Unfolding reframing as an approach to address complex challenges

A case study on enabling longer working lives through intergenerational collaboration in the workplace

MASTER THESIS BY

Antonella Valentina Rinaudi, Laura Sanz González, and Sofía Santos Melián

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Authors | Antonella Valentina Rinaudi, Study no. 20211205 & Laura Sanz Gonzalez Study no. 20210836, & Sofia Santos Melian Study no. 20210826

Antonella Valentina Rinaudi Laura Sanz González Sofía Santos Melián

Abstract

The thesis focuses on uncovering the practice of reframing, which has been identified as a promising approach for solving complex challenges that are increasingly common nowadays. With this ambition, the thesis presents a case study through which reframing is exemplified and discussed.

The case study consists in an open design process that addresses the challenge of an ageing population in Denmark and the subsequent change in the age dependency ratios and labour shortage. The process is structured with the help of a recursive design framework that the authors of the thesis co-created in 2022 and that is powered by reframing. Therefore, reframing is practised iteratively throughout the open design process and results in the narrowing down of the focus to intergenerational collaboration (IGC) in the workplace.

IGC is discovered as an opportunity that poses value for three actors: senior and young employees, and companies, with the ultimate goal of extending the working lives of senior employees by making them feel more valued at the workplace. The resulting service proposal focuses on Tacit knowledge transfer through IGC and presents a flexible value configuration for corporations with clearly defined roles for the three actors. As the case study progresses, more examples of reframing emerge and are unfolded.

The thesis reveals that reframing consists of a combination of group and individual, convergent and divergent activities that lead to a new problem definition. Although reframing has been described as a bridge between a problem and a solution space, we argue that it can also be a bridge between a problem and an evolved problem definition since, in the context of a complex challenge, the solution emerges later in the process. The thesis posits that reframing places a big responsibility on the designers' shoulders to be loyal to the research insights acquired, and suggests some guidelines to optimise the reframing activity. Lastly, it arrives at an iteration of the recursive design framework based on the insights uncovered throughout the project.

Keywords: Service design, Reframing, Open design process, Demographic challenges, Intergenerational collaboration

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1.1 Introduction

“A vastly improved life expectancy – one of the great triumphs of the previous century – looks set to be one of the great challenges of this one.” - Community Fund, 2017

The evolution of design over the last decades has resulted in service design being applied to addressing increasingly complex challenges, and to the expansion of the focus of design from creating tangible artefacts to constructing systems (Buehring & Bishop, 2020). The role of the designers has also changed significantly as our level of involvement in the problem context increases and we learn to be researchers, facilitators, or co-designers.

In this context, the design practice of creating a frame (i.e. “the set of principles, or rules, or organisational patterns used to delimit, identify and make sense of a situation” - Van der Bijl-Brouwer, 2019) has gained relevance since many contemporary problems need to be framed before they can be solved (Dorst, 2015). Organisations from the public and private sectors have become interested in the practice of framing, but they are confronted with the challenge that it is often portrayed quite mysteriously and in the shape of a creative leap (Van der Bijl-Brouwer, 2019).

Therefore, in this project, we focus on the practice of framing and unfold its inner workings with the goal of making it more replicable and thus more widely used for solving societal challenges. In order to exemplify and demonstrate how framing and reframing (the reformulation of a frame) happen, we carry out a case study centred around the demographic challenges that an ageing population brings about in Denmark. Through an open service design process, we involve a multiplicity of actors who offer their varied perspectives on the topic and contribute invaluable input that prompts us to iteratively reframe the problem situation.

Over the last two centuries, life expectancy in the EU has increased by 44 years (Roser et al., 2013) and the number of people over 65 years old in Denmark in 2020 was for the first time higher than those 16 or younger (DST, n.d.). This new age distribution challenges the established welfare systems created for a different population that lived shorter years and had more children.

The shift to an ageing population brings interrelated threats not only to the welfare system but also to the stability of the workforce and the economic wellness of all social groups. In fact, all welfare states have undergone reforms in reaction to this challenge (Andersen, 2012). It is a wicked problem that calls

for changes at all levels: from questioning the established models of retirement and caring to the individual perceptions of growing old.

By choosing a wicked and interconnected problem situation, we apply reframing in its relevant context while selecting the kind of social topic that we are passionate about. One of our main goals for this project is to address a complex societal problem both because we believe their study is of high relevance today, and because we aim to make a positive impact in society.

1.2 Learning objectives and motivation

The learning goals of this thesis are both the official learning goals from the Service Design department at Aalborg University, followed by our personal learning goals for this particular project.

The official learning objectives (Aalborg University, 2023):

Knowledge
- Must have knowledge about the possibilities to apply appropriate methodological approaches to specific study areas.
- Must have knowledge of design theories and methods that focus on the design of advanced and complex product-service systems.

Skills
- Must be able to work independently, identify major problem areas (analysis) and adequately address problems and opportunities (synthesis).
- Must demonstrate the capability of analysing, designing and representing innovative solutions.
- Must demonstrate the ability to evaluate and address (synthesise) major organisational and business issues emerging in the design of a product-service system.

Competences
- Must be able to master design and development work in situations that are complex, unpredictable and require new solutions (synthesis).
- Must be able to independently initiate and implement discipline-specific and interdisciplinary cooperation and assume professional responsibility (synthesis).
- Must have the capability to independently take responsibility for own professional development and specialisation (synthesis).

During the elaboration of this thesis, we will aim to acquire the knowledge, skills and competencies defined by the university. Furthermore, we have the ambition of adding some personal goals formulated according to our shared motivations:

- To advance our knowledge about how to apply service design to solve wicked problems, and bridge service design with systemic design or at least with a systemic perspective which we consider crucial in the world we live in.
- To work on a relevant project of today and aim to cause real impact for the right stakeholders (those able and willing to get involved with our thesis case).
- To develop our critical thinking, especially regarding the application of theoretical concepts to guide our service design practice.
- To expand our knowledge about social innovation, behavioural change, participants' involvement, and how to apply the aforementioned knowledge in solving systemic problems.
- To gain experience organising co-design sessions as well as analysing the insights, and learning how to manage the expectations of all actors involved..

1.3 The designers

Antonella Valentina Rinaudi

Main areas of interest

Open design processes, sustainability, inclusive design

Professional goal

Interested in projects that promote sustainability, community building, and inclusivity. I believe that design can play a crucial role in creating a better world, and I'm committed to using my skills to achieve that objective.

Laura Sanz González

Main areas of interest

Social innovation, open design processes, systemic design

Professional goal

To work in collaboration with other designers and researchers in public innovation projects. To grow in dexterity and experience in solving wicked social challenges through service and systemic design.

Sofía Santos Melián

Main areas of interest

Open design processes, social innovation, interaction design, inclusive design

Professional goal

To create impactful user experiences through open design processes and social innovation. To design solutions that address user needs, foster collaboration, and drive positive change.

1.4 Collaboration with the Danish Design Centre

One of the main motivations for our thesis was to cause a positive and real impact on the involved stakeholders and we thought that a good way of achieving this would be collaborating with an institution that has social goals and works closely with public institutions. The first step to finding a collaboration was to create a poster that expressed our high motivation, skills as service designers, and way of working (Figure 1). After some weeks of intense search, we found the collaborator and it was a very positive match.

Our collaborator is the Danish Design Centre (DDC), a semi-public institution which mainly focuses on projects related to green, digital and social transitions using design approaches. The institution has participated in several social projects where they mobilise relevant stakeholders reducing the gap between citizens and government and creating a more sustainable welfare system (DDC – Danish Design Centre, n.d.). Moreover, DDC is currently developing a project called “New days: Provocative scenarios can improve how we age” which arises from the current demographic issues that the Danish population is facing, mainly the overall ageing of the population. The project seeks to provide new alternatives for how senior citizens live and interact with society. The aforementioned project is very relevant and linked to our thesis topic. Therefore, we believed the collaboration had potential.

Figure 1. Poster showing our motivation, skills and way of working that we sent to potential collaborators.

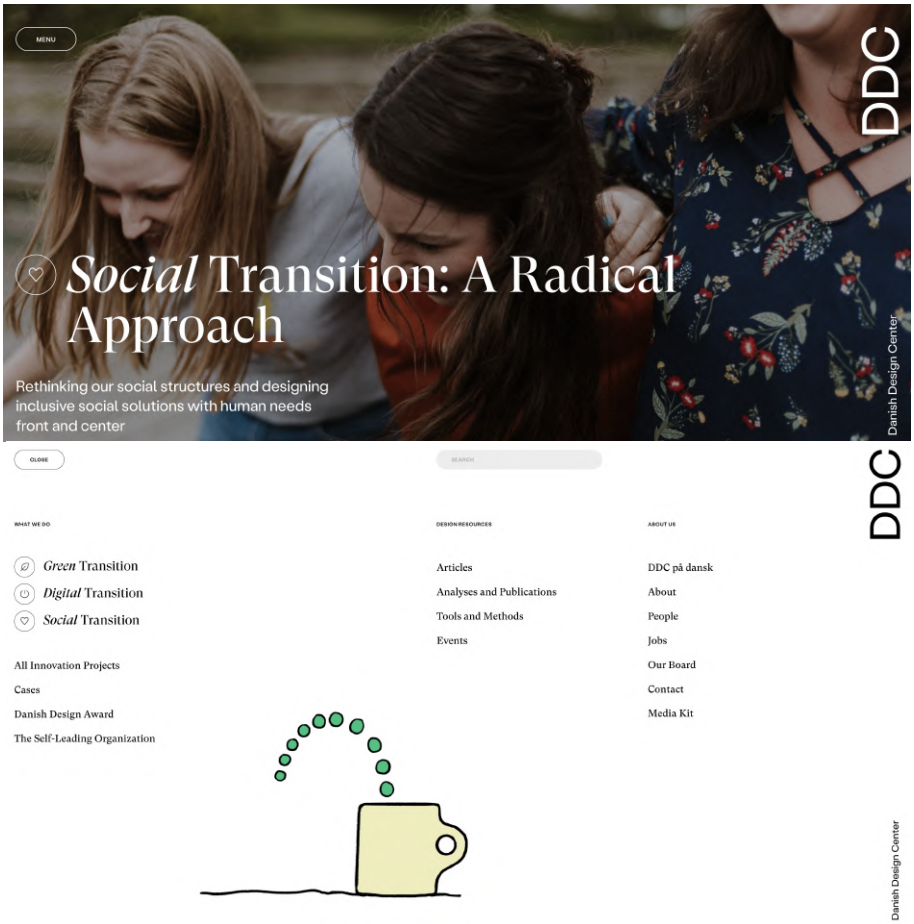


Figure 2. Extracted from DDC – Danish Design Center. (n.d.)

