what this action says about the society and how does he think things will develop in the future. He viewed algorithms as neutral, coded tools that people have created to do certain functions. He was one of the few informants, who noted that as machine learning will become more common, as a result, algorithms will develop so that we cannot control them anymore. Humans might start the process but with machine learning, machines continue learning things that were not coded originally. A person can create a software but afterwards lose the control over its functions. Nevertheless, this was a direction that should be taken according to him. The life coach called algorithms "multifunctional phenomena and tools" that challenge humans to grow. For the life coach, evolution is a challenge: *"Technology gives us a challenge, or we give the challenge to ourselves through technology and it is an invitation to grow as communities, societies and as individuals."*

When we discussed datafication, surveillance and losing privacy, the life coach did find these as slightly problematic phenomena because sometimes we should be able to develop society and ourselves in ways that are forbidden by the state. This is why we should have some privacy. Civil disobedience was deemed appropriate if there are positive gains. Yet, he was not worried because problems are part of evolution and only by solving problems is growth possible. One can never know what the future will be like and even when it might inspire fear, it is a step to take. The life coach did not believe that everything would turn out fine; nevertheless, he saw it as part of evolutionary problem solving. According to him, sometimes this solving *requires change as a society*. Problems are indicators that show us, where we need to work harder. For the life coach, problems that we are facing now, such as invasion of privacy or what Cambridge Analytica did, are *"children's diseases as people continue to adapt to the new technology that has been invented."* He called them children's diseases because these are a new dimension for us, and we have not learned yet how to use them properly or how to relate to them, but we are constantly learning. So far, aspects from technological determinism and reverse adaptation that the interviews demonstrate have been unilinear views of progress, progress through technological advancement and adapting to that technology as a society, so the technology can function better.

As mentioned, the life coach's interpretations were not unique while he was able to summarize some of the recurrent themes. However, in comparison to others, he was more focused on positive progress through technological innovations and he did not worry about privacy questions or any other possible negative outcomes. Coinciding themes were the unilineal progress view and that the view that the meaning of technology will increase, for example, one informant who worked as a senior product-marketing manager in an IT-security company told how technology's portion in our lives will grow in the future. He continued his contemplation:

"I feel that beside physiological needs one key foundation will be that if you are not digital, you are not a person. I feel that at some point constitutions should change so that everyone is entitled to free information, the internet and so on, because it is just so crucial in our society and its [significance is] only getting bigger as time goes on."

When the informants were talking about progress, free information was noted as significant. Humankind could progress further if information was available freely. Internet and information technology's importance was emphasized. Few brought up the dichotomy between good and bad because there are different interest between different actors. Some might have it for their best interest to have all information available, while for others it is not – for an example, in dictatorships, free flow of information does not come into question and open data can be easily used against its citizens. Similar to the life coach, the senior product-marketing manager was sure that some mistakes or overreactions will occur, but this always happens at the peak of innovation, particularly when legislation lags. He hopes that the mistakes will not be unreparable. Some informants had their concerns toward the fact that legislations are lagging. A business BBA expressed how he feels that we should be careful. He hoped that hype around outsourcing assignments to technology and to artificial intelligence would not end in outsourcing ourselves.

When discussing about developing technology and algorithms, one mathematician told that algorithms play a crucial role because modern technological challenges are dependent in that are humans able to express ideas in a manner, that even a machine can understand them. For him, algorithms were primarily a language for humans to communicate to machines. Even when technological determinism was present in the discussions, it did not diminish human's role.

Whether we discussed algorithms, social media or artificial intelligence, he emphasized that these developments are made for humans by other humans. As one sales marketer said: *“It is not the technology that makes you blissful.”* Technological innovations and algorithms they include are a tool for people to use. These tools are not seen as something that might “take control” but which can shape human action into something sounder. When I asked one of my interviewees, a sales and marketing coordinator, how she perceives technology, she answered:

“It is a difficult question. I see technology in quite a positive light, actually from every perspective. I see the benefits and I like the aspect that it makes our life easier. We can get rid of this boring, repeating, compulsory work to more creative performances and we can focus in developing things to a more reasonable direction. I see a lot of possibilities.”

Making living easier and more *efficient* were the most cited pros of technological developments. The informants regarded that technological advancement does change how we act and how our societies function. Some people talked about communication and how new technology is improving it by making it faster and global. While communicating with others is easier than ever, this also makes living more hectic. Some felt that there is too much sensory stimulus, especially on social media. A journalism student even asked what happens if technology advances faster than what the human body and mind is capable of adapting to.

3.6. Adaptation to Technology as a Generational Question

The concept of digital natives was one of the themes that emerged from my discussions with the interviewees, for example, they discussed how 5-year-olds know how to use tablets and smartphones better than they know how to walk. It was generally felt that younger generation is more adapted to the new technology simply because they have spent their entire lives surrounded by it. It was speculated that millennials and post-millennials had the capability to analyze for example fake news from real news more intrinsically and that they are not so sensitive to algorithmic manipulation. It was considered challenging for older people to adapt to information technology. They felt it was important that digitalization does not lead to discriminatory practices. A couple of informants contemplated how we are in a culmination

point: there are people, who have been alive before computers or the internet existed as well as people who have been surrounded by smart devices all their life. For older people adapting to new technology is not as easy as for the digital natives of younger generations. The shift to adaptation to information technology was seen as natural.

They hoped that coding and technology in general would be added into the school curriculums because it was felt that younger generation who will spend their lives with technology should have as much knowledge about it as possible. It should be important to teach, so people would receive a general understanding of information processing behind their computers and smart devices. This would be beneficial also considering the working life. Learning coding and basic principles behind technology might give a possibility for new social movements and ideals to rise, which might help rectify potential mistakes of the older generations. The senior product-marketing manager in IT-security company brought up how he finds it scary, how much young children are targeted by advertising and by surveillance. This was one of the reasons, why he wanted more education. Understanding that one is being targeted is not enough. How and why one is targeted is just as important to grasp as the beginning of the targeting chain.

3.7. Adaptation to Losing One's Privacy

One of the reverse adaptations were related to privacy and collection of data. The concept of modern was highlighted in relation to this subject. Using information technology is the way of the modern and to be modern—one needs to become datafied. Collection of data was regarded as something one needs to accept if they want to *“behave in a modern way in a modern society.”* Using different services, such as Google or social media, are comprehended as necessary. This subject is related to the revenue logic of the internet where services are bought with data to which access is sold forward to third-party members. This decrease of privacy is something informants told they were nowadays used to. A journalism student told that five years ago, information of similar collection of data would have been harder to swallow but now it is regular and something one needs to accept, or otherwise one would risk of not being part of the society. One cannot avoid giving data and even when there are open questions circling round the subject,

for an example, what data is collected and how, people feel that they do not have the capability to prevent it. Options for not handing out data were contrasted in leaving and not using services provided by information technology. Not using technology was seen as the only tool to prevent data collection. Leaving these information technology-based services were juxtaposed with giving up all electricity and going into seclusion. Moving into the woods or on a remote island and going back to Stone Age were recited repeatedly.

“I do not know how I would influence it [gathering of data]. Or I could close myself out of those services and seclude myself in the middle of the woods, giving up all electricity. I cannot really see that I would have tools to influence.” – Journalism student No. 1.

“You could always erase your online behavior and your profiles from social media and move into some cabin in the woods so you would not have any electronics near. Would that be very smart? No.” – Bachelor of Economic Sciences.

These comparisons reinforce technological determinism and its unilineal ideas of progress. In his discussion about technological determinism, Downey (1998: 11) has noted how for people whom technology represents a road to progress, any critique toward it is easily seen as anti-progress or anti-technology. Not using information technological services or accepting datafication can be viewed as a social threat because of the negative connotations it entails. Another mean to justify gathering of data was to contrast this market-driven information extraction with what the government as well as social and healthcare services are doing. It is as concerning way of gathering information, but one cannot refuse it because the society has the right to collect data for services to improve general security.

Informants were not so worried about their personal life, but some had concerns about the larger scale. An anthropology student was worried about the possibility of unnoticed modification of behavior and society into a negative direction. Better options could be ignored because the technological mechanisms have been constructed in a certain way. Informants’ feelings toward datafication were not only negative but also positive. They also hoped that quantification, by making human action visible, can improve human lives. It is also noteworthy that turning behavior into numbers was not for the informants the concerning part in datafication; instead,

they were concerned about the human action and the classifying effects of numbers. They feared that the algorithmic action could slow personal growth online as algorithms often do not take into consideration time and change—a click ten years ago does not tell anything what kind of a person one is nowadays.

“All that data has the necessary information and it will be what we will use more, more and more in the future. All these numbers, data collection, GPS... those will be more present and they will develop things into a positive direction, but also in negative in their production in how those are related to artificial intelligence and so on. We should try to reduce division of people.” – Human Resource Assistant.

