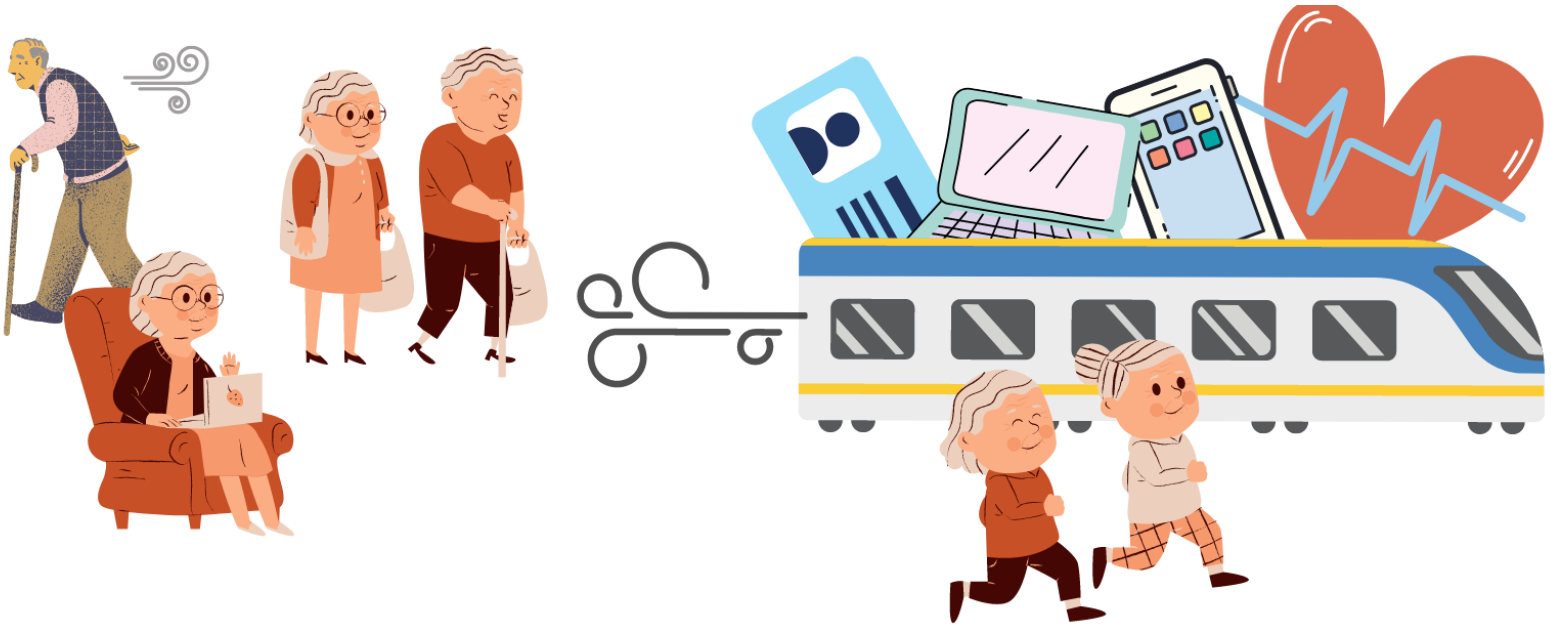
To Be, or Not To Be Digital:

A Techno-Anthropological investigation of systemic oppression of elderly users through public digital (health) services

MASTER'S THESIS



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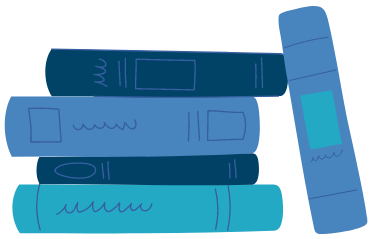

Resumé

Dette er en kvalitativ undersøgelse af de konsekvenser, som nogle ældre borgere, oplever grundet den stigende digitalisering af den offentlige sektor i Danmark. Den offentlige digitalisering forudsætter et vist niveau af digitale kompetencer. Denne forudsætning betyder, at nogle ældre befinder sig i en kløft mellem dem som er fuldt ud i stand til at varetage sig selv i det digitale samfund, og dem som er fritaget fra det digitale samfund. De befinder sig med andre ord i den digitale gråzone.
At være ældre i den digitale gråzone kan medføre store udfordringer for individets evne til at varetage egen sundhed, men også på et mere generelt niveau.

Undersøgelsen her tager udgangspunkt i, at problemet om ældre i den digitale gråzone allerede er belyst gennem flere kvantitative studier. Denne undersøgelse bidrager derfor med kvalitative indsigter fra semistrukturerede interviews med ældre borgere samt øvrige interessenter. Formålet med dette bidrag er at belyse de faktiske konsekvenser, som ældre oplever grundet den stigende digitalisering. Dette gøres ved hjælp af den empiriske ballast ved vores 17 informanter, samt en bred vifte af offentlige rapporter om emnet. Herved kan en tendens identificeres, og sammenholdt med teoretisk inspiration fra kritisk konstruktivisme identificeres og diskuteres problemstillingerne ved offentlig digitalisering. Ved at få kortlagt de faktiske problemer og konsekvenser, bliver det derved muligt at intervenere i de etablerede socio-tekniske konfigurationer såsom den tekniske rationalitet i det danske samfund.
Vores undersøgelse finder, at ældre i den digitale gråzone lider både personlige og sociale konsekvenser som følge af den offentlige digitalisering i Danmark. Ældre betvivler deres egne evner og får i kraft af dette en forringet selvopfattelse. Ydermere påvirker digitalisering ældres sociale verden - både i det nære netværk og i samfundet generelt. Når konsekvenserne af digitaliseringen indtænkes i en sundhedskontekst, bliver konsekvenserne for individet og samfundet kun tydeligere.
Belysningen af de konsekvenser som ældre og potentielt samfundet vil opleve, kræver at der sker en ændring, hvis ikke Danmark ønsker at opleve ældre generationer, som føler sig ekskluderet fra samfundet. De ændringer, som potentielt vil kunne afhjælpe problemerne, kræver at nogen tager ansvar for ældres digitale kompetencer. Vi afvejer forskellige muligheder, lige fra individet til samfundet. Ydermere, så lægger vi op til en intervention som samler relevante aktører til en debat om hvor ansvaret bør placeres og hvordan man konkret kan skabe ændringer.

Vi konkluderer, at ældre påvirkes negativt af den digitale transformation af den offentlige sektor i Danmark og at deres evne til at engagere sig i egen sundhed er forringet grundet den digitale transformation. Der bør udpeges en aktør, som er ansvarlig for udarbejdelsen af konkrete initiativer, der kan sikre, at ældre i Danmark har de nødvendige digitale kompetencer til at følge med den digitale udvikling.

Abstract

The success of digitalization in Denmark is ranked in the very top in almost all reports. Digital signatures, eIDs, are subsequently becoming the primary access point for citizens when engaging with the digital Danish public sector. This requires all citizens, regardless of demographics, to consider their own digital maneuverability. Through qualitative methods such as interviews and observations we have extracted insights from various stakeholders relating to the socio-technical configuration of digitalization in the Danish public (health) sector. We have interviewed elderly users of IT, volunteers at IT-help events, representatives of patient organizations and experts on the field of engaging the public in digital health. As a result we have identified an oppressive technical rationality embedded in technological development by the Danish authorities. As a consequence the elderly are left demotivated, sad and self-doubting whenever they encounter publicly deployed digital (health) services. This can potentially impact their ability to master their own health and could lead to unfathomable consequences for society in general, as there is no obvious organization or authority to put the responsibility to counter this tendency on.

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Firstly we would like to express our sincere thanks to our supervisor Lars Botin for supporting our, at times, crazy ideas. This thesis is a testament to what Techno-Anthropology should and could do and we want to recognize the importance of the work that you do for the programme. We owe you our greatest gratitude for great supervision and trust. Next we would like to thank AAU for funding during the thesis. Traveling across Denmark to conduct field work is not cheap and AAU has made invaluable insights possible through this funding.

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From Alexander..
I especially want to thank my fiancé Kamilla for your insane perseverance whenever life gets rough, and for sticking by me in spite of numerous horrible dad-jokes. I simply do not know how you do it. You are the best mother for Knud and wife-to-be one could ever wish for. Thanks to my mom, dad and brother for always being supportive of the choices I make in life. You are my rock(s). I would also like to thank my parents-in-law for helping out whenever logistics and time do not align. You have been a massive help in making everything run smoothly. Lastly, I would like to express my deepest gratitude to my thesis partner Sissel Ladegaard for making this the most fun project I have ever been a part of. Your crazy impulsive ideas and your happy spirit is what constitutes a perfect project partner. Hopefully this will not be the last time we work together.

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you for only judging me a little bit whenever I start to ramble about whatever my interest of the day is. Lastly but not least, I need to thank my thesis partner, Alexander Dam Florentsen. I appreciate you always having the energy to deal with my bullshit regardless of how early Knud woke you up. I could not have imagined a better way to end my education than in a collaboration with you. I cannot wait to follow along and see what life brings you and your family. You deserve all the best!

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Introduction

Have you ever considered that IT and digital services are as fundamental a part of Danish infrastructure as highways and bridges? With the rapid development of digital services in Denmark, Danes are becoming increasingly used to navigating the digital landscape. Or, at least some are. Some of those who struggle are found among the elderly population. Imagine, if you had to call for help every time you had to turn left in traffic. This is essentially the case for some elderly whenever they are using digital services. While they might be able to start the car, they can not navigate in traffic by themselves. It is not necessary to drive a car to be a user of the traffic infrastructure in Denmark because you can always use public transportation, hop on a bike, or walk. However, it surely is necessary to have digital competencies to navigate the digital landscape as there is seemingly no alternative other than being left out.

The digitalization of the public sector makes Denmark one of the world's most digital societies (Agency for Digitisation 2021), and especially the Danish healthcare sector has been acknowledged for its digitized solutions (Ministry of Health et al. 2018). While the public sector and its increase in digital solutions aimed at ordinary citizens are on the rise, it paves the way for questions of whether everything is as good as it seems? Arguably the elderly's need for help provides a path for investigation as seemingly 'something is rotten in the state of Denmark'. Why is it that some elderly fall between two stools when faced with digitalization? What does it mean for society that some elderly are left in this gap between either being fully self-supported or left out? Therefore, what emerges is a question of: to be or not to be digitally competent? What we wish for this thesis to contribute with is insights into the experiences of the elderly who are found in the aforementioned gap, the so-called digital gray area.

The need for a techno-anthropological investigation of this topic is rooted in our conviction that no digital transformation, digitalization or digitization happens without interfering with societal factors. In our opinion, technology does not exist in a vacuum apart from society and its users. Thus the case of digitalization in Denmark provides us with a very relevant and critical case to investigate. Cars are not going anywhere, neither is digitalization. If cars are to fulfill their potential, drivers need to be competent enough to handle them - hence the concept of a driver's license. So, if digital services deployed by the Danish authorities are to fulfill their potential, why are the authorities not ensuring that elderly have the necessary digital competencies to use them?

Introducing the field

Denmark is in the lead when it comes to digitally transforming its public sector. An increasing number of interactions between citizens and authorities has become digitalized. The development is happening at an incredible speed and the digital services in Denmark are often praised throughout the world. Digital transformation has become such a huge part of the Danish brand that several strategies for how Denmark should continue its development have been drafted. In relation to digital transformation, it is important to clarify the difference between a few similar sounding concepts: digitization, digitalization, and digital transformation. They sound very similar and are often related but have quite different meanings. We lend a distinction from Bloomberg (2018). Digitization is the translation of analog information into digital information, e.g personal health journals. Previously they have been analog, but today Danes have access to their personal health journals through public digital services. Digitalization is more focused on the process. An example could be how the process of communication between citizens and the public sector is now based on digital platforms such as emails and chats instead of e.g letters on physical paper. Digital transformation is related more to a strategic point of view. Digital transformation is often based upon several elements of digitization and digitalization. An example of digital transformation is how Denmark has fundamentally changed its entire public sector with the implementation of multiple digital services (Bloomberg 2018).
During the writing of this thesis, a new strategy of digital transformation was published by the Danish authorities. It could have totally eliminated the project that we set out to do, had the strategy focused on the problem that we intend to investigate. However, both to our luck but also very unfortunately, the problem was not mentioned explicitly. Our focus for this project has been to investigate the possible consequences and pitfalls that digital transformation might have for the elderly. Various reports based on quantitative data have been published throughout the millenium. These reports revolve around the increase in users of digital services and the users' perception of the digital services in Denmark. Remarkably, several of the reports do acknowledge that some social groups experience problems due to the increasing digital transformation. However, almost none of the reports have given rise to further qualitative investigation. While the identification of a problem can easily be done through quantitative data, we argue that it is far more difficult to identify the root cause of the problem through quantitative studies. It is therefore our aim to contribute with qualitative empirical data analysis into this already known problem field of elderly and digital transformation.

Our categorization of when someone belongs to the sphere of 'elderly' is not a fixed categorization. Rather it is a loose definition based on our empirical data collection where our informants ranged from 66 to 88 years. In different literature the elderly have been referred to as the age group 75 to 89 years (Agency for Digitisation 2021; Statistics Denmark 2022), everyone above the age of 75 years (Ministry of Health et al, 2018) and above the age of 65 years (Siren and Knudsen 2014). It gives an indication for what is meant when the term 'elderly' is used. However in no way does it exclude people who might be 60 years and feel like they can recognize the struggles with digital transformation that will be presented in this thesis. However, as the age span might

suggest it is a rather large group of people who of course have different capabilities in different areas. Since this thesis is focused on digital transformation and digital services, we will lend a categorization by the Agency for Digitisation (2021). They have categorized citizens into three groups in relation to digital inclusion. There are two extremities: on the one hand are the elderly who are fully capable of using digital services by themselves. On the other hand are the elderly who are non-digital. The third and last group is placed somewhere in between, and has been coined 'the digital gray area'. Elderly in the digital gray area are digital but are not capable of engaging with digital services by themselves and they therefore might need help to various degrees (Agency for Digitisation 2021).

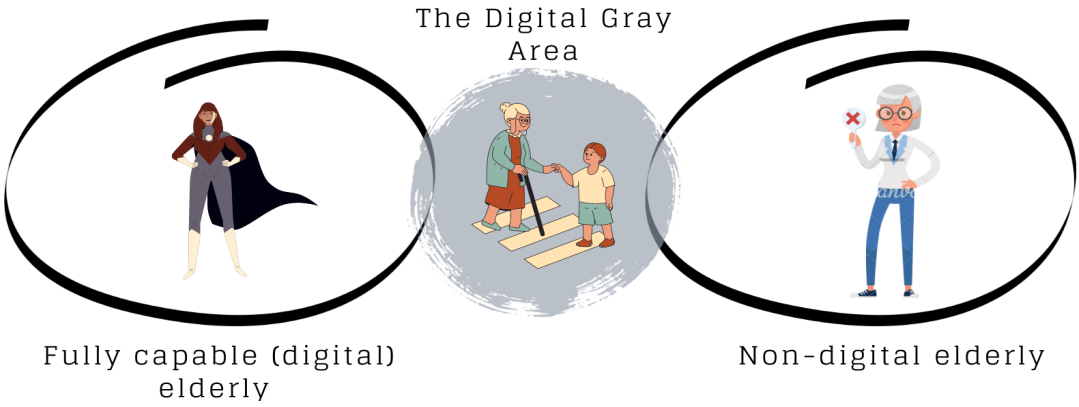


Figure 1: Illustration by the authors. A visual representation of the digital gray area.

It is the elderly in the digital gray area that will be our focus point. While the limitation of elderly in the digital gray area using digital services could have been interesting enough in itself, we have further added the perspective of the Danish healthcare sector. We have done so because we want to uncover some of the consequences that the digital transformation might have in a more concrete situation in relation to the elderlys' personal sphere. Our reasoning for this is rooted within the literature and reports about digital transformation.

Research question

We have therefore set out to investigate this problem field with a research question as follows:

How does the continuous digital transformation of the public sector in Denmark affect elderly citizens?

- How does the technical rationality of Danish authorities affect the elderly's engagement with digital public services?
- How is elderly's e-health literacy affected by the technical rationality?
- What are the possible solutions to the problem imposed by the technical rationality, and how can a democratic rationality be deployed responsibly in the Danish public health sector?

Reading guide

We will begin this thesis by looking at some of the public reports that have been written on the subject of digitization, elderly and public digital services. Hereafter we will be going through our methodological choices that have formed the foundation for the further work. Having covered methodology and our reflections upon it, we will present our theoretical framework. Having established the theoretical framework we will then set out to present our analysis. The analysis will unfold in five sections. Firstly, we will analyze the technical rationality in the Danish strategy for digital transformation. Secondly, we will deconstruct the elements of eIDs. Thirdly, we will place eIDs into a social context. Fourthly, we will turn to show how the problem of digital competencies affect elderly on an individual level. In the fifth and last section of the analysis, we will frame digital competencies in the context of healthcare and e-health literacy. Our analysis will result in a discussion of the potential consequences of elderly's lacking digital competencies and e-health literacy in digital Denmark. Furthermore, the discussion will provide an assessment of who is responsible for solving the problem, currently and in the future. Finally, we will conclude on the research question we set out to investigate.

Report review

This section sheds focus on some of the many public reports and strategies that have been published within the fields of health, elderly and digitization.
The reports and strategies and their main points of relevance for this project will be presented so they can build the foundation for the analysis and discussion of this thesis.

'A Coherent and Trustworthy Health Network for All - Digital health strategy 2018-2022' is a report published in January 2018 by the Ministry of Health, the Ministry of Finance, Danish Regions and Local Government Denmark. Henceforward we will refer to this report as 'Digital health strategy 2018-2022'. The strategy is politically anchored (Ministry of Health et al. 2018, 84). It presents five focus areas that aim to put the citizens' needs in focus and make everyday life easier for the health professionals in Denmark. The five focus areas are 1) The patient as an active partner, 2) Knowledge on time, 3) Prevention, 4) Trustworthy and secure data and 5) Progress and common building blocks (Ministry of Health et al. 2018, 4).
According to the strategy, digitization is the only solution to the problems that Denmark is facing with a growing in elderly population and increasing comorbidity (Ministry of Health et al 2018, 8). According to the report, Denmark already has a solid foundation to build upon for future digital initiatives in the healthcare sector. The development should have in mind that the healthcare sector should be coherent and trustworthy for the citizens. The report emphasizes that the healthcare sector must be both digital and personal in its nature (Ministry of Health et al. 2018, 4). Within the different focus areas are both concrete initiatives and preliminary ideas presented for who the goals of the focus area can be achieved. All desired changes presented in the report are anchored in digitization and digitalization.
It is our impression that the digital health strategy falls well within the scope of the general digital strategy by the Danish authorities. The digital health strategy overlaps with two different general digital strategies which we will present below.

'A stronger and more secure digital Denmark - digital strategy 2016-2020' is a strategy by the Government, Danish Regions and Local Government Denmark from 2016. Henceforward we will refer to this report as 'Digital strategy 2016-2020'. The strategy highlights some of the focus points of how digital transformation has taken place in Denmark in the previous years (The Government, Local Government Denmark and Danish Regions 2016, 13). It also elaborates on what the authorities' view on digital competencies are and subsequently clarifies what the prerequisites for citizens to be able to participate in the digital public sector are (The Government, Local Government Denmark and Danish Regions 2016, 55). While the report acknowledges that future user requirements and needs can be hard to predict, it emphasizes the need for solutions that embed user-friendliness and high quality (The Government, Local Government Denmark and Danish Regions 2016, 21-22). It furthermore underlines the need for seizing the digital opportunities available for the Danish society at large, and pushes an agenda of a high degree of digitalisation. This is both needed in relation to the aforementioned user-friendly solutions, as well as the need for building a sense of trust

and security when using such solutions (The Government, Local Government Denmark and Danish Regions 2016, 6-7). The report thus provides the reader with the roadmap for the digital strategy going forward and outlines several focus areas for the Danish public sector. Such strategies are the foundation and guideline for politicians and other actors for making decisions in and around the field of digital transformation(s).

In 2022 a new digital strategy was published by the Ministry of Finance (2022). The strategy is called 'Danmarks digitaliseringsstrategi - sammen om den digitale udvikling'. We will henceforward refer to this report under the name of 'the new national strategy for digitalisation'. The new strategy follows in the footsteps of the previous strategy. Denmark must maintain its leading position within digital transformation while continuously improving digital services and introducing new digitalization initiatives (Ministry of Finance 2022, 3). The report acknowledges that digital competencies is something that must be developed throughout life, but solely focuses on how the educational system can contribute to the development of Danes' digital competencies (Ministry of Finance 2022, 57). Contrary to digital strategy 2016-2020, the new digital strategy lacks an explicit focus on adult citizens with limited or no digital competencies. In comparison to the previous strategy, there is a large focus on how businesses must seize the opportunities in relation to digital transformation and how the private sector contributes to Denmark being at the forefront of digital transformation. The focus is furthermore on strengthening the Danish digital infrastructure in relation to cyber security and data protection (Ministry of Finance 2022). The new digital strategy does have a section about the future healthcare sector in Denmark. It acknowledges that there are some obstacles in the future to come with more elderly and more comorbidity. The solution to those problems seems, according to the new strategy, to lay within an increase in digitalization and digitization of the healthcare sector (Ministry of Finance 2022, 32-37). The overall impression of the new strategy is that there does not seem to be any major changes in how Denmark perceives their need and desire for digital transformation.

This digital transformation includes all of society and thereby also the elderly who have not necessarily grown up next to a computer, smartphone or any other device. Therefore we have sought information on how the elderly experiences IT, digitalisation and the issues connected hereto. This has led us to the report 'Ældre og Digitalisering' (ed. Elderly and Digitisation). The report by Anu Siren and Sine Grønborg Knudsen from 2014 is made on behalf of The Danish Center for Social Science Research. The report is based on questionnaires and interviews with Danish citizens in the age of 58 to 95 years. The report categorizes the respondents in three categories: the challenged ones, the serviceminded ones, and the confidential ones (Siren and Knudsen 2014, 86). Statements from all three categories are of interest to this thesis.

While the report is older, we have chosen to include it in our literature because the findings that were made in the beginning of the digitization of the public Denmark around elders' perception and expectation can serve as a reference point for us. What problems were identified when the digitization started and are those still to be found? The report shows that IT-usage is correlated with several sociodemographic factors, but simultaneously argues that the use of IT is even more dependent on the experience

with, and motivation to, using it (Siren and Knudsen 2014, 10). In general, the attitude towards IT from the elderly population is predominantly positive and the elderly are increasingly participating in the digital society. The report argues that when digitalizing society the elderly's behavior is bound to change, but moreover the services and digital solutions must also change in order to accommodate the increasing variety of needs arising from more and more people using them (Siren and Knudsen 2014, 11-13). In the report 25% of the respondents needed help with IT-related issues, either in relation to digital services or hobby-use. The report argues that even while it is able to quantify the use of IT through several sociodemographic factors, all of these seemingly lose their value when aligning them with the experience and motivational aspects of using IT. Sociodemographic factors thus become obsolete if the experience and motivation when using IT is inadequate (Siren and Knudsen 2014, 14-15). Furthermore, the report concludes that there seems to be a vast skepsis in regard to digitalization. This is because the elderly in 2014 seemed to think that it would cause a loss of personal interaction with the public sector (Siren and Knudsen 2014, 15).