The DDC's work is organised around three missions (Figure 2): the green, digital and social transitions as previously mentioned. They were interested in being involved in our process since it can contribute relevant insights for them to keep developing the Social Transition. This is also the reason why our supervisor from the DDC is a mission leader in the Social Transition. On our side, we believe the DDC can help us with their experience applying design to complex problems, apart from providing relevant resources like networking or research insights.

How does this collaboration work?

Our thesis supervisor is called Anders Erlendsson. He specialises in applying design to address systemic problems (Erlendsson, n.d.) and has worked on several social projects, including the one related to ageing in Denmark (New Days). The supervision meetings with him take place every two weeks and the content is prepared with a method called "I Do Art" (I do Art - Meeting Design Tool, n.d.) which consists in defining the intentions, desired outcomes, agenda, rules/roles and time before each meeting. This allows us to have efficient and insightful meetings.

2 Literature Review

Research question 1
The evolution of design
Service design
Co-design
Open design process
Design for social innovation
Mental models

In this section, we start by presenting the research question that we will explore throughout the project. The question is then unfolded in its following sections, where all the concepts and approaches it contains are elaborated upon. An evolution of the field of service design contextualises the research question, followed by an introduction to co-design and open design processes. This leads to the concept of design for social innovation and, finally, to the introduction of mental models.

2.1 Research question 1

Our personal goals have special importance in the definition of the research question (see personal goals in Section 1.2) because, before starting our thesis, we agreed that we would make an effort to do something meaningful for society. Therefore, we started looking into the challenges that vulnerable groups, such as refugees, the elderly, immigrants, or the disabled, were facing. We agreed that, by improving the quality of life or solving the problems of some of these actors, we could positively contribute to society. Therefore, we started to explore service design-related theories that would allow us to make a positive social impact like co-design, open design processes, or social innovation.

Moreover, while looking into these concepts that could lead to positive social impact, we came across changing mental models. John Kania (2019) describes three levels that can be addressed to generate social and systemic impact, and he mentions the mental model level as the most transformative. Therefore, by figuring out how to challenge the most prominent mental models, we would be taking the first steps to reduce social inequalities (Carstensen & Hartel, 2006; Centre for Ageing Better, 2023; Vink et al., 2019).

Open design processes are projects in which different actors collaborate actively because they share a common interest in solving a problematic; and they have no fixed result (Hillgren et al., 2011; Manzini & Rizzo, 2011)

What is the impact of an open service design process in changing mental models?

Mental models are “actors assumptions that guide their behaviour and interpretation of their environment” (Vink et al., 2019)

These concepts led us to the formulation of the first research question. Note that it will be reframed throughout the project.

2.2 The evolution of design

In this section, we will describe firstly how the historical context has impacted the design discipline; secondly, the characteristics of design on each specific stage; and finally contextualise service design in respect to other design disciplines.

During the 20th century, design was considered an activity carried out by artisans who had practical knowledge and could not explain the principles that guided their profession (Buchanan, 1999). A lot of changes took place since then, and the author describes design evolution through the four orders of design (Figure 3). Each order represents a reformulation in the nature of design.

The first order is related to graphic design disciplines and their ability to convey information through words and symbols (Buchanan, 1999). The second order belongs to industrial design which is related to physical objects manufactured in big quantities. During the first and second order, the attention was focused on the materials, processes, shape, and function of the designs.

Currently, we are reframing the way we understand design, and the attention is focused on understanding the value brought by designers’ creations (Buchanan, 1999). Therefore, it was necessary to evolve towards the third order called interaction design, which is focused on the interrelationships between users and products (by

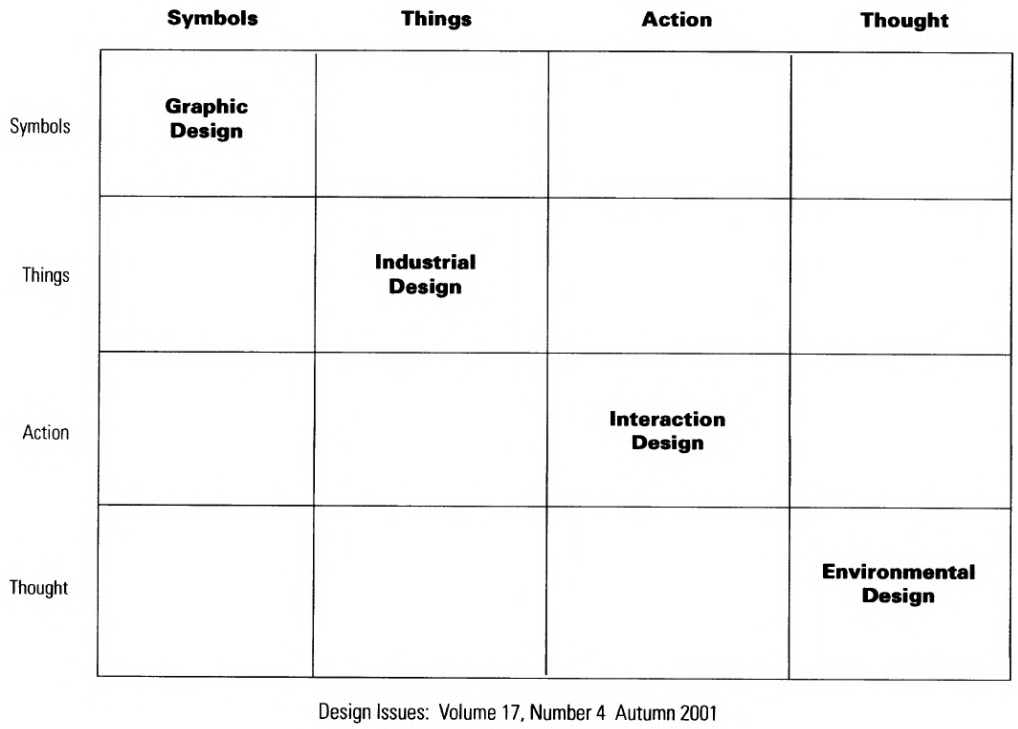


Figure 3. The orders of design (extracted from Buchanan, 1999).

products, the author means physical products, services, and experiences), and towards the fourth order of design that aims to organise environments and systems, which is where Service System Design is positioned.

The role of the designer has also evolved. Vargo & Lusch (2008) argue that designers should stop being solution owners and start to be considered value proposers. Therefore, a shift is needed from the “good-dominant logic” towards a “service-dominant logic”. The main difference is that, in the good-dominant logic, the value of the product is generated during the manufacture, and then it only decreases with use, while in the service-dominant logic, the value is created by the user during its interaction with the service (Morelli et. al., 2021).

Buchanan (1999) is not the only author that thinks it is necessary to direct our attention toward systems and holistic analysis. This need also arises because we are experiencing times of constant transformation in a rapidly advancing information environment. This is called the VUCA World: volatile, uncertain, complex, and ambiguous (Buehring & Bishop, 2020). Moreover, the design solutions are situated in this complex context which has taken designers to combine design disciplines with behavioural and social sciences like social innovation, foresight, and psychology.

In the next section, we will dig deep into the characteristics of service design and its different definitions.

2.3 Service Design

This section intends to draw an overview of the evolution of the term service design and explain its relationship with the term service systems design. Additionally, we will position ourselves within one specific approach which will drive our practice throughout the design process.

The emergence of the term service design

Due to the change in economic activities, the practice of service design appeared as a need to organise the activities of a service offering (Morelli et al., 2021). Its origins lay in the marketing discipline. Lynn Shostack (1982) finds service design present in almost all commercialised goods and defends the need for organised design practice. Service design is a relatively new and emerging discipline that is gaining recognition as a valuable tool for addressing complex service-related challenges (Stickdorn et al., 2018). Many authors have attempted to define this young design discipline, but there is still no clear agreement.

Definition of service design

The following paragraph introduces different definitions of service design. A service can be defined as a "deed, process, or performance" that is provided by one entity to another, often in exchange for payment or other compensation" (Vargo & Lusch, 2004). According to Vargo and Lusch (2004), services are distinct from goods in that they are intangible, perishable, and cannot be owned by the customer. Additionally, services are often produced and consumed simultaneously, and the customer is often involved in the creation and delivery of the service.

“Service design is a holistic way for a business to gain a comprehensive, empathic understanding of customer needs.” - Frontier Service Design, 2010

Service Design Network (2018) states that it “helps to choreograph the processes, technologies and interactions driving the delivery of services, using a human-centred perspective.”

According to Polaine and Reason (2013), service design is “the activity of planning and organising people, infrastructure, communication, and material components of a service to improve its quality and the interaction between the service provider and its customers”.

At the end of this section, we present the definition of service design that we approach this project.

Approaches

Kimbell (2011) identifies two main tensions to which the different definitions can belong: (1) understanding design as an exploration of a design problem that involves different actors, or (2) their capability to organise a value-creation interaction. This creates four different spaces for service design definitions. See Figure 4.