A sociology student wondered if she was not “a principled (hu)man” since she does not stop using the online services even though she has many concerns toward them in macro-level. She argued that those services are mandatory and integral part of life, so justifying leaving for people around would be too hard and changing the behavior patterns away from the convenience those services produce would be difficult. Those services also offer benefits and happiness. People do not want to hamper their everyday life by giving up digital services.

3.8. Uncritical Attitude as a Target of Critique

The informants, who were criticizing technological determinism of the larger population, were mostly criticizing their lack of critical attitude. They felt that people are only following each other without stopping to think whether it is beneficial in the long term and hoped that there would be more information available, for example, how does all day sitting in front of computers and smartphones affect the society? A photography student compared using social media to smoking cigarettes, although “*not as cancerous.*” He had significantly reduced his use of social media and only used his photography page to use Facebook because he felt that social media use took too much of his time. Moreover, he perceived social media as mindless — he did not feel people were genuine when posting updates online. For the same reason another one of my informants, a cook, had at one point left Facebook and other social media services. She felt she could not get real contact with people online and decided to leave. This decision lasted for six months after

which she returned because of social pressure and the lack of information about birthdays and other events. She felt that people are more genuine and present in face-to-face situations, but she found it difficult engage in face-to-face situations without using social media.

Social pressure to use different online services was a theme that emerged from the interviews. Even the informants who were critical depicted how it is extremely difficult or impossible to let go of the modern information technology and its different online services. The photography student commented how:

“You can always rebel against everything but to live your life without any information technology, in which our society is based right now, it is useless to protest against it in this society. It would be easier to just leave the society.”

Interestingly, the life coach has stopped using social media almost altogether because of its tone of communication. He finds the communication too negative and feels distressed about it. He described it malicious and divided. The life coach hoped that more people would begin to grasp it as a problem so that the online conversation culture could change. This would offer a possibility for people to “grow together towards mature conversation culture” similarly to “how we have learned to behave as societies.” All tools, also artificial intelligence or algorithms, can be learned to use responsibly.

Some informants told how they felt they “had to” use certain services, such as Facebook Messenger, in order to be normal. Not having these services meant the same as a few decades ago if one would have said they do not own a telephone. Generational differences were also brought up as some of the informants noted that “our parents were not on the computer all the time” or not using social media is “outside *modern* sociality perhaps, because before there were no events online.”

The other target of critique was the change in people’s behavior. Social behavior was commented to be “blocked, withdrawn and passive” when people are on their smartphones. The worry was that people are not present anymore and that they might be losing real life to virtual reality. This change of sociality was also talked about with few other informants who were cautious toward social media and the societal shift to technologization. Reverse adaptation thus occurs for some

in social behavior. One of the interviewees who had a diverse expertise in using digital devices, commented his relationship to technology:

"It is this love and hate relationship. I do not know if it is the phone or digitalism in general, maybe it is the phone, but I feel that digitalism reduces presence. When it is constantly possible to be everywhere digitally, it is harder to be here." – Bachelor of Economic Science.

The informant continued by explaining that with love and hate relationship he meant that digitalism and technology make so many things possible and at the same time they do not always work the way it is supposed to causing grey hair. He wondered if it all would suddenly disappear, what would be left. Feelings toward technology in general and all the things technological innovations can make possible were polarized in the interviews.

"It is somewhat so incredibly cool. Somehow, I do not know, I only wish that nature will not be forgotten as other things in this world. So, they would not be forgotten simply because we are able to create 'technology.' Then again, we can begin to wonder what reality is. This is an endless thought circle. Especially if we go already into that you can create your own reality."
– Scenographer.

3.9. Technological Addiction and Over-Adaptation

The need to be always reachable was discussed as a form of adapting to information technology. Even when this new technology is making living easier when all information can be found in one's pocket, some felt that the technology has gotten too much power. There is social pressure to be always within reach. When people go to their summer cabins or camping in the woods, they worry if they do not answer their phone immediately or have not posted a message on social media about being out of reach. Worries that technology has too much control over people's lives were not about machines "stealing our jobs" but about controlling the way we interact with each other. Efficient communication technology almost correlates to the need to be in constant online communication. This was one target of critique by the informants, who used smart devices less than other interviewees.

Some of the informants had worries about technological addiction and the fact that some online services have been designed addictive. A few informants discussed how social media companies desire that people use their services a lot in order to get revenue. This causes the motivation to create addictive services. Other informants were, however, contemplating how their work and everything they do is dependent on information technology, for example, marketing is completely impossible without it these days. People working in marketing need to have all social media apps and accounts because that is how they can get their work done. This means that social media surrounds their lives during working hours as well as their time off.

Losing presence was one subject that came up when discussing technological addiction. People are concerned about the loss of the ability to concentrate for a long-term and time management. Being constantly stimulated by social media is not considered good. The informants were especially concerned about the environment's effects on children and young adults. How will this affect their cerebral structure? Will they be able to do persistent work? The connection between impatience and technology is the main theme when people discuss technological addiction.

"And this short attention span that I am noticing in myself, that when I was younger I could read those classical long Russian books from cover to cover and now I have to exert myself that I manage to read a blog." – Sales marketer.

The reason why I thought it is important to add this discussion of addiction to reverse adaptation is that it can be referred to as the moment when technology has more control over the person than the person has over the technology. Even then, the problem of technological addiction leaves room for an argument if the problem is caused by the technology itself or if the problem is psychological and originates from people themselves. Technology does not invent itself, but people do and if the apps are purposely designed to be addictive, the blame cannot be targeted at the over-users. Then again when it comes to reverse adaptation, technological addiction gives food for thought on how far technologically adapted our societies are. Could we manage anymore without digital technology? According to many of my informants, we could not.

3.10. Conclusion

The concepts of technological determinism and reverse adaptation were the key themes which emerged from the analyses of the interviews. Especially prominent is the imagining of unilineal progress. Using information technology and other machines is what is making us *modern* according to the informants. Losing this technology was equated with “going back to Stone Age and not having electricity.” So, there is a link to evolutionary thinking. In some interviews, this unilineality makes it harder for the informants to raise any critique toward innovations, or how the new technology is affecting our lives. In this sense, reverse adaptation has taken place.

Interpreting reverse adaptation in the informants’ speech is ambiguous. Human action is considered important as technological innovations are thought of as tools. This does include adaptation ideas as we adapt to the new tools because those make our living easier. However, informants do not seem to think that we humans are adapted to the technology even when it is clearly stated that there is *no choice* in not using certain devices. The reverse adaptation seems to happen especially in relation to search engines and social media adaptation. Pressure to use the online services does not come from the technology per se, but from other people and their social environment. People who dislike online social interaction or have concerns regarding privacy policies feel that they are forced to use those services anyway as both social and working life might require accounts to social media and other information technology services.

However, is the control aspect of reverse adaptation coming from the technology itself? Even when the requirements for both technological determinism and reverse adaptation do occur, social pressure seems to be prevailing. Some even stated that people would not use certain services if it was not for others. Reminiscences of once popular social media websites IRC-Galleria or MySpace are given as examples. Free information and Google in this sense make a difference because those are seen important for societal progress. Currently those services are integrated as a part of our society and people feel unable to stop using them. If other people would begin to move away from the online services, perhaps then the technology would not be perceived so important. Then again, the unilineal progress view does make the new technology seem indispensable and only more vital in the future.

4. Technology Aspired Utopias & Dystopias

In the previous chapter I discussed algorithms and thoughts they provoked, which were connected with felt reality and time-aspects as technological development that algorithms represented was compared with progress, evolution and the idea of being modern. In this chapter I will discuss the far-reaching futures that my interviewees hope to gain or avoid with technological development. I examine them in order to gain understanding of the shared values that guide technological imaginaries. As my interviewees contemplated on the positive and negative possibilities of technology, these speech acts simultaneously performed existing norms and technopolitical identities.

4.1. Utopia & Dystopia Narratives

Conversations about utopias and dystopias were referred to as the informants wondered what the future would be like and how new technology would affect our society. To be clear, none of the interviewed people presented solely positive or negative views of technology. The emotional and analytical responses depended much on the topic at hand and from the different perspectives the interviewees saw them through. Even when technological determinism and dataism, that represented faith in technology as the source of progress and evolution and faith in data as objective, rational and good, were themes that emerged in the interviews, these were not the only viewpoints. Concerns over some aspects of algorithmic functions were also displayed, not to mention the role that technology in general has in our daily lives. In their article Adams et al. (2009), inspect anticipation as a characterizing state of the present that is directing our thoughts toward the future. This is why anticipation can be located in *the politics of temporality and affect* as it can move our focus from the actual to the speculative. This movement from actual to speculation gives anticipation also epistemic value. Anticipation combines temporal aspects of modernity that is seen to offer some certainty with the future as a conceptual possibility. Because anticipation entails uncertainty, it is essentially an affective state. Beyond mere emotional reactions, this affective state also actively helps people to orientate themselves temporally: how to think, feel and address contemporary problems (Adams et al.