The trust in the public sector has been examined by the Danish Agency for Digitisation through the report 'Tilliden til den digitale offentlige sektor' (The trust in the digital public sector, ed.). It is a report from 2021 which offers a look into the Danish population's trust in the digitized public sector in Denmark. The report mentions that Denmark in 2018 and 2020 were number one on the United Nations ranking of public digitalisation (in the member countries) (Agency for Digitisation 2021, 3). One of two purposes with the report is to gain an overview of how the trust in the digital public sector is across different groups of citizens in society. One of the key parameters to distinguish between citizens that is used in the report is age. This subsequently offers us the possibility to get a closer look into the elderlys' trust in the public digitized sector in Denmark (Agency for Digitisation 2021). In the report is a section about the distinguishing between digital ready, non-digital and the gray area segment of people (Agency for Digitisation 2021, 24-27). This digital gray area will serve this thesis well, as this group of citizens are the main constituents of our empirical data. The digital gray area are, in the report, defined as people who might have NemID and MitID but are not able to use them without getting help. The report touches on why people end up in the digital gray area and argues that several factors might influence why. It is argued that elderly citizens are challenged on their ability to navigate several digital services at the same time, or even lack the digital prerequisites for navigating just one (Agency for Digitisation 2021, 24). What this in turn can affect is the use of IT in general. To investigate this aspect Statistics Denmark has authored the report 'It-anvendelse i befolkningen - 2021' (It-use in the population 2021, ed.). It is a report with statistics about different ways the Danish population used IT in 2021. One section is about the digital contact with the public sector and it indicates that elderly have far less contact with the public sector through different digitized solutions compared to the rest of the population (Statistics Denmark 2022, 33). The report further shows that 33% of citizens between the age of 16-89 sometimes need help when encountering public digital self services. Citizens in the higher and lower age groups are especially in need of help when accessing public digital services. Citizens from the age of 55 and above predominantly

need help solely because the contact with the public services is digital and not because of the content. The younger age groups, however, would have needed help anyway (Statistics Denmark 2022, 38). However, no further investigation into why this help is needed is provided in the report.

As it can be seen through our small review of selected reports and strategies the vast majority of information about the population and their relationship with the digitization is based on quantitative data. This is why we want to contribute with more qualitative insights into why people struggle, need help and subsequently what this actually means for their social worlds.

Methodology

As techno-anthropologists we are of course aware of the influence our methodological choices have had on the journey we were about to embark on. We will therefore in this chapter introduce our methods as well as the reflections we have had regarding them.

Thesis collaboration and stakeholders

In the initial research phase of this thesis, we established contact with the organization, MedCom, with the purpose of gaining a deeper knowledge of the current state of the digitization of the health sector in Denmark. We chose to reach out to MedCom based on their position in the field of the public healthcare sector in Denmark and especially in relation to the digitization of personal health journals. Initially we wanted more knowledge of some of the problems that they might have encountered during their project 'Sundhedsjournalen 3.0' (Health journal 3.0, ed.). We did not encounter many obstacles in the establishment of mutual interest between MedCom and the field of Techno-Anthropology. One of the problems that both we and MedCom found interesting was the patients' use of their personal health journals. Based on this mutual interest we set out to get another perspective on patients' usage of these. Therefore we contacted several patient organizations with the aim of arranging an interview about their members' usage and possible struggles:

Figure 2: A visual representation of the patient organizations we contacted for interviews. [1,2]

[1] We did not receive approval for the use of quotations from Organization Y prior to the hand-in. Therefore, we have anonymized the organization as well as the informant in order to abide by our agreement

[2] Shortly prior to handing in our thesis we were made aware of a change in management in Organization X. Therefore, we were unable to use the name of both informant and organization. It has therefore been anonymized to avoid violating our agreement

Based on our interviews with the patient organizations it became evident to us that there was a large range of problems. Some revolved around the use of personal health journals but other problems emerged around the structure of the Danish healthcare sector. To gain a better understanding of these structurally rooted problems we began looking at publicly available reports relating to digitalization in Denmark. These reports made us realize that there was no coherent perception of users in regard to digital health services.

We were then invited to attend a stakeholder meeting in Odense, Denmark. At the meeting MedCom, representatives from the regions and employees from sundhed.dk attended. We were given the possibility to ask them about their definition of users. Shortly after the meeting in Odense we conducted an interview with Lars Kayser, Associate Professor at the University of Copenhagen. Lars Kayser has been working with concepts such as health literacy, e-health literacy and the empowerment of patients and citizens. The interview gave us further insights into what problems arise in relation to the increasing digitalization of the public health sector in Denmark. The following day we conducted an interview with Therese Thortsholm, User Consultant, and Amina Hyllested, Product Owner, at sundhed.dk. They introduced us to the historical development and political context of sundhed.dk.
In order to decide our next step in the research phase we were faced with the task of analyzing our preliminary interviews and knowledge to determine our main research problem:

> What are viable research problems depends, of course, on the resources available to the researcher; and what are relevant here are not just external resources like time and funds but also personal ones such as background knowledge, social characteristics and circumstances. Moreover, these can change during the course of research, perhaps forcing a refocusing of inquiry.
> (Hammersley and Atkinson 2007, 25)

With all this data at hand, we found it necessary to delimit our field as the scope of the thesis at this moment in time pointed in too many directions. The experience and challenge that Hammersley and Atkinson describe was something we encountered on several occasions during the writing of this thesis.

Delimitation of the field

Our data from our initial research contained topics related to all parts of concepts like: users, digital health services, digital transformation, emancipation and society. These topics had been repeatedly present throughout our initial field work. To create greater coherence in our data, we were therefore left with the task of sorting and choosing which topics to pursue for further research. We could have gone in multiple directions but ultimately we settled on elderly users of digital health services in society. This gave us reason to investigate how elderly experience the increasing digitalization of Danish society. Since our focus is on the consequences that elderly experience due to increasing digitalization, we found it crucial to use our time to actually engage with

them. Inspired by Hammersley and Atkinson (2007) we reflected thoroughly on the setting in which we should meet (and interview) the elderly:

> [..] this does not mean that the selection of settings for study is unimportant, simply that the ethnographer is rarely in a position to specify the precise nature of the setting required. At best, it is a matter of identifying the sorts of location that would be most appropriate for investigation of the research problem, as currently formulated. And, when a type of setting has been decided on, it is advisable (if possible) to 'case' possible research sites with a view to assessing their suitability, the feasibility of carrying out research there, and how access might best be accomplished should they be selected.
> (Hammersley and Atkinson 2007, 29)

We took into consideration how and where we should find our informants and assessed different possibilities. Ultimately, we turned to the DaneAge Association.

Finding the elderly

The DaneAge Association is an interest organization which is run by volunteers. They arrange a wide range of activities for their 925.000 members across the 215 local branches in Denmark (DaneAge Association 2022b). We looked through the different activities that took place in the greater municipal area of Copenhagen. Here, we identified several events that could be of interest for us. While we were denied access to some events, we gained direct access to one type of activity: the IT-cafes. An IT-cafe is a drop-in based concept of The DaneAge Association, where members and non-members can attend with all IT-related issues they may encounter (DaneAge Association 2022a). Usually, the IT-cafes are open for two hours, and in the ones we attended 1-5 volunteers were present to assist participants in solving their issues. We attended IT-cafes in Amager, Værløse and Vesterbro. Our visits to the IT-cafes can be categorized as passive participatory observations according to the definition from Spradley (1980, 59). During our observations we held small interviews with the participants and volunteers. Approaching elderly in an IT-cafe can be quite uncomfortable for the elderly as they are already in a vulnerable position. This is due to them only attending the IT-cafe in the first place as a consequence of needing help. Furthermore, approaching elderly was also quite uncomfortable for us as researchers because we had to interrupt their quest for help. To then ask them a range of questions relating to their personal digital competencies, could potentially also be a very hard conversation to have for elderly, as they did not know who we were. Our justification for facing the elderly in a vulnerable setting is grounded in the motivation for doing this thesis in the first place. What has been a fundamental desire and ambition of ours from the outset has been to author a thesis that would contribute to actual change in our society. We felt that meeting our informants in their time of struggle with a desire to help them would be a great way to create rapport. "Rapport refers to a harmonious relationship between ethnographer and informant. It means that a basic sense of trust has developed that allows for the free flow of information." (Spradley 1979, 44). It might

be a stretch to say that the relationship between us and the informants was harmonious, as the subject was based on them struggling. However, to the best of our ability we sought to facilitate an environment as safe and comfortable as possible for our informants.

In addition to attending the IT-cafes, we arranged a group interview with a self-constituted health-oriented group of elderly ladies in northern Sealand. The woman in charge of the group had invited three members of the group with whom we did a group interview. The group interview was conducted in the private home of one of the participants. We allowed them to choose the setting in order to provide as much comfort and security for them as possible.

Field notes

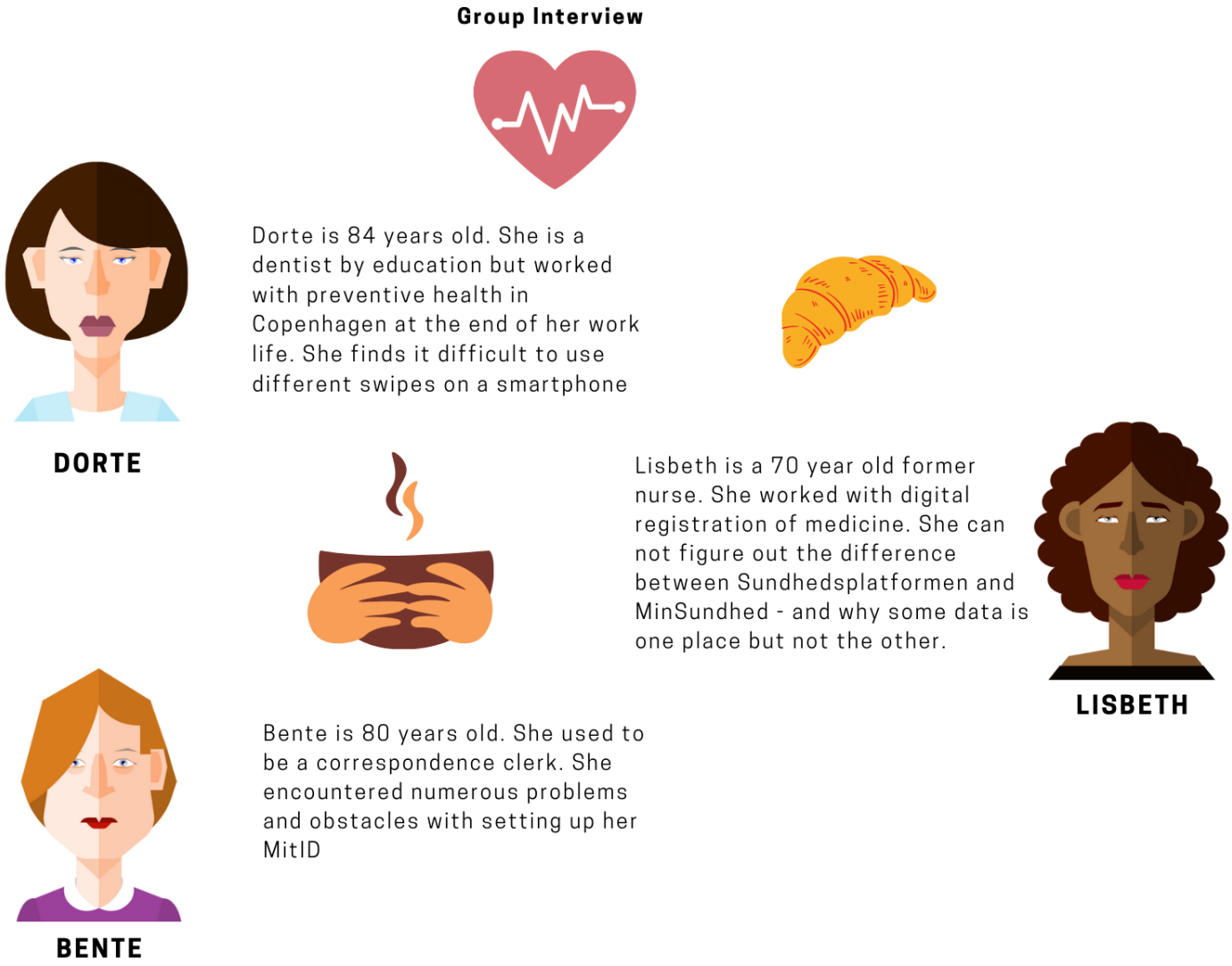
When attending the IT-cafes we did not know how the setting would be and if it would be possible to record our interviews. At all three locations it was possible for us to conduct interviews with informants in isolated rooms where we did not disturb the other participants in the cafe. However, there were some spontaneous conversations where we did not have our recorder with us. To circumvent this obstacle and still gain valuable insights we chose to write field notes. While we also wrote field notes to the interviews we were able to record, we have subsequently chosen to favor the transcriptions over the field notes whenever it was possible. We have included the field notes when we did not have recordings as they too provided valuable insights and information.

> Finally, unlike most ordinary participants, the participant observer will keep a detailed record of both objective observations and subjective feelings. This record can sometimes be made on the spot; at other times you will record it later, when you have left the social situation. [..] Make yourself explicitly aware of things that others take for granted. It will be important to take mental pictures with a wide-angle lens, looking beyond your immediate focus of activity.
> (Spradley 1980, 58)

While we did write field notes, they, apart from a few instances, mainly served as recollective tools for our memory. Attending an IT-cafe can be chaotic, and the field notes thus helped us remember certain situations.

Informants

We have categorized our elderly informants into three groups based on how we encountered them and subsequently their roles in that situation. The first group is the participants from the group interview and the two remaining groups are based on our visits to the IT-cafes. From the two latter groups we have separated the volunteers from the participants, as their position differs greatly. All informants have been pseudonymized and will be referred to by their assigned pseudonym. The naming of our elderly informants is based solely on a random name generator to keep full neutrality in the naming process. Our informants were composed of the following individuals:



Picture 1: Illustration by the authors

Volunteers in IT-cafes

KAJ

Kaj is 58 years old. He has been a volunteer at the IT-cafe for eight months.
He is a former Finance Director, Consultant and Lecturer.

Bjarke has been a volunteer at the IT-cafe for 8-9 years.

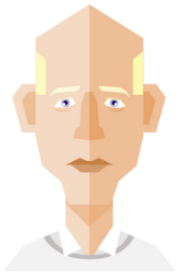
BJARKE

SVEND

Svend is 74 years old and has been a volunteer at the IT-cafe for more than five years. He worked with IT his entire life.

Picture 2: Illustration by the authors.

Users of IT-cafes



MICHAEL

Michael is 66 years old. He is a former kindergarten teacher.
He attended the IT-cafe to get help with the transition to MitID as he was insecure about his own competencies to do it, regardless of whether he had read all the manuals and information.

Vivian is 77 years old. She has been a midwife her entire work life.
She went to the IT-cafe to get help with pursuing train tickets so she could go visit her family.

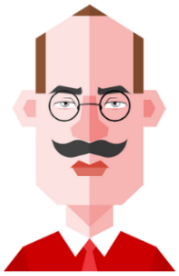
VIVIAN

GRETE

Grete is 70 years old. She worked at Skat for more than 40 years.
She went to the IT-cafe because her email account had been hacked.

Lise is 88 years old. She is a former school teacher who later became a school psychologist. She sought help at the IT-cafe because a new, and unwanted, browser had been installed on her computer and she did not know how to remove it herself.

LISE



JØRGEN

Jørgen is 75 years old. He is a mechanic by education, but has worked in different fields throughout his life. In the end, he was employed by a municipality.
He attended the IT-cafe because his computer would not start.

Picture 3: Illustration by the authors.

Interviews

The interviews conducted for this thesis have taken their outset in general qualitative standards. In this section we will elaborate on our approach to the different interviews. For the first interview with MedCom, no concrete interview guide was drafted, as it was an indicative interview into the field of health data and digital health services. In other words, the interview was supposed to identify issues related to the use of e-health journals. We did have continuous meetings with MedCom throughout our thesis. For some of the meetings we did prepare a short presentation of our thoughts and progress while other meetings had more the resemblance of a casual check-in. The interviews with the patient organizations were done with the aid of several versions of interview guides. They all focused on extracting information on topics related to challenges their members had experienced with the use of digital health services. While we did have the interview guides, we did not follow them rigidly as semi structured interviews in their nature entails (Brinkmann and Tanggaard 2015).

At the meeting in Odense, we had the opportunity to get some questions distributed to the participants in advance. Thereby the participants had the possibility to prepare their answers. We did have a limited time available at the meeting, so in order to maximize the outcome, we thought that pre-distributing our questions would benefit us the most.

Our interview with Lars Kayser was also a semi-structured interview based on an interview guide. While the guide did set us off to a great start, Lars Kayser had the ability to include a lot of his expert knowledge in his answers and touched upon several topics of interest to us; this happened before we even got the opportunity to ask further questions relating to these topics. We had the same experience during our interview with Amina Hyllested and Therese Thorstholm from sundhed.dk.

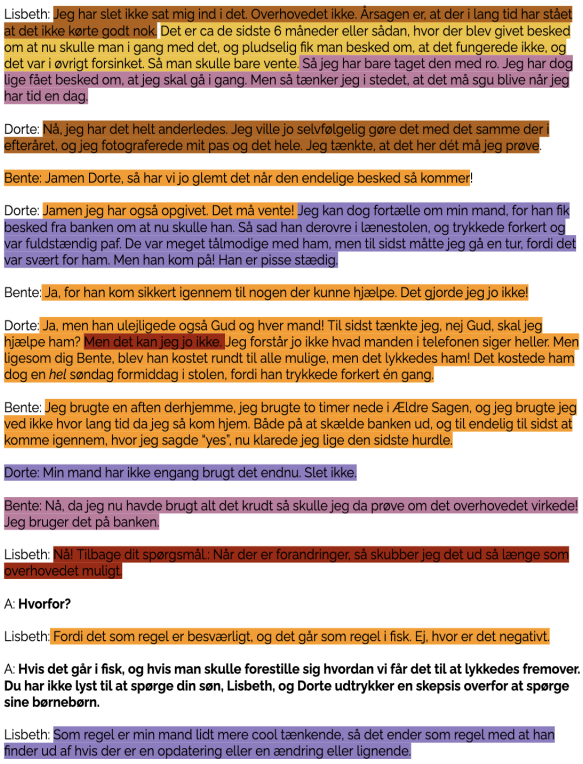
The approach we took with the interviews with our elderly informants were quite different from the one we had taken with other stakeholders. For the interviews at the IT-cafes, we did not prepare any interview guide, as the qualitative knowledge on the topic is very limited. We did however experience progress and clarification in relation to which questions we wanted to ask, and furthermore how we should ask them. This happened as we went from the first IT-cafe to the second, and from the second to the third.

For our group interview, we had prepared a loosely structured interview guide. However, we did not even get to ask the first question before the participants had begun talking about topics that were of interest to us; we even had to interrupt them in order to ask permission to start our recording. Our interview guide never came into use as the participants' interaction and conversation with each other made the information flow freely. This meant that our role rather became to ask clarifying questions than to lead the interview.

The interviews took place in a wide range of locations: from a conference center in Odense, to the DaneAge Association, the office or home of informants, or online through Microsoft Teams. In the instances where we had the possibility to influence the location, we sought to meet our informants where they were comfortable (Bryman, 2012).

Coding

Coding of our interviews were conducted through a selection of colors. It resulted in two main categories related to the thesis research question. Each color represented a sub-category relevant for the issues and challenges we unwrapped throughout our field work (Schreier 2012). Furthermore, as Margit Schreier (2012) argues the main categories serve as the guideline for the aspects which will be focused on in the analysis.
Both main categories as well as subcategories are a natural extension of our theoretical framework. As we have chosen to deploy critical constructivism in this thesis our coding therefore is a reflection of this. Sub-categories were created on the basis of the relevant questions one needs to ask when making an inquiry into a socio-technical configuration using CC (Børsen 2020; Grimes and Feenberg 2013). The subcategories within the first main category named 'Macro-perspective', were inspired by our curiosity regarding the power structures on the highest level of society. The sub-categories were labeled as *politics, perception of citizens, marginalization, empowerment, technology and design, and health*, and they were tagged with yellow, green, red, brown, blue, and gray colors respectively. The second batch of subcategories, under the second main category named 'Micro-perspective' was catalyzed by our curiosity as to the individual's perception of the technologies imposed upon them. The sub-categories were labeled *positive emotions, social factors, health,* and *negative emotions in relation to technology/frustration* with the colors pink, purple, gray and orange tagged respectively. With the nine categories labeled, an initial coding of the shorter interviews was conducted to test out whether our thematic framework would work in practice (Schreier 2012). As the coding went further, some slight changes were made to the naming of the sub-categories, but they were for the most part kept intact.



Lisbeth: Jeg har slet ikke sat mig ind i det. Overhovedet ikke. Årsagen er, at der i lang tid har stået at det ikke kørte godt nok. Det er ca de sidste 6 måneder eller sådan, hvor der blev givet besked om at nu skulle man i gang med det, og pludselig fik man besked om, at det fungerede ikke, og det var i øvrigt forsinket. Så man skulle bare vente. Så jeg har bare taget den med ro. Jeg har dog lige fået besked om, at jeg skal gå i gang. Men så tænker jeg i stedet, at det må sgu blive når jeg har tid en dag.

Dorte: Nå, jeg har det helt anderledes. Jeg ville jo selvfølgelig gøre det med det samme der i efteråret, og jeg fotograferede mit pas og det hele. Jeg tænkte, at det her dét må jeg prøve.

Bente: Jamen Dorte, så har vi jo glemt det når den endelige besked så kommer!

Dorte: Jamen jeg har også opgivet. Det må vente! Jeg kan dog fortælle om min mand, for han fik besked fra banken om at nu skulle han. Så sad han derovre i lænestolen, og trykkede forkert og var fuldstændig paf. De var meget tålmodige med ham, men til sidst måtte jeg gå en tur, fordi det var svært for ham. Men han kom på! Han er pisse stædig.

Bente: Ja, for han kom sikkert igennem til nogen der kunne hjælpe. Det gjorde jeg jo ikke!