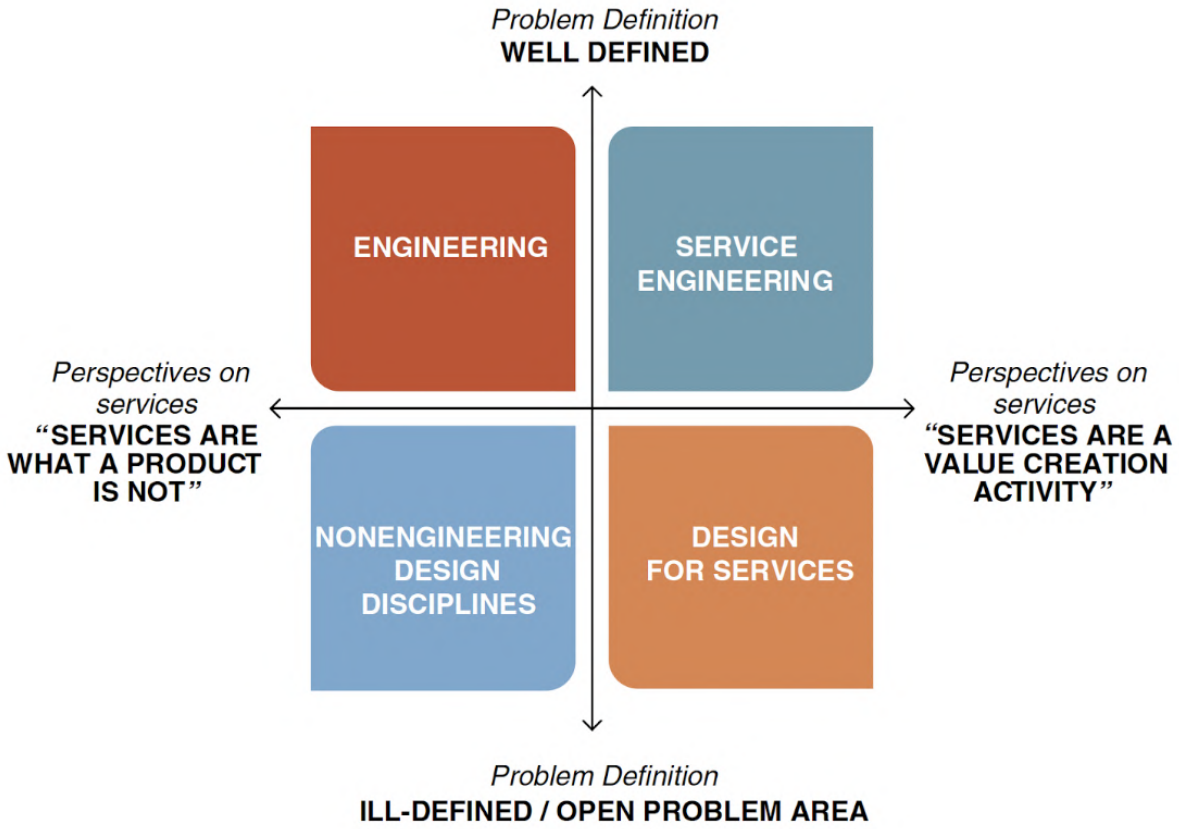


Figure 4. Approaches to conceptualising service design (extracted from Morelli et al., 2021).

Service design vs. Service Systems design

Service design differs from Service Systems design in that service design refers to the exchange of values that happens during the interaction of multiple actors, whereas service systems design relates to the system within which the interactions happen. Because a service only exists while the users exchange value, we as designers can only design the system that enables those interactions. We cannot design a service, but a service system.

We understand service design as an activity of organising a system that enables interactions of value exchange between actors. Because our problem is an ill-defined problem definition, and we define service as a value-creation activity,

this thesis will be categorised as designing for services (Figure 4). For this thesis, however, **we will be using *service design* and *service systems design* as synonyms, referring to the design of a system that enables value exchange between different actors**.

2.4 Co-design

Origin and evolution of user involvement

Since the fifties, the practice of design has evolved to new forms of collaboration and user involvement (Jørgensen et al., 2011). Originally, designers were mostly isolated in the design process and guided solely by their expertise. However, throughout the last decades, it has become increasingly common to seek user opinions in processes of user-centred design, and later to even consider users as partners in the context of participatory design, which appeared in Scandinavia in the 1970s (Sanders & Stappers, 2008).

The latest development regarding involvement in the design process has been named co-design, where not only users but a more varied selection of stakeholders collaborate to design a solution. Co-design has been defined as "the creativity of designers and people not trained in design working together in the design development process" (Sanders & Stappers, 2008). The term co-design is widely used to refer to both a "general process or tool for collaborative engagement" (Mattlemäki & Visser, 2011). This new model of collaboration challenges the traditional role of designers and stakeholders. For example, Sanders and Stappers (2008) have suggested that, when co-designing, the role of the designer and the researcher blur together into the role of a neutral facilitator. In the next sections, we discuss the impact of co-design as well as its limitations. Finally, we explain the choice of co-design for this project.

The impact of co-design

Other modes of user involvement, such as user-centred design, are becoming obsolete because they are not suited to solve the wicked challenges we face today in our complex world (Sanders & Stappers, 2008). Co-design (as the last development of participatory methods), on the other hand, has that potential (Cross, 1972), which relies on the principle of including those who are responsible for the realisation of the solution throughout the whole design process (Akama & Prendiville, 2013).

Criticism

Co-design has taken decades to become widely accepted because it challenges traditional approaches, roles, and power structures.

Firstly, many authors (e.g. Sanders & Stappers, 2008; Akama & Prendiville, 2013; Meroni & Sangiorgi, 2011) have highlighted the importance of applying co-design

throughout the whole design process, but without there being many examples of how to do so. Secondly, the role of professional designers in co-design has been often described as facilitators (Sanders & Stappers, 2008) or strived to be neutral (Jørgensen et al., 2011). We do not entirely identify with this pursuit where designers take a rather administrative role. We are more aligned with positions like Manzini's (2015) where the expert designers "transform their design culture into visions and proposals" together with the co-design group. Lastly, co-design has been difficult to integrate because it requires ceding control to other stakeholders (Sanders & Stappers, 2008) which also impacts designers' ownership and creative freedom regarding the design (Meroni & Sangiorgi, 2011).

Why it was chosen for this project

The problem research is focused on the topic of ageing, which inevitably touches upon the pension system and the public infrastructure in Denmark. Nowadays, citizens are considered a highly untapped and important resource to redesign public services (Akama & Prendiville, 2013; Meroni & Sangiorgi, 2011). Furthermore, the success of the problem study is highly dependent on the impact caused through the design process on those involved, which makes co-design a premise of the project.

2.5 Lead users

Co-design is an approach that broadens the eligibility for being involved in a design process: when being an expert of your own experience (Sanders & Stappers, 2008) qualifies an actor to participate, the scope is much wider than in earlier traditions of design where only experts would be asked and the decision power rested solely on the professional designer.

Then, the question to ask is: **who should be involved in the design process?**

Several considerations might be taken to answer this question. For example, an ethical point of view would argue whether it's right to spend someone's time on a project with an uncertain result or uncertain benefit for them. A business point of view would perhaps focus on those participants that lead to the most profitable result, and so on. In this section, we approach the question with a focus on two aspects: **who should be involved in the design process for their benefit and the benefit of the project?**

This points the way to the concept of "lead user". Lead users are people who share a marked interest in the project topic. Eric von Hippel (2005) has described them as innovative in their way of doing things and expecting to obtain benefits from participating in the project. Furthermore, the contributions from lead users are very valuable: they tend to be commercially attractive and appeal to a wide range of users (von Hippel, 2005). Thus, lead users participate

in the project for their own sake while favouring the project itself.

Even though Eric von Hippel wrote about lead users from a manufacturer innovation point of view, the concept translates to co-design activities as shown by Sanders and Stappers (2008), Munthe-Kaas (2015) and Kensing and Madsen (1991). Sanders and Stappers (2008) explain that the people more likely to become co-designers are those with high interest and knowledge in the project topic, and Kensing and Madsen (1991) point out that participants should ideally "share a desire to change the situation". Munthe-Kaas (2015) describes an urban co-design process where citizens became active participants and call on the importance of involving a variety of users - not only lead users - in order not to miss valuable perspectives.

In this project, we will try to involve mainly lead users since not only do we think it is morally the best option for a student project, but we also know from experience that their contribution will be provided more happily and interestfully. We however are also aware that it is tough to gather participants for a project, and will reflect on them later in the project.

2.6 An open design process

The research question of this thesis is based on the impact of service design to change mental models. Mental models are individual conceptualizations of a topic or phenomenon. As such, we will apply service design methods to provoke change in someone else's perception. Therefore, to answer our research question, user involvement is inherently built into the project.

The concept of co-design was already mentioned in the previous section and referred to as collective creativity applied during the design process (Sanders & Stappers, 2008). In this section, we introduce the notion of an open design process which is wider than co-design because it dictates not only the way of interaction and participation but also the project goals and intentions.

Carrying out an open design process means, on one hand, continuously building relations with a multiplicity of actors (Hillgren et al., 2011). The construction of these relations has been called Infrastructuring (Hillgren et al., 2011). On the other hand, an open design process is an open-ended one with no fixed result due to the flexibility of the process (Manzini & Rizzo, 2011; Hillgren et al., 2011) and the continuous reframing of the problem based on the interactions with actors. In the constant evolution of the way we practise design, an open design process represents the intention to cause long-term impact by inviting everyone who would like to take part and allowing the impact to grow or change with no specific time limit.

When assessing the potential of service design to influence mental models, the outcome of the project is naturally dynamic and subjective and therefore

coincides with that of an open design process. Furthermore, since the impact of the project lies on those stakeholders involved in it, we will always be open to welcoming new stakeholders in the process.

Even though user involvement to a higher degree has many benefits (Steen et al., 2011; section Co-design in page 23), the practice of an open design process also poses risks since it requires balancing many perspectives and expectations, and a continuous revaluation of the design process and activities (Hillgren et al., 2011). We are aware of these risks and, having carried out an open design process before, will apply our previous learnings and keep reflecting on them through this project.

In the section Methodology, we present a recursive design process framework that will be applied to facilitate the open design process.

2.7 Design for social innovation

Open service design processes are often linked to social innovation projects where designers promote desirable social change (Manzini & Rizzo, 2011). For example, Manzini and Rizzo (2011) state that participatory design needs to include social innovation, while Hillgren et al. (2011) presents an open process as a way to approach social innovation.

In this project, we will apply Manzini's definition (2015):

"Design for social innovation is everything that expert designers can do to activate, sustain, and orient processes of social change toward sustainability (p. 62). **Design for social innovation is the expert design contribution to a co-design process aiming at social change** (p. 63)**".**

Our research question revolves around mental models, which are not explicitly the object of design for social innovation since they are highly individual although socially constructed, and they are not socially beneficial per se, but only in the actions they perpetuate. Therefore, we recognise that the link between our research goal and social innovation is indirect. However, the kind of open process we intend to carry out and the ultimate impact that we hope to have (read section Problem Context in page 29) are aligned with the practice of design for social innovation.