2009: 246-248). They note how “the future increasingly not only defines the present but also creates material trajectories of life that unfold as anticipated by those speculative processes” (ibid. 2009: 248).

Abram and Weszkalnys (2011) discuss planning as a human activity that is a way to conceptualize space and time. Their theory of planning is that it is “a manifestation of what people think is possible and desirable, and what the future promises for the better” (Abram and Weszkalnys 2011: 3). The authors discuss how planning as a future-oriented activity is typically optimistic because by preparing in advance reflects a will to move from the current state to the desired one. However, this desired state of the future in many cases remains out of reach, the ideal results vague and the plan flawed (ibid.). The authors bring up Vike’s (2013) distinction between two different kinds of future time in the context of planning. The first is future of *contemporary time* that is immediate and promises real solutions to problems now and the second is *utopian time*, which by contrast sees problems resolved in a future postponed, always out of reach (Abram & Weszkalnys 2011: 9; Vike 2013). In this chapter, I will discuss the far-reaching technological imaginaries. Whereas the previous chapter focused on the common idea of technology as a vehicle for progress, in this chapter I explore the hopes and fears about where technological development is leading.

Utopia is an ideal society. Because ideal societies do not exist in the present, utopias are placed in the future and used in many idealisms to describe what the perfect society would be like. These might reflect political ideologies, be religious depicts or personal ideals. The word utopia was originally used by Thomas More in his similarly titled book in 1516, where More describes his ideal collectivist society. Later, the term utopia was used by Karl Marx and Friedrich Engels in *The Communist Manifesto* during Industrial Revolution. Dystopia on the other hand is a negative utopia or anti-utopia, a horror image of the imagined future. This is why dystopias are generally used in science fiction or, at times, in political rhetoric to explain why the decisions of an opposing party are wrong and how another party can offer better solutions.

4.2. Dystopia: Antidemocratic Fear

Conversations of a negative future occurred when we discussed datafication or feelings toward algorithmic functions from the perspective of possible threats or fears. Whenever dystopias were be discussed, they were described as a dictatorship where citizens' data would be collected and used against them. In the negative imaginaries, this data collection was used as a form of surveillance and as a help for the authoritarian government to identify potential enemies of the state.

"Plus, if that technology is being used wrong it is possible that here could also happen a revolution and we could have a horrible dictator, who then uses that open data against us."

– Journalism student No. 1.

It might not be surprising that countries like China or Russia, which are notorious for using such methods, were mentioned. As Finland is considered a safe democratic country, dystopias in general were thought to be distant and unlikely. Sometimes informants would mention the word dystopia in a denial: "I am not afraid of a dystopia" or "I do not have any fear that there would be a North-Korea effect." This feeling is also backed up by the fact that as an independent state, Finland lacks the history of autocracy, even if experiences of it have been acquired under the rule of Sweden and Russia. Felt (2015) speaks of memory practices as an important tool to create technopolitical identities. Technopolitical identity refers to a specific kind of positioning in relation to (a certain) technology – for an example, Austria is a country that does not have any working nuclear energy plants and is known as an antinuclear country. Felt (2015) disputes that Austrians goal to keep nuclear energy out is due to specific historical events that have molded the imagined community's identity and thus normative behavior, as identities are also performative. My informants position themselves toward information communication technologies (ICT) with the potential of surveillance and to surveillance technologies. Because of Finland's perceived identity as a democratic country, the technopolitical identity is trusting toward new forms of surveillance.

Narratives exist against a certain symbolic, cultural and material background. Eskola et al. (2011) have examined specific features that have affected the Finnish conception of modernity in which

ideas of technological enhancement and technofutures are related to. Eskola et al. (2011) view historical events that have shaped the Finnish national identity beginning from Finland's geopolitical location between the West and East. The authors name all the other nations and social groups that function as reference for the Finnish idea of modernity as significant others. Inside the national borders, the significant others have traditionally been Sami as well as Roma people. Outside the borders, the significant others have been mainly Sweden in the West and Russia in the East. Russia has represented a negative reference, while Sweden and other Nordic countries have been considered as positive. This division has its roots in the Finnish history of nation formation that begun in the nineteenth-century after geopolitical changes when Finland became the Grand Duchy of Russian Empire in 1809 and for the first time ever got a western border. This caused the need to signify the "westernness" of Finland while simultaneously making a distinction to Sweden, a country that Finland had been a part of for over 700 years. This begun the construction of Finnish identity that was later molded by the events of declaring independence in 1917, civil war in 1918, and later securing independence during World War Two in the Winter War (1939-1940). In Finland, *modernity is related to westernism* (ibid. 2011: 196). The borders have had an impact in constructing the Finnish national narrative or identity. Eskola et al. (2011) discuss how Russophobia and the fear of West abandoning Finland continues to operate behind Finnish national identity to this day (2011: 203; Meinander 2002: 166). This causes the need to highlight common European heritage and values because of a desire to have a place in the community (Eskola et al. 2011: 203; Klinge 2003: 172). Ideals of a democratic state and free markets represent these shared values of the West.

4.3. Algorithmic Influencing

One of the most cited dystopia-related fears was algorithmic influencing. This was connected to a fear of dictatorship. In algorithmic influencing people are targeted with a certain kind of content and messages to get them to act in a desired matter, for instance, to click a news story open or become interested in a new product. The same way algorithmic influencing is being used in targeted advertisement or other algorithmic suggestions; this can be done to spread certain values or political views. The business logic of such companies such as Google or Facebook is

currently based on directing content to their user-consumers and selling access to data to interested buyers. Their business is not only about being a platform for users but also being a platform for other businesses, artists, movements to find customers, fans or supporters. These companies essentially sell connections to people. With data this connection can be deeper than skin deep. Psychographic marketing is an effective form of marketing that data makes possible. It means that content messages are tailored just perfect for your temperament and values based on your online behavior. It is argued to be so effective that it has the possibility to change how people behave (Lindgren et al. 2019: 84-85).

"In my opinion, the worst fear is that the data is being used so that unbelievable propaganda can get through. Right now, all these sort of racist movements, Nazis and all have been activated. I could have never imagined that if someone had said to me in the 90's that in 2016 there are black shirted Nazis walking in the streets of Finland. I would have been like 'Oh c'mon!' and yet there they are marching [laughter]. Unfortunately, these kind of movements will get a lot more footing if they can do the influencing correctly. Thank god, they still cannot!" – Sales marketer.

The sales marketer noted that this kind of influencing is scary and continued that her dystopia is that soon we will be in Gilead just like in the Handmaiden's Tale. According to her, conservative societies like Finland are the most vulnerable because "men of the forests" are easy to join these kind of movements and to cause revolutions. She was not the only one worried about the growing power of ICT-corporates to gather information and build state-company relations.

"Well sometimes, I have sort of been thinking about it quite a lot. Those thoughts are related in Facebook and in my head I have compared it to that kind of horrible, dystopian thought how it can control people. I can see it so, that okay, if someone owns it, like in Facebook its style of guiding the algorithms . . . so what if governments would want to buy those and decide what citizens can know? This sort of 'knowledge is power' thought." – Ecology student.

These dystopian ideas relate to ideas of information war and propaganda that is more efficient and that can be targeted correctly when there is access to open data. The United States 2016 president election and President Trump's victory was one example that the informants spoke of and they contemplated what the role of Cambridge Analytica or Russian hackers was. When I did

my first set of interviews in 2017, rumors of targeted false news and campaigns had just appeared in the news. This meant that the informants who mentioned the case were only contemplating the possibilities of this kind of political influencing. However, in 2018 during the second set the verdict of Cambridge Analytica's involvement was confirmed. This meant that speculation *if* elections could be manipulated had somewhat passed and the focus was more on speculation *how* elections can be manipulated. During 2017, this sort of algorithmic political targeting was being spoken of as an urban legend or a possibility.

Lindgren et al. (2019: 84-85) were able to speak with a representative from SCL Group, which used to own Cambridge Analytica. SCL is a company that is specialized in psychological influencing. When the company gets a political assignment from a client, which states they must win 50 % of the votes within a certain jurisdiction, the company begins to create psychographics of voters. To create a psychographic, they first analyze lightly personality traits, attitudes, and lifestyle. The second step is to find similar people by their psychographic. Next, the company will scan how people who have voted the desired way speak about their decision, and then they begin to "bomb" people who have not yet voted (or who have not stated it in Facebook) with similar messages. Because of psychographic marketing the political messages can be tailored and targeted to people in such a way that eventually enough people tend to vote like the advertiser wants. The representative said: "*Never lost an election*" (ibid.). However, the representative is speaking on behalf of a commercial firm—we do not know how accurate the description is.