Dorte: Ja, men han ulejligede også Gud og hver mand! Til sidst tænkte jeg, nej Gud, skal jeg hjælpe ham? Men det kan jeg jo ikke. Jeg forstår jo ikke hvad manden i telefonen siger heller. Men ligesom dig Bente, blev han kostet rundt til alle mulige, men det lykkedes ham! Det kostede ham dog en *hel* søndag formiddag i stolen, fordi han trykkede forkert én gang.

Bente: Jeg brugte en aften derhjemme, jeg brugte to timer nede i Ældre Sagen, og jeg brugte jeg ved ikke hvor lang tid da jeg så kom hjem. Både på at skælde banken ud, og til endelig til sidst at komme igennem, hvor jeg sagde "yes", nu klarede jeg lige den sidste hurdle.

Dorte: Min mand har ikke engang brugt det endnu. Slet ikke.

Bente: Nå, da jeg nu havde brugt alt det krudt så skulle jeg da prøve om det overhovedet virkede! Jeg bruger det på banken.

Lisbeth: Nå! Tilbage dit spørgsmål: Når der er forandringer, så skubber jeg det ud så længe som overhovedet muligt.

A: **Hvorfor?**

Lisbeth: Fordi det som regel er besværligt, og det går som regel i fisk. Ej, hvor er det negativt.

A: **Hvis det går i fisk, og hvis man skulle forestille sig hvordan vi får det til at lykkedes fremover. Du har ikke lyst til at spørge din søn, Lisbeth, og Dorte udtrykker en skepsis overfor at spørge sine børnebørn.**

Lisbeth: Som regel er min mand lidt mere cool tænkende, så det ender som regel med at han finder ud af hvis der er en opdatering eller en ændring eller lignende.

Picture 4: An example of a coded interview.

The strength of case studies

Throughout our research, we have engaged six stakeholders groups: elderly, volunteers in IT-cafes, MedCom, sundhed.dk, patient organizations and experts. Spread across these six stakeholder groups, we have a total of 17 informants. 8 of our informants are elderly in the digital gray area.

While this equates to a fraction of the elderly population we argue in favor of the generalizability of our study into society. We do so with outset in Hammersley and Atkinson (2007) and Flyvbjerg (2006). They all note the potential of rather small sample sizes albeit differently. Hammersley and Atkinson challenge the idea of ethnographic fieldwork losing its representativeness due to the small sample sizes (Hammersley and Atkinson 2007, 32). Furthermore, they argue that small sample sizes could very well be representative if they are compared or paired with general statistics on the topic they are studying (Hammersley and Atkinson 2007, 34). Quantitative data on the usage of IT, the satisfaction in relation to public digital services etc. has already been provided by public reports. This data is without a doubt useful for doing a study like ours and according to Hammersley and Atkinson this data can provide support and preliminary indications of what can be studied via e.g., a case-study. We therefore relied on the quantitative data from public reports to steer our focus for further research. Flyvbjerg argues that there is a misconception that case studies are not applicable to society in general. He furthermore argues that traditionally there has been a controversy in regard to whether case studies can contribute to scientific work at all (Flyvbjerg 2006, 221). Flyvbjerg rejects the notion of this, and argues that case studies are sufficient, and furthermore necessary to conduct academic work (Flyvbjerg 2006, 241). Flyvbjerg thus provides us with a solid reasoning for why our thesis is relevant for society in general albeit the sample size is rather small.

Paving the way for a negotiation space

As part of our collaboration with MedCom we have been entrusted to facilitate a panel debate at the People's Meeting (Folkemødet, ed.) at Bornholm on the 16th of June 2022. Our thesis will be the catalyst for the debate. We have visualized our process towards the debate in Figure 3. Knowing we would facilitate a debate at the People's Meeting has influenced our methodological choices. We are convinced that the panel debate as a method will benefit the purpose of this thesis. The debate will create a space where we are able to bring together different stakeholders to negotiate possible solutions for the problems and issues presented in our thesis. Our methodology and theoretical framework has been subject to an iterative process as the two have been equally affecting each other while writing this thesis. Our theoretical framework of critical constructivism and the addition of the e-health literacy framework, to be presented in the next chapter, will provide us with the ability to shed light on concrete problems. These are problems such as the political and societal impact on a given socio-technical configuration. This is also the reason why the panel debate at the People's Meeting is an ideal place for a final negotiation space and furthermore for creating, in the words of critical constructivism, a democratic intervention. Our main aim by choosing our

theoretical framework is therefore to describe elderlys experience with digital services in digital Denmark. Furthermore we wish to facilitate a negotiation space wherein the stakeholders can discuss and re-negotiate a way forward, where, ideally, no social group is oppressed. We will note however that the space of negotiation is only possible due to our collaboration with MedCom. The setting is conditioned by a focus on health, and therefore the collaboration has had an impact on the subject that will ultimately be discussed at the debate. It will focus mainly on the health aspects but as we will show through our analysis, it is not possible to make a clear distinction between different sectors as they all influence each other. We will return to unfold the actual agenda of the panel debate at the end of this thesis, where the participants will also be presented.

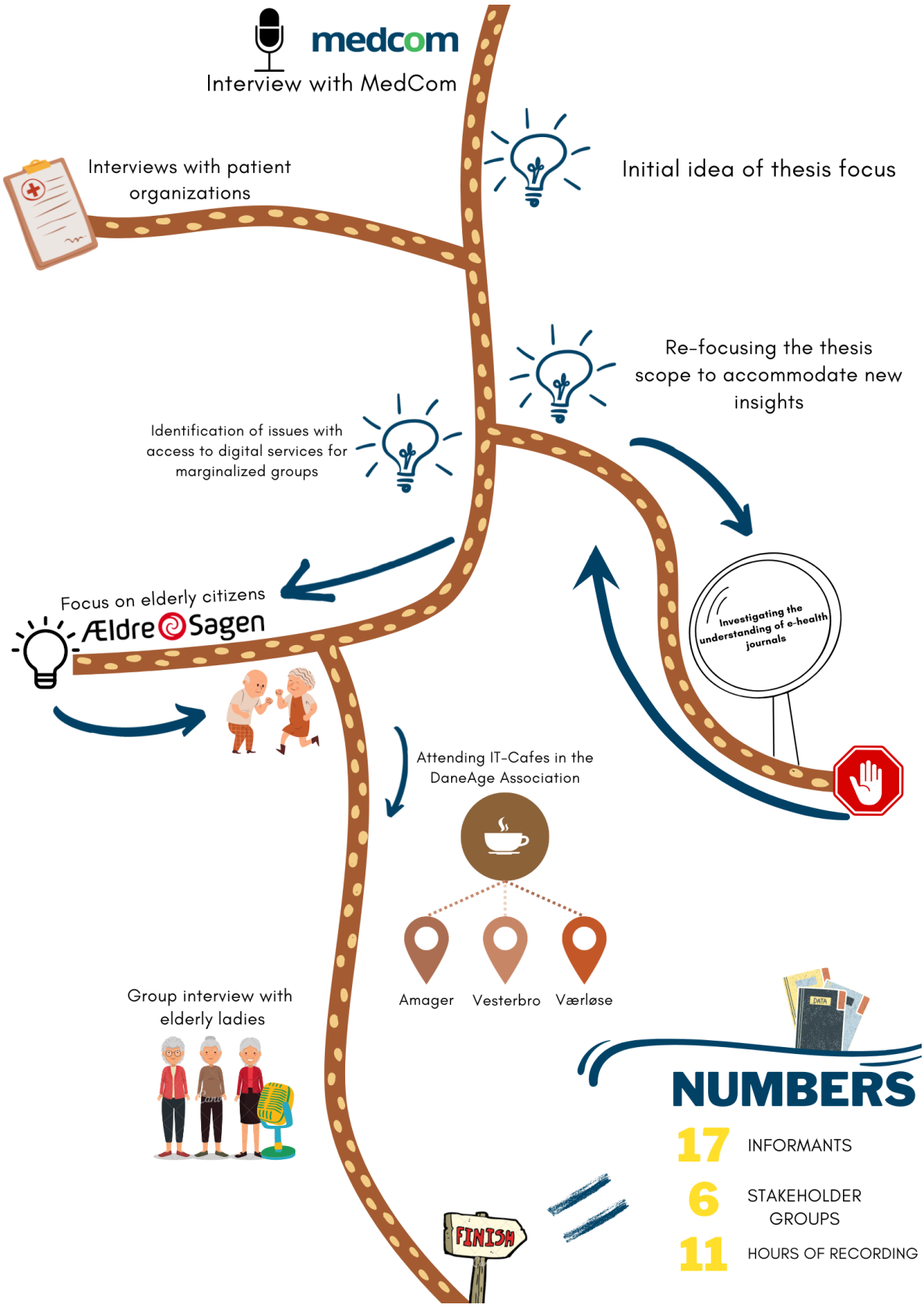


Figure 3: Visual representation of our journey making this thesis. Illustration by the authors.

Theoretical ramework

In this chapter, we will outline the theoretical framework we will utilize for our analysis. We draw on the theory of critical constructivism (henceforward: CC) in order to unfold how the increasing digitization and digitalization of the public sector in Denmark is affecting the elderly. We have chosen the theory of CC because it will allow us to investigate how the technological development deployed by macro-actors affects social groups within society. In order to include a more micro-oriented perspective and a perspective more focused on health, we have chosen to include a framework called the e-health literacy framework (eHLF).
We will start out by outlining the historical context of CC and the different schools that it draws on. Afterwards we will turn to a more elaborate unfolding of the actual theory and its concepts. Hereafter, we will introduce the eHLF. Lastly, we will briefly outline how we plan to utilize the different analytical tools to our further work in this thesis.

Critical constructivism

The building blocks of Critical Constructivism

The theory of CC that we will account for is represented by Andrew Feenberg. CC is centered around the threat to human agency posed by technologies (Feenberg 2017). CC is inspired by the early thoughts of the Frankfurt School, especially the ideas and thoughts of critical theory, presented by, among others, Herbert Marcuse and Jürgen Habermas (Børsen and Contreras 2020). Critical theory did, according to Feenberg, start out on the right quest by questioning the power structures of technology and society. However it did so by separating society and human actions from technologies, which is a major flaw, according to Feenberg (Feenberg 2017, 44-45). Feenberg also draws inspiration from Science and Technology Studies (STS), including Actor-Network Theory (ANT). He agrees with STS that technologies are not value-neutral. Additionally, he draws on social constructivism to provide an alternate view on technological determinism, and on ANT to grasp the networks of technologies and actors. By putting critical theory and the Frankfurt School in contact with STS, Feenberg aims at creating the theory of critical constructivism. This means that CC is concerned with understanding the network of human and non-human actors to uncover how technologies and technological bias play a crucial part in how power is distributed in a society. Furthermore it concerns itself with uncovering what social norms are inscribed into technologies by society.

Analytical tools of Critical Constructivism

One of the first things needed to be introduced within the theory of CC is *instrumentalization theory*. In instrumentalization theory technologies must be analyzed on two levels, primary and secondary (Feenberg 2005). The primary level of instrumentalization is analyzing a given technology on the basis of "the functional constitution of technical objects and subjects." (Grimes and Feenberg 2013, 4). The

secondary level of instrumentalization theory is analyzing a given technology by examining "the ways in which actors experience and make sense of these functional affordances, emphasizing how they perceive and construct the meanings of the devices and the systems they design and use." (Grimes and Feenberg 2013, 5).
In reality, the two levels can not be separated because their existence is intertwined and presupposes each other, because "[t]he dual approach reflects the fact that one cannot be in a technical relation to the affordances of a technology without also being in a specific social relation to its context." (Grimes and Feenberg 2013, 4).

As outlined previously Denmark is on a quest for an increasingly more digital society. A digital society entails the deployment of various digital technologies into the public sphere and this can be the source of several issues. In order to grasp the technologies that are deployed, CC argues that one needs to investigate and question the technical composition of such technologies first. CC argues that technologies are never value-neutral but are always value-loaded (Feenberg 2005, 54). Technologies consist of what Feenberg calls *technical elements*. While technical elements are not in and of themselves are heavily value-loaded, the configuration of technical elements are indeed so (Feenberg 2002, 77-78). The configuration of several technical elements is what becomes a concrete technology or device. For example, take a piece of iron on top of a wooden stick. The chunk of iron is not in itself equipped with a wish to encounter a nail at some point, but our common perception of a hammer is what makes the two exactly that. The shaping of the iron furthermore entails a value-loaded idea of what it is supposed to do - a hammer usually consists of a flat square and a tip at the other end. If one was to make a hammer with two pointy parts it would resemble that of the pickaxe, and therefore the values embedded in technical elements would entail another use of it. Our task is therefore to analyze the values that are embedded in the composition of the technical elements in the digital services of Denmark.

Having looked into the technical elements and their composition, one needs to look into the broader technical code of the technologies at play.
While it can be a messy journey to navigate within the CC framework we would argue that while technical elements are mainly the technical side of a socio-technical configuration, the technical code is the configuration of such. *Technical code*, as a concept in CC, is the realization of social values in a concrete technology or device.

> A technical code is the realization of an interest or ideology in a technically coherent solution to a problem. Although some technical codes are formulated explicitly by technologists themselves, I am seeking a more general analytic tool that can be applied even in the absence of such formulations. More precisely, then, a technical code is a criterion that selects between alternative feasible technical designs in terms of a social goal.
> (Feenberg 2005, 52).

Our task thus becomes to take the entire technical code of certain digital services in Denmark, to decontextualize them and analyze them through their technical elements,

embedded social values as well as their issues. An important note to take from the quote is that there are multiple possible solutions to a problem, a concept also known as *multistability*. Multistability also makes way for an intended use of a technology not becoming reality, as the intended use will be challenged by the individual use of it in practice (Børsen 2020, 226-228). It is an important feature of CC, that technologies are multistable, as it is what gives us the possibility to argue that the technical code is not predetermined by nature but rather a more or less active choice made by someone. While we will not actively use the concept of multistability, it is an important part of the theory that allows for alternative realities.
Another and perhaps even more important lesson from the quote, is that technologies are the realization of someone's interest or ideology, i.e., a technological bias. Technology, according to CC, contains what is labeled *formal bias* (Grimes and Feenberg 2013). "Formally biased technologies usually embody and reproduce the social, economic and political conditions within which they are constructed." (Grimes and Feenberg 2013, 4). Technology is therefore a way of supporting some social groups' world perception (Feenberg 2005, 51-52). In the case of digitalization and digital transformation of the Danish public sector, the formal bias is the presuppositions the authorities have about the citizens competencies and abilities. Technical code and formal bias are both a result of the underlying assumptions in a society. The underlying assumptions in which a concrete technology is realized are in CC presented under the notion of *technical rationality*. In the case of digitalization, technical rationality is the authorities' perception of how development in a public sector should unfold.

In order to analyze a given technology and its role in society, two steps must be taken. Firstly, we must de-contextualize technology from its socio-technical configuration. This is done by identifying the technical elements and thereby finding the technical code of the technology. When the technical code is found, it becomes possible to identify hidden assumptions about users and thus what constitutes the formal bias. This is what we referred to earlier as the primary instrumentalization. The second step is to re-contextualize the technology and user into the socio-technical configuration. In this step, it will be analyzed how the formal bias affects social group(s) in practice. This is also what was referred to as the second instrumentalization. By following the two steps of de- and re-contextualizing a technology it becomes visible what interaffecting relations are present, and thereby what social groups are potentially oppressed by technology. It might seem like CC is solely capable of analyzing controversies while being unable to act or make changes. This is however possible through the concept that is coined *democratic intervention*. Democratic interventions are a way to impose democratic rationality into an already established socio-technical configuration by reconfiguring it. Democratic intervention and democratic rationality often take place after technologies have been introduced into society and have been stabilized as a practice (Grimes and Feenberg 2013; Feenberg 2017).

To sum up the core idea in CC: The theory seeks insights into how technologies are formed by ruling social group(s), and the derived oppression of other social group(s).

The goal is to disclose the technical rationality in society, in order to reconfigure the design of a given technology in order to emancipate the oppressed social group(s).

E-health literacy

As argued, we have set out to investigate, understand and convey the insights of elderly in the digital Danish society, moreover the health care part of it. The focus on health (and e-Health) is fostered through the realization of 1) the Danish society's tendency to increasingly digitalize additional parts of it, and 2) that: "e-Health is considered a way to improve quality, capacity, efficiency and access to healthcare services and information" (Norgaard et al. 2015, 524). To focus our research towards the understanding of elderly's ability to navigate, participate and evaluate the digital technologies we argue that CC will benefit from being accompanied by a health specific framework. We believe that the e-health literacy framework (eHLF) by Norgaard et al. enables such an accompanying, and we further believe the framework can contribute to a more citizen centered understanding of the concrete issues and subsequent consequences of transitioning into a digitalized society (Norgaard et al. 2015). Norgaard et al. proposed the e-health literacy framework in 2015 as a tool to understand the needs of individuals in regard to benefitting from e-health technologies (Norgaard et al. 2015, 538). The need for identification, understanding and narration of these individual's stories is grounded in both our own, but moreover the Danish authorities' conviction that access to the health care system in Denmark should be equal:

> Healthcare in Denmark is based on two main principles: [1] Free and equal access to public health care. This includes general and specialized practitioner services and all public hospital services. Private co-payment includes dentists and out-of-hospital medicines and aides. [2] Universal coverage. All residents in Denmark are entitled to public health care benefits in kind financed by general taxes. (Ministry of Health et al. 2018, 87).

By acknowledging this ambition, one can not delimit such access to be strictly physical i.e showing up at a physical hospital, asking for treatment. Logically, as the health services become digital, this access follows suit. As the Danish healthcare system has become increasingly more digital, it arguably raises the question of whether equal access also includes the digital sphere, and whether it is the case in practice? After all, it is one of the pillars on which the entire healthcare system in Denmark is built (Ministry of Health et al. 2018).

The eHLF consists of seven domains: Domain 1) 'ability to process information'. This domain contains the ability to understand information from start to finish. This means that one needs the ability to know if one needs information, how to find such information and more importantly the ability to understand this information. Subsequently, one needs to be able to apply general information to one's own situation and hereby be able to interpret and apply written words. Norgaard et al. argues that this domain encompasses a fundamental skill needed to understand and use health related

technology. Domain 2) 'engagement in own health', as the name implies, relates to the citizen's motivation and interest in his/hers own health. It furthermore notes the importance of being able to navigate in an organized health care system. Domain 3) 'ability to actively engage with digital services' is one of the broader domains of the eHLF. The domain centers around the ability to use digital technology in a health context, as well as basic skills on e.g how to navigate the world wide web. Furthermore, citizens need to be aware of pitfalls online, and should therefore adopt a certain degree of skepticism while seeking information. Domain 4) 'feel safe and in control' mainly concerns itself with issues of trust in relation to data and data storage. As we will show, this domain was not represented in our data on the level we would have expected. Domain 5) 'motivated to engage with digital services' centers around the citizens' individual internalized level of courage and the confidence to jump into new technology. It furthermore contains aspects of feeling alienated when being forced to use technology. Domain 6) 'access to digital services that work' concerns the user experience of digital health technology in that it should be easy to access as well as easy to use. The domain also emphasizes the need for systems to communicate with each other via e.g integrations. Furthermore the need for access to manuals or other supporting literature relating to technology is stressed. As we will show, one thing is access to manuals; another thing is to process the information in it. Domain 7) 'digital services that suit individual needs' is the final domain of the framework. It focuses on the user interface of digital technology and emphasizes that the language and general feedback from such technologies should be understandable. It should furthermore match the user's needs. The latter is, according to Norgaard et al., done via the inclusion of users into the development process of such digital services (Norgaard et al. 2015, 530-533).

The seven domains are clustered into three categories: the individual level, the systemic level, and the interaction between the individual and the system. The eHLF also takes into consideration the internalization of each domain, and the framework is illustrated in Figure 4 (Norgaard et al. 2015, 534).

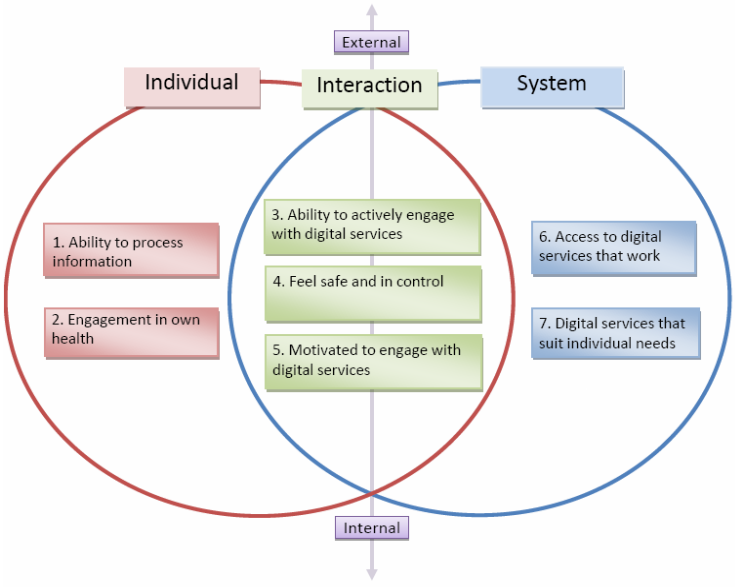


Figure 4: (Norgaard et al. 2015, 534)

Deploying our theoretical framework

Our analysis will unfold in two parts: the first part will focus on digital services and the second part on digital services in a health related context.

Part one will begin with an introduction to the Danish authorities' desire for digital transformation. This will be our introduction to the technical rationality in the Danish society. Following the introduction, we will look at the specific technology of eID that has been implemented in Denmark and is currently subject to change. We will then decontextualize eIDs and its technical elements and thereby discover the technical code and formal bias. Next, we will recontextualize eIDs into the social world of elderly. Hereafter, we will show how the formal bias affects elderly.

We will then turn to the second part of our analysis which will focus on health. We will introduce how the healthcare sector in Denmark is becoming increasingly digital. Hereafter, we will draw upon the eHLF as a formal bias for digital competencies needed in a health-related context.