Throughout this thesis, we will discuss and reflect upon the degree of commonality between design for social innovation and our case study. Later on, our research questions go through an iteration after which we apply mental models and social innovation differently (see page 73).

2.8 Mental models: a high leverage point

"Paradigms are the sources of systems." - Meadows (2008)

Mental models are "actors' assumptions and beliefs that guide their behaviour and interpretation of their environment" (Vink et al., 2019). The concept has been widely used in education to understand how students learn new concepts and to improve teaching methods that bring accuracy to pupils' mental models (Doyle et al., 2008; Thacker & Sinatra, 2019). It has also been applied in fields like human-computer interaction (HCI) and user experience design to develop interfaces that match users' mental models and, in that way, facilitate comprehension and task completion (Carroll & Olson, 1988; Kieras & Bovair, 1984).

In this project, mental models will be studied and worked with through service design practices. Service design has generally focused on innovating through changing and optimising elements of a service or system i.e. on designing outward change (Vink et al., 2019). The service-dominant logic introduced by Vargo and Lusch (2004) would describe this as creating a new network for value co-creation. However, this kind of systemic change is inextricably linked to a change in the system participants' ideas and perceptions: a change in their mental models. In fact, "mental models can be seen as sources of behaviour in social systems" (Vink et al., 2017). Meadows (1999) already positioned "the shared idea in the minds of society, the great big unstated assumptions" as one of the most powerful leverage points in a system. Leverage points are points of power because a small change in them can cause a systemic shift (Meadows, 1999). Kania (2019) has added to this argument by defining three levels to generate social and systemic impact, of which "mental models" are the most transformative (see Figure 5). Therefore, it is worth studying how service design might cause systemic change by taking this perspective of mental models as a powerful leverage point.

Service design has already been identified in several cases (Vink et al., 2017; Vink et al., 2019) as a promising and relevant field with the tools to influence mental models, especially through aesthetic experiences or aesthetic disruptions. Service design practices and mental models are inextricably linked (Vink et al., 2019, see figure 6) since it is service designers' modus operandi to involve a multiplicity of actors in projects and to design materials and interactions - aesthetic experiences - as tools for negotiation. Mental models will therefore be the object of this project, and service design methods will be the way to influence them.

It is lastly worth noting that working with mental models might bring about challenges as well since they are subjective and often inaccurate representations of how things work (Doyle et al., 2008). Furthermore, the most powerful a leverage point is, the more the system will resist change (Meadows,

2008). During the project, we will discuss the potential of service design practices to overcome these challenges.

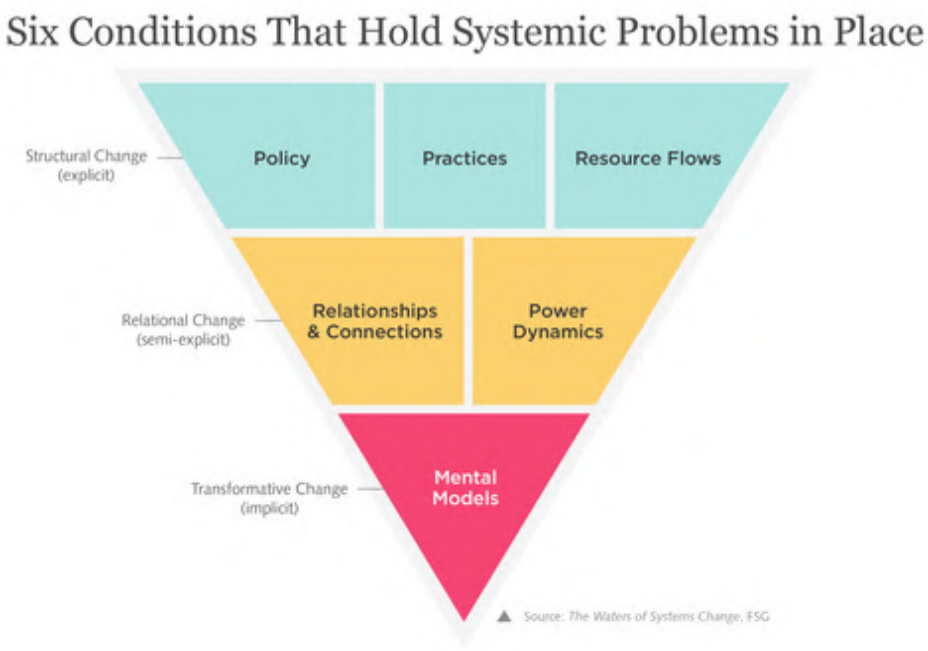


Figure 5. Six conditions that hold systemic problems in place (extracted from Kania, 2019).

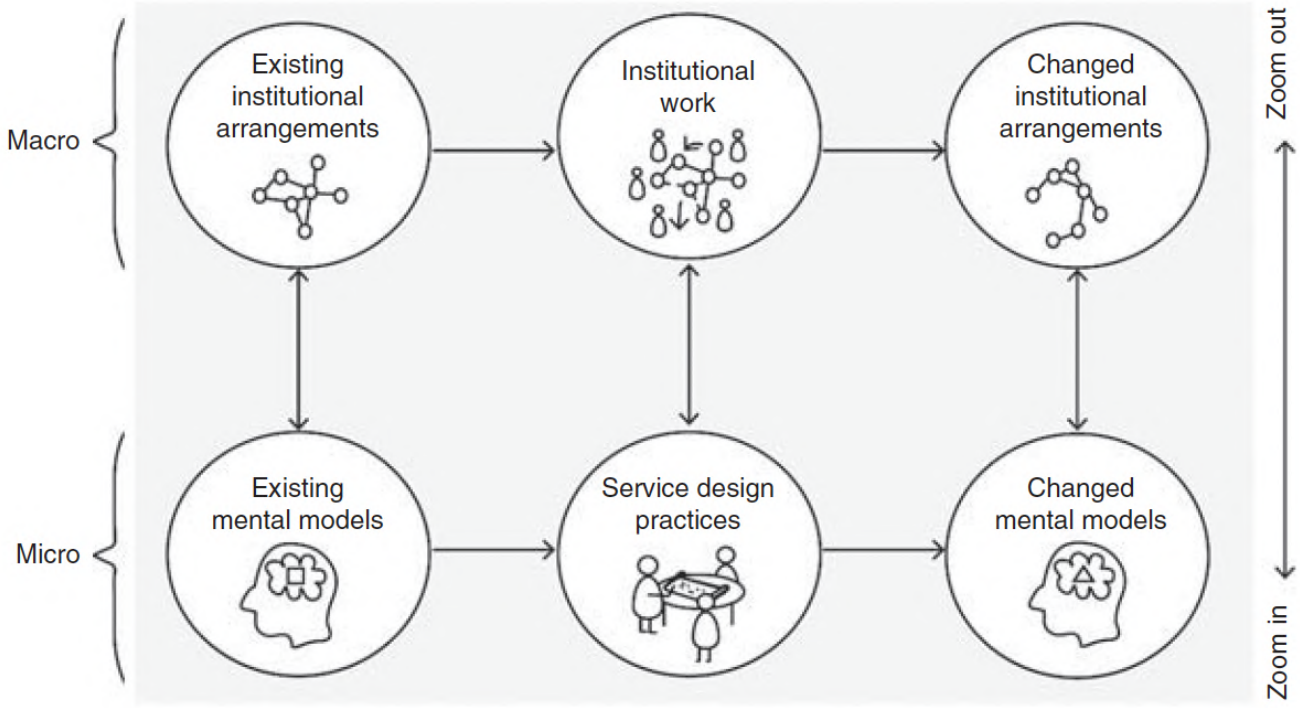


Figure 6. Relationship between institutional arrangements and mental models (extracted from Vink et al., 2019).

3 Problem Context

In this section, we will introduce a literature framework that helped us understand our project context and formulate our problem statement in the concluding part of this chapter. Specifically, this section will dive into the demographic challenge of an ageing population and explore the concept of ageing from historical, contemporary, and future perspectives. Afterwards, we will argue the importance of young generations for changing ageing stereotypes, and lastly our problem statement.

3.1 The demographic challenge of an ageing population

Denmark, like other nations in Europe, is struggling with the issue of an ageing population. By the year 2040, the proportion of 65+ people in Denmark is predicted to be 25% of the population (Dilling-Pedersen, 2017). The welfare system and demographic distribution of the nation will be significantly impacted by this. There will be a smaller working-age population supporting more numerous senior citizens, which in Denmark is not as much an economic problem as in another countries (in terms of paying out pensions or healthcare) as it is a labour shortage problem (Andersen, 2023, Appendix A; Pedersen, 2000). Some employees have been choosing to retire early and the working hours have decreased by 10% in the last 50 years, making workforce availability a concern in the country (Pedersen, 2000).

The World Health Organisation reports that between 2000 and 2016, the average life expectancy in the world rose by 5.5 years, reaching 72 years (World Health Organization, nd). The average life expectancy is 84 years for women and 81 years for men in Denmark (DST, 2022). In many nations throughout the world, including Denmark, an ageing population has resulted from this rise in life expectancy and the drop in birth rates. According to the legislation, the required retirement age would increase with time, rising to as high as 74 in 2070 from the current level of roughly 67 (OECD, 2021). With an increase in life expectancy, we also stay healthy for longer. In the section “The future of ageing” we dig deeper into how elderly life is expected to be in the next decades.

Some European countries are starting to pay attention to these demographic challenges and are developing some solutions. The UK has financed multiple initiatives such as Transform Ageing (Design Council, 2023) or the Centre for Ageing Better to study popular opinion on ageing policies, prepare for the ageing population, and understand its consequences (UK Parliament, 2019).

Thanks to the Madrid plan of action on ageing (Brønholt, 2022), Denmark could implement some policies that promote a more age-fair system. Some of these

policies are for example the possibility to delay your pension for some years, so that you can continue working if desired, and the prohibition of asking your age during a recruitment process to avoid age discrimination.

In the next section, we will introduce a historic perspective on ageing.