This does however confirm that the concerns over algorithmic influencing are not futile. It is being done on both minor and major scale from simple consumer products to voting decisions. Two of my interviewees from the digital marketing reference group spoke about using profiling or their relationship to profiling. A senior product-marketing manager in an IT-security company told that he felt psychographic marketing was unethical and gave an example how gym memberships are advertised. Depending on one's psychographic profile of high or low self-esteem, this can be done by emphasizing even greater wellbeing by getting more strength and muscles or by focusing on a negative tone of how someone is fat, lazy and unattractive if they do not go to the gym. Similarly, insurances can be advertised based on whether they give security (for people who are more cautious) or enable fuller life without worry (for people who are more risktakers). Another

interviewee, a digital marketer and part-time event organizer opened up how he is going to create targeted advertisement for a minor techno music festival. He wanted to target the festival for club Kaiku and Ääniwalli's likers on Facebook but since one had around 16 000 and the other around 20 000 likes, they are too small numbers for targeting. This is why one has to expand to likers of techno, house and electronic music in general and market to them. According to the marketer, this was not close enough because the music scenes are eventually so wide that many do not fall in the precise target group. The digital marketer told me how an average marketer does not have similar opportunities as Cambridge Analytica. He speculated that companies like Cambridge Analytica probably use their own marketing tools that enable them to get precise and highly targeted messages to key audience groups. What the marketer was designing to do was, however, "a miniature version of what Cambridge Analytica did":

"For example, we were planning to test this that we are going to download Ääniwalli's attending lists from Facebook, which we could later reinsert back, but there are no guarantees if it will work. Facebook used to contain email-lists that they can match up. I am not sure if this has changed but previously it was mandatory to have an email and then if that email matches someone with a profile, then you could do a 'look-alike audience.' So, if you download there, for example, 1000 email addresses and Facebook locates 800 of them, then it will mine the data of those 800 profiles and make an algorithm that identifies: 'Based on the data the target audience looks like this.' Then it will search for more people who look the same and targets them. It is one of the most efficient marketing tools that Facebook has right now. When you have your clientele, you can upload it there and based on that info, it [Facebook] can target them. But then the biggest problem we have right now is, that we have people's names and not their emails. So, we thought we would try the email that Facebook at one point created for all its users, the kind of firstname.lastname@facebook.com. We thought we would try that out, now that we have thousands of those names."

When I asked the marketer how this would affect things like privacy as the planned targeting process would enable direct recognition, the interviewee got slightly awkward about the question. After a while he said it was no different than a person stalking their ex on Facebook. If you leave any information on Facebook, it is public information. In my view, comparing target advertisement with recognition possibilities with a stalking ex does not make the first any better.

The marketer wanted to highlight that Facebook's marketing tools do not have the capability of recognition unless one is willing to open event lists and manually copy those to Excel and mining them there. Also, even if a marketer would have the names of the exact people they need to target, this would not be possible because there is no slot in Facebook's marketing tools where you could target specific profiles. Or at least this is not possible for an average marketer without the support of multinational company that is willing to use time and money for such methods. The marketer wanted to console me that marketers are not interested in anyone's personal lives and are more interested in getting their messages where they are designed to go and that the messages work.

As already mentioned, technology related fears and dystopias were mainly centered the topic of autocracy and the state misusing information of its citizens. Many found it alright or felt it was somewhat neutral that companies or advertisers gather and use data to do, for example, targeted advertising. They were not afraid that companies themselves could do harm via datafication. The only negative mention was technological addiction which social media services create through design by showing content that makes the user-consumers spend more time on the service and using technics like "an eternal news feed" or accentuating new notifications with the color red (e.g. Gerlitz & Helmond 2013: 1354). Data collection was not viewed harmful and many felt that they have "nothing to hide," because, after all, they are not criminals, terrorists or deviant. In addition, due to poorly targeted advertisement surveillance capitalism was not a thing to worry about. Zuboff (2019: 11) writes about the need to rationalize the situation of being tracked because we have become dependent on the services that do so. The rationalization occurs with defense mechanisms, such as the previous statements, that normalize surveillance capitalism (2019: 11). Yet, if a government actor would have similar surveillance possibilities, this was deemed problematic and a threat to democracy (i.e. freedom).

4.4. Score-Systems: The Market vs. The State

While discussing about automated decision making (ADM), score-systems were brought up in the interviews. One of the informants in the digital marketer group had been working with an

insurance company involved in making a pilot, where a person's lifestyle could be used to get discount from insurance premiums. The informant, who was working in sales in a technology corporation known for its database program, reflected how for her this kind of service would be good because she felt she had a healthy lifestyle. She continued her contemplation:

“But let’s say, if we think about a world where all data is practically available and if it could be possible to get data from you with a smart watch or other IoT-device, and it would let us know that you never exercise, you drive with a hole in your head, your purchase data would let us know you buy cigarettes.. You know, these kind of unhealthy ways of living? Then it would automatically devalue your worth.”

From insurance scoring she began to speak about China’s new Social Credit System that practically does the same and noted: *“I understand why they do it, but it is quite a dystopia. In China they can do this because there they have the communist party that simply decides so. In a Western democracy it is much harder to get through.”* She began to wonder if someday we all would have a numeric value, similarly as companies do pitch scoring to estimate how good a client or customer one is. Those with a good score usually get discounts and other perks. However, the sales marketer felt that this might not be a fair system for those who are in a disadvantaged position and who have not self-inflicted a worse living condition—for example, people who do not come from an educated family or who have innate illness, such as type 1 diabetes.

“But then again, if a brand knows their responsibility, that an insurance company would only use it to give discounts, then it could be possible to encourage people to do a life change.”

The sales marketer advocated gamification and as an example mentioned the language teaching app Duolingo, which is a gamified form of learning a language, where one learns a language by sort of playing a game. Almost anything can be gamified. The sales marketer continued that many sales organizations offer incentive programs like bonuses that can be thought of as a form of gamification, too, as they motivate employees to work better. This kind of motivation can be done also in the consumer side according to the same principles, for instance, as part of customer loyalty programs. She returned to the theme of life insurances:

“So here we could gamify that if you quit smoking, you began to exercise three times a week instead of two, then you could get a 5 % discount or more if you add more exercise. So, then these wearable devices what send us data, we can analyze people with it and see that if they have walked over 10 000 steps per day and exercise six times a week, we can get them a really good health insurance. Even if they would have diabetes, asthma or other illnesses. So, they would compensate their disablement with healthy lifestyles. If score systems would be used like this, it is a good thing.”

So basically, what the sales marketer was advocating, was that people with disabilities or imperfect lifestyles could *compensate* their ways of living or symptoms for insurance companies. Should the corporate responsibility be extended to consumers as being responsible for corporations beyond only buying a service? The sales marketer continued with another example involving driving insurances that many insurance companies are piloting. It is possible to install an IoT-device to a car that sends driving data to the insurance company. If a person drives in an economical style or drives less than the insurance company originally expected, then the insurance content and price could be modified by the insurance company in short notice and even proactively. What I was wondering is, if IoT-devices would become a new norm in insurances and if the companies could have a proactive right to change the contract, how this would not eventually lead to a situation where the IoT-devices would not mean only discounts but rather real-time risk calculations and billing. Zuboff (2015) has named this as uncontract, when contracts are turned into machine processes lacking social consent. Could this lead to a situation where an insurance company could in terms of money make a value judgement on good life? Perhaps, by noticing my unimpressed expression, the sales marketer highlighted that similar pilots are being created in the public sector as well.

A few of my informants did mention China’s Social Credit System, which they considered unethical. It was contrasted with a dystopian science fiction show Black Mirror’s one episode with similar score system. However, this kind of scoring done by private sector such as insurance companies or banks, were considered quite neutral because they are just companies trying to make profit. I find this slightly nerve-racking exactly because the private sector actors are not

socially responsible actors in the same way as public sectors are ideally. The private sector is generally aiming to gain private profit.

In the capitalistic society we live in, risk managing is crucial in for profit making. Economic forecasts are one form of risk managing but also score-systems, like pitch scoring have traditionally been availed as risk reducing tools. These tools assess how likely a person is to pay back their loan to a bank or how likely a person will need insurance indemnity. Economist Akerlof's (1970) famous lemons problem approaches issues that arise from asymmetric information between buyers and sellers regarding investment or products. A lemon is an investment that does not produce an anticipated return or has no value. Akerlof's (1970) famous example is about the market for used cars, where quality uncertainty causes the buyers to buy cars that they deem average price because they do not have similar knowledge on the vehicle as the seller has. Cheap used cars are easily seen as lemons, and expensive used cars tend to be seen as too risky to purchase since they can end up being lemons. The asymmetrical information favors the seller, and especially the seller of lemons. However, disparity in the perceived value leads to a disadvantage for the sellers of real premium cars. Akerlof (1970) argues that strong warranties or more information could help to overcome the lemons problem. The lemons problem exists not only for the consumer and business products but also in the finance sector, for example, in the assessment of creditworthiness of a lender (Akerlof 1970). Thanks to the world wide web consumers' ability to gain information on products has improved, giving the consumer a better chance to make informed decisions. Datafication increases the level of knowledge for businesses, but it raises the asymmetry between consumers and businesses as the businesses can be better informed about the consumers behavioristic data and psychographic marketing. The more corporations know about individual consumers, the less relative power consumers have. For companies, using datafication can be viewed as risk managing which increases efficiency.