Through this two-parted analysis, we seek to prove how elderly in Denmark are oppressed by the technical rationality in Denmark and the consequences they potentially can or could suffer as a result hereof. This will result in a discussion about possible solutions to the problem, which will subsequently be our foundation for facilitating a democratic intervention. The analysis will unfold as follows:

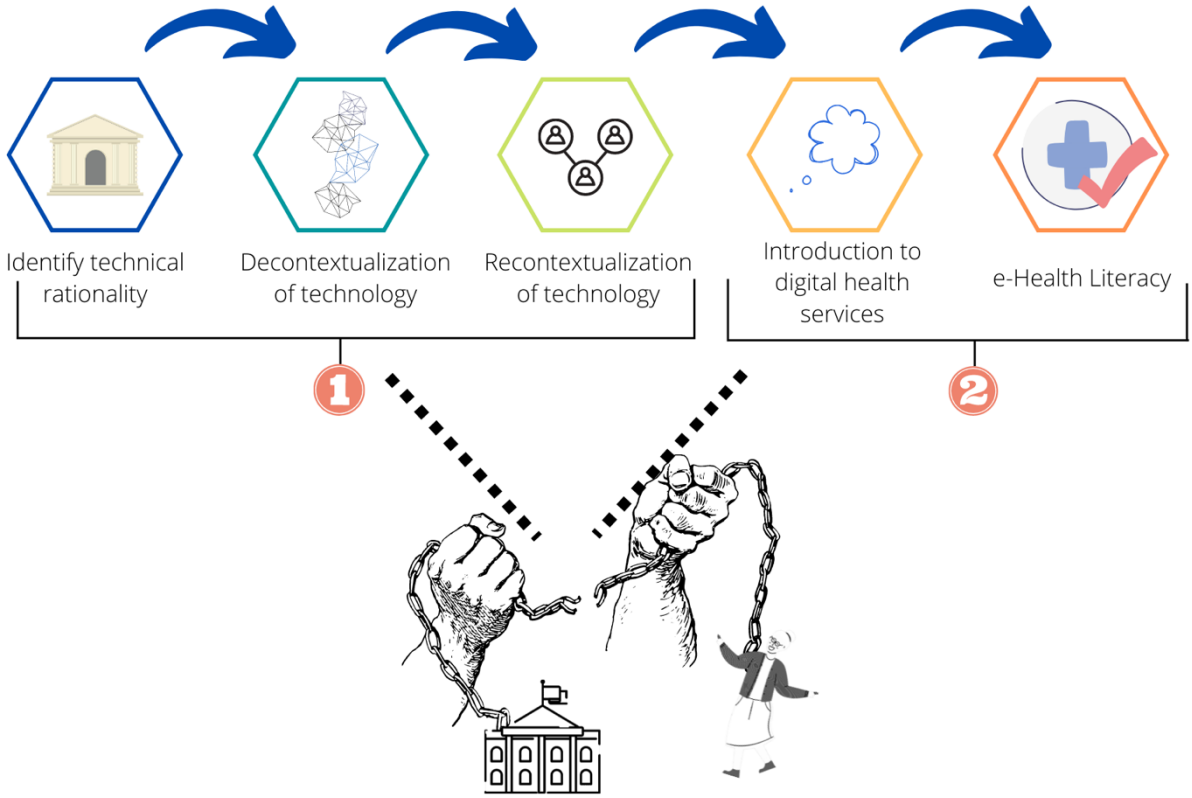


Figure 5: A visual guide to the analysis. Illustration by the authors.

Denmark digitalized

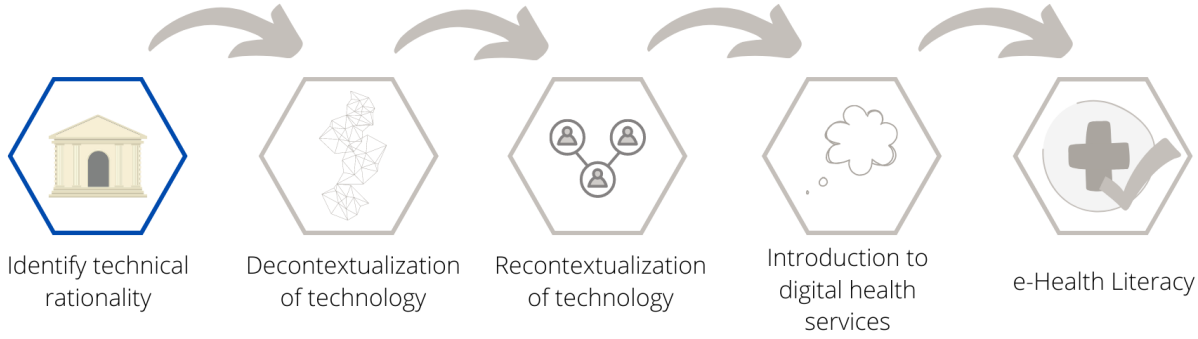


Figure 6: The first step in the analysis. Illustration by the authors.

The desire for digital transformation

Denmark has undergone a continuous digital transformation since the turn of the millennium, which has resulted in Denmark currently being one of the most digitalized societies in the world (Ministry of Finance 2022, 7). The cultural heritage in regard to technological development in Denmark is unquestionable and its presence permeates every decision made by the Danish authorities. The focus on digital transformation has undoubtedly influenced the Danes and our society at large. It is due to the cultural-technical heritage that Danes are some of the most digitally competent citizens compared to other citizens in the European Union (Ministry of Finance 2022, 8). The development of digital services and the digital transformation begs the question, from a techno-anthropological point of view, of how these technologies are designed. In the domain of CC, Feng and Feenberg (2008) argues that technologies and the design decisions in making such technologies are a product of not only the ideas and ambitions of certain individuals, but moreover a product and 'consequence' of the society in which it is produced. This means that one can not neglect the importance of cultural heritage, as this is the sole background for designing such technologies. So, what is the reason behind the desire to digitalize the public sector in Denmark? According to the most recent digital strategy, Denmark must continue its digital transformation to ensure a 'good life' for the citizens and in order to overcome some of the problems that we, as society, stand before. Among the problems is the increased pressure on the Danish welfare system. (Ministry of Finance 2022, 10). To put in the words of CC, the technical rationality behind the digital transformation in Denmark is to improve the Danish society. Throughout the new digital strategy, the narrative revolves around Denmark being on the forefront of digital innovation and it being an example to follow for other EU-countries. The new digital strategy proudly praises the Danish tradition for innovating digitally to sustain the welfare system which, according to the report, is among the best in the world. What all these initiatives and accomplishments result in is "the solid digital foundation, which the further digitization of the society can build upon" (Ministry of Finance 2022, 8). Denmark is, despite beginning its digital

transformation at the turn of the millenium, still in an ongoing transition towards a still increasingly digital public sector and society (Ministry of Finance 2022).

The Danish authorities have thus proclaimed that the digital transformation is still ongoing, and "[d]igital development will be so fast, profound and unpredictable that it will challenge and change society in ways we cannot even begin to imagine. What the future will bring is now more uncertain than ever." (The Government, Local GovernmentDenmark and Danish Regions 2016, 4). If this is the case, it seems utopian to think that the challenges some people experience with the current transformation will not reoccur in the future. We argue that by acknowledging a continuously changing digital society, one can not ignore the continuous implications of digitalization on the elderly. The new digital strategy has put into focus that digital services and the digital sphere is becoming a fundamental part of our society. Therefore as a citizen in Denmark, both currently and in the future, one must be able to navigate in the digital landscape that the technical rationality has fostered, unless one wants to opt out of participating in the digital society. Throughout this thesis we will refer to the technical rationality in Denmark according to the aforementioned presumption of digitalization being the thrust of growth in the Danish society. Furthermore the technical rationality is composed of the assumption of digitalization being a benefit for the citizens as users of public digital services. Thereby the technical rationality in Denmark can be termed as the authorities' desire to digitalize and steer the public sector in an increasingly more digital direction.

The most crucial digital service that has been implemented in Denmark is the digital signature, eID, which serves as the obligatory access point for all public digital services (The Government, Local Government Denmark and Danish Regions 2016, 13). This technology will be our point of departure for our investigation. We will set out by identifying what consequences the digital transformation and the technical rationality has had for citizens in Denmark. We will provide the reader with an outline of certain technical elements of two different eID-initiatives, NemID and MitID. We will do so by defining the elements of the technologies as they are presented through public accessible white papers and technical documents, as well as providing the reader with an account of what differentiates them. The latter has been a question which we have encountered numerous times throughout the data collection for this thesis. The transition and change in eID is something that the elderly often brought up during our interviews and we therefore view it as a crucial distinction to make. This is done to show how one *could* use the eIDs. It is however important to emphasize that the use of NemID and MitID stretches far beyond the example provided.

De-contextualizing eIDs: separating technology from its social context

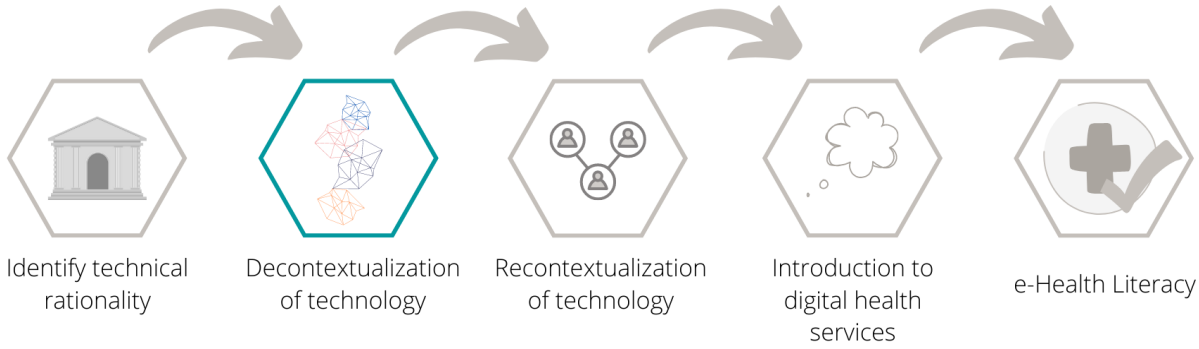


Figure 7: The second step in the analysis. Illustration by the authors.

Both NemID and MitID are technologies that serve the same purpose but are slightly different in their respective technical elements. MitID is the most recent version of a Danish public access signature (eID) (Agency for Digitisation 2022b). Both NemID and MitID are currently, at the time of writing, operational in Denmark, and they are both eIDs for all digitally provided public services.

NemID consists of two things: 1) a private password that is only known by the individual and 2) a physical code card with a limited set of one-time-use codes (NemID 2022c). In 2018 a supplementary app, 'NemID nøgleapp', was developed to digitize the code card. The app can generate an unlimited number of codes and citizens therefore do not need to renew their physical code card, as would have been the norm otherwise (NemID 2022b). MitID is the successor to NemID and is being implemented through 2021-2022 (Agency for Digitisation and Finance Denmark n.d.). After the implementation of MitID, NemID will no longer be in use. The transition is made from NemID to MitID to improve the security for the users (Agency for Digitisation and Finance Denmark n.d., 4). This transition is initiated as a consequence of several factors, stemming from the EU, which is the regulatory body in the field of eIDs. These regulatory demands require the Agency for Digitisation to follow new technical requirements for their 'product' (Agency for Digitisation and Finance Denmark, n.d., 4). The regulation of 2014 sets standards for a unified European eID-network. These standards, among others, require that all EU-countries recognize and receive digital identities from other EU-countries as they were citizens of that country (Agency for Digitisation and Finance Denmark n.d., 4). The technical code of eIDs is thus composed of a dual understanding between the a) the regulatory demands from the EU and b) the Danish ambition to further accelerate the digital transformation of society. Denmark will deploy MitID as a product hereof, as NemID did not live up to, among other parameters, these requirements. Furthermore, the infrastructure of MitID requires all public service providers to follow the new National Standard for Identities Securitylevel (NSIS) by the Agency for Digitisation. These standard requirements ensure that data is safely processed and makes protection of the individual the best possible (Agency for Digitisation and Finance Denmark n.d., 4-5).

The technical elements of eIDs

What differentiates MitID from NemID? This is one of the most common wonders by our elderly informants. No one seems to really grasp the complexity of a) the transition, b) the rationale behind transitioning to MitID, and c) how to make the transition yourself. While it might not be everyone of our informants who did not make the transition at all, the majority had either experienced severe problems in doing so, or had just given up. It thus makes the need for clarification even more urgent. First of all, the social security number of an individual can no longer be used as the user-ID in MitID. Secondly, NemID made it possible for regular service providers to connect to the eID, and interact with the end-user directly which, per the new EU regulations, were not allowed anymore (Agency for Digitisation and Finance Denmark, n.d.). With MitID, a broker is placed as a link between the user and the service provider. This is called the broker-model, and it requires the regular service provider to connect to MitID via a certified MitID broker, and as such makes the system more stable and secure. Brokers have to be certified, and this makes it easier to know which companies or stakeholders have access to the system (Agency for Digitisation and Finance Denmark n.d.). This is due to the fact that only brokers need to be aware of changes to the security procedures in MitID, and the service providers and users are hereby kept out of the technical loop (Agency for Digitisation and Finance Denmark n.d.). With NemID a service provider like the Danish gambling platform Danskespil.dk has access to all information of the person logging in through NemID directly, while in MitID, this information is shielded through a trusted actor, the broker (Agency for Digitisation and Finance Denmark n.d). This makes the need for technical and security maintenance much less relevant for the service providers, as this responsibility now lies with the brokers. At the time of writing this thesis, there are 11 brokers in MitID (Agency for Digitisation and Finance Denmark n.d., 6; Agency for Digitisation 2022a). Further enhancing the security of the new MitID, the code is based on a modular codebase, and this makes it much more flexible in relation to updates on the security side, as well as making the service much more capable of handling security threats in the future (Agency for Digitisation and Finance Denmark n.d.). When a user activates his/her MitID app, the activation is enabled through public-key cryptography. Public-key cryptography uses two mathematically connected keys to authorize an approval when signing a form, i.e in the web platform of a bank (Global Sign 2022). The keys represent two values: one on the platform of the request (i.e. a smartphone or laptop), and one on the server it is trying to access (Global Sign 2022). This technique attaches cryptographic keys to the user's ID, and these are then shared with the MitID app and the servers of MitID (Agency for Digitisation and Finance Denmark n.d., 11). While it is beyond the scope of this thesis, we are obligated to mention the existence of several alternatives for citizens without a smart-device (Agency for Digitisation and Finance Denmark n.d.).

How to use eIDs

To decontextualize a technology like the eIDs mentioned above, it is beneficial to provide our readers with a use case. To set the stage for our case, we turn to an imaginary situation where a woman, perhaps the informant Bente, needs to access her

personal health data on sundhed.dk with NemID. She then needs to enter www.sundhed.dk in her browser and press log-in. Now Bente is asked to provide the dialogue-box, her user-ID and her password, as seen in step 1 in Figure 8. Now, albeit this seems as a fairly simple task as it is 'only' two parts of information needed to proceed, it requires the user to a) remember her credentials, and b) feel safe and comfortable when providing the dialogue-box with such information. However, as Vivian mentioned she thinks one of the hardest things is to keep track of all the different credentials og codes for different services.

Vivian: It's all the codes. All the codes! That's what's hard.

Returning to the use case with Bente and sundhed.dk. Having entered her credentials, Bente will be met with a similar looking dialogue box as the one in step 2, Figure 8. Here, there are two possible routes for Bente, depending on whether she has downloaded, set up and activated the aforementioned authentication app called "NemID nøgleapp", or she is using the analog authentication 'device', the code card. If Bente is using the digital authentication method via the app, it requires Bente to have several digital competencies than using the physical code card: a) knowledge of the app store or google play to download the app, b) the technical know-how to set it up and c) the ability to understand the interconnectedness between the dialogue box on her computer screen and what is happening on her authentication device (i.e. a smartphone), as seen in step 3 in Figure 8. If Bente does possess the competencies, the technical rationality assumes that she does, she will have to open the NemID-app, log

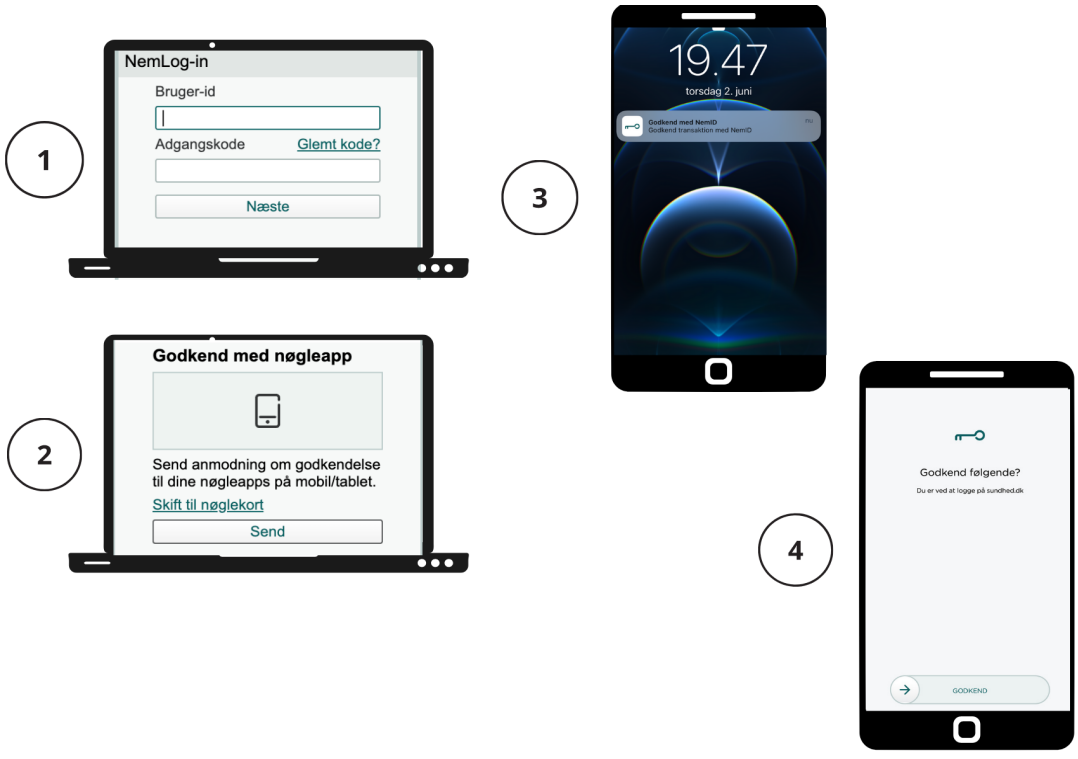


Figure 8: A visualization of the user journey through using NemID. Illustration by the authors.

in either via credentials like user-ID and password, or through biometrics such as fingerprint or face-ID.
When Bente grabs her smartphone, she will be met by a notification that gives her direct access to the NemID-app. The app will then present a screen to Bente allowing her to swipe a bar on the bottom of the screen to confirm the log-in to her sundhed.dk as seen in step 4 in Figure 8. For the sake of illustrating the complexity of options in relation to logging into sundhed.dk, let us then assume that Bente does *not* possess the digital competencies to perform the sequence of actions mentioned above. Instead let us assume that Bente uses her analog code card. Bente would then need to have her physical code card present when she tries to log in. The screen on her pc would then ask her to provide the key adjacent to the number.

What then is so different when transitioning into MitID? With the implementation of MitID the code card disappears. However, along with MitID, a new app is required called 'MitID app'. The app is mainly designed and made for either smartphone or tablet use. Returning to the use case of Bente logging into her sundhed.dk, the process becomes slightly more simple in terms of how many steps she will have to go through. Having accessed the web page of sundhed.dk, Bente now presses the "log in via MitID"-button and is now faced with a screen with only one dialogue-box, asking her to provide her user-ID and an option to proceed whenever that information is provided as seen in step 1 in Figure 9. She is then presented with a message telling her to open the MitID app and approve the request, as seen in step 2 of Figure 9. Bente now needs to open her smartphone and find the MitID app, i.e know where the application is placed on her phone. This is due to notifications (or push-alerts) no longer being a feature on the user's device with MitID, as it was in NemID. This is a security measure, added to enhance security when logging into sensitive information platforms such as banks and health data providers like sundhed.dk (Agency for Digitisation and Finance Denmark n.d.). When Bente opens up the MitID app she will be faced with a screen asking her to log in via her personal pin-code or through a biometric such as the ones available for NemID as well. When she has done so, she will be able to authenticate her MitID, and will now be able to log into sundhed.dk, as seen in step 3 of Figure 9.

What is important to note in this process is the step where a user-ID is provided to the app has been altered. It is done so by detaching the user-ID from the authenticating device such as MitID. This is now sourced to a server, i.e technically cloud-based, and is therefore associated with a lower risk in terms of criminal activity such as copying or other digitally violating offenses (Agency for Digitisation and Finance Denmark n.d.).

The authenticating device, in this case a smartphone, has thus become a solely authenticating factor in the process, only requiring Bente to log in through one step, and swiping to authenticate. While it has become, in terms of the number of steps the user needs to go through, a more simple and secure way of deploying the use of eIDs, the question of 'what if' regarding digital competencies needs to be addressed.

What if the user does not have the necessary digital competencies and technological prowess required to navigate and use the technologies provided by the Danish

authorities? In other words, what happens if a citizen is de facto oppressed by the technical rationality deployed by the authorities? If one does not qualify for the exemption of using eIDs (Statistics Denmark 2022, 32), you might find yourself in the gray area of digital competencies.

The technical code of eIDs is thus composed by the ability to use eIDs in the correct contexts, and subsequently navigate between different applications and code cards. It furthermore consists of the ability to engage with public providers of service such as the healthcare sector. The formal bias of eIDs is therefore the digital competencies needed to use computers, smart devices, and knowledge of when to use eIDs etc. We will throughout this report refer to the two eID-solutions, NemID and MitID, under the concept of eIDs unless our points are specific about one of the two, or it is necessary for the argument to distinguish between them.

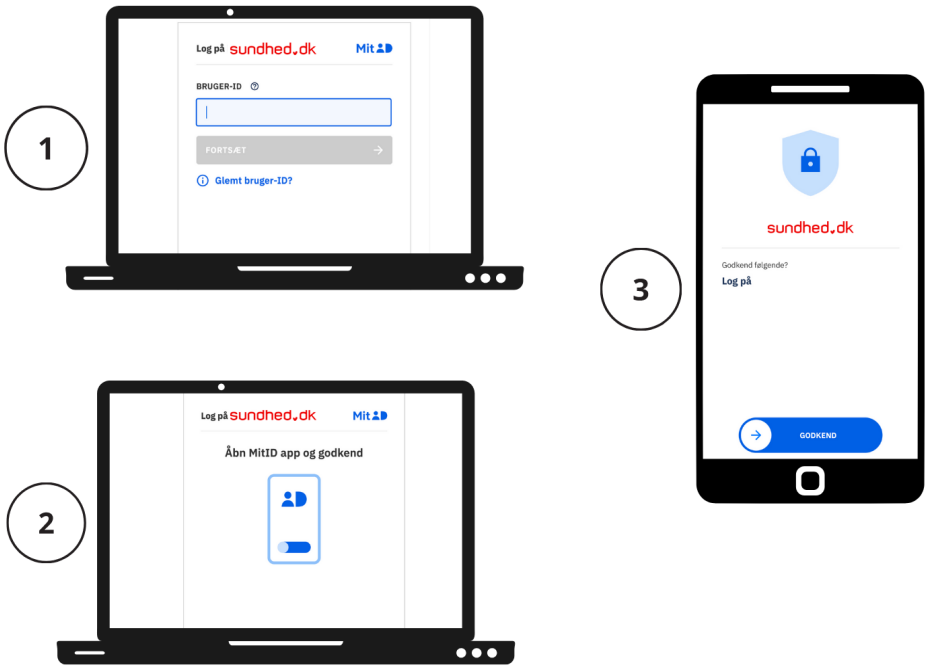


Figure 9: A visualization of the user journey through using MitID. Illustration by the authors.