3.2 Ageing: a historic perspective

Ageing is a condition of life that has inevitably accompanied us since the beginning of time. However, ageing has not always meant the same neither for the individual nor for society. In this section, we look back in time to understand how ageing has come to be what it is today. The focus is on western societies as this thesis is situated in Denmark.

Life expectancy has increased vastly throughout history, especially in the last two centuries. In the Stone Age, classical Rome and Greece, and even in the Medieval Ages, infant mortality was so high that life expectancy remained around 25-30 years. However, if a child made it to 20 years old, chances were they would live another 20 years (Weisman, 1999). A shorter life expectancy meant that few reached elderliness and those who did were hugely respected. In agrarian societies, the elderly were considered knowledge holders and remained valuable until the end.

Around the 18th century, when the Industrial Revolution and growth in life expectancy happened simultaneously, things started changing. Individual value was now determined by your ability to work and obtain a job, and the decrease in productivity with age became evident in factory workers.

"This reduction in social status is thought to have been generated by several interrelated factors: the number of still able-bodied older workers outstripping the number of available employment opportunities, the decline in self-employment which allows a worker to gradually decrease activity with age, and the continual introduction of new technology requiring special training and education."
- Britannica (2023)

And thus the elderly were first pushed to retirement: to leave space for the young workers who were more productive for factory-like work.

The first pension was established by Bismarck in the year 1883 as a way to win over the Marxist movement (Weisman, 1999). Unemployment insurance was established in most European countries throughout the 20th century, e.g. in 1920 in Austria and in 1940 in Sweden. Roosevelt approved the Social Security Act in 1935, which included individually financed old-age insurance. This is how

a new layer of western societies appeared: retirees with income without a job, living longer each generation and figuring out how to spend this new chapter of *our* lives.

Denmark was, together with New Zealand and Germany, one of the first countries to establish an old-age pension (Abel-Smith, 2022). However, as a mostly agrarian society, the scheme was “clearly an attempt to alleviate rural rather than urban poverty” (Abel-Smith, 2022) and was thus less tied to the Industrial Revolution.

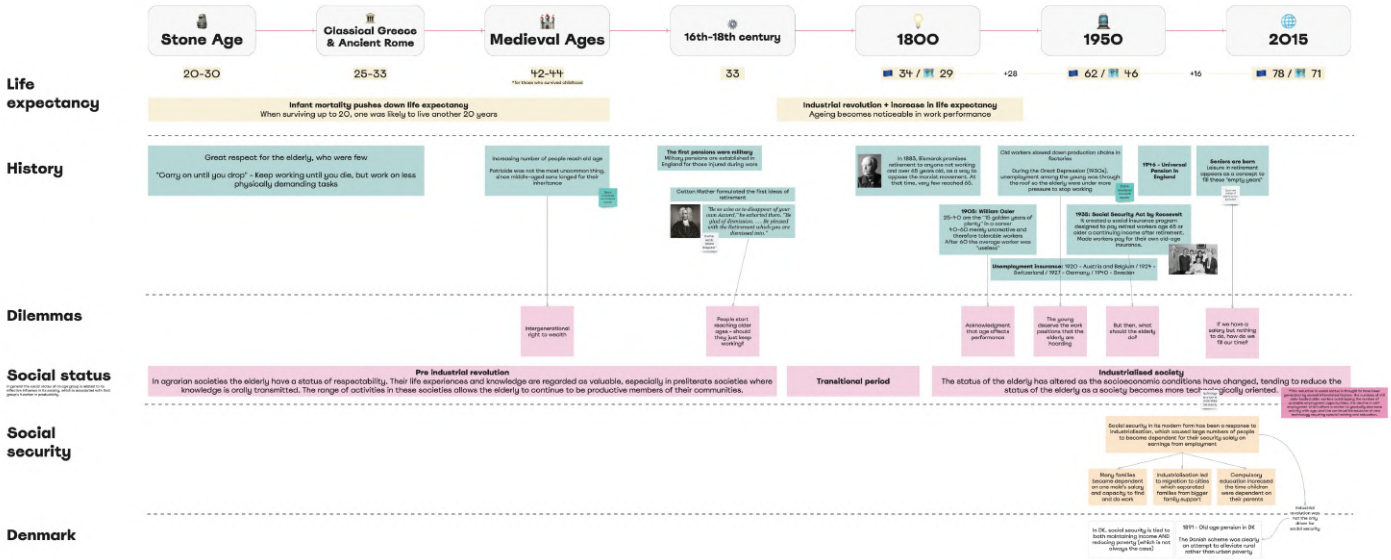


Figure 7. Timeline about ageing and the welfare systems throughout time.

This historical perspective on ageing, represented in Figure 7, made us realise that the welfare system we have in place today is in fact relatively new, as are the pension and retirement systems. This is however understandable when looking at the evolution of life expectancy and how, between 1800 and 2015, it has increased from 34 to 78 years in Europe (Roser et al., 2022). Healthcare development and improvement of quality of life enable us to live longer, and what to do with the years we have gained has become both an individual question and a public challenge.

This timeline can be seen on a bigger scale in Appendix B.

3.3 Ageing today

This section intends to draw a picture of how growing old and living a retired life looks like today in the context of Denmark. We will talk about how life expectancy has increased over the years, having as a consequence extra healthy years added to a person's life, what the common characteristics of a senior Danish resident are, and their life trajectory for the last years. Additionally, we will describe the Danish welfare system and what effect it has on the elderly's lives.

Life expectancy and healthy added years

As previously mentioned in the section "The demographic challenge of an ageing population" (page 30), global life expectancy has increased over the last decades, currently at 72 (Life expectancy and Healthy life expectancy., n.d.). In Denmark, it is estimated that a person will live approximately 84 years for women and 81 for men (DST, 2012).

Contemporary mainstream ways of ageing

This section draws from a report (DST, 2012) that aims to draw a general picture of the habits and living conditions of people over 65 years old living in Denmark today.

Health

This group of people uses the hospital system more frequently than any previous generation. People aged 65 to 74, visit the doctor twice as much as those aged 15 to 64 (DST, 2012).

Housing

Once they reach retirement age, Danes frequently downsize into smaller homes. The typical housing path for Danes is as follows: they grow up in single-family homes (DST, 2012). They relocate to studio apartments or single rooms in their early 20s. They move into larger apartments in their early 30s, and then, as they approach parenthood, they move back into single-family homes.

They also relocate, especially those who live in rural areas, choosing to live closer to larger cities where care facilities are more readily available (DST, 2012).

Labour market

The employment rate among those aged 60 to 64 has significantly increased, reaching 46% in 2011 (DST, 2012). Even though these figures are rising with time, the bulk of people stops working after they become 65. Denmark is above the average of people who continue working at the age of 55 to 64 years old, being 62%, while in the EU is only 49% (OECD, 2015).

Men who work for themselves, such as farmers or highly educated individuals employed by the government, make up the majority of those who remain in the labour force (DST, 2012). Additionally, the majority of seniors who continue to work do it part-time.

Economy

For the elderly, pensions are their primary source of income, with the national pension being the most important. People over 65 have less disposable income than the general population (DST, 2012). Elderly people's disposable income is highest in Gentofte municipality and lowest in Langeland municipality. Some people over 65 continue to work, and in 2010, 28.9% of adults in this age group made money through their businesses. In this age bracket, males earn a bigger proportion of their income through businesses than women do.

Education

Women in particular from the older age have demonstrated a strong interest in participating in educational activities like publicly supervised adult education. Every generation results in being higher educated than the previous one, resulting in more engagement in their jobs (DST, 2012). Additionally, people who are nearby retirement age are very engaged in continuing learning (OECD, 2015). Furthermore, employment primarily revolves around intellectual abilities rather than physical exertion, making it easier for senior workers to continue working for longer in this kind of job:

”Many job positions have been replaced by people with much more education and much more interesting work, less physically demanding work in some respects, perhaps more psychologically stressing. The jobs are much better and people are much more engaged.” - Andersen 2023, Appendix A

In conclusion, the preceding sections have painted a comprehensive picture of the lives of elderly individuals in Denmark. By examining various aspects such as life expectancy, health, housing, labour market participation, economy, and education, we have gained valuable insights into how senior Danish residents navigate their retirement lives.

This section has shown a portrait of how the elderly live today in Denmark. The next section will go deeper into how the Welfare system works and how its structure influences decision-making in workers.

3.4 The Danish welfare system

This section aims to provide an in-depth analysis of the topic of welfare and the pension system. The section starts by defining the welfare system, followed by the definition of three different welfare systems. Secondly, we define the Danish pension system and we end the section by summarising some reforms that could enhance the work among older workers.

Definition of welfare system

A definition of the welfare system from the Scandinavian and British perspectives is provided by Jørgen Goul Andersen (2012): The welfare system is an institution present in any modern society that improves the living conditions of citizens from birth to death. It seeks to modify the market forces to 1. ensure a minimum income to citizens, to decrease poverty, 2. provide security to families in the context of sickness, old age, and unemployment, and 3. ensure good quality of public services for everyone, e.g., health care, child, and elder care (Andersen, 2012).

Different models of the welfare system

There are three types of welfare systems (Andersen, 2012):

- **The Residual model** focuses on providing security to the poorest sectors of society, and the rest of the classes should handle most of their needs themselves.
- **The Corporatist model** provides welfare benefits to citizens that contribute to the system - this is known as the performance principle.
- **The Universal** is the model implemented in Denmark and strives to provide equality among citizens, meaning that everyone should have access to social, political, and cultural life independently of their economic situation. (Andersen, 2012). The Universal model is a success in the Scandinavian countries because it obtains more redistribution of wealth and ensures a very high social trust among citizens (Figure 8), both signs of social well-being.