4.5. Utopian Possibilities: Humane Society and Easy-Living

When dystopias were related to fears and horror images, mostly related to the subjects of power, control and privacy, utopias were focused on the dreams and possibilities that new technology might have on our society. Future imaginaries of an ideal society were centered on social values and changes in production and employment that could inspire societal change. The utopian themes represented Nordic ideology of social equality and liberation from unnecessary work. Essentially, as discussed in the previous chapter, technology is seen as a tool to gain the desired futures. One of the informants, a vlogger hoped that if algorithms would develop beyond the human brain, they could offer solutions that humans could not invent to macro-level problems – for an example, algorithms could find a solution for global warming that is beneficial for all or find an automated way of distributing wealth evenly that still would encourage people to work. The informant did recognize that there are already many great big scale ideas, but the implementation is difficult. In the next sentence, he continued his thinking about algorithms and AI:

"I do not think that democracy or capitalism are the most optimal social models, or they definitely are not. We must have better models to make things because it would be funny that we have one idea that would be absolutely best. It does not suit human character but what suits human character is that we evolve."

This sentence shows how technological progress and adapting to new technologies is linked to ideas of societal progress. In the previous chapter, I discussed technological determinism, which is a belief that societal evolution occurs through technological enhancement. The technological imaginaries displayed features of Marx's historical materialism, according to which society's technical base conditions social existence. The technical base consists of skills, available tools and technology, method of production and consumption, and division of labor. From this material premise, ideological grounds are forged that shape culture and belief systems (Marx & Engels 1976 [1845]). Historical materialism is a technologically deterministic view also because available material or technology is seen as the cause for social change, not human action that first imagines and then performs these changes. Not all interviewees shared this technological determinism even when their comments reflected aspects of historical materialism. Instead, the informants

expressed the hope that people would use technological innovations responsibly. The hope for a humane society with the advance of technology became apparent when we discussed the possibilities of algorithms and technological development.

“Well from technological development [I hope] that we could really use it for the benefit of society because automatism and robotics have incredible possibilities to lift our societies into a complete new level. Because when people would be liberated from that kind of mechanic work or from work that machines can do, it would give so much more room for all creative activity and thought. All this type of, if it could be directed, and if we could think that work is no longer the thing that everyone is supposed to do, that it might be a good idea that machines do the work and people do something else. But of course, subsistence should be secured with some kind of a system. It would be it [hope], because I see so much advantages in technology and in digitalization if it is used correctly and for the benefit of people and not for power, money and size being bounded for even smaller and smaller amount of people” – Journalism student No. 2.

One of the expected future hopes in relation to technology was automation and delegating work assignments to machines. Contemplating their future hopes that can be achieved with technology, the informants seemed to continue this ideology. Automation and work delegation were seen as ways to reduce dull, dirty or dangerous work assignments and to increase expertise assignments. Another informant continued to elaborate the idea how delegating assignments to machines would also redirect workforce into other kind of work fields.

“It raises pleasant feelings. It is sort of optimism: ‘Ah, well it is about time.’ That workforce, that human force is going to be directed in a completely different way and hopefully into humanistic sciences. The less one has to do repeating, mechanic work.” – Musician.

The technology can help us acquire a more equal or better functioning society where tedious work or chores can be assigned to machines. This way we humans can concentrate on the assignments that matter more, that need human attention or social interaction, and which require creativity. Machines can help us work better, which also correlates with the capitalistic market ethos. A sales and marketing coordinator found it extremely positive that we are delegating work to machines. She hated routine work and liked changing work assignments,

which could enable creating something new. She felt that giving up routine work makes working easier, even if routines constitutes only a fraction of one's work. Another informant who works as a growth hacker in a start-up's digital marketing team also commented: *"The manual easy work can easily be given to machines so one can focus in developing and taking things further."* He went even further with assigning work tasks to machines. He began discussing Amazon's artificial intelligence called Alexa. The growth hacker had read an article about Alexa and had learned that after a few orders the artificial intelligence begins learning what the consumer wants and starts to look for similar products but for a cheaper price, for example, cleansers. Alexa is capable of making the complete purchase for the consumers from the start to the finish by using the account information for address and credit card number, which means that consumers do not have to participate in ordering in any way. The thought of delegating work to machines was *fun* for the informant.

"It is such a big relief from the futile everyday chores. Like buying cleansers from a store. If someone can do it so easy for me, then I will rather let it do it. I am ready to let go of my privacy that much so these things will be home delivered."

Indeed, when discussion would turn to these human-machine relationships and artificial intelligence, my informants did focus in maintaining the humane aspect. The desire was that mundane, manual work assignments, such as making work schedules, could be mechanized, but only to free human capacity for creative and demanding tasks. Delegating more work to machines also brought up industrial revolution and its promises to reduce the need for human labor. One informant told me that he had read that the industrial revolution has in fact upgraded that need. Perhaps, this progress with new technological innovations would help realize those promises of reducing dull labor. None of my informants thought that the need for human workforce would disappear. One example that kept popping up was that the requirement for doctors would always stay the same. Only the work assignments and domains would change depending on demands.

"Well it does constantly reduce the kind of manual nine-to-five, which is really welcomed. I find it really interesting to see in a big scale how for example Finland is going to change. If we think about that now one must live in a city because one has to go to work at an office, then people could live in small municipalities and work from the dock. Or what is going to happen?"

Basically, there are many options [laughter]. We have been so long stuck in this sort of 'at certain hour one must do certain things' that it is going to take time in the human psyche to realize that: 'Yes, there are other options how things can be done.'" – Sales and Marketing Coordinator.

Technological advancement at work could be related to “the return to the countryside” form of agrarian utopia, even when the actual work assignments would be office tasks as opposed to living of the land and farming. This is an interesting contrast to the previous chapters’ negative notions of “moving into the forest” if one does not want to use modern ICT-services or is critical toward them. I suppose that the negativity derives from the fact that not using ICTs is seen as an act to defy the society, whereas moving in the woods to do telecommuting work is seen as consistent with societal norms. The conversation continued with the informant about flexible working and how some people are already doing it.

“It is probably the first wave. The big masses will come. There are also professions that can never be done from one’s summer cabin. One cannot treat patients [laughter] or anything like this that it is a work that must always be done at a certain place but those [professions] will probably get more help also [from technological development]. Those are interesting, those applications to help doctors so making diagnoses and others could be made easier. There would not be so much room for human mistakes.” – Sales and Marketing Coordinator.

The idea that robots would come and take all the jobs were seen naïve and utopist. A content strategist from a marketing office I interviewed summarized: *“Humans cannot be replaced.”* Delegating work to machines is thought to make working (as well as life) easier and more pleasant. This shift from boring, repetitive assignments was anticipated. The hope was that perhaps this might inspire a movement toward humanistic and social sciences. As if, the growing number of machines would somehow be connected to an increase of soft, human values. The people I interviewed felt that empathy and technological innovations can complement each other. A BBA hoped that robots could carry out work in a reasonable way, while people would be paid a basic income.

“Until artificial intelligence gets better and then machines can do everything.”

He laughed and said it is a joke, but that he partly takes it seriously. He began discussing how we live in a time of prosperity and how so little of any of it is used. Sharing economy would be a better option in his opinion and resources should be used in beneficial ways. He said: "*We have a lot of problems and a lot of people . . . if we could be able to use digitalization as help in moving those resources into problem solving.*" This could work either in that we could solve problems using digital devices or that the devices release human energy into problem solving. The discussion of my informant highlighted cooperation that could be achieved with ICTs as opposed to exploitation that data divide (Andrejevic 2014) can cause.

Taussig (2010 [1980]) has written about the commodity fetishism, which describes capitalist cultures' blindness to the social basis of essential categories. Categories such as time, space, matter, human nature, or society itself are often portrayed as natural when in fact they are social products. The social basis is rendered invisible by abstracting human beings from their products that are converted into commodities and bought and sold on the market. Due to the abstraction, economic value is seen as intrinsic to these commodities as opposed to originating from human affairs and relationship to commodities become valued more than relationships to other people. In the capitalistic world, human relationships are thus transformed into relationships between commodities. People's productive capabilities and nature's resources are organized into markets and rationalized to correspond with cost accounting. Taussig (ibid.) writes how "the unity of production and human life is broken into smaller and smaller quantifiable subcomponents" for the capitalist system of accumulation to operate. This means that beside physical commodities, a commodity-based society produces also phantom commodities that, for example, labor or labor-time represents. Labor-time is a phantom commodity because as an activity of life itself, labor is set apart from life and abstracted into the commodity of labor-time, which can be sold or bought. Labor-time does not appear as a social construction that emerges from how people have organized their relations to one another but seems immutable (Taussig 2010 [1980]: 4). The discussion of growing humanism with automation could be connected to a reverse of commodity fetishism. If humans do not have to work anymore like machines, they may refocus back to being humane and social when they do not have to worry about capitalist production.