Recontextualizing eIDs: reconnecting technology to the social context

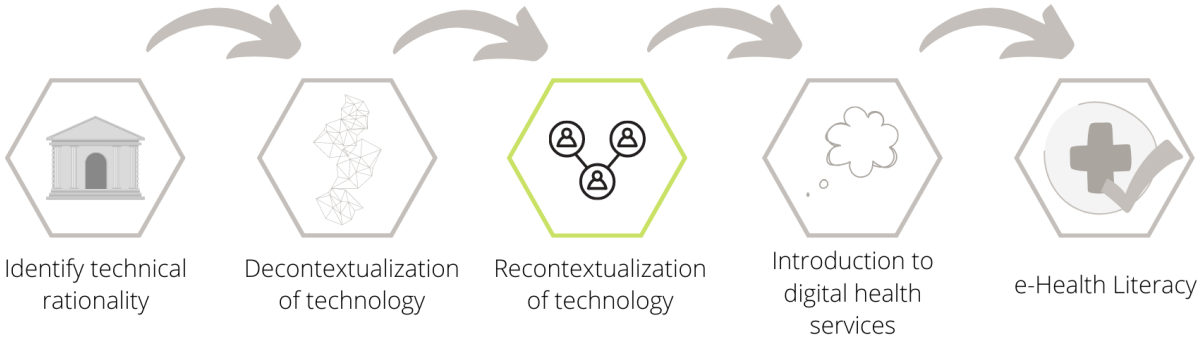


Figure 10: The third step of the analysis. Illustration by the authors.

Why is it at all that we are bothered with investigating how eIDs work in Denmark? As we have shown thus far, it can be boiled down to the practical deployment of technical rationality: it is mandated by the Danish Government that if you are capable of using it, you are obligated to do so (NemID 2022c). As mentioned, eIDs are the gatekeeper for all public provided digital services. To be able to navigate and use digital services, citizens must possess some degree of digital competencies. According to the report 'Digital strategy 2016-2020', digital competencies are:

> [..] among other things, the ability to use digital solutions, tools and online platforms to seek out, collect and analyze information and knowledge. That may, for example, be able to use a computer, tablet or smartphone to search for information on the internet, use NemID, read Digital Post, use online banking, etc. (The Government, Local Government Denmark and Danish Regions 2016, 55)

This means that digital competencies are a critical part of being able to navigate the continuously expanding digital landscape of public services in Denmark. The expectancy of Danish citizens having the necessary digital competencies to use eIDs is according to CC what can be called the formal bias. It is thus presupposed by the system that the citizens have such competencies. In the following section, we will therefore recontextualize the eIDs in a social context. By recontextualizing the technologies in their socio-technical configuration, we will account for the digital competencies among elderly Danish citizens and thereby provide insights into how the formal bias presents itself in practice. Through the recontextualization, we aim to prove that there is a fundamental problem with the technical code embedded in eIDs for the elderly.

The societal implications for elderly

Digital competencies include the ability to use smartphones, tablets, or computers and subsequently the commands their design entails (The Government, Local Government Denmark, and Danish Regions 2016). Such commands can range from being able to understand different kinds of swipes on a smartphone or tablet, closing apps or installing new apps. Using this as the outset for defining basic competencies we have identified a

discrepancy in regard to aligning digital competencies with being a self-supported user of digital services.

The majority of our informants can be categorized belonging to the digital gray area. The struggles that they encounter when faced with using an eID begs the questions of what they have to *do* whenever they are forced to use them.

There is an important distinction to be made: are they expected to know the fundamentals of IT, or are they just required to be able to use them in some undefined way? Dorte expresses a desire to know what is going on inside her smartphone, but at the same time tells us that she has given up on understanding the technical elements:

> **Dorte**: Yes, but I want to know what the hell is going on inside this phone. I have given up.

While Dortes' frustration is not specifically related to eIDs, it does relate to the question of what is expected of the elderly. One of things that is expected of the elderly is that they are capable of using eIDs. Seemingly, there is a general frustration associated with being forced to use eIDs, as Vivian states. What this frustration leads to is elderly internalizing the frustration and turning it into a negative emotion within themselves:

> **Interviewer**: Do I understand you correctly, if you are left with a feeling of powerlessness?
>
> **Vivian**: Yes, yes that's right. It's a dual emotion, because I'm also angry that so many changes are imposed upon us - unless we choose to get left out in the cold. Because there are some who choose not to use it at all. But then there are [..] a lot of things you can not do. I think society is about to be very wrongly composed in a way; that we are so dependent on having all this (digital technology, ed.) on us at all times.

Vivian states that the elderly are left with a feeling of powerlessness, but moreover this feeling is created by what she interprets as unemphatic decisions made by the Danish authorities. What Vivian notes in this quote, is also the feelings she has towards society and its constant need for change, because change is something that fosters negative feelings and experiences for the elderly. From this, it becomes visible that the mere change of an eID from NemID to MitID is the destabilizing factor for the elderlys experience of digital society. The elderly are furthermore expected to cope with these changes or else, in Vivians words, they are left out in the cold. Being left out in the cold can mean several things, but from our interviews it means that the elderly are being left behind and/or are being ignored by the system. This clearly shows that if the elderly are not on board and keep up with the constant change they are excluded from the social sphere. As the forthcoming dialogue between the ladies at the group interview shows, it can be a very time consuming and frustrating process to 1) in the first instance even identify and realize that you are lost and 2) get the help needed to solve the problem. The problem at hand might be solved by the help from different institutions such as banks, the DaneAge Association or others, but the elderly themselves do not become self-supported in relation to IT. Unfortunately the problem is only solved on the spot,

and this leaves the elderlys' digital competencies at status quo, resulting in a risk of asking for help all over again in their future encounters with similar problems:

> **Dorte**: Well I have also given up. Activating and using MitID has to wait! However, I can tell you about my husband. He was told by the bank that all of a sudden he should set up his MitID. He then sat in the lounge chair and gave it a try. Suddenly, he pressed the wrong thing and he was completely stunned. They (the bank, ed.) were very patient with him, but eventually, I had to go for a walk because it was so hard for him, and he was so frustrated. But he managed to set it up! He is ridiculously stubborn.
>
> **Bente**: Yes, because he probably got through to someone who could help. I did not!
>
> **Dorte**: Yes, but he also bothered everyone to get through! Eventually, I thought, oh God, should I help him? But I can not help him. I did not understand what the man on the phone said either. But like you Bente, he was thrown around to all sorts of people, but he succeeded! However, he wasted an entire Sunday morning sitting in that chair because he pressed the wrong thing once.
>
> **Bente**: I spent one afternoon at home, I spent two hours down at the DaneAge Association. I then spent God knows how long when I came home again yelling at the bank, and finally I got through. I could then say "yes", I finally overcame the last hurdle.

The need among these ladies for help clearly shows that their social spheres are influenced and affected by the encounter with an eID. Dorte mentions a first-hand experience from her own life, when her husband was encouraged to activate his MitID. She furthermore expresses the desire to help her husband, as she could see his frustration in his face, because he pressed the wrong button once. Dorte's husband was persistent in his desire to get help and was not bothered by demanding assistance from the bank. On the opposite side, Bente did not have a positive experience with the attempt to get help with setting up her MitID. The encounter that Bente had with society and its different instances providing help left her feeling disappointed in it. She did so because she does not feel like it should be that difficult to get help when she fundamentally sees herself as being self-supported:

> **Bente**: [..] I want to be able to handle myself, I want to be able to handle these challenges, and I also want to be able to comfortably get accustomed to something new and find it exciting. But if I get too many defeats then my confidence drops. I don't need that.

The technical code in eIDs thus becomes a limiting factor for the elderly in empowering themselves within the digital Danish society and subsequently a very influential factor in their social worlds. The exchange between Dorte and Bente is furthermore testament to the narrative of how time consuming it becomes for the elderly every time they seek help in both the public sphere via bodies like Citizen Service, NemID Support etc., as well as from the private sector via organizations like the DaneAge Association, banks etc.

Another socially dependent resource the elderly turn to for help with IT and technology is their relatives. However, getting help from relatives is a topic filled with diverging opinions among the elderly. Through our interviews we have identified several important distinctions to make in relation to getting help from relatives. The first problem is that it is important to separate whether one is comfortable to even ask for help in the first place or not. Secondly, it is just as important to consider whether the help elderly receives is provided through a safe and comfortable process. The change from NemID to MitID is something that some elderly have needed assistance for, such as was the case with Bente, and Dorte's husband. When asked how she normally proceed when faced with new technologies in general, Dorte said that she turns towards her immediate IT-knowledgeable family for help:

Dorte: [..] We can, and will, ask our IT-son.

For Lisbeth turning towards her family for assistance was not a possibility because she feared that she would be ridiculed by them:

Lisbeth: I bought a speaker and I have to put the music on it. [..] I have a son-in-law who has speakers which he runs around with, etc. But if I ask him, then I get ridiculed. Then he can ridicule me for the next two years; that 'grandma can't do that'.

The encounter with eIDs therefore has an implication and influence on the social worlds it enters and alters. eIDs potentially have the ability to strengthen relations, in Dortes case, while also being able to create a taboo for Lisbeth.
The example of Lisbeth not asking her family for help could be solely applicable to her individual situation, but we encountered this fear and frustration when interviewing Vivian as well. The fear of being judged and furthermore to be seen as an individual who is not digitally self-supported by relatives is, according to Vivian, a limiting factor in her search for aid:

Vivian: [..] we always sit and drink coffee in the cafe when we are done (with gymnastics, ed.), and we talk about many things. Lately, we have talked a lot about the new eID we have to activate, and how to get it. Some are luckier than others, as some have grandchildren living in their building. One of those who has that just calls those grandchildren - who are in high school. They then come running and help her instantly.

Interviewer: So, does it have anything to do with one's network as well?

Vivian: I [..] think that - at least for me, and that's also something I hear - that it's harder to ask your children. It's harder to admit to your children that you're a little lost. [...] When we grow old, we want to signal that we can take care of ourselves, so as not to impose too much responsibility and worries on them (their children. ed). In relation to our children, we always prefer to be the ones who are the most adult, regardless of their age. At least that's how I feel. I think if they find out I can not figure it out, they can get a little scared of whether they're going to help me a lot more. Not that they would not do that, but yes... it is a little hard to explain.

The need to ask your children or immediate family for help does according to Vivian change something about the power structures within families. As a parent, no matter how old your children become, one wants to show one's children that you are capable of being self-supported and do not need help. However, the influence that digital transformation has on the power structures generates a range of negative feelings within Vivian. Furthermore, this influence on power structures is seemingly solely imposed by the increasing demand from society on elderly and their abilities to be digital. The constant change is evidently visible with the current ongoing transition from NemID to MitID. While Vivian is feeling lost and arguably alone in her quest for empowering her digital self, she is at the same time experiencing a vast frustration in regard to technology and its constantly changing nature. We have encountered this feeling of frustration imposed by society's changing nature several times throughout our interviews:

Kaj: So my girlfriend, who is 61, has also sometimes asked me for help. She says "why can't I figure it out? I could the last time!"

Lisbeth: When there are changes, I procrastinate doing anything about it for as long as possible [..] because it is usually cumbersome, and it usually goes wrong.

This became increasingly evident when we talked to the volunteer, Bjarke, at one of the IT-cafes, who said that some of the elderly who attend the IT-cafe, do so because they struggle with the demands and responsibility that are put on them by the Danish authorities. They attend the IT-cafes because they are told they *have* to do certain things to be as up to date as possible, such as making the transition from NemID to MitID:

Bjarke describes that people come and need help because they are told by the system that they *have* to use the digital services.
Field note, 14th of March, Amager

The DaneAge Association becomes a vital part of the elderly's social world because it is where they go when they need help with issues related to digital transformation in Denmark. Michaels insecurities about his own digital competencies brought him to the IT-cafe as he stood before the transition from NemID to MitID:

Michael: So I am here today (at the IT-cafe, ed.), to get some help, and to be able to be assured that what I am doing is right. I have had a computer for quite a few years, but I have mainly used it to go online and listen to music, etc. Many of the things that have come as requirements later, such as NemID, MitID and all that - those are things I am very insecure about. I know how to read the manual, but then I get insanely insecure as to whether I have read it correctly. What if I do the wrong thing and I make a mistake? What happens then? So it's as much a technical insecurity as it is insecurity in and around myself, right?

Apparent in Michael's statement is his self-doubt and insecurities in relation to his digital competencies. While he has tried to obtain information by himself and feels like he does understand the information, his insecurities take over and he therefore turns to the DaneAge Associations IT-cafe for help.

The introduction of eIDs imposed upon elderly by the Danish authorities becomes a major factor in their self-perception, as it is the case with Michael's insecurities. Another example of a person turning to the DaneAge Association for help is Lise. When she heard about a presentation about MitID, she chose to attend in order to gain more knowledge on the subject. The presentation was arranged by her local branch of the DaneAge Association:

Lise: [..] Svend [..] has given several presentations on MitID, and I have [..] attended those.

[..]

Interviewer: You mentioned that you had been to a presentation on MitID. How was it, and did it help?

Lise: No, well, he was nice and sweet, probably a knowledgeable man. But I was almost scared of it, to be honest.

Interviewer: Can you elaborate on that?

Lise: It's because, like today, I'm afraid of pressing the wrong thing, and then something comes up that I do not want, which I can not get rid of again. It's probably anxiety us old people have in general: that you accidentally destroy something on the machine, or you get entangled in something that you can not get out of. We are afraid of it because we are not familiar with it. It is new to us.

While the intention of Lise attending the presentation was to improve her knowledge about MitID, the result was a rather different one. Instead of influencing her perception of MitID in a positive way it left her feeling more reluctant and more scared of using it. What we have shown so far is the implications and consequences eIDs can have on elderly's experience of their respective social worlds, as well as concrete implications on the perception of themselves. This preliminary recontextualization of the eIDs has been rather negative. This indicates the struggles that some elderly in the digital gray area experience due to the implementation and demand for the use of eIDs. We will now turn towards a section of the recontextualization that focuses more on which affordances eIDs are supposed to be the gatekeepers for.

As mentioned in the decontextualization of eIDs, it is the gatekeeper for all digital public provided services. In 2014 it became obligatory for Danish citizens to communicate with authorities through digital services (Statistics Denmark 2022, 32). When asked what she used IT for in her everyday life, Grete answered:

Grete: I mostly use mail and bank, and also e-Boks, and everything else we *have to* use in order to be up to date.

This demand for digital communication presupposes the use of digital services, which clearly, by her intonation when she stated the above fosters a frustration for Grete. It does so as she is obligated to use them to keep up to date with several institutions through eIDs. Despite the frustration that it has fostered for Grete, she is trying to keep up with everything. This tendency of being elderly and a part of digital society is also seen statistically. Elderly people are increasingly becoming a part of the digital society, and the number of elderly who have never been on the internet in the age group 65 to 74 years has decreased from 29% in 2011 to only 3% in 2021 (Statistics Denmark 2022, 15). However, as we have shown, there exists what is deemed the digital gray area. While the number of elderly who are not part of the digital society, it does not necessarily mean that they are self-supported users of digital services that is accessed through eIDs:

Bente: Yes, one thing is to be online and to communicate via emails, right? It is something else when you go into MinSundhed or E-boks.

This is a clear example of the aforementioned concept of finding oneself in the digital gray area. On the one hand, Bente does have some digital competencies and feels confident with some areas of IT, but on the other hand, she also expresses having difficulties with some of the public digital services such as MinSundhed. Contrary to Bente, Lise does not experience problems with using public digital health services. It rather seems like she experiences easier access and convenience in the health system:

Interviewer: Do you use your computer for sundhed.dk etc?

Lise: Yes, I do. I use it a lot - I communicate with my doctor that way, and I get reminded when I have booked an appointment with him and so forth.

Vivian also use her eID to get access to a digital public provided health service:

Vivian: I make appointments, and I order my medicine on the computer. Now, with corona test results, etc. I have been able to use my NemID and go to sundhed.dk etc and check (health information, ed.).

Interviewer: Do you think sundhed.dk is easy to use?

Vivian: Yes, I think so. With the code card it has been easy, but now I am also at a point where I have no more codes left. I have to figure out with my bank whether I should have a new code card or not.

What is striking about Vivian's statement, is that while she finds some of the digital public services convenient, she sees the potential danger of losing her NemID as it is her gatekeeper to the services that she uses in the public sector.

With this recontextualization, we have shown that elderly's social world is heavily influenced and affected by the technical code that is embedded in eIDs. However, what remains to be further examined is the formal bias that is embedded in eIDs. We will now turn to investigate how digital competencies affect elderly's ability to use technologies such as eIDs and alike.

Formal bias: the invisible expectations

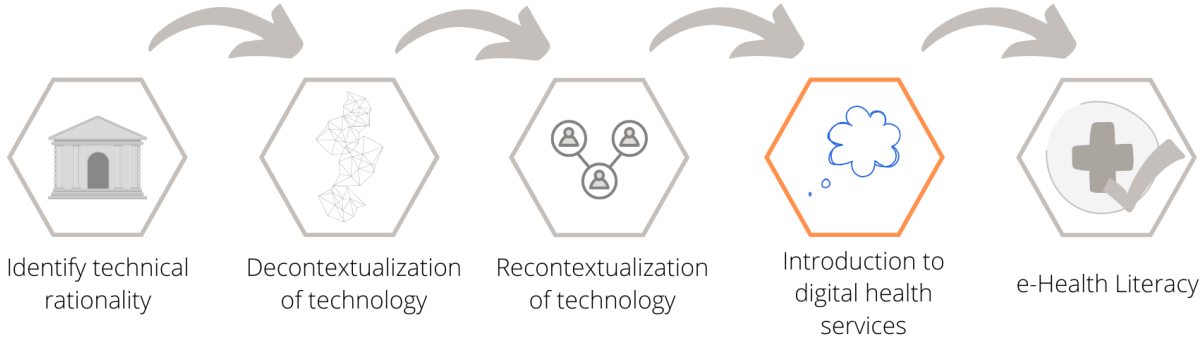


Figure 11: The fourth step of the analysis. Illustration by the authors.

Having clarified the technical elements of eIDs through decontextualization, as well as having recontextualized them, we have gained insights into how the social world of elderly is influenced by the digital transformation. At our group interview, the interview was interrupted by the issue of lacking digital competencies. The exchange, shown below, revealed an issue that is far more fundamental than the ability for users to use eIDs or navigate the landscape of public digital services in Denmark. The exchange resulted in a request for help from Dorte:

Dorte: Close the app, you do that here, right? (Points to the top of the app, ed.)

Interviewer: No, you can close it permanently by swiping the application away from the phone, so to speak.

Dorte: You have to show me that, because I would rather be able to find out for myself in the future.

Interviewer: Yes, of course. You need to swipe up once more, so that you get the applications shown, and then pull them up. If you drop the app midway on the screen, you get an overview of the open apps. From here, you can 'shoot' apps upward to close them permanently.

Dorte: So, I do this? See! I did it!

Interviewer: You can then return to the home screen and open the app again. It is a way of re-starting the app.

Dorte: Then we'll see if it (the app, ed.) works now. Look, I'm on it again. Cool!

Before we dwell on the example Dorte provides, it is necessary to make a comment about the concepts of 'user'. What Dorte actually becomes in the example is a non-user. According to Sally Wyatt non-users can be categorized into four groups: 1) resisters, 2) rejecters, 3) excluded, and 4) expelled (Wyatt 2003, 76). Dorte falls within the fourth group as she sat with a smartphone in hand, and had been shut off from the MinSundhed-app due to the app malfunctioning. The app therefore needed a reboot from the command center of her smartphone. The practical reboot of the app is one thing, but returning to the framework of CC, subsequently the primary

instrumentalization, one needs to look at the technical elements of a smartphone. A key technical element of a smartphone is the touch screen. A touch screen enables the user to navigate the user interface by gesturing their finger in either direction. We argue that this physical gesture is somewhat a basic prerequisite for using a smartphone. Therefore, the rather basic command of swiping and how to close an app on a smartphone hindered Dorte from being able to access her MinSundhed-app. Here, the technical code of digital services in general thus become very visible. Dorte wished to use her right to access her own health data, as it is decided by law that she can, but was hindered because of her lack of digital competencies. She is left with an application that is stuck and without the digital competencies to do anything about it. The formal bias in the form of digital competencies thus facilitates an expectation of Dorte to a) be able to restart the application on her own or b) seek information on how to do so autonomously. Unfortunately for Dorte, none of these possibilities turned out to be the case in reality. However, it is not only the commands and physical gestures in relation to digital technologies that elderly people struggle with. What Dorte's example points toward is a discrepancy between what is deemed as simple, and the complexity which the elderly experience it to offer in practice. Zooming out, we encountered a narrative of apathy in regard to IT in general through our interviews. At the same interview as the example above, Dorte, Lisbeth and Bente collectively agreed that their digital competencies fall short in relation to IT, as it is far too complex to fathom. The complexity and difficulty subsequently results in less desire to engage with it:

Dorte: I think with all this security and IT, there's something fundamentally I do not understand about it - and I am not sure I would be bothered to learn it either.

Lisbeth: Exactly. Because what do we need to understand and what do we need to know? One thing is to understand, something else is to be able to do it, God damn it. If we just have to know something, then we do not always have to understand it completely, do we?

Dorte: Yes, but I want to know what the hell is going on inside this phone. I have given up.

Bente: It's like when I was little and listened to the radio. Back then, I thought there were little men inside the radio who were singing the songs and presenting the news.

Dorte ends up being a non-user because she can not be bothered to learn how she should use IT, and thus becomes a 'resister'. On top of the resistance Dorte expresses in relation to using IT and IT security in general, she also touches upon the topic of not understanding the fundamentals. Vivian also expressed a general frustration in relation to understanding IT:

Vivian: I attend gymnastics at the DaneAge Association where I am socializing with many peers, and we support each other in that it is difficult for us. This is very important because we must not think that it is because we are becoming demented or senile. We have to acknowledge that this is something that is difficult for us. But I think it (digitalization in general, ed.) is a hassle and it takes a lot of time for me. I can get so desperate that I can not figure it out.

What Vivian says here is important, because consulting with her peers about their struggle with digitalization serves as a reminder that it is not them personally who are failing. However, the ability to avoid internalizing the negative feelings which the lack of digital competencies fosters, is not something that all our informants were capable of. In opposition to Vivian, Lise has internalized her feelings of frustration into self-doubt:

> **Interviewer**: What is it like to be elderly in a digital society like the Danish?
>
> **Lise**: It is hard. It is going so fast, and it is fucking hard to keep up. [..] and it feels like you don't really live up to what is expected of you. It's hard to keep up and understand it all. All the new expressions and everything that comes. It is hard.