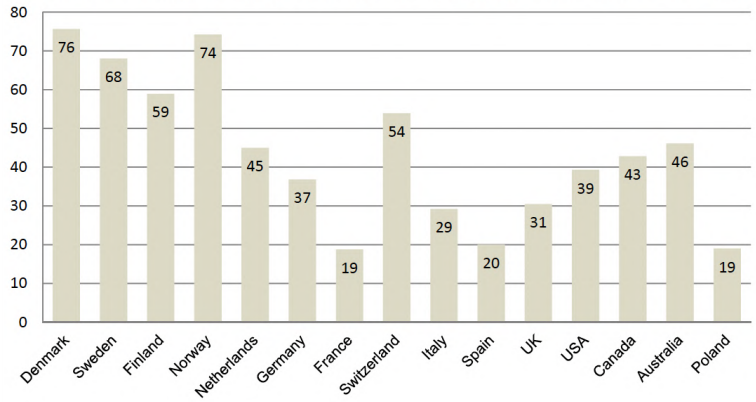


Figure 8. Social trust among citizens (extracted from Andersen, 2012).

Danish pension system

The first pillar of the pension system in Denmark is **the universal old-age pension**. It is a fixed monthly amount paid to everyone that has resided in Denmark for at least forty years. Old-age pensioners can also be eligible for obtaining benefits for heating, health, and housing depending on their economic situation. The statutory pension age is 67 years old, before which it is not allowed to receive the universal old age pension.

Moreover, it is possible to combine the universal old age pension and work. In the past, receiving both salary and full pension was not an option. However, new rules will take effect from 2024, so that the salary would not affect the pension amount anymore, meaning that pensioners will be able to work and receive the full pension (Ældresagen, 2023). The second pillar of the pension system in Denmark is **the occupational pension**, which is a non-mandatory membership held by 90% of the labour force. People that contribute to this scheme can obtain this pension five years before the statutory age, and they can also request it partially and combine it with work (OECD, 2015). Denmark also counts on voluntary early retirement programs. However, to be eligible for these schemes the person should contribute to an unemployment insurance fund (UIF) for at least 30 years (OECD, 2015).

In addition, everyone working more than nine hours per week and everyone receiving social benefits must contribute to the scheme called labour market supplementary pension (ATP).

Suggested reforms for improving work amongst the elderly

Several experts claim that the welfare system in Denmark is relatively successful (see section Loop 1). However, several reforms could decrease the aforementioned demographic challenges:

- Generate incentives to work longer and provide information regarding the benefits of it (OECD, 2015).
- Promote senior entrepreneurship. Statistics show that older entrepreneurs are more successful than younger entrepreneurs (Bol, 2021)
- Combat discrimination, insecurity and prejudice associated with older workers, to increase age diversity, age neutrality, and solidarity between generations at the workplace (Cozza et al., 2019)
- Create flexible practices where the manager and the older employee can build a high-quality end-of-career path (OECD, 2015).
- Employers should focus more on skills and knowledge rather than on age (Centre for Ageing Better, 2023; Bol, 2023; Appendix C)

The knowledge acquired in this section allowed us to have a holistic view of the welfare and pension system to understand the institutional side of ageing. This understanding enabled us to approach our problematic question through a more analytical lens.

3.5 Existing alternative solutions for ageing

In this section, we will talk about ideas and ways of living that innovate elderliness. We do this to understand the current landscape of problems and solutions within the topic of research. This section will be centred geographically in Europe since social roles and ageing take different meanings across the globe. This section will also be structured by arena: community, legislation, and housing.

1. Community

Some of the most severe problems of the third age are isolation, loneliness and boredom (Meroni, 2007). That is why, all over Europe, initiatives have emerged to bring people together and empower them to be social, active, and help each other. The book Creative Communities (Meroni, 2007) presents many great examples of this, of which we will name a couple:

- The project Aquarius (Netherlands) is a great example of a community that promotes a balance between independence and collaboration. It consists of a group of people over 50 who live in separate houses but participate in communal tasks like gardening or cooking. The community lifts its members by creating a social context, a purpose, and a network of support.
- A senior club (Poland) offers activities for the elderly living in a small town so that they can remain active and share their stories. The members also take care of those neighbours that need so. Having a community, activities to look forward to, and a purpose, makes the lives of the members better.

2. Legislation

Legislation emerges from social constructs - from our beliefs about how things ought to be - including the regulation of our working lives. Retirement marks the end of this stage and it is highly regulated in European countries. But these laws are changing, mainly in two directions:

1. The abolition of mandatory retirement ages

For public sector workers, the mandatory retirement age was abolished in 2008 (OECD, 2015). With an increase in highly educated citizens and consequent improvement in job conditions and lengthening of the health span, retiring had become a punishment for workers who wanted to keep going. This is especially relevant in Denmark, where the employment rate for people between 55 and 64 is considerably higher than the EU average: 62% versus 49% (OECD, 2015).

2. The increase in retirement age

In Denmark, it was decided in 2022 to progressively increase the retirement age

so that it will be 69 in 2035 (Pedersen, 2022). If the rule doesn't change, it will reach 74 in 2070. This is again due to the increase in the health span and life expectancy, but also due to the need for less numerous young generations to support more numerous old generations.

Furthermore, the Danish government has since 2006 decided to hinder early retirement, resulting in a 6% increase in workers between 60 and 64 years old (OECD, 2015). Additionally, laws that prevent ageism have been put in place. Therefore, legislation is already aligning with the demographic challenges to maintain a functioning and satisfactory welfare system.

It is also worth mentioning the United Kingdom because of its high public investment in innovation for an ageing population, and its designerly approach to it with organisations like the UK National Innovation Centre for Ageing or the Centre for Ageing Better. A project showing the UK's focus on ageing is called Transform Ageing (Design Council, 2023), which funded many entrepreneurial ventures whose mission was to improve the quality of life of the elderly in aspects such as dementia, hearing disabilities, or for caregivers.

3. Housing

Finally, the topic of housing is very relevant because of the impact it could have on all generations and real state prices. Many elderly people keep their homes throughout their whole lives due to sentimental attachment. But these homes are usually family homes with much more space than needed after the children move out. A report from the International Longevity Centre states that "if everybody lived in homes that were appropriate in size for their needs, it has been estimated that 50,000 fewer homes would have to be built each year" (International Longevity Centre UK, 2022). This reflects the potential of rethinking elderly housing and providing better alternatives that benefit not only them but also society as a whole. The project Aquarius, mentioned in the section Community, could perfectly fit here as well since the community is based on a desirable model of elderly housing.

Another solution that has been put into practice in Milan taps into the concept of intergenerational symbiosis where generations benefit from each other's strengths. This project was named "Prendi a casa uno studente" (to welcome a student at your home). It beautifully combines the student's struggle to find affordable housing in a good location, and the elderly's wish for help and company (Meroni, 2007). Putting existing resources to their best use might well be the most sustainable way of co-living and moving forward in this world.

Another relevant section would be technology, but we elaborate on this in the section called The Future of Ageing.

3.6 The future of ageing

The following paragraphs intend to describe what the future of ageing might look like. Because of the increase in life expectancy, ageing has changed, and it will continue to change in the coming decades. Therefore, ageing could look entirely different from how it looks today (Deloitte, 2019).

First of all, healthcare has developed tremendously over time. The improvements in health technology will decrease the mortality for diseases enormously, so old age will not be associated with body limitations anymore, and citizens will age in the setting they desire (Deloitte, 2019). Consequently, the future of the elderly is described as healthy, active, successful, independent, and responsible (Cozzaa et al., 2019). Senior citizens will remain engaged in society longer, allowing them to work longer and live independently longer (Deloitte, 2019). This will ultimately cause the definitions of work and retirement to become more flexible and open-minded.

In the aforementioned scenario, technology has an important role (Deloitte, 2019; Michel et al, 2019) defined as “Welfare Technology (Digitisation of healthcare and social services)” (Cozzaa et al., 2019). Some examples of Welfare Technology are personal emergency alarms with GPS locators, medicine reminders with alarms, the possibility of receiving notifications from medical staff, and any other solution that helps senior citizens to complete activities that they might find challenging to complete on their own.

Future companies should focus on hiring and maintaining the well-being of senior workers, helping them with proactive planning for their health, work, housing, and social needs (Deloitte, 2019). It is necessary to promote intergenerational collaboration, and age-friendly environments, and acknowledge the value of senior citizens (Cozzaa et al., 2019; Michel et al, 2019).

3.7 The importance of young generations in ageing

As previously stated, Denmark will experience an increase in the age dependency ratios, which will leave the country with a small proportion of the society (the working age population) to contribute to a high cost of pension money, health care expenses, etc. (Andersen, 2012). Additionally, the working-age population in Denmark will not grow in the coming decades (Pedersen, 2000) due to a decrease in the number of working hours, and people choosing to retire earlier, which leaves Denmark at a turning point concerning the availability of labour (Pedersen, 2000). Therefore, we need to rethink the way people perceive age, we need to show society what older generations are capable of. And last but not least, society needs to allow people to stay longer at the workplace. A powerful way of challenging how society perceives older generations is by involving young generations. In the following paragraphs, we will describe why young generations are important for our project.

First of all, we have selected the Millennial generation as our target group because they are currently mature enough to understand the relevance of the topic, young enough to live well into the consequences of the demographic changes, and young enough to apply more flexible and sustainable alternatives for ageing to their own lives. In addition, young generations take a very important role in challenging how society perceives ageing, given that Millennials are a third part of the workforce right now (35%), and in ten years, Millennials will occupy 58% of the workforce. Moreover, Millennials are becoming the majority of managers (Gilchrist, 2019) and thus can lead to social changes.

Overall, if we foster a more positive attitude towards ageing in Millennials, they have the power to alleviate intergenerational tensions. This will result in older generations feeling more welcome and wanting to stay in the workforce longer. Moreover, the UK parliament (2019) highlighted the relevance of young generations having a positive view of their future. By challenging how Millennials perceive older generations, we can facilitate their ability to shape a more positive future.

“We must wake up. The future belongs to future generations, and we must ensure that they are in the driving seat.” - Baines, 2019

Involving young generations might create a strong impact in changing how society perceives older generations. We might reach a short-term impact, which is reducing intergenerational tensions, allowing older workers to remain longer in the workforce, and also a long-term impact, which is allowing young generations to acquire a more positive image of their future selves.

3.8 Problem Statement 1

The demographic changes that the Danish society is experiencing call for a redefinition of concepts like work, retirement, and elderliness; especially if we, Danish residents, strive to keep the current economic prosperity. With an increasingly higher proportion of retirees and an increasingly smaller proportion of citizens of working age, it is not only the welfare system or the pensions that will be affected, but rather the economy in general.