4.6. Media Utopias

Dickel and Schrape (2017) created a concept of digital media utopias to understand how technology mediates utopias. Their argument is that media utopias are successors to classical utopias. For the authors, utopias are optimistic and futuristic imaginaries that are achieved through planning. In contrast to social utopias, which are to be achieved with behavioral changes or new political order, the transformation of society as a whole is expected to happen by technological enhancement. This correlates with the technological determinism demonstrated by my ethnographical data. According to Dickel and Schrape (2017) media utopias are thought to be gained with new interfaces that do not represent a single innovation but entire socio-technological ensembles. The authors (2017) follow Luhmann's (2013: 335-345) dimensions of meaning in social communication and view how these structure utopias (and dystopias): their factual, temporal and social dimensions. Factual dimensions of utopias entail given situations in light of possible alternatives. The current state of affairs is placed under critique, and a preferable alternative ideal future is placed beside it. A temporal dimension depicts how utopias occur in the near or far future, and their base is created from past events, where the past is seen as an exemplar in how to do things or what to avoid. Temporal dimensions are mirrored to current visions, which are directed to an alternative future with possibilities. In a social dimension, society is divided into different agents of socio-technical change, in which practices of status quo are legitimized (Luhmann 2013; Dickel & Schrape 2017: 52-54).

The assumed neutrality of technology sustains techno-centric visions that are conjoined to existing social narratives, such as hopes for democratization, emancipation, decentralization and transformation (Dickel and Schrape 2017: 55). Media utopia is for Dickel and Schrape (2017) *a typical form of utopia communication*. The utopian visions can be easily adapted as the semantic structures are simplified to function with already existing narratives. With the simplification processes of generalization and decontextualization, the ideal future is depicted as close to the technology we already although it still requires some development. These simplified utopia narratives are also ideally marketable for involved companies (ibid. 2017: 53). Dickel and Schrape's (2017) main focus is on two case studies: 3D printing and Internet 2.0. The logic of

digital utopianism in 3D printing highlights the prosumer concept, which means producer-consumer. With the advance of 3D printing, it would be possible to decentralize production, which could even out wealth distribution and democratize political processes. In the case of Internet 2.0, better things are seen to be around the corner. Further technological enhancement will fix previous mistakes that can be blamed on previous technology, such as Internet 1.0 and its lacking qualities in not enabling enough participation. The authors compare these media utopias to invention of radio in 1930's and video cassettes in 1980's that were supposed to break hierarchical structures of society (Dickel & Schrape 2017). My interviewees expressed similar hopes for equality as they contemplated how technology could impact our society in a positive light. Whereas the interviewees contemplated automation's possibilities in modifying employment and production, the case of 3D printing in Dickel and Schrape's (2017) article highlights transformation by changing consumption habits to DIY (do-it-yourself) and thus decentralization as an equalizing process. Nonetheless, societal change is connected to the transformation of either consumption or production that technology mediates, not by transforming social practices as such.

4.7. Conclusion

In this chapter I discussed the far-reaching desires and fears that were inspired by the discussion I had with my interviewees about algorithms. The reason utopias and dystopias were discussed in this chapter was that they reflect the interviewees' attitudes toward technology in how they imagine it could affect our society. My informants hoped that technological development would lead to the improvement of society, which correlates with technological determinism in how technology is associated with unilineal development. The social and normative values that become visible are western ideals of democracy, freedom and equality, while simultaneously employment, efficiency and productivity remain as a topic of conversation. People imagine that technology could improve the society by enabling better living and working conditions as well as opportunities. Consequently, technology can be viewed as mediating social utopias, where the ideal society is reached by adapting to socio-technological ensembles. The technological imaginaries relating to dystopias are of different nature because my interviewees did not view

possible negative outcomes to be the cause of technology itself but as the result of human agency. While technology could enable a utopia by transforming the way people can function, people can cause the downfall of the transformation causing a dystopia, or a missed opportunity for utopia. Technological development may free and guide human agency to assignments that require human attention, or human agency may prevent this technological development. This would suggest that despite technologically deterministic unilineal view, human agency is still crucial in rendering progress technology mediates possible.

5. Conclusion

In this concluding chapter I attempt to summarize the themes of my research and contemplate how could the research field of algorithms and datafication evolve. In this thesis, I examined technological imaginaries because I am interested in understanding how do people relate to technology in general. I believe that the way people relate to technology and how they imagine it will affect our society has an impact on how they view algorithms, datafication and dataveillance. My goal in this thesis was also to increase the holistic understanding of how quantified data is used and experienced in the context of information communication technology. In this chapter, I will first summarize my approach before continuing to examine how progress is perceived and what historical trajectories is the technological narrative a continuum of, before viewing technology-mediated hopes for the future. Then I will examine the technology-mediated hopes in relation to the current revenue logic of surveillance capitalism, after which I will come to my conclusion and contemplate on where we might be heading.

5.1. Datafication and Social Understanding of Algorithms

Current technological hype is connected to algorithms. In the beginning of this thesis I analyzed algorithmic imaginaries (i.e. how algorithms are socially understood) by my interviewees from two separate reference groups, which I have labelled as 'everyday algorithms' and 'digital marketers' in order to understand their technological imaginaries. In mundane living, algorithms become visible for many in targeted or suggested content, whether on social media, search engine searches or streaming services. Beyond these everyday algorithms, they became a topic of discussion in contemplating the possibilities of AI and the delegation of work to machines. Algorithms are related to a much bigger phenomenon called datafication, where aspects of life that were previously considered qualitative, such as reactions or experiences, are becoming quantitative. This quantitative data is currently widely used by technology companies to generate profit but new implementations in automated decision-making are constantly being developed and tested in both private and public sectors. In automated decision-making, the decisions are

derived from the available data without human interference. Thus, algorithms and data have various functions.

In the introduction, I asked how technological imaginaries affect the society. To this question, I have no conclusive answer. One of the reasons is the ever-changing nature of imaginaries as they are not coherent but only partly structured and influenced by current events— imaginaries are not only fictive or affective but have their roots in perceived reality and reason (Bouchard 2017). In this concluding chapter, I will, however, attempt to analyze what my ethnographic material might reveal about technological imaginaries, how a technology-related future narrative exists and how these narratives are constructed—and what they tell about the Finnish society. In my thesis, I followed my interviewees' speech patterns that informed their relation to technology aspired futures. By thematically arranging the various topics of discussion about the future, algorithms and technology in general, it became clear that technology was associated with ideas of progress and the pursuit of desired futures.

5.2. What Ideals Govern Progress?

Ideas of progress were related to societal development and the experience of being modern that could be gained with technological advancement. This is why I argue that technological determinism emerged as pervasive in my ethnographical data. In order to find out more about the existing technology-related narrative, I examined how it is bound together with the concept of modernity that occasionally represents the ideology of rationality, objectivity, and liberty. Modernity has been used as a way to govern by creating a dichotomy between the perceived self and other (e.g. Inda 2005). Here the self represents the group one considers as belonging to whereas the other represents one's external group. In chapter four, I discussed Eskola et al.'s (2011) article that examines Finland's relation to modernity. The narrative of modernity has been constructed against specific geopolitical and sociopolitical events, which is why in Finland modernity is related to idealizing West, and especially the desire to be part of the West. Inside the Finnish borders, the perceived traditional people of Sami and Roma have been viewed as

others, while outside the Finnish borders, Russia has represented otherness. All narratives exist against a certain symbolic, cultural and material background (Eskola et al. 2011).

The concept of modernity is also connected to consumer culture through neoliberalism. Slater (1997) has argued that consumerism is an important part of creating the new world with its scientific knowledge and rational organization as opposed to tradition. Enlightenment era's values and promises of personal freedom, economic progress, and democracy are associated with consumerism. With the rise of neoliberalism in the 1980's beyond subordinating production to consumption (Slater 1997), competitiveness became an important doctrine as the world became viewed as economically competing nations (Downey 1998). Production and efficiency became viewed as sites of improvement where technology could be the source of progress (ibid.). Acquiring and using new technology is seen crucial in maintaining a valued world-class position. I, therefore, argue that the narrative around technology is embedded in maintaining global hierarchies.