It is startling that the frustration the elderly experience can be internalized to such a degree that it can end up with them questioning their own abilities. Furthermore, the internalization of feelings derived from being elderly in digital Denmark, is clearly something that is affecting them:

> **Interviewer**: Bente, you have expressed that you get sad. So did Dorte. Can you elaborate on how that feeling comes to life, and what other emotions are generated by it?
>
> **Dorte**: Inadequacy. You are inadequate and you do not fulfill your purpose.

The lack of digital competencies affects how Dorte sees herself and results in a feeling of being inadequate. In the subsequent interaction, it is clear that Bente agrees with Dorte about how the lack of digital competencies influence their self-perception:

> **Bente**: No, you do not live up to the expectations. Again, in my case, that is what I would like to do. I want to be able to handle myself, I want to be able to handle these challenges, and I also want to be able to comfortably get accustomed to something new and find it exciting. [..]
>
> **Dorte**: What you say is exactly how I feel. I also want to learn it properly, and I get so damn angry when I can not.

The elderly view themselves as individuals who should be able to participate in the digital society. Their digital competencies, however, limits them from doing so. They thus become 'expelled' non-users of some public digital services. It is evident that the formal bias of digital competencies is hindering the elderly from fully participating in society in the way that they desire to.

One of the sectors that is influenced by digital transformation and, according to different health and digital strategies, should become increasingly more digital, is the healthcare sector in Denmark (Ministry of Health et al. 2018; The Government, Local Government Denmark and Danish Regions 2016; Ministry of Finance 2022). We will therefore now turn to an investigation of how digital competencies influence the elderly

in relation to health. According to Lars Kayser, the increasing digitization in healthcare has fostered a need for developing the concept of health literacy (Lars Kayser, University of Copenhagen). The new concept puts emphasis on the digital competencies needed by citizens in mastering their own health. This concept is known as *e-health literacy* or *digital health literacy* (Norgaard et al. 2015).
We will deploy the concept of e-health literacy because it will help us disclose the actual effect of lacking digital competencies in the elderly generation(s). Before we turn to an analysis of the elderlys lacking digital competencies in relation to their health, we will introduce the landscape of digital health services and some of the digital health services available to the Danish citizens.

The complex landscape of digital health services

The digital landscape within the healthcare sector in Denmark is currently already consisting of multiple different services, and it does not seem like there is anything that will stop the development in the immediate future. "Whereas digitisation supports the general development of the health system, new technology can, however, push the overall framework for the how health services can be provided." (Ministry of Health et al. 2018, 5). The healthcare sector is becoming increasingly digitalized, as the number of downloads of different public health applications shows. The number of citizens who use health related apps has more than tripled over the course of six years from 2015 to 2021 (Ministry of Finance 2022, 35). The increasing number of health-related app-users is similar to the point that Wyatt makes about cars: "The more people use cars, the greater the infrastructure to support them, and the lessening of car-free space" (Wyatt 2003, 78). While you might not yourself be a car-user, you will nevertheless be influenced if the surrounding society increases their car usage, thereby changing the infrastructure to facilitate it (Wyatt 2003). Similarly, if the number of users of digital health services increases in society, it will affect both the users and non-users of these. The digital landscape is under constant development and it becomes increasingly difficult for the users and non-users to navigate it. As Søren Worsøe, Chief Consultant at the Danish Cancer Society**,** argues, the existence of several digital health services complicates the overview for patients, and can potentially become an obstacle for them:

> So now there is, I do not know how many health apps, and almost every [..] hospital want to have their own app [..] we have said well, that is fine, but the thing is [..] that there must be a place where the citizen can find all their updated information, and it has to be on the nationwide system sundhed.dk[.]
> (Søren Worsøe, the Danish Cancer Society).

Søren Worsøe here expresses a desire on behalf of the patients in the Danish Cancer Society for a less complex landscape of digital health services. As a starting point for diving into the digital health services we have chosen sundhed.dk, as it is one of the oldest. It is the national online health portal where citizens can view their own health data from the public health sector. A portal where citizens can access their health data is a requirement because: "the citizens have the right to access and view their health

data by law. That has been politically decided." (Therese Thorstholm, User Consultant at sundhed.dk). Seemingly sundhed.dk is an emancipating initiative, as the citizens are then presented with access to the personal data relating to them. It is therefore interesting to look further into such technologies, because as Feng and Feenberg (2008) argues, CC provides a framework for analyzing and questioning how and why technologies are designed they way they are:

> The fact that a person living in Amsterdam is inclined to think of cyclists as natural users of roadways – while a person living in Atlanta does not – matters. It matters because this taken-for- granted understanding – what in essence is "culture" – becomes a background condition to the design of technology.
> (Feng and Feenberg 2008, 112).

Returning to the idea of having one's health data available and accessible by a digital platform arguably thus relies on a presupposition from the Danish authorities through the technical rationality. It means that this data should be accessible for the citizens as well as the various health care professionals assigned to care for the citizen across sectors in the Danish healthcare system: "Currently, a patient's medical records are viewable by clinicians across regions in the National Health Record (Sundhedsjournalen). In addition, the Shared Medication Record (Fælles Medicinkort) gives healthcare professionals access to a complete, up-to-date prescription-medicine overview for the patient across the entire health system." (Ministry of Health et al. 2018, 5). Since the launch of sundhed.dk in 2003, the features for users of sundhed.dk has increased and continues to increase in the years to come as more and more data is being connected to the platform (sundhed.dk 2016; sundhed.dk 2019). Sundhed.dk has later launched an app, known as MinSundhed. This is the app which caused Dorte problems in the previous section.

> [..] when the app was built, some liberties were taken, because we had like 'a clean sheet'. [..] that's why it was made the way it was. So you could say that e-journals and lab answers are the same in the app and in the portal. [..] the data is the same.
> (Amina Hyllested, Product Owner, sundhed.dk).

The data in the two digital services are therefore identical but the liberties that are mentioned influences the way the data is presented to the users. Representation and visualization of health data is provided across several digital platforms. In addition to the nationwide digital services, other public bodies such as the Regions, organizations like The Danish Organization of General Practitioners (PLO) or private actors have launched their own digital services (sundhed.dk 2021).

Like Søren Worsøe stated at the beginning of this section, the complex landscape of digital health services fuels the wish for simplicity and coherence. This wish was supported by Informant X from Organization X**:**

> In Denmark, we have a specialty field within the various disease areas. What can be really difficult is when you not only have one diagnosis, you have several: what do you do? So, here it gets interesting, and it is where you can talk about inequality

> sometimes in the healthcare system. [..] the strongest will probably make it, but those who can not navigate inside the system they will [..] lag a little, right? With the digital platforms and everything that needs to happen on e-Boks and Sundhedsplatformen, etc., [..] I'm not just thinking of young people. We also have elderly people who have been living with this disease for many years. Some are really good at IT [..] others are not, and what do you do to reach the most optimal solution? [..] (Sundhedsplatformen, ed.) is a useful tool, but can you get the speciality fields, also within Sundhedsplatformen - because almost each Region has its own - can you make it work together? Can it work with a general practitioner?
> (Informant X, Organization X).

Through our interviews it has become evident that the patient organizations view the digital health services as a key element of patients being able to master their own health. As both Søren Worsøe and Informant X pointed out, their members have a need for coherence and simplicity in the digital services in order to fully embrace them, regardless of the demographics of the individual. Nevertheless, the people with low digital competencies have more individual barriers to overcome because the demand for digital competencies is increasing. As seen through our analysis so far, elderly in the digital gray area are among the social groups that struggle with the increasing digital transformation.

According to the report 'Digital Health Strategy 2018-2022' Denmark has to strive for a more coherent understanding of user journeys, as well as ensuring optimal ways of communication for citizens with public actors such as health professionals (Ministry of Health et al. 2018). Arguably the technical rationality based on the general digital transformation becomes apparent and magnified in the digital transformation of the Danish healthcare system. The requirements for digital competencies will, according to the strategy, follow the general digitalization and will thus further strengthen the technical rationality. The digital health strategy acknowledges the vast variety of health services and the need for a better overview of them (Ministry of Health et al. 2018, 31). The numerous applications is also something that sparked a conversation at our group interview:

Lisbeth: I was not at all aware that there was something called Lægevejen. What do you use it for?

Bente: It's in connection with a dermatologist, and also my rheumatologist.

What this dialogue says in itself is not revolutionary, but it points to a tendency which we have experienced throughout this thesis. Seemingly, the amount of services available for the elderly, be it health-related or other, are overwhelming for the individual. The complexity of the many health apps and services increases the barriers that elderly in the digital gray area must overcome. This potentially hinders them from being able to emancipate themselves in mastering their own health. Paradoxically, the ambition from the authorities is that digital services in Denmark should be top class, and

should essentially make the citizens more autonomous in navigating their own digital identity, including their health (The Government, Local Government Denmark, and Danish Regions 2016).

The report 'digital strategy 2016-2020' frames digital transformation as being in demand by some of the population, while the rest has needed to familiarize themselves with digital technologies before eventually succeeding (The Government, Local Government Denmark, and Danish Regions 2016). What is surprising about this framing is the sheer lack of mention of people who have yet to feel like they succeed with navigating the complex landscape of digital public services. The complexity of navigating in the field of public digital health services is also expressed by Lisbeth:

> **Lisbeth**: I think it is difficult to figure out what you use Sundhedsplatformen for and what you use sundhed.dk for. I have just been to the hospital to get x-rays taken, and I've gotten blood work done as well. The results of the blood work are in Sundhedsplatformen. When I had to see the x-ray results, they were not there. They are on sundhed.dk - does that make sense? No. The blood samples and x-rays were even taken at the same place, i.e. at the same hospital. [..] I can not understand what Sundhedsplatformen does and what sundhed.dk does. What do you need one for and what do you need the other for? I know that Sundhedsplatformen is mainly the public sector, hospitals, etc. But why is my x-ray description in sundhed.dk, I do not understand that?

While Lisbeth physically attends various appointments in the healthcare sector, she is left with the issue of processing this information afterwards. In other words, the responsibility for navigating the information on the different public platforms lies solely on Lisbeth. Her data will now be provided to her through two different digital platforms, and it evidently confuses her. Grimes and Feenberg (2013) argues that "The ultimate reality check for technology is public acceptance since the public must deal not only with each particular technology in its ideal setting but all of them together in the chaotic world of daily life." (Grimes and Feenberg 2013, 6). The public acceptance of the digital technologies are therefore challenged whenever they are combined, as Lisbeth experiences a dual confusion in that a) she does not understand the process of how the data is distributed, and b) why there is a need for two platforms for accessing her data.

We have, until the introduction of the digital healthcare sector, worked from a point of eID as being our socio-technical configuration. This has also resulted in identifying digital competencies as the formal bias. We will henceforward not focus on a single, concrete technology but rather cluster the various public digital health services into a merged entity. A concept for digital competencies regarding digital health services already exists in the name of e-health literacy. We will therefore argue that we can allow for a transition to this as our definition of formal bias. The need for a focus on health is vital, as it has now become evident that the digital competencies and the ability to master one's own health are inevitably intertwined through the use of digital services.

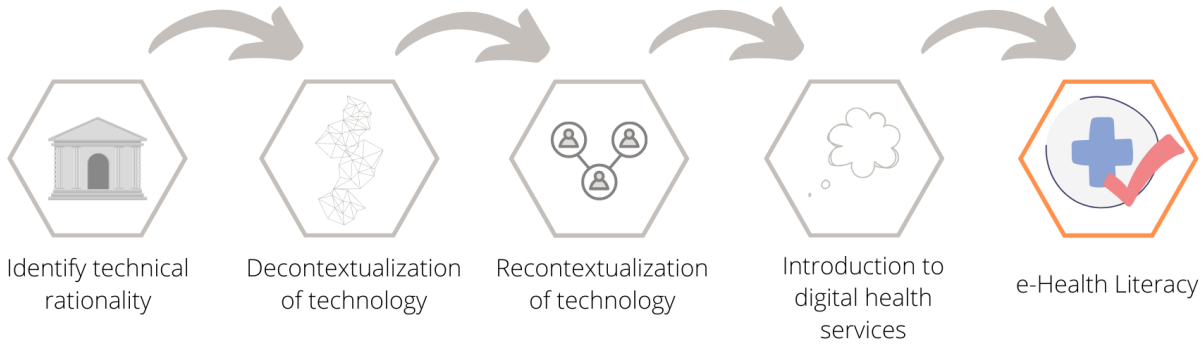


Figure 12: The fifth step in the analysis. Illustration by the authors.

With the deployment of the eHLF we will now apply each of the seven domains to our empirical data. We will do so to thoroughly investigate how elderly's ability to master or engage with their own health is affected by their e-health literacy. We will furthermore use comments from the patient organizations to support claims we will make. The inclusion of our empirical data from the patient organizations will help identify the pitfalls of both digitalization and digitization of the public Danish healthcare sector.

Processing health information

The 'ability to process information' is one of the key areas we have identified when processing our data, and quotes from both the patient organizations as well as the elderly puts further emphasis on the importance of being able to do so. While a semantic understanding of a message on a digital health service platform may be clear and obvious for the health professional who wrote it (sender), the user (receiver) might not have the competencies to understand and process this information. As Informant X from Organization X said:

> As patients and relatives we interpret information because we do not have the medical insight (to understand latin, ed.). Therefore, it can be dangerous not to provide an explanation in simple Danish. So, we have information that we can not really use for anything other than interpreting it ourselves. After all, it is discouraging, it creates misinformation, and it also makes us unable to understand what is written.
> (Informant X, Organization X).

This issue of not having the competencies to process the information required for engaging with digital services was also present when Bente recalled receiving a message from her doctor:

Bente: [..] in connection with the dermatologist, and also my rheumatologist, I [..] used Lægevejen.dk. [..] It's more something linguistic, but still. She (Bente's doctor, ed) writes that:

"Have put control blood samples on server for control in two weeks, i.e. in week 48. Best regards. ", and you know what? I did not understand that. What does it mean? She checked a server? How should I use it? What should I do?

The consequences for Bente could potentially be that she would not get the necessary blood work done. While she was able to access the information, the semantics hindered her from properly caring for her own health. Her solution was to call the doctor to get the message clarified. In this specific example it is the way the blood work is ordered within the healthcare sector that fosters a confusion for Bente. It did so because Bente is not knowledgeable about how the system works. What influenced the message that was sent to Bente, is the infrastructure of how blood work is ordered within the healthcare system, which has become a digitalized process. The digitalization of the internal healthcare system further burdens the patients with new requirements in regard to their abilities and understanding of digital processes. The technical rationality thus imposes requirements on the citizens which affects their ability to process information. Following Bente telling her story, an exchange between her and Lisbeth emerge, resulting in a debate of whether the issue lies in basic semantics or e-health literacy:

Bente: I [..] ended up calling her and asking what it meant, because I did not understand it. So it is also something about the language, the medical language.

Lisbeth: No, it is not the medical thing. It is the computer part, the IT part. For her to use such an expression? She could simply have written that you should go to blodprøver.dk.

Bente: But it's a specialist who wrote it to me. Once again, you are left there, as an elderly citizen.

Lisbeth: [..] it is because there are some who are a certain age for whom it is completely natural to write like that. She (the doctor, ed.) thinks everyone knows that it means this or that.

Bente: [..] one has to familiarize oneself a lot with the recipient of text. I care a lot for doing so, and it may well be that I am old-fashioned. When I write, I think a lot about who the receiver of the message is. That is why there is also a big difference in how I write to my grandchildren, and to so many others. I also make a lot of effort out of text messages and emails: they do not have to be very long, but they should, for the love of God, not be at risk of being misunderstood. This way the recipient does not get upset, meanwhile I get to say what I would like to in a proper way. I do not use all those acronyms, but I try to make it simple. I actually think that's really important.

The need to familiarize oneself with the receiver of one's message, as Bente expressed, was also a point made by Lars Kayser, who referred to a famous saying by Søren Kierkegaard:

> What is important when you interact with people about their health, is to understand what they understand. [..] I start all lectures and all conversations with

> Søren Kierkegaard. If you are to understand others, then you must first understand what they understand and find them where they are.
> (Lars Kayser, University of Copenhagen).

There is a discrepancy between how healthcare professionals communicate and e-health literacy of the patients. Some of this discrepancy can be explained by the lack of healthcare professionals' insights into the patients e-health literacy, such as it is the case with Bente, as she is unfamiliar with how a doctor orders blood work for a patient. Other reasons might be grounded more within the lack of competencies to understand medical language. This is also a point which Informant X makes, when speaking about the doctor's tendency to write diagnostics in a very factual and clinical manner: "[..] the doctors write it very straightforwardly. Then you can go and Google these different words." (Informant X, Organization X). The patient is then left with the task of filtering the information which is retrieved by them googling. This is potentially carried out without the necessary medical knowledge and e-health literacy, and the patients might end up on websites that provide wrong or harmful information as a consequence thereof. Once more the patient is therefore met with the assumption that he/she is able to correctly process the obtained information. This assumption is rooted in the nation wide strategies, and thus falls in line with the technical rationality. One way to counter this tendency could be what Søren Worsøe expressed during our interview. The Danish Cancer Society would like to create a course which teaches people to master their own health data:

> We would also like to make it more generic, i.e. simply how to master your own health data, like: 'here is an introduction to sundhed.dk'. It should not be necessary, however. Ideally, it would be so intuitive that there was no need for an introductory course, but as it is now, especially for some of those who have a little bit of IT-anxiety, it (the course, ed.) will be helpful.
> (Søren Worsøe, Danish Cancer Society)

It is evident that receiving or finding health information through the numerous digital services available in Denmark thus once again presupposes the e-health literacy of elderly. The lack of e-health literacy when having to process health information can potentially hinder elderly from being able to cater to their own health. This prompts a reason for moving on to the second domain of the eHLF, and to dive further into how this difficulty of information processing is affecting the elderlys desire to master their own health.

Engagement in own health

The ability to engage in one's own health is among other things characterized by the individual's desire to actively partake in maintaining it. The elderly we encountered did express that they actually use several of the digital services within the healthcare sector. As mentioned in previously, both Lise and Vivian use sundhed.dk, and thereby actively try to engage in their own health and empower themselves by looking at their health data. However, the use of sundhed.dk and other digital health services seems to be

easily disrupted if the elderlys' e-health literacy is limited, as it was the case for Dorte when the MinSundhed-app needed to be rebooted. For Dorte this was impossible, as her lack of competencies in using commands on a smartphone stopped her from rebooting the app. It has further been expressed by Lisbeth that the landscape of digital health services in Denmark makes it difficult for her to navigate and find her own health data and information because the information is scattered across the various services.

In the examples mentioned above, the elderly know that they can access different digital services to find their data. While they might not know which services to use, they know that they exist. While this group of people know how to gain information and actively engage with their health data, others have a more passive approach as they expect to be given the fundamental information about their disease from their healthcare provider. In the interview with Informant Y from Organization Y, she told us that their members do not get sufficient information from their health providers:

> [..] we can not say this for everyone, but they, the patients, do not get much information about [their disease] from the GP, unfortunately. They are not allocated that much time. It is more like: you have [this disease], you get these pills, see you in 3 months, and afterwards they are left with a feeling of "okay, what now?"
> (Informant Y, Organization Y).

What Informant Y states is that patients are sometimes left with insufficient information regarding their health conditions in order for them to actively engage with their own health by themselves. The lack of information from their health providers forces them to seek information elsewhere. It could potentially, as seen in the previous section, lead to patients having to search and interpret information on their own. One way to circumvent the responsibility being left solely on patients is for example the helpline from Organization Y:

> The people who call us, they expect to get things explained [..], so that they do not have to go to a website and look things up. I might as well explain it to them. [..] So a lot of people Google things, but that is also fine sometimes - they [..] want to be able to understand things, and then they call us (afterwards, ed.) [..] People, they Google like crazy.
> (Informant Y, Organization Y).

While some patients use Google or call helplines such as the one available at Organization Y, other patients might encounter other difficulties engaging with their own health. This is due to the complexity of their contact with the healthcare system. Informant X emphasizes the need for patients to be able to navigate the system because they are in contact with several different institutions within the healthcare sector at the same time:

> [..] you can see that the patient is going to Herlev Hospital on Monday 1st of January or whenever, right? Perhaps, could it then be smart to also plan the follow-up on Monday, January 1st? Make it an extension of each other. No, that's

> not the case as it is. You have to show up, and then you have to get blood work done, only to go home again and to come back another day [for your follow-up]. At the same time, you might just have to go to something else, elsewhere. It can be a success in the same field, and within the same specialty to make a small [..] plan where you go down to get blood work done, and then you go to the outpatient clinic or wherever you go. But when there are several places to go and in several "silos", it is a problem. We need the silos, but we need to break down that big apparatus which is not transparent. Instead we need to say, "what has this patient been going to"? What samples should they have taken next?
> (Informant X, Organization X).

The complexity of both the organizational structure, the landscape of digital health services and information seem to make it difficult for patients and the elderly to understand what information is available to whom and where, and not least why. The complexity can end up with elderly voluntarily opting out of using, and thereby becoming 'rejecters', of some of the digital health services. According to 'the digital health strategy' "it should [not] fall on the individual patient or relative to carry information about treatment and medical history through the health system." (Ministry of Health et al. 2018, 5). However, the lack of communication among the different parts of the system paradoxically makes it so. It puts an even further increased responsibility on the individual's ability to navigate in the healthcare system, further increasing the expectations of e-health literacy. However, should the expectations to one's e-health literacy not be met, it can potentially harm the elderly's engagement with their own health.
Navigating the digital health services requires the users to have the ability to process the information embedded in the system and to have an overview of it. This leads us into the next domain of mastering the interaction between oneself and the digital services.

Ability to actively engage with digital services

Sundhed.dk has tried to accommodate citizens' needs for being able to actively engage with their digital service via the creation of a user panel. This initiative is, according to Therese Thorstholm, an attempt to address a pitfall within sundhed.dk they themselves are already aware of:

> But we can at least try to do what we can for the user's experience: that they feel safe, they can figure out how to navigate, they understand what we are writing and the solutions are as user-friendly as possible. There is a really long way to go in relation to that. But it is at least something we are aware of, and something that we work on a lot[.] One of the reasons we have created the user panel was that there should be no excuse for not involving the users.
> (Therese Thorstholm, sundhed.dk).

While sundhed.dk is aware of the usage of the platform, it does presuppose that the users feel confident with using digital technology in general in order for them to join the user panel. Once again, the technical rationality shines through whenever a public body

is defining their encounters with their respective users. The confidence of the users, and their own ability to use technology, especially among the elderly citizens in Denmark, is seemingly not sufficient. According to both Vivian and Michael, the self-doubt and insecurity in regard to being able to use digital technologies is a dominant thought for both of them:

Interviewer: What is the most difficult thing for you, when being forced to navigate IT?