But how might we tip this situation in the right direction? Legislation is reactive: we citizens change and legislation reacts sooner or later. This means that the change towards new ways of ageing must start with us: with our conceptions and our beliefs, our mental models.

Our established mental models, reflected in retirement legislation, define when we retire, and greatly influence when we consider ourselves old and how we age. We believe the current systems are becoming outdated since they don't offer enough degree of flexibility, of choice. Furthermore, they are not even beneficial for our own good. With higher levels of education for each generation leading to more engaging jobs, workers are increasingly choosing to extend their work lives and would do so even more if they were given more varied and better options (OECD, 2015; Andersen, 2023, Appendix A). More and more workers close to retirement age attempt to switch to part-time schedules (DST, 2012).

These reflections lead us to our problem question:

[RQ] What is the impact of an open service design process in changing social and mental models?

... when applied to creating more flexible and sustainable alternatives for ageing?

fulfilling the needs of current generations without compromising the needs of future generations" (Santander Scholarships, 2022)

Here, the concept of sustainability is applied as “fulfilling the needs of current generations without compromising the needs of future generations” (Santander Scholarships, 2022) and thus acknowledges that future generations should be considered of as much importance as our own (Layard, 2019). This topic is gaining relevance in politics, as shown in the UK parliament in 2019 with the motion to take note of future generations’ interests when making policies. Furthermore, the demographic challenges will be emphasised with time: we are only seeing them start now. That is why it is crucial to involve the young generations of today when treating these topics: because they will be the ones dealing with the consequences.

“We need our young people to frame the future narrative and not just inherit the past.” - Baines, 2019

Reflections on the problem question

In the problem question, it is clear that the project was still in the early phases of exploration as the topic is still quite unconstrained. For example, there is no specific context in which the alternatives are to be created, and the concept of “ageing” is not clearly defined as we are all ageing continuously.

However, we considered this frame appropriate for the stage the project was in since we still had plenty to learn about the problem context. This broad start gave us the chance to develop our skills in dealing with complexity and to apply reframing in a highly interrelated problem situation.

4
Methodology

Design process framework
Project management

4.1 Design process framework

In this section, we will describe the design framework that is gonna be used in this thesis. Firstly, we will present how this framework emerged, and why we decided to apply it in this project, and finally, we will describe each phase.

This framework emerged in 2022 when a group of five Service System Design students, of which the three of us were part, embarked on a community-building project carried out in collaboration with Kulturdistriktet (KD). KD is a company based in Denmark that aims to bring culture and community to two neighbourhoods: Østerbro and Nordhavn.

After conducting the literature review for that project, it was concluded that existing design frameworks could not cope with the complexity of the semester brief. Projects that belong to the third and fourth order of design cannot be addressed by Design Thinking methods (Buchanan, 2001) since designers need different methods in order to solve social problems (Hillgren et al., 2011). Moreover, social projects often involve citizens - a practice that is very common in the Danish public sector (Hillgren et al., 2011; Light & Meroni, 2007; Munthe-Kaas, 2015; Munthe-Kaas & Hoffmann, 2017). In addition, Design Thinking and Double Diamond have the disadvantage of being linear, therefore, they do not contribute to recursivity, which is particularly relevant in open processes where the interaction of various stakeholders and the creation of mutually acceptable solutions are crucial to the design action (Dorst, 2015). As a result of the literature review and reflections, a new framework emerged that proposed a combination of an open design process, co-design, and recursivity.

This framework has been described and exemplified in an academic article that will be published during the conference ServDes 2023. The article is named *Staging, co-creating and reframing: a framework to map a community-based project* (Morelli et al., to be published in 2023) and is the first published source where the framework is described. The authors are six, among them the authors of this thesis. The article will be officially published in July 2023, after the hand-in of this thesis.

Description of the phases

The framework (Figure 9) has the purpose of structuring an open design process where a group of actors collaborates simultaneously to solve a design problem. The framework consists of five phases: 1. Preliminary research, 2. Staging, 3. Co-creating and Co-learning, 4. Reframing, and 5. Delivery. Phases 2, 3, and 4 are part of a loop that can be repeated as many times as needed according to the nature and the needs of the project (Morelli et al., to be published in 2023). The following section draws from the article (Morelli et al., to be published in 2023) and contributes some additional thoughts.

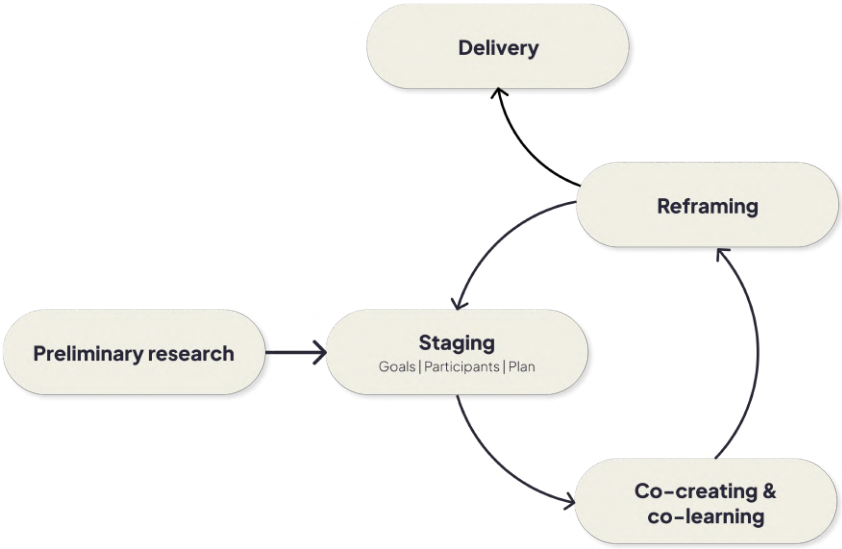


Figure 9. The framework “Staging, co-creating & co-learning, and reframing” (extracted from Morelli et al., to be published 2023).

Preliminary research

This phase was inspired by the initial stage of existing design methods like Double Diamond (Design Council, 2023) and Design Thinking (IDEO, 2012). Preliminary research has the purpose of exploring the topic from different perspectives, providing a solid understanding of the problems, challenges, and context in which the actors interact. The usual methods conducted in this phase are primary and secondary research e.g. desktop research, autoethnography, and interviews.

Staging

Once the preliminary research is ready, the first phase of the loop starts and is called Staging which aims to:

1. set the goals, scope, and desired outcome of the Co-creating and co-learning sessions,
2. gather relevant actors, ideally lead users, those that are willing to share their knowledge with designers and other actors. Moreover, lead users are distinguished by their enthusiasm and expertise for the project they are helping to co-design (Brandt, 2006; Sanders & Stappers, 2008).

Co-creating and co-learning

This phase focuses on co-design sessions with users. Some authors call this stage facilitating (Pedersen, 2020). However, it was decided to call it Co-creating and co-learning (Light & Seravalli, 2019) because the designer intends not only to facilitate but also participate in the sessions.

The sessions include boundary objects that usually trigger creative thinking and conversation (Pedersen, 2020). These elements can be images, magazines,

textures, etc. Moreover, it is important to arrange certain elements that might be relevant to the sessions like the venue, furniture, recording devices, writing elements and time slots. Another aspect to consider is to assign facilitators that guide and document the sessions.

Reframing

This phase has three main goals. Firstly, to analyse the Co-creating and co-learning insights. Some examples of analysis methods are colour coding and meaning condensation (Bjørner, 2015). Secondly, the insights will be used to reframe the problem (Pedersen, 2020). Therefore, it would turn out more updated to the current state of the project and adapt to the knowledge acquired through the co-design interactions. Finally, Reframing includes creating new ideas for the solution based on the updated problematic question (Dorst & Cross, 2001). It is relevant to mention that the Reframing phase might present different outcomes depending on the number of loops carried out along the project.

Delivery

The purpose of this phase is to materialise the solution and finalise it for end users. This phase might result in anything from a concept to a finished product or service. It is important to notice that the Delivery phase might be relevant when the project is carried out for a client for example in a design studio, so the solution would be handed over. In other cases, the Delivery phase would not exist and the solution would take place in the Reframing phase, because it would be temporary and improved in future iterations as is common in open design processes.

4.2 Project management

This section describes how the design team managed themselves during the development of the project. The concept of roles, the software used, and the overall thesis plan will be introduced.

Roles

In order to coordinate responsibilities among the members of the group, we have created three different roles: The Notebook Addict, the Report Hero, and the Good Luck.

Notebook Addict

Her responsibilities are mainly about keeping track of the design team's design activities. She takes notes during meetings, makes sure that we do not lose focus during these, and communicates with the users or other stakeholders via email. Additionally, every once in a while this role organises a “Snack meeting”, a meeting in which we reflect on a more personal level on how we are feeling as a team. Everyone can share their perspective and we all make a plan to improve the team dynamics.

Report Hero

Because the report has been written parallelly to the realisation of the design activities, the tasks of this role revolved around managing writing tasks. She had to coordinate the sections that needed to be written, by whom, and when, and assign a day to give each other feedback.

Good Luck

This role is named “Good Luck” because it had bigger amount of tasks and responsibilities than the other two roles. Some of her tasks are sending emails, scheduling and creating agendas before meetings, checking that we are right on track with the plan and deadlines, and creating and assigning tasks.

The software: Notion

Notion (2023) is a note-taking app that allows teams to collaborate on a white canvas. You can categorise notes and files, create tables, and lists, assign tasks, and other features that enable us as designers to keep the design process documents very organised.

Thesis plan

To keep track of the progress of the project and ensure that we were on time, we planned the design activities in a Google Sheets file. Following the logic of our framework, we divided the whole semester into different phases of framework: February for Preliminary research, then a sequence of 4 loops during March, April, and the beginning of May, and finally delivery phase during May.

Each phase is represented with a different colour. The darker shade means that is a weekend day, and the white colour means that we are not meeting on that day (see Figure 10).

This approach helped us enormously to plan the scope of the project and what was feasible to do in the time frame. It was an ongoing process of modifying and re-planning what was possible as the project developed.