One key feature in technology-related narrative is how the agency between humans and machines are reversed. According to the technologically deterministic view, technology's progress bringing capability is due to technology being viewed as an external force to humans and thus "free of cultural content." The assumed rationality and objectivity are seen internal to technologies as they are developed in specific scientific and technical communities (Downey 1998: 10). With the growing importance of quantified information and how future societies are being built on it, I wonder what the possible outcomes might be without the necessary contemplation on existing social hierarchies. With automated processes we might render structural inequalities more invisible than what they already are if the decisions are based upon data biases. One example I gave in the earlier chapters was how most scientific data about *humans* is scientific data about occidental men (Criado-Perez 2019).

5.3. Technology-Mediated Futures

The desired futures were connected to ideas of social equality, better living conditions, and change in labor where technology would liberate people from tedious assignments through

automation and making things more efficient. Could social equality be gained by changes in how working life is organized? Could automation create a shift from manual labor to expert tasks, which would increase the level of humanity? These changes do not emphasize any ideological shifts but a change in material practices and production. In the previous chapter I discussed media utopias by Dickel and Schrape (2017) where technology mediates utopias. In the media utopias social utopias are reached with technology, which is why I argue that media utopias are quite technologically deterministic utopias because they diminish the need to change as a society. According to media utopias, instead of fine-tuning social values and practices, we only need technological ensembles in which to adapt to. The technological imaginaries of my interviewees represented similar hopes that have been recorded before. Already over twenty-years ago, Downey (1998) wrote about the image of technology rescuing humanity or guaranteeing human progress. This does raise a question why are the technological imaginaries and hope what technology might inspire so similar?

While the technology mediated utopias appear in how my interviewees speak about reaching the desired futures, when they speak about the futures to avoid the emphasis is more on the effects of human agency. This might be because humans are not thought of as neutral the same way as technology is, which is why the utopias might be more techno-centric. By posing the issue of technological imaginaries, I wonder, might it have caused the interviewees to imagine the future to be especially affected by technology, even when the appearing technology determinism might suggest they had imagined technology mediated futures before I posed the question. Nonetheless, media utopias should not be seen as predictions of the future but as narratives that offer orientation on uncertainties (Dickel and Schrape 2017). The future was mainly thought from a positive perspective where current problems are solved or eased with technology. Because the future is filled with uncertainty, an optimistic gaze toward it can function as a coping mechanism with uncertainty as well as give something to look forward to. This might be a reason why their focus was on the positive aspect of technology in making living easier and reaching a good life. From this perspective, technological imaginaries appear as a shared myth, which nurtures hope. Anticipation entails positive emotions that are directed toward the future to help us prepare for it. If there is no hope, there is no anticipation. From this viewpoint, the future indeed can seem

intimidating and discouraging. Do we need imaginaries in order to continue our everyday lives and to give a sense of purpose? Utopian narratives shape communication processes and the realities of our society (Dickel & Schrape 2017: 55). Dickel and Schrape have argued that as utopian narratives are key elements of digital modernity, the narratives serve as core media of societal self-understanding (ibid.). Through generalization, simplification and decontextualization that are inherent in popular media utopias, they increase “highly distinctive narratives of a nearby future whose origins are already inherent in our present.” These narratives tend to be for the involved technology corporations also marketable (Dickel & Schrape 2017: 53). How much technology corporations affect our technological imaginaries? What is the ideal marketable future that dataveillance offers? Surveillance capitalism offers a utopia of complete certainty (Zuboff 2019).

5.4. The Desired Future and the Logic of Surveillance Capitalism: Mutually Supportive or Contradictory?

Is it possible to gain social equality through capitalist production? Most technological development is constructed by the private sector with the market logic of accumulation being the primary logic in the development processes. There is nothing new about this. Max Weber has stated: “The fact that what is called the technological development of modern times has been largely oriented economically to profit-making is one of the fundamental facts of the history of technology” (Weber 1978 [1922]; Zuboff 2019: 16). As the field of ICT has expanded, new forms of revenue logic have been invented alongside old forms of capitalism that were not useful for companies whose primary business is data. This is what Zuboff (2019) calls surveillance capitalism. Surveillance capitalism is a logic, not a technology. Even when the new form of capitalism is unimaginable outside the technological context, it is not “digital.” The idea of digital can take many forms depending on the social and economic logics that bring it to life (ibid. 2019: 15). In surveillance capitalism, people are the source of surplus. The idea of surplus in Zuboff’s (2019: 10) argument means “the objects of a technologically advanced and increasingly inescapable raw-material extraction operation.” The customers for surveillance capitalism are

the corporates that trade in its markets for future behavior (ibid.). This is creating asymmetries in knowledge and power. Zuboff (2019: 15) makes an important point by demonstrating how surveillance capitalism is logic in action rather than logic that is imbued in the technology itself. She gives an example how in 2009 when public became aware that Google stores search histories indefinitely, the corporation's former CEO Eric Schmidt commented how search engines do retain this information. In reality, search engines do not retain information, but corporations exercising the logic of surveillance capitalism do (2019: 15). When something in the technology industry happens that causes a public outcry, the negative aspects of machine functions are assigned as features of the machines. These internal logics are not innate to the machines but implemented by the humans and institutions that use, build and program them. Perhaps, nominally assigning technology more agency works for the benefit of technology companies and with it the perception of technology as somewhat external force continues to live on.

Seaver (2018) has discussed algorithms from a human centered perspective and how algorithmic functions are like an endless feed-back loop between different human and non-human actors. The code does not appear outside human interaction but instead is molded by it. Seaver discusses everyday work of programmer Nick and how social interaction between him, his co-workers, and customers are important in the development of technological services. As Seaver (2018) notes, for technology companies to change how their software work, they must change how their employees' work. The technologically deterministic story of algorithms taking over the world can be called *algorithmic drama* (Ziewitz 2016: 3). In the drama algorithms display a seemingly outside force affecting the human world. However, coders, programmers, or computer engineers are hardly outsiders of the human world (Seaver 2018). They are the ones who make, shape and repair the functioning of the machines even they might be self-learning. Even artificial intelligence must be re-educated and tuned from time to time, which is why they are not completely autonomous technologies, or are not yet. Therefore, one should search for a bigger algorithmic feedback loop if humans are missing from the picture (Seaver 2018: 377-378). Even when algorithms are being used to the advantage of surveillance capitalism, it is not same as algorithms. Similarly, surveillance capitalism may employ platforms, but the operation is not same as a platform (Zuboff 2019: 16). The for-profit central organization logic is embedded in the

platforms (van Dijck et al. 2018) by people who desire to operate according to the market logic of accumulation.

If we reflect the technology-mediated utopias that emphasized social equality, freedom, and even democracy when contrasted with the dystopias, the logic of surveillance capitalism does not meet the expectations. Surveillance capitalism is an antidemocratic social force (Zuboff 2019: 513). When the industrial revolution became a means to exert control over nature for the human betterment, the information revolution attempts to assert its dominance not on *nature* but on the *human nature* (ibid. 2019: 515). Machines are not only to be seen as extensions to overcome the limitations of human body but with data there is the possibility to modify behavior of individuals, groups and populations to fit with market aims (ibid.). These market aims can vary between consumer activities to voting habits, as we have seen with Cambridge Analytica's involvement in the Brexit vote and Trump's 2016 presidential campaigns' victory. Zuboff (2019: 515) argues that the instrumentarian power of surveillance capitalism functions as a taming process that has the capability to incapacitate democracy. The data divide with its asymmetry in knowledge and power may lead to new sources of inequality as people might have less personal control over their lives (Zuboff 2019: 516). Zuboff (2019: 518) refers to Piketty (2014: 571) who has maintained that if a market economy is left to itself, it contains powerful forces of divergence, which are potentially threatening to democratic societies and to the values of social justice on which they are based. We need new legislation so the power and wealth of surveillance capitalistic corporations does not escape democratic practices. The current model of surveillance capitalism is abandoning traditional reciprocities. Instead of productive relations of capitalism in which a company relies on people as employees and consumers, surveillance capitalism lacks this reciprocity. The data companies do not need to rely on people as consumers, making the service users only "raw material." The formal indifference does not only include data companies' relation to their data providers but also between the companies' reciprocities to societies as they are able to operate on a "hyperscale" (Zuboff 2019: 499-500). This is why van Dijck et al. (2018) have been interested in how public values can be embedded in the platforms in which our societies have become dependent on.

5.5. Conclusion: Technological Imaginaries and Their Relation to Market Liberalism

Imaginaries link familiar reality that can be described as norms, traditions, narratives and identities with deeper symbolic structures. Society includes multiple coexisting and even competing imaginaries from which some get a hierarchical stance, usually with the help from media representations. Cultural patterns set common goals and guide behaviors. The cultural patterns include the ideological aspect how certain obstacles can be overcome. As imaginaries are constructed, be they technological or other, affects and reasoning help to form these narratives, which also contribute to the creation of utopias that represent obstacles which have been overcome (Bouchard 2017). These factors mold technology-related future narratives and create cultural differences in them. Technological imaginaries can demonstrate national identities in how technopolitical identities are performed, which meant positioning oneself in relation to technology or to specific technologies (Felt 2015). Finland in general is an extremely technology positive country, and the idea of being modern is valued. In Finland technology industry is one of the biggest export industries which contributes considerably to the employment situation and the Finnish GDP (Statistics Finland 2020). These features of Finnish society might explain why Finland's technopolitical identity is optimistic and highly welcoming to new technologies.