Vivian: That has to be all the codes. All the codes! That's what's hard. I remember when we had the code card, it was about a few years ago, I just had to spend some time on it, but then it was also completely natural to use it, right? I could use it for everything: shopping online, order things, etc.] What is difficult is when changes are made. The changes that are made right now, are hopeless. [..] I can get so devastated when I can not figure it out. I think one of the worst things we can face as elderly is that devastation because we're afraid we are going to get left behind.

Michael: So I am here today, to get some help, and to be able to be assured that what I am doing is right.

Statistically the feeling of self-doubt and insecurity among elderly is also present in a broader sense. 42% of the elderly between 75-89 years old sometimes need help when facing public digital self-service solutions (Agency for Digitisation 2021, 26). Similarly in the group of 15-34 year olds, the percentage is also 42%, while in the 'medium' age-groups the number is 25% and 26% for the 35-54 year olds and the 55-74 year olds respectively (Agency for Digitisation 2021, 26). The statistical data and our qualitative empirical data seemingly then suggest a tendency of the young and elderly having to ask for help more often, while the middle-aged citizens have a lower tendency to do so (Agency for Digitisation 2021, 26). A pattern of systemic, be it intentional or unintentional, exclusion from society through the means of technology therefore emerges. The two quotes show that both Vivian and Michael are not confident with changes in digital services. As we have shown, the change from NemID to MitID has caused several problems for the elderly. This specific change can end up causing trouble with all the digital health services since it is the main access point to them. This can then result in further consequences, as the health of the citizens are thus jeopardized. As it becomes evident in the subsequent quote, the ladies do not grasp that MitID is the successor for NemID but rather think that they will coexist:

Bente: In relation to MitID, it is my understanding that it is only something you need at the bank. NemID you are supposed to continue with.

Dorte: I thought NemID would be shut down, and that MitID was the replacement?

Bente: I have understood that you have to continue with NemID on e-Boks etc.

Dorte: Yes, but not the code card right? I do not use it anymore.

Lisbeth: Yes, the code card has to go!

Bente: I have not used it for a long time. I have had the app where it is being approved and it is working really, really well. At least I have learned it, I better say.

Dorte: I thought MitID was a replacement for NemID, right? (Looking at Sissel and Alexander, ed.).

In the quote Bente reveals that she did become confident with using the NemID-app for her NemID after she got accustomed to it. Bente did succeed with getting familiar with the NemID-app, and hereby upskilling her digital competencies. Bente did eventually become confident in her usage of the NemID-app. This confidence is not something that Jørgen possessed in regard to his own ability to assess the credibility of web pages. While the example with Jørgen is not related to health, it provides a bridge to one of the elements that is entailed in this domain:

Jørgen: [..] I do not shop online. I have heard so many things. My stepdaughter who lives next to me had ordered a pair of shoes - then some plastic sandals came from China. No, thank you! I'm the old-fashioned type, I want the item in hand so that I can see what it is.

Norgaard et al. states that: "The idea that "One should know the pitfalls on the Internet" (patient) is in line with the reappearing notion that "You should have a healthy scepticism."" (Norgaard et al. 2015, 531). Jørgen's skepticism of online shopping might be an expression for his acknowledgement about his lack of digital competencies. In order for elderly to use digital health services, they must possess a certain amount of healthy skepticism. This also applies to seeking health information via the internet, as it was pointed out by Informant X. This healthy skepticism, if transferred to the landscape of digital health services, can potentially challenge the present technical rationality, and propell a more democratic rationality. With a change towards a more democratic rationality it would become possible for elderly to engage more actively with digital health services, as they would have more confidence in their own abilities. Building upon the notion of skepticism Informant X said the following about Facebook groups concerning certain diseases:

> Of course, it's nice to be able to meet online for something. The challenge is that sometimes it becomes one's own opinion and attitude and one's own knowledge,

> which may not be evidence-based. Whatever has helped you due to some circumstances that made it just the right time when you ate oats, or stood on one leg and sang or something else. Then some say, you just have to avoid oats, what you have to do is eat like this - but there is no evidence-based knowledge to it[.] So [..] you just google, but when you google it is not everything you come across that is evidence-based. But you could do that, and we have to have access to the information. You have to have that, especially in these times. But we must also be able to understand it correctly.
> (Informant X, Organization X)

Skepticism is therefore a twofold concept of which a distinction is vital. Skepticism toward technologies in general can potentially be beneficial as the reigning technical rationality might be challenged. Skepticism towards the written or spoken word of non-professionals in regard to health online might also be beneficial but for different reasons. As Informant X argues one needs to acquaint themselves with the pitfalls of e.g misinformation in the likes of Facebook-groups.

The domain of actively engaging with digital services is, as shown, broad, and covers things from possessing healthy skepticism towards digital health services as well as the ability for users to understand information from digital health services. The ability to understand and critically view how digital health services work is something that came up in our interviews with the elderly, and this tendency thus leads us to the next domain.

Feel safe and in control

The ability to feel safe and in control is for the individual related to how health data is stored, how it is used and how one can access it. In our interview with Jørgen about his mistrust in online shopping, the topic of personal information and data was touched upon:

Interviewer: [..] after all, all of your personal information is online - so how does that align with your skepticism about online shopping?

Jørgen: For my part, I have nothing to hide. However, I fully understand why there are some who are skeptic.

Throughout our interview with Jørgen, he did not express any concern about his personal information being stored online. There was a continuous lack of focus on data and data security whenever we interviewed the elderly. As was the case at our group interview, the elderly are aware of the importance of IT-security, but they do not understand the fundamentals of it. As the following quote indicates, there is a lack of understanding of how technology stores information. Dortes' husband has told her that she does not need to delete files on her computer etc., because the it does so by itself:

Dorte: Well, I've told my husband about you (Bente, ed.). You, who clean your computer and

all that [..] he says that I should not do it. He says that all files etc. disappear when they get old and he does not care about it at all. He says I should stop spending my time doing it [..] I can not understand at all that he had the job that he had when he is like that. Is it not necessary to clean your computer?

Files on a computer, unless the computer is programmed to do so, do not automatically delete themselves. Given that Dortes' husband allegedly does not care for IT at all, we perceive it as unlikely that he had programmed the computer to perform such a task. The misinformation that Dorte received from her husband did result in her not properly learning how she should clear her computer and thereby be in control of data security. Dorte's concern with the storage of her information and data is similar to Bente's, who is also protective of her personal data:

Bente: I use my computer more for such things (access digital health services, ed.). I also use my phone a lot, but I am used to a slightly larger screen for my work. I can not go to e-boks on the phone because I do not have the app. It's my conviction that I do not want to be able to access the bank via my phone. It's my opinion. I want to sit in front of my computer.

[..]

Interviewer: May I ask why, Bente?

Bente: Well it is probably to do with the fact that I always have my phone on me when I leave home. If I were to lose it, then I would feel like I'm more exposed.

Bente seems to be aligned with the authorities in regard to being aware of data and data security. One of the five focus areas in the 'Digital health strategy 2018-2022' is the topic of data (Ministry of Health et al. 2018). The reason why we did not encounter more comments about data and data security is hard to identify, but nonetheless, Lars Kayser did make an important comment about the topic of trust in data:

> [..] if the reason you are not using the e-journal is that you do not have a basic trust in where your data is, or you have difficulty finding your information, then it is not about how the e-journal is written, then it is about [..] trust. Then you can do exactly what you want - it does not matter how you convey it with small video clips and what do I know [..] they (the users, ed.) will not use it anyway.
> (Lars Kayser, University of Copenhagen).

What Lars Kayser says here touches upon the term of non-users by Wyatt, as previously introduced. People who do not trust how their information is stored at e.g. sundhed.dk, can be found within the group of rejecters. They reject using the system as a voluntary action because they on one hand do not perceive the digital services to offer the desired level of security, and on the other hand they might have sufficient ways to navigate the healthcare sector by alternative solutions. While it is important that people have trust in the system, it can be difficult to overcome the obstacles that some elderly experience

by being resisters or rejecters since they do not have a fundamental desire to use these digital health services from the outset. Resisters and rejecters are fundamentally what we can call want-nots, as they do not want to use a specific digital service, whereas excluded and expelled non-users are have-nots, as they do not have the possibility to become users of a specific digital service. (Wyatt 2003, 76). As with the digital gray area, the have-nots desire to be users but are faced with barriers that can be cumbersome to overcome for the individual (non)-user. Elderly in the digital gray area may, as we have shown through our analysis thus far, have the desire to engage with digital health services but seemingly lack the e-health literacy to do so, which brings us to the next domain in the eHLF.

Motivated to engage with digital services

This domain is about how citizens should have the motivation to use digital services. Motivation and experience was found to be more important than sociodemographic factors for elderly citizens' use of IT (Siren and Knudsen 2014, 15). However, during our research we encountered several frustrations among the elderly in regard to their IT usage. Dorte shares her frustration about how time consuming it is for her to use IT:

> **Dorte**: Yes, and we have other interests than this IT-shit, right? So it really takes time to get used to it. Yesterday, on the MinSundhed app, something appeared that said "Hey! Something went wrong", and then that idiotic smiley - apparently, it is supposed to be funny.

It is evident that Dorte does not care for the way the malfunction of the app was presented to her, as she felt ridiculed by the semantics. The semantics that Dorte encountered could potentially push her towards becoming a 'rejecter' of MinSundhed. This interaction between Dorte and the digital health service - MinSundhed - did result in a feeling of frustration and did not seem to improve the motivation for her to use it. It could be argued that Dorte could simply refrain from using MinSundhed and digital services but in the current state of society, it does not seem possible to opt out. As we uncovered in the recontextualization of eIDs, this can have severe consequences for the elderly's self-perception. What determines these consequences is whether they are capable of fully participating in digital society or are forced to opt out. We recall that the technical rationality prescribes that if you are in any way capable of participating you must do so, regardless of whether you are motivated to do so or not. This therefore leaves the elderly in the digital gray area in a difficult position.

Bente circumvents this issue by refraining from using *some* of the digital health services available in Denmark. This means that Bente does not engage with the digital health services, but instead relies on her e-Boks to provide her with the information she needs. She does so, not because she lacks the motivation to engage with her own health but rather because she is overwhelmed by the numerous options in the landscape of digital health services:

Bente: Now you're talking about that, Sundhedsplatformen and MinSundhed, and it's a bit of a closed country for me. I do not use it. I have confidence that what I need to know from the public and healthcare system I will get through my e-Boks.

Bente has chosen to focus on a more passive form of engagement where she relies on receiving the information through digital communication with the public. According to Bente, it relieves her of having to navigate both Sundhedsplatformen and MinSundhed, and at the same time she puts her entire trust in the main public service for digital mail, e-boks. Following the concept from Wyatt, Bente becomes a 'want-not'-non-user in her non-usage of Sundhedsplatformen and MinSundhed. Simultaneously Bente is excluded from the alleged benefits connected with using the services, but this does not seem to be of notable relevance to her. While Bente can not see the benefits of using the services, other informants, such as Lise, can. When asked how she felt about being elderly in digital Denmark, she said:

Lise: It feels rough. And it feels like you can not really live up to what you have to. It's hard to keep up and understand it all. All the new expressions and everything that is introduced. It is hard.

The elderly struggle to keep up with the digitalization and being able to use different digital health services. To be motivated to engage with these, Norgaard et al. (2015) argues that one needs to have courage. This courage is one of the catalysts for being comfortable and motivated in the use of digital health services. Seemingly there are various challenges in relation to being courageous in the engagement with digital health services. Michael states when asked about his reactional pattern to new digital technology, that:

Michael: [..] when I read it (documentation, technical instructions etc., ed.), I think "oh no, what should I do next?". I do not know if it is because the material is not good enough, or if it's just my insecurity. It's probably mostly the latter.

Michael internalizes his insecurities in relation to IT, and it subsequently affects his courage when faced with either new digital technology or the changing nature of already existing digital services. What Michael says next is a complex paradox which encapsulates a tendency which we have encountered:

Michael: It's a bit paradoxical because since I do not throw myself into it, I do not learn anything either. [..] I am scared. But that is probably what it takes; the courage to throw myself into it.

Michael thus realizes that his courage is affected by his lack of digital competencies. However, these competencies are seldom improved upon. Therefore his insecurities stay with him. It thus becomes a vicious internalized circle of self-doubt, insecurity and

a feeling of being stuck between digital services and the self. The insecurities that the elderly experience creates another barrier for them that must be overcome. If the barriers are not overcome it can potentially affect the elderly's motivation to engage with digital health services. This further places them outside the scope of the technical rationality as they are not onboard with the persistent desire for society to evolve in an increasingly digitalized direction.
Dorte too expresses that she is afraid of using digital health services whenever it changes:

> **Dorte**: [..] if there are changes you do not understand, then I'm such a coward. I do not dare (to use technology, ed.).

Once more the consequence stretches far beyond just the use of the digital health services. The consequence of the changing nature of these, thus becomes a factor in molding the elderlys self-perception, which further leads to an ever increasing internalization of negative feelings. These negative feelings manifest themselves within the elderly, and this leads to, as we have shown, a potential lesser use of digital services As Lisbeth states, she just stops trying when for example a semantic composition is too complex:

> **Lisbeth**: I get annoyed that I do not understand the wording (of system update-notes, ed.), and then I just do not bother.

It is once again remarkable that some of the elderly internalize their negative feelings caused by digital services. Furthermore, they do not recognize the possibility that it might be the system that has not facilitated the onboarding onto new digital health services or provided sufficient assistance whenever changes are made to these.

While the feeling of internalized self-doubt undoubtedly is, or at least should be, a serious concern for the Danish authorities, this feeling is also an indicator of something positive. The elderly seemingly would not arrive at this point, had they not been motivated to upskill their e-health literacy in the first place. Therefore, the engagement with digital health services seemingly depends on a dual constitution of interest, where the elderly should be intrigued and curious, while the digital health services should facilitate a safe and comfortable learning environment. The possibility of actually engaging with digital health services is rooted in a desire and motivation within the individual. For some elderly, such as Bente, who does not have that motivation, it means she has chosen to not actively engage with digital health services but rather is passive in her use. Others, such as Lise and Dorte, want to be more active in their engagement but are faced with difficulties and obstacles which leads to confusion. Lisbeth states that she does not even know the difference between digital health services such as Sundhedsplatformen og sundhed.dk. She internalizes her frustration towards the complexity of the digital health services and their providers:

Lisbeth: [..] at our age one gets confused because one thinks: what is it that I do not know? Why can I not do it? What is it that I am not informed about, and what is it that I have not familiarized myself with since it is like this? Why should there be two bodies that, as such, do the same thing, and yet they do not work together?

Lisbeth's observation about the multiple different health institutions that does the same thing but nonetheless do not cooperate, is further backed by Amina Hyllested from sundhed.dk:

> [..] E-journals and lab answers are identical in the app (MinSundhed, ed.) and in the portal (sundhed.dk, ed.). So the data is the same [..] the services are, broadly speaking, also the same. But on laboratory answers, some small texts have been added to some of the most common test results: for example cholesterol, there is a text from the doctor-patient handbook about what this test means. This is one of the things that the citizens are pleased with when they provide feedback to MinSundhed. So both this dictionary and also what the test results mean. We could easily do that on the portal. After all, it's not something that overloads any of our systems. [..] Often it is about finding a slot if you want to do something which is not included in a large project.
> (Amina Hyllested, sundhed.dk)

According to Amina Hyllested, despite the data in the two digital health services, sundhed.dk and MinSundhed being identical, it is not presented to the users in the same way. This is primarily due to time management and the availability of resources, but once again, it is the users who feel the consequences of such prioritizations. For instance, it becomes evident with the example of the features that citizens have been pleased with in the MinSundhed app, which due not to being prioritized or put into focus has not been transferred onto the portal sundhed.dk. The consequence for the users is that if one is not comfortable with using an app or might not even own a smart device, you are left with access to one version of your health data which is less user friendly. This one-sided access to health information could potentially lead to severe consequences for the elderly, and therefore it becomes vital to look further into the eHLF. We will thus proceed to the domain of access to digital services that work.

Access to digital services that work

As mentioned, in this domain it is entailed that the digital services are user-friendly and different services should be able to work together. However, there is also an element that is more related to having access, e.g. financial access to hardware and software. Sundhed.dk is the central access point for citizens to all their personal health data. While previous projects have mainly focused on connecting more and more data sources, there has been a shift within the recent years. There is now also a focus on how the data should be presented to the users. Amina Hyllested from sundhed.dk says:

> [..] but there is a lot of focus on the use of what is already there, and thus the understanding of such data. This is something new. Previously there has been a

> lot of focus in the Sundhedsjournal-projects on connecting new data and new data sources (to the service, ed). Now they also begin to have a new realization that we also have to be thorough with what is already here.
> (Amina Hyllested, sundhed.dk).

Some of our informants, such as Grete, can easily navigate sundhed.dk and do not find it difficult. It was also possible for Lisbeth to access her health data in sundhed.dk and Sundhedsplatformen, but she did not understand how they were structured and what data was available where. It does seem like the digital health service of sundhed.dk is providing a sufficient user experience in regard to the users understanding the content:

Interviewer: How do you experience navigating sundhed.dk?

Grete: I actually do not think I have noticeable difficulties navigating. I've been employed by the public sector for 41 years, so I'm used to whizzing around the systems. [..] I think, apart from such minor problems like the one I am here for today (hacked mail-account, ed.), I do not think I have any problems with it. I actually do not think so. I just[..] signed up for MitID, and it gave me some challenges, but that was only because I had a new passport. To scan the passport with one hand was completely ridiculous. But otherwise there is no problem (with digital services, ed.)

It could however be argued that since sundhed.dk is only accessible with the use of an eID, the change from NemID to MitID might foster challenges for some of the elderly. Vivian does take note of the possible challenge the changes with eIDs might have for her:

Vivian: With the code card it has been easy, but now [..] I have no more codes left. I have to figure out with my bank whether I should have a new code card or not.

What the statement from Vivian entails is that she is responsible for making sure that she has access to the digital health services. While a new code card is automatically sent to citizens who have used up all keys on the code card, Vivian believes that she herself is responsible for coordinating the forthcoming process (NemID 2022a). Making sure the digital health services are functioning properly from a technical perspective is a responsibility for different institutions. The responsibility for functioning and up-to-date hardware and software seemingly falls within the domain of the users, as Dorte states in relation to her Lenovo computer:

Dorte: I have a Lenovo, and I've been using it for a long time, and it constantly needs to update Lenovo - not Windows. Then I have to understand this and that. It then says, with very small letters, that it should be ok to update, and then once again it says "Are you sure?". I never got it updated, because what might happen if I do so?

This responsibility can nevertheless also be overwhelming for citizens, such as Vivian, who told us about her experience with buying a new computer:

Vivian: [..] I could also feel that I was overwhelmed when I had to buy my 3rd computer. It also took me a year and a half before I got to buying a new one. However, the old one could not update anymore, and no antivirus could be installed on it - and I had had it for 13 years.

It is evident that it is necessary for the users, in our case the elderly, to have functioning hardware and software in order to access digital health services. As the two examples with Vivian and Dorte show, it does seem like a difficult task for them to ensure that their hardware and software is updated properly. Opposite of the elderly, is the system, who are responsible for deploying coherently working digital health services. There is, according to Informant X, still room for improvement within the digital services provided by the healthcare sector in Denmark.

> We can be invited [..] for 2-3 appointments at the same time. In my opinion, when you have a common platform, there has to be something that says whether or not the patient is available at that specific time. So it's a shame, considering it is the year 2022, we do not have something which makes a red line whenever the patient is occupied. We have talked a lot about this: if you could do something like: from the doctor's point of view; if they went in and looked - because you can go in and see your patient's information - you can see that the samples have already been taken. So the doctor's could say to themselves: I will go in and look at whether the blood work has been done (and if the results are re-usable for them, ed). That way you also avoid booking patients for appointments twice. It is everyone's money that is used. I think we have come a long way. [..] but we also have a long way to go.
> (Informant X, Organization X)

An important statement within Informant X's comment is the fact that improvement might save money and further increase the effectiveness of the healthcare sector in general. Informant X comment is related to the silos which are a barrier for the coherence of the Danish healthcare sector. Breaking down these barriers and improving communication and collaboration across the sector will potentially benefit the patients but will also benefit the healthcare sector financially, according to her. As she says, there is still room for improvement within the digital health services, which leads us to the final domain.

Digital services that suit individual needs

The digital services provided by the 'system' or authorities should be catered to the users capabilities in every possible way and it should be adaptable to the different capabilities of individuals. The domain also covers the aspect of users needing assistance from their network or choosing to opt out of the digital sphere (Norgaard et al. 2015, 532-533). Having a digital service that meets the needs of the users is however a struggle currently in Denmark due to current legislation within the field:

> When we built the app, we actually made lab results red, yellow, and green. That was vetoed when it had to be certified. It did not follow the certification. [..] There are only certifications for clinicians. Therefore, it has to be blue and red, which makes a lot of sense for a clinician, but not for a citizen. So we were told to re-do that even though we had user surveys that showed something else. Also even though we have user surveys now that show that citizens misunderstand all these things that are embedded in the results. There are arrows pointing upwards, what does it mean? That it is good, that it has risen, that it has risen since the last time, or is it too high? [..] We have some videos with citizens who clearly misinterpret their own answers inside the app.
> (Amina Hyllested, sundhed.dk)

In this instance it is clear that the legislation hinders user-friendliness of MinSundhed and sundhed.dk. It thereby becomes an obstacle for the digital health services' possibility to accommodate the users' individual needs. The struggle of understanding one's own health data was something that Bente also expressed:

Bente: If I have had anything taken, my doctor sends the results. I do not always understand all of it, but I try my best. She then likes to write something like "it looks good", or something like that. [..] Then I just have to believe that it's correct. But if I want to see what my blood percentage is, then I can not see it. Because I do not understand all that. I do not understand the analysis of the blood samples, because the result is just a number. I do not know what the number is supposed to be.

Bente's challenge thus lies in the interpretation of the data presented to her. She furthermore expresses a wish for the user interface to provide her with tools to interpret the results. Informant Y from Organization Y supports the need for individually tailored information and visual showings in digital health services:

> It should not say all kinds of other things. Then it should be tailored for the individual. So that it was completely clean. This is me, I have this and that number, and then it has to say whether that is too high or too low, because then it was understandable and clear to every individual.
> (Informant Y, Organization Y).