Sociotechnical imaginaries have a "push and pull" effect in what is socially accepted as part of the narrative and what is pushed out (Jasanoff 2015: 339). As I discussed dataveillance with my informants the theme of paranoia emerged. Many felt that there is no need to worry about commercial tracking. Dystopian concerns were focused on the state misusing algorithmic functions. The informants do not mind commercial tracking because they deem they have nothing to hide and they are not inclined to paranoia. By stressing decency or choosing to ignore how much data the companies have, the informants rationalize commercial tracking and normalize surveillance capitalism (Zuboff 2019: 11). Dataism that represents trust in data as objective and rational as well as trust in the sources who collect data will not, for example, misuse the data, could also be called one of these defense mechanisms. In some cases, it was unclear if this dataismic trust was due to a lack of options in preventing the collection and use of data, while simultaneously the services acquired by giving data are viewed indispensable. The possible

negative aspects of (commercial) algorithmic functions are pushed out of the technology narrative, so that the technology-mediated utopia may remain intact. The common technologically deterministic view that maintains the image of technology as a source of progress might make posing critique toward technological enhancements or operation models difficult if all forms of technological functions are considered as keys to becoming better societies in the long term. Even the information that data derived from commercial services have been misused in election manipulation does not lead to viewing commercial tracking as harmful for such institutions as democracy.

Yet, dystopian ideas are tied to a political shift from a democracy to an autocracy. One of the contested modernization theory's key features is democracy (e.g. Rostow 1960). According to the theory, in order to be a modern nation, a nation is required to be a democracy. Does this mean that the dystopian view might include a fear of becoming unmodern beside the obvious fears of losing personal and political freedom? When it comes down to technological imaginaries and people's relation to technology, people are "not for or against particular technology but for or against particularly imagined forms of life" (Felt 2015: 121). Technological or sociotechnical imaginaries are not fixed in advance but are constructed through the collective work of designing futures that are viewed worth attaining in a given nation (ibid.). Here I will remind that future-oriented activities, such as planning or anticipation, tend to be optimistic (Abram & Weszkalnys 2011) while they help people to orientate themselves temporally: how to think, feel and address contemporary problems (Adams et al. 2009: 246-248). As an "external force" some of my interviewees hoped that technology could help develop new solutions to anthropogenic problems. As one of my interviewees noted: "*There must be better ideas than capitalism or democracy.*" With this statement he meant that if technology and artificial intelligence would progress further than the human brain, *technology* could invent a better system for all. Both ideas of capitalism and democracy are connected to the western values of liberalism. Instead of searching solutions beyond the "western" values or culture, people are searching for technological solutions on how to fix social problems, such as equality.

What the technology-related future narratives then tell about the Finnish society? The technological narrative is closely connected to the market ethos. In the competitiveness aspect

between nations where the concept of modernity plays its part and in how most technological innovations are developed in the private sector for economic purposes. Technology is believed to improve living conditions. The common technologically deterministic view where technology mediates societal development creates a question whether we are developing societies according to the capitalistic logic beyond the already existing neoliberal policies and practices. This could strengthen the existing capitalistic market ethos in Finland if we are developing our society with technologies that have the logic of accumulation embedded in them. The commercial tracking via dataveillance may cause annoyances, confusion or frustration when people feel they are categorized wrongly based on the suggested content they receive or when uncertainty exists how data is being gathered. Yet, it is not deemed to threaten personal freedom, and especially not when compared to state surveillance, and people are ready to let go of their privacy for (consumeristic) conveniences. This might suggest that contracts that are based on machine processes and IoT-tracking, such as insurances, could get increasingly common. This can increase the power that commercial corporations have in determining consumer-corporation relations. As stated before, for companies using datafication can be viewed as risk managing which increases efficiency. This would apply also for state institutions developing similar initiatives in automated decision-making.

In the previous chapter I contemplated on the commodity fetishism, where social base is abstracted from economic operations, and phantom commodities that result from the abstraction process. With dataveillance, is human experience being transformed to a phantom commodity? As opposed to some of the interviewees' hopes that automation might increase social behavior and level of humanity, could we in fact be heading to a direction where ordinary consumers are being viewed as possible "lemons" for corporations? Lemons were investments that do not produce anticipated return or have no value, which is why there should be some guarantees (Akerlof 1970). If so, this would be an extension of the market right down to the personal. It would change the logic of the market being there for people to make a living to the people being for the market. With the shift from industrial-based to service-based economy the consumers are the ones that ensure that various companies stay in business. This might make the consumers lemons if they will not produce enough surplus for the companies, which results

in the viewed need to track and assess consumer-value via dataveillance to enhance consumer activity. When thinking about the concept of collateral in the financial market (e.g. Riles 2011), contrasting it with the algorithmic point systems that are ever increasingly used in various ways from a likelihood of purchase in an online store, assessment of good citizenship (China), to probability of becoming a child service customer (AlgorithmWatch 2019), can the point system be thought of as a collateral of personhood? Depending on the use of algorithms, it can be perceived as translating human behavior into numbers that can be counted, evaluated, and predicted. This behavior prediction can give a person a numerical face value that can be seen to extend the value assigned by wealth, gender, and ethnicity into new dimensions of life, or at least strengthening those factors that continue to create an unequal, hierarchical world.

5.6. What is next? Multidisciplinary Collaborations and Co-Creating Future

Pink and Lanzeni (2018) examine Big Data in a social science research context. The attempt is to create anthropological big theory of Big Data based on Pink and Salazar's (2017) future anthropologies that focus on future-oriented applied ethnographical practices. Pink and Lanzeni (2018) view similarities in anthropology and in data collection in order to create a conversation on the possibilities of combining the ethics and temporality aspect of ethnographical research with data gathering. When Big Data is treated as objective, it becomes problematic. If treated as process of analysis it becomes possible to apply ethical approaches to the methods of analysis (Pink & Lanzeni 2018: 3). Pink and Lanzeni (2018) focus on design anthropological ethnographic practice because they are interested in its processual approach where the attention is on the ongoing changing state of affairs. Design anthropology examines imagined or anticipated possible worlds as opposed to predicted worlds (ibid. 2018: 7). Categories that interpret quantified data are usually designed first, which makes them assumptive, when the data should be collected first and categories formulated after or ongoingly produced. Big Data analytics tend to be solution-centered in answering predetermined questions while the anthropologic approach is dialogue-centered between theory, ethnographer, research participants and the emergent world. If Big Data could be rendered more dynamic and changing, the relationship between ethnography and data could amount to more than a critical approach (ibid. 2018: 4-5). They

advocate that data analytics should engage with the ethics of uncertainty of what is yet to come rather than ethics of the past with behavioristic assumptions, which causes the collected data to be abstracted from real human experience that results in the lack of accountability. As aspects of our lives become increasingly quantified, we should remind ourselves that not all information can be measured and that estimations are simply estimations – they are not the truth or complete certainty. Because regimes of governance are increasingly using predictive data analytics, mundane contexts where data is created, collected, and analyzed require research ethics as part of the process. The expertise anthropologists have developed through the ethics of engagement with research participants could be used to conceptualize ethics through which Big Data might contribute to an emergent and possible future, rather than objectified and predictive future (Pink & Lanzeni 2018: 2). We should be co-creating the future as it emerges. In order to have an ethical approach in the making and analytics of Big Data, there is need to attend to the contingencies and complexities of the human, technological, and power relations that influence how data emerges, what meaning is assigned to it and how we make use of the data (ibid. 2018: 3). There is a need for more holistic understanding of living with data where data represents an ongoing process, instead of treating data as a self-evident objective fact (Pink & Lanzeni 2018). Through my analysis of ethnographic data I have attempted to share light to this holistic understanding of living with data.

So where do we move from here? The private sector is not alone in developing and implementing algorithms as well as using and testing data. The public sector and universities have an interest in algorithms too. Coding and creating algorithms have been included as a part of analytic methods in social sciences and increasing number of university units try to combine social and computer sciences. As I have argued, technology is not an external force to humanity but something that humans create and shape, which makes technology part of human society. It will be interesting to see if these type of multidisciplinary faculties and other multidisciplinary collaborations in both public and private sector can make a difference and hopefully direct technological implementations to serve also other logics than the market logic of accumulation. These kinds of multidisciplinary collaborations might be the key to develop socially sustainable tomorrow and perhaps take us one step closer to the far-reaching hopes of my informants.

Beyond combining the knowledge of social sciences to technological innovations we need more legislation in how data can be gathered and used, especially in the private sector.

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