Informant Y emphasizes the wish for individual tailored user interfaces so it becomes easier for the patients to understand their health data. This need for user-oriented information in digital health services was also expressed by Informant X. However, she differs from the previous option because she wants the doctors and health professionals to add an additional paragraph. This paragraph should be written in a language that is understandable for the ordinary person without professional medical knowledge:

> I think it should still be in Latin, because it's like the short exact version, when you speak that language (medical language, ed). But I think you (the health professional, ed.) could write two lines of summarization in simple Danish. We

> interpret as patients and relatives because we do not have great medical insight. Therefore, it can be dangerous not to give an explanation in simple Danish. (Informant X, Organization X).

Our empirical data from both stakeholders and informants contains statements that are related to this seventh and final domain of the eHFL: Amina Hyllested, speaking from sundhed.dk, Bente speaking as an elderly, and Informant Y who speaks on behalf of a patient organization. They all argue that the data visualizations should be more individual, and according to Lars Kayser it would, in general, be ideal to have user interfaces adapted to the individual users:

> One could perhaps develop some instruments based on different levels (of competencies, ed.) to present data, information and text to these different groups (with different competencies, ed.). This means that you make some kind of intelligent adaptation of information based on the individual's needs. This is something we have been working on for the last five years. We have not come so far yet. We're starting to think about some roads to take and this is where stratifying presentations, user interfaces comes into play. It is about basic user experience.
> (Lars Kayser, University of Copenhagen).

While there is a clear wish from different stakeholders and users, that health data and information should be catered to individual users in digital health services, there does not seemingly consist a consensus on how it should be done. The consequence of not reaching a consensus could thus be the exclusion of elderly from the digital health services which they are expected to utilize, thereby placing them in the category of 'excluded' non-users and thereby further solidifying their position in the digital gray area.

The analysis structured by the seven domains shows that elderly are motivated to engage with digital health services but that it does not seem apparent to them what consequences their limited e-health literacy mean for their ability to engage with their own health. There are multiple reasons for why they might end up as non-users of digital health services. Through our analysis of digital health services, it has become evident that their lack of e-health literacy is not something that seems to be a concern for the elderly themselves, as their concern for their health lies within a different sphere with a much larger focus on their physical health:

Interviewer: What worries do you have as an elderly person regarding your health?

Lisbeth: At the moment, it's dementia and cancer, for me. You want to end your days by dying of old age. I think that is my concern. The worst thing is dementia - it's awful.

Dorte: Yes, agreed.

Bente: What I fear the most is losing my mobility. I want to be able to decide for myself where I am going and when!

Interviewer: Are you wondering about losing your digital mobility?

Lisbeth: No.

Dorte: No.

Bente: No, I'm thinking more about losing my better half. The other thing you asked - I do not think about. It has not crossed my mind at all.

Unanimous: Agreed!

However, it will be beneficial for both the elderly themselves and society at large if the focus on elderly's' e-health literacy increases. An increased focus and upskilling of e-health literacy is crucial for elderly's' ability to master their own health, and for them to be included as active users in the digital Danish healthcare sector. The question remains, however, of who is responsible for putting this need into focus and for the execution of future initiatives. Before we turn to a discussion of this, we will in the following section recap our main points from the entire analysis.

Elderly: Oppressed by digital Denmark

We have now been through the decontextualization and recontextualization of eIDs. Furthermore we have dived into the formal bias in the form of digital competencies. This entire investigation of eIDs was sparked by the technical rationality deployed by the Danish authorities. With the eID as the main access point for public digital health services, we have investigated how the healthcare sector in Denmark has subsequently been influenced by this technical rationality. We argued for this influence by the use of the eHLF in relation to digital health services.

As it became evident through the chapter of 'Formal bias: the invisible expectations' the elderly clearly lack digital competencies. The digital competencies which they lack are ideally used for accessing digital health services through eIDs. These eIDs are furthermore fundamental for the elderly's ability to participate in digital society. When the Danish authorities made the decision of digitally transforming the public sector, they simultaneously decided that digital competencies would come to be crucial for all citizens who have to engage with the public sector in Denmark. As some elderly find themselves located in the digital gray area as a consequence of their level of digital

competencies, it means that their possibility to engage with the Danish public sector also becomes limited. The elderly's need for help or assistance from external actors thus suppresses their ability to live autonomously. The elderly therefore become oppressed by the digital transformation and thus the technical rationality imposed by the Danish authorities. As we identified that the public digital services are accessible through only one digital technology, an eID, it resulted in further inquiries into concrete socio-technical configurations, the digital healthcare services. The outcome indicates that the lack of e-health literacy becomes a limiting factor for the elderly's ability to actively engage with digital health services, thereby mastering their own health.

With the lack of digital competencies, or e-health literacy, elderly are exposed to the risk of becoming non-users. They become non-users due to their lack of competencies and literacy which puts them in the group of 'have-not'-non-users. According to the previously mentioned categorization, they end up as expelled or excluded non-users. This involuntary shut out of elderly from digital society is what will be the foundation of our discussion in the coming section.

Figure 13: A visualization of potential responsible actors in the future. Illustration by the authors.

No digital competencies, what now?

When we sat out to do this thesis and got in contact with MedCom our initial aim was to improve the users' experience of e-health journals. How could their ability to understand their own health data be improved through changes in the user interface? While that could have been an interesting thesis to write, our preliminary talks with MedCom pushed us in a direction of how more people could become users of the e-health journal on sundhed.dk. We then turned towards different patient organizations in order to gain insights into what they had encountered among their members as problems for using the e-health journal. Following our interviews with the patient organizations, we spent time trying to figure out how we should approach the field of onboarding new users onto the e-journal on sundhed.dk. Due to our collaboration with MedCom, we were invited to attend a meeting with the different regions, MedCom and sundhed.dk. At the meeting we had the opportunity to ask the different participants about their perception of users and citizens, and it became evident to us that we needed to narrow our focus area even more: either a user group or a specific feature within the e-health journal. Shortly after this meeting, we had arranged an interview with Lars Kayser in order to get more knowledge on the subject of e-health literacy. It became evident to us that we needed to narrow our scope of users that we wanted to focus on. The day after our interview with Lars Kayser, we conducted an interview with Amina Hyllested and Therese Thorstholm from sundhed.dk. At this meeting we gained insights into how sundhed.dk actually works on engaging their users and how they worked on the development of the platform.

Having gathered all this information over a time period of one and a half months, we needed to make some decisions to pave the way for our further empirical data collection. We decided to focus on elderly users. So how did we end up speaking about non-users as well? It all happened due to the technical rationality that we identified through our analysis. Recall that the technical rationality in Danish society is that all digital transformation is desirable and that Danish citizens have the competencies to engage with digital services. The reality that we encountered among our elderly informants disclosed a different reality. As we have shown through the recontextualization of eIDs, elderly are negatively affected in their social world by their lacking digital competencies. As a result of our analysis, it is safe to say that some elderly, especially in the digital gray area, risk becoming 'have-not'-non-users due to the technical rationality.

The consequences the lack of digital competencies has for the elderly and their social world are tremendous. As the society around them continues to transform and become increasingly more digital, they are left behind without the ability to actively partake. Dorte became an excluded non-user of her MinSundhed app because her digital competencies to use commands on a smartphone fell short. While Dorte becoming a non-user was entirely involuntary, Bente had voluntarily decided to become a non-user of different digital health services. She instead relied on receiving the necessary information through her e-Boks. It could however be questioned if it is really a

voluntary choice or if she rather saw it as a necessity because it would be too overwhelming for her to try and understand the different digital health services. The ever changing landscape of digital services, regardless of them being health related or not, is something that has been an ongoing subject throughout our analysis. Changes in digital services and digitalization causes frustration among the elderly. Lisbeth, Vivian, Lise and Dorte all explicitly expressed that changes make it hard to keep up with what they feel is expected of them by society. This is obvious in the example of the change from NemID to MitID, based on the amount of time we encountered frustration over this specific change. The frustration and negative feelings that the elderly experience due to digital technology and digital transformation is impacting the elderlys self-perception. They have expressed feelings of inadequacy, not being good enough, anger, powerlessness, and frustration which eventually is internalized. The internalization of all these negative feelings might end up influencing their motivation to use public digital (health) services and their motivation to familiarize themselves with new public digital (health) services. As mentioned earlier, it is important that citizens, and thereby the elderly, are motivated to use public digital (health) services. What then becomes increasingly risky is the elderly in the digital gray area who are already struggling with using these digital (health) services. This could potentially be very counterproductive for society as a whole. If elderly in the digital gray area decide that they do not have the motivation to continuously struggle with them, they can end up stopping their use:

Bente: I said it a little while ago, but I'll say it again: As you get older, things take longer (to learn, ed.)

Dorte: It also gets harder to learn something new.

Bente: Yes, that too! But I want to (learn, ed.). But if I get too many defeats, then I get angry in the end. [..]

Interviewer: Where do you end up then?

Dorte: Then you stop.

Lisbeth: You end up throwing it aside. Then you end up saying to yourself that now you simply cannot be bothered with it anymore.

Dorte: No, I have a lot of girlfriends who do not bother at all. They simply do not bother anymore and one of my daughter-in-laws has given her mother a phone and she (the mother, ed.) does not bother either. She will not learn it, nor will my sister. They simply cannot be bothered to get familiarized with it.

Bente: No, and that's fair enough, too. But society is not geared for it if we are too many who say no, because then they have to take over.

What Bente says in the end of the exchange between her, Lisbeth and Dorte is worth taking notice of. Her point about society not being geared to take over, is very much in line with what we mentioned earlier about Danish society and its future being built upon its citizens being digital and using digital services. In the case of public healthcare in

Denmark, digitalization is supposedly the only solution to the problems that society stands before. One of the problems that Denmark is faced with is the increase in elderly citizens. This, combined with the point that no one knows where the digital transformation is going and what digital technologies are to come, certainly opens up for the question of how Denmark can make sure that elderly in the digital gray area do not voluntarily become 'want-not'-non-users? As digital competencies and e-health literacy are a prerequisite to be an autonomous citizen in Denmark and is furthermore deeply embedded in the technical rationality, it is important to ask who should take responsibility for ensuring that Danish citizens have the necessary digital competencies and e-health literacy going forward?

The first contender to be considered as responsible is without a doubt the individual itself - the elder. Should the responsibility fall upon the elder and and the competencies they have learned throughout their life? There are multiple aspects to consider about this rather cynical proposal. People's competencies and abilities are developed throughout their life and are formed by experiences through the educational system and working life.

The new digital strategy does mention that the educational system is supposed to equip citizens with digital competencies. However, with the technical development happening at unknown speed it seems unreasonable. We, the authors, recall being in primary school and having one computer room at our respective schools and having mandatory classes on how to use a computer and writing simple text on it. Today, we see pupils in the first year of primary school having their own laptop or tablet and being able to use them with ease. We have even heard about events where primary school students write code. We can not even imagine what technological developments can or will amount to when we ourselves become elderly. However, it is not unlikely that we will go through a similar experience as the one Lise describes, as she herself predicted:

> **Lise**: I'm thinking of my grandmother in the 1950s. Back then we were the only ones on the road who had a phone. None of all of this ('new' technology, ed) was invented. Every time the phone rang, if my grandmother was visiting, she would tremble. I picked up the phone, and often it was someone who wanted to speak to her. But when I offered her the phone she was like "No no no, I'm too afraid". Back then I was just a little girl, and I just thought "You know what, I will not allow this to happen to me when I get old: that I am afraid of something like this". But, here I am, and I am afraid of all these new things. So, the development: you can not keep up with it. You have no idea what the future holds; nor what the technology is when you are 88! (Addressed to Alexander & Sissel, ed.)

Lise did admit having a similar fear towards technology as her grandmother had in the 1950s. Her working life and educational background did not sufficiently influence her digital competencies to comprehend all aspects of technology and thereby overcome her fear. So while primary school is a great foundation to build upon, everyone's working life is extremely different. It will subsequently leave people with extremely diverging outsets for engaging with public digital (health) services when they become elderly. It could be considered that elderly should simply learn and get updated on the

changes that they encounter whenever they do encounter such. However, as Bente and Dorte, in the quote, mentions, it becomes increasingly difficult to learn new things. Is it really reasonable to expect elderly to put that much effort into being able to participate in the digital society? It is after all not their own fault that they are elderly and changes take place. It does not seem fair that the sole responsibility should fall on the individual elderly.

The second contender to have responsibility is the immediate network who could provide the necessary support for the individual. We define the immediate network as family and friends. However, as we saw in the analysis, there does not seem to be consensus among the elderly of whether their family is supportive when they encounter problems and obstacles with technology and digital services. The fear of being ridiculed was what kept Lisbeth from turning to her family for help. For Vivian her reason for not wanting to rely on help from her family is grounded in a fear for how they might perceive her and her cognitive state. It is of course a great resource to have, and as it was the case for Dorte, it is a benefit to have someone in your immediate network who you can turn to for help. However, it does not seem like a sustainable solution if the ambition is to upskill elderly to a point where they possess the digital competencies they need to navigate and participate in the Danish digital society.

A third contender could be private organizations such as the DaneAge Association. It was through the DaneAge Associations IT-cafes that we encountered the majority of our elderly informants. One thing that could be an obstacle is that to participate in some of the IT-cafes it is necessary to be a member of the DaneAge Association. However, as it was obvious from our empirical data, the elderly were able to get help with their IT problems. Most of the IT-cafes take place once a week and are only open for a couple of hours, which is a very limited time slot. Due to the limited time, the help that elderly do receive through the IT cafes have more a character of being a quick fix and not something that makes the elderly self-supported in the long run. This point of critique also applies to a fourth contender which was brought up a couple of times during our interview: the publicly provided service ‘Citizen Service'. An organization such as the DaneAge Association is definitely an actor that already plays a huge role in trying to emancipate the elderly in regard to using IT. Svend, a volunteer at one of the IT-cafes did express how they have tried to accommodate their service to take on a larger responsibility:

> Svend expressed that they (The IT-cafe) have often been caught chasing, when larger changes in relation to IT have taken place. They did try to be upfront with the change from NemID to MitID however.
> Field note, 15th of March

As Lise told, she attended a presentation about MitID which was hosted by her local DaneAge Association branch. It is seemingly a great initiative, however, unfortunately the outcome of the presentation was that Lise felt more insecure about her digital competencies than she did prior to attending the presentation. For an organization such as the DaneAge Association to become responsible for elderly’s ability to use digital

(health) services it would require some changes to how their current practice is composed. There are of course other private organizations that could be considered a possible contender, such as Danish Patients, individual patient organizations or NGOs focused on the elderly population. However, based on our empirical data, we do not have sufficient foundation to express an opinion on their current and potential role.

A fifth contender is the Danish authorities. It is, all things considered, the authorities who are responsible for deployment of the technical rationality in Denmark, since they are the ones who have decided to put so much effort into pursuing digital transformation as a way of branding Denmark. However, as easy it would be to simply say that it is the authorities' responsibility, the solution could potentially be lost somewhere due to bureaucracy and politics. It is also worth noting that the 'authorities' could be anything from the Government, the Ministry of Health, Agency for Digitisation, the Regions or perhaps the municipalities and everything in between.

The responsibility needs to be placed somewhere. It is possible that there are solutions that we have not even considered. What we nevertheless have done with this thesis so far, is to shed light on a problem that currently exists, but it will also be a problem in the future to come. How do Denmark ensure that elderly in the digital gray area become autonomous users of public digital (health) services rather than 'have-not'-non-users? How do Denmark ensure that elderly have equal access to public digital health services? We have paved the way for a democratic intervention that will take place at the People's Meeting after this thesis has been handed in but prior to our oral defense. As we have mentioned earlier, the place for negotiation is conditioned by our collaboration with MedCom and it will therefore focus primarily on the health aspects of this thesis, but as we have shown, the health aspects can not be strictly separated from things such as basic maneuverability on smart devices.

The democratic intervention

What we have discovered through this thesis is a fundamental problem with how elderly are oppressed. They are oppressed by having to possess digital competencies in order to gain access to their own health data and different public digital health services. While this is the scope of our thesis, the scope of our debate and the democratic intervention will be broader. The scope will be the problem concerning how e-health literacy has become a prerequisite for Danish citizens to access their own health data and use digital health services. We will argue that the debate is a democratic intervention because as we have shown through our analysis, a social group is being oppressed by the technical rationality in Danish society. With this thesis, we have created the foundation and incentives that change is needed - both from the perspective of the elderly but also from a general societal point of view.

At the debate four different stakeholders will participate. 1) Morten Elbæk Petersen, the president of sundhed.dk. 2) Klaus Lunding, the chairperson for Danish Patients. 3) Susanne Duus, head of office at Agency for Digitisation. 4) Lone Thiel, head of office at

North Denmark Region. The stakeholders are chosen based on their involvement with this topic and their possibility to actually influence the future of it:

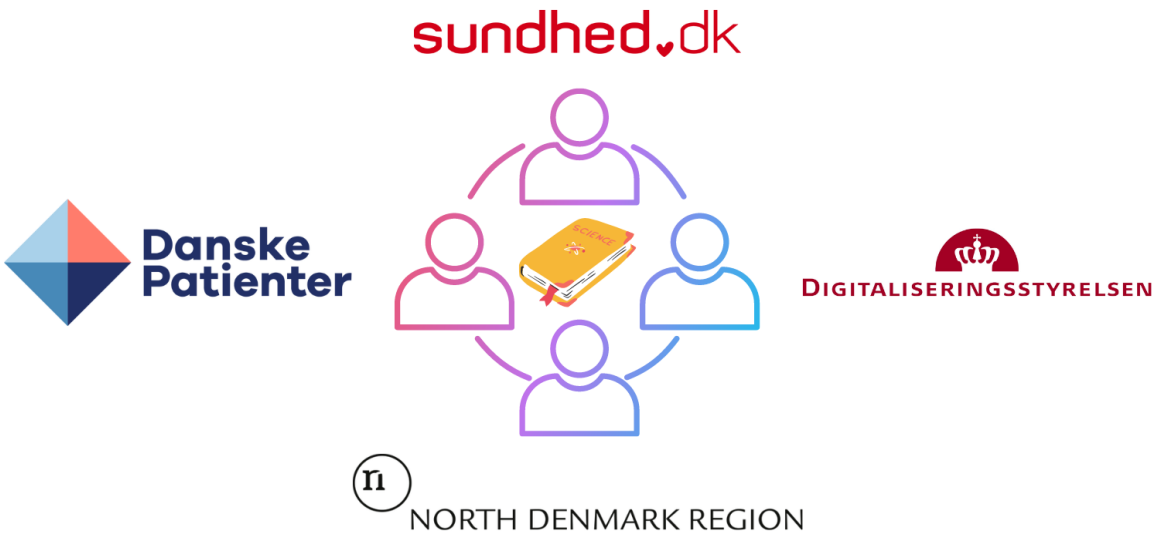


Figure 14: A visualization of the participating actors in our forthcoming panel debate at the People's Meeting. Illustration by the authors.

Some of the questions that we will have the participants discuss is:

- How can digital oppressed groups' digital competencies be enhanced, so *all citizens* can access their health data and use digital solutions in the healthcare sector? - and who has the responsibility for it happening *now*?
- How can it be ensured that future digital solutions in the healthcare sector do not encounter the problem of relying on the individual's digital competencies?

We are of course aware that a single debate will not be the solution to this problem, a problem which is mainly rooted in politics, but we hope that it will be the beginning of change where elderly and all other social groups in the digital gray area will become emancipated.

Conclusion

We have now arrived at the end of our thesis, and we will therefore revisit our problem formulation once more:

How does the continuous digital transformation of the public sector in Denmark affect elderly citizens?

- How does the technical rationality of Danish authorities affect the elderly's engagement with digital public services?
- How is elderly's e-health literacy affected by the technical rationality?
- What are the possible solutions to the problem imposed by the technical rationality, and how can a democratic rationality be deployed responsibly in the Danish public health sector?

In order to answer this problem formulation, we started out by identifying the technical rationality in Denmark. The technical rationality in Denmark is based upon an assumption that all digital transformation is desirable for the users and society in general. We then set out to decontextualize the primary access point for public digital services in Denmark, the eIDs. By doing so we brought into light the technical elements and were able to identify the technical code that are embedded in them. In defining the technical elements, we showed the difference between NemID and MitID. The technical code of eIDs were identified as the ability to use them correctly and navigate between different digital services through them. Furthermore, we were able to identify the formal bias that is embedded in eIDs as a socio-technical configuration. We identified the formal bias for eIDs to be the possession of digital competencies.

From the decontextualization we turned to a recontextualization of eIDs into elderly's social worlds. Through the recontextualization, we showed that elderly's self-perception is negatively affected by the forced activation and subsequent use of eIDs. We also showed that their social world in general is affected by the technical code embedded in the eIDs. Additionally, we investigated the expected digital competencies in a real world context. It became evident that some elderly are situated in the digital gray area and struggle with the digital transformation. In order to investigate the consequence of lacking digital competencies in a concrete context, we outlined different aspects of how digital healthcare services are provided, developed, and used. Next, we initialized a turn towards the healthcare sector and applied the eHLF to the elderly. We showed the potential consequences that the lack of e-health literacy could mean for elderly's ability to master their own health. Based on the analysis, we established that elderly are in fact oppressed via the digital transformation. It therefore impacts their ability to master their own health. This finding sparked a discussion about the consequences of elderly's lacking digital competencies and e-health literacy. Subsequently we discussed who should be responsible for addressing and solving these issues in the future, still remains a question to be answered. We argue that such a solution in its ideal form is only possible through a democratic intervention where the

oppressed group, either themselves or through spokesperson(s) calls for change within the technical rationality. The technical rationality must be changed into a democratic rationality where either digital competencies and e-health literacy become less of a requirement or become widely upskilled. We do not see the first as realistic due to the clear sentiment in public reports which is predominantly supportive of further digitalization. Therefore we argue that the latter solution, that someone must be responsible for continuously upskilling of elderly's, and subsequently all Danes', digital competencies, is both the most realistic, democratic and robust solution. As a consequence of this argument we highly stress the need for the panel debate at the People's Meeting. By facilitating the negotiation space for decision makers in the public sphere we argue that valuable insights will appear - both to us as researchers, as well as for the participants who are in a position of power. Furthermore it should ideally result in concrete improvement actions to the benefit of the group which it is all about: the elderly. As we have shown, the focus of public reports identify the pitfalls of digitalization in relation to the elderly, but sadly do not address them concretely. We argue that the first step of putting the elderly on the public digital agenda is to create awareness of the problem, and furthermore the magnitude of this problem. By facilitating the debate at the People's Meeting, we argue that this first seed has been sown.

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Appendix overview

Appendix 1: Organization X

Appendix 2: Danish Cancer Society

Appendix 3: Organization Y

Appendix 4: Lars Kayser

Appendix 5: sundhed.dk

Appendix 6: Michael

Appendix 7: Jørgen

Appendix 8: Kaj

Appendix 9: Vivian

Appendix 10: Grete

Appendix 11: Lise

Appendix 12: Group interview

Appendix 13: Field notes

Figure overview

Picture overview