	A	B	C	D
1		Snack meeting 🍪 / Changes to article		
2				
3		MEETING ARTICLE		Possible testing sessions
4			Change role	Possible testing sessions + Nicola
5				(Potentially) Testing sessions
6				Reframing loop 4 (finish solution)
7		LITERATURE REVIEW 🎓	Planning Loops, doing SSD tools, add in report	Reframing loop 4 (finish solution)
8		DDC MEETING 🔥		
9				change role
10			LOOP 3 - Staging (full day)	DELIVERY - Write loop 4
11		Loop 2 is 100% ready / Snack meeting 🍪	change role	SOLUTION IS FINISHED
12		LOOP 2 START & Deadline for writing tasks	Staging (full day) DEADLINE FOR READING ARTICLES	
13		White = we are not doing thesis		Write reflections
14	PRELIMINARY RESEARCH	change role // Interview with Jorgen		Write reflections
15		Prepare and carry out interviews (Ingen)	Finish staging	
16		Analyse insights from interviews	Writing week starts	
17			Write // Deadline for old participants - Anders and Nicola supervisions	
18	Literature check in	Analyzing surveys + planning workshops	Write	Finish all report content
19	Meeting about report structure		Write	Format report
20		Analyse insights from target group (survey + interview)	Write	Format report
21	Meeting about article funding		WORKSHOP DESIGNIT	Format report
22	DDC MEETING 🔥			BUFFER
23	Write in report	Finish insight analysis & do brainstorming about how to make the outcome		
24	Write in report		WORKSHOP Mærsk - deadline right comments	
25	NARROW DOWN PROJECT	Brainstorming: how are we gonna use the insights? + reframing	change role	HAND IN :D
26	LOOP 1 / REPORT WRITING		Deadline new sections	
27			Display insights + reframe workshops	
28	change role	Read the report and leave feedback	FINISH REFRAMING LOOP 3	

Figure 10. Screenshot of our Thesis plan from Google Sheets.

Reflection on methodology and project management

Maintaining a structured framework is crucial when your project depends on working with outside parties and when there's a deadline involved. These two factors make it necessary for us to have a clear and organised approach to keeping track of our progress. Having this structured framework becomes a requirement to ensure that we stay on schedule and achieve our goals within the specified time. Also, spreading different roles among the team members creates clear responsibilities and peace of mind, knowing that someone is taking care of those specific tasks.

5
Case Study

Loop 1: Mapping mental models - Expert interviews

Loop 2: Mapping mental models - The Millennials

Reframing loops 1 & 2

Loop 3: Intergenerational collaboration

Loop 4: IGC - Testing the solution

Delivery

Loop 1 Mapping mental models - Expert interviews and focus group

The following section describes the first design iteration. In this loop, we focus on situating the problem in the Danish system. We ask for the opinion of experts in four different areas of expertise: welfare system, pension system, retirement, and ageism.

The section is divided into the 3 main design phases that each loop goes through: Staging, Co-creating and co-learning, and Reframing.

Staging: Research the areas of expertise we needed insights from, and prepare the specific questions and exercises for each interview.

Co-creating and co-learning: Four in-depth interviews to map the mainstreams of Danish society.

Reframing: Analysis of the interviews and exercises, and plan for the next loop.

It is worth mentioning that we do an important exercise of Reframing after the first two loops, where we consider all insights from loops 1, 2, and from the literature review to reformulate the problems of this project. It is at that moment that the insights from this loop are activated.

Staging

Interview Methodology

After conducting secondary research throughout our literature review and problem exploration, we were excited to gain first-hand knowledge from experts in related fields and to situate the project more specifically in Denmark. The project topic is embedded in a complex system that coincides with the job market, the pension system, social stereotypes, policies and social structures. Therefore, expert interviews are a method that allows for gathering plenty of trustworthy and high-quality information effectively.

What is an expert interview?

An expert interview is a modality of an in-depth interview where the interviewee has expertise in a topic related to the project. In this case, we refer to the traditional concept of expert where the expert is professionally recognised in their field of expertise. This clarification becomes relevant since the concept of expert has been recently extended to someone who has personal experience with a product or service, or someone interested in a topic (Bogner et al., 2009, p. 18-24).

a. Advantages and risks

As mentioned, expert interviews are an efficient way of learning a lot of information from a recognised source. However, they are also time-consuming (Bjørner, 2015) and the researcher must always take into account both the educational and professional background and the personal perspective of the interviewee since the information will be inevitably coloured by these factors.

b. Semi-structured interview method

The chosen method was a semi-structured interview, where the researcher has an interview guide but the questions can be reordered and rephrased depending on the interviewee's answers or other factors (Bjørner, 2015). This allowed us, the project team, to add follow-up questions where needed, to share our own perspectives if relevant, and to omit the questions that had been naturally answered as part of other questions or that suddenly became irrelevant. We aimed for the interviews to be slightly improvised and in that way resemble a conversation so that the interviewee might feel more comfortable answering openly.

The interview guide consisted mainly of:

- Introductory questions to get to know the expert more personally.
- Indirect questions about the topics of expertise that were relevant to the project. This type of question is an invitation to provide a longer answer (Bjørner, 2015)
- Structuring questions that we used both to guide the interviewee through our plan and to drive the conversation back to a topic of interest if it deviated from one.
- Follow-up questions that we added where needed.

How did we pick the experts?

We selected the experts based on our need to get different points of view to achieve a holistic understanding of the problem. Two of the experts we got in touch with through our collaboration with the DDC, while the other two we found ourselves through research. The following table shows the experts' varied approaches (Table 1).

	Professional role	Perspective
Gitte Jonsdatter	Service designer at a pension company. Expertise in the functionality of the pension system and in users' worries and priorities throughout their lives.	Knowledge about personal worries and motivations.
Therese Bay-Smidt	Sociologist and Ph.D. Researcher about withdrawal from the labour market through observational register data.	Observational data about why people stop working.
Jørgen Goul Andersen	Professor at Aalborg University in the Faculty of Humanities and Social Sciences. Expert in the welfare state.	Systemic perspective. Pension as part of a larger system.
Ingun Bol	Social activist founder of movements to counteract ageist stereotypes and to encourage the 50+ to live better lives.	Hands-on social activism. How to act.

Table 1. Summary of the experts' profiles.

What might be some missing perspectives?

It would have been interesting to interview an expert from within the public pension system to understand its inner workings. This perspective we have only gotten from the outside (from the private side).

The interview itself

Interview parts

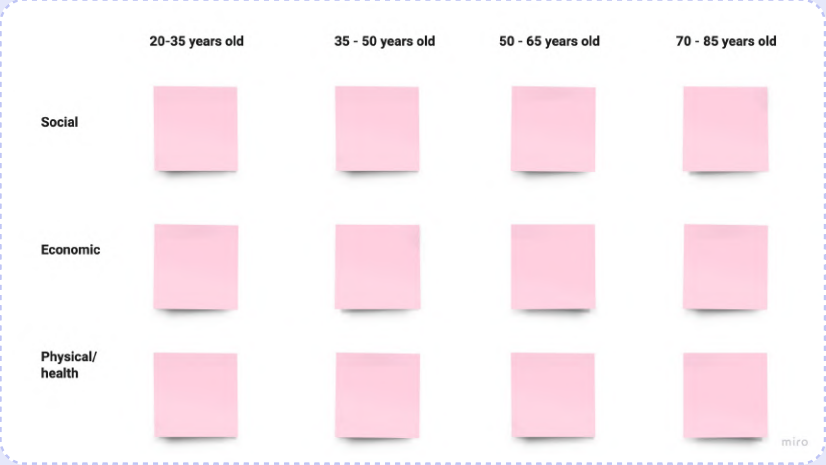
We prepared each interview individually. Although some parts of the guide, like the introduction for example, were the same for all interviews, the main questions varied depending on the interviewee's field of expertise. Therefore, we prepared 3 main questions for each interviewee, each of them with subquestions. We shared the main questions with them before the interview so that they knew what to expect. At the end of each session, we carried out an exercise in Miro. The next graphic explains the goal, instructions and results of the exercise (Figure 11).

Interview exercise

Goal
To start building an understanding based on the experts' knowledge. To have a format to contrast the replies from the different interviewees.

Instructions
Fill in the template by writing the main ideas, attitudes or activities that are in fact shared by most people in each group. We expressed this as the "mainstream".

The interviewees chose how to fill it in: where to start and which groups to leave blank. We made it clear that they did not have to fill in every cell.



Respondents
We conducted this exercise with every respondent except for Jørgen, since this exercise was not so aligned with his field of expertise.

For his interview we designed an empty stakeholder map with the citizen in the middle and institutional levels around him in concentric circles. We filled it in together.

Figure 11. Interview exercise description.

The exercise worked differently for each expert. The insights will be explained in the section Reframing.

Interview modality
All four interviews were conducted online because of time efficiency and easiness of coordination. This decision was taken mainly for the interviewees' convenience since it also poses some disadvantages e.g. technical problems, technical discomfort of participants, and less spontaneity as there are fewer chances to establish a personal connection. Furthermore, attitude polarisation is something to be aware of during online interviews. This type of polarisation means that the interviewee expresses more radical opinions than they would offline (Bjørner, 2015). However, since our questions were mainly focused on objective matters that the interviewees had researched, we did not notice this too much. We took turns within the design group facilitating the interviews since it was a very valuable experience for us to learn, but we were all present.

Reflections on interview methodology

We found it really helpful to share our questions with the experts before conducting interviews. It was a charming surprise that most of the experts responded quickly and showed genuine interest in collaborating, which was beyond what we expected.

While expert interviews can take up a lot of time, they actually saved us a great amount of time overall. The experts have all the knowledge that would otherwise take a long time to gather through other methods. So, even though they require a significant time investment, the interviews helped us gain valuable insights efficiently.

It would be nice to give something back to the experts or to find experts who are also lead users, like Gitte, who showed interest in our project. Engaging such experts creates a mutually beneficial relationship.

During the process, one expert expressed nervousness about not having the right expertise for our topic. It's important to be specific when requesting an interview and carefully consider the most relevant topics related to both the expert's field and our project. Although we did an overall good job preparing the interviews, there were times when we refined our approach after reaching out to the experts.

Co-creating & co-learning

Service Designer

Gitte Jonsdatter

Her expertise lies in utilizing design thinking and business anthropology techniques to assist teams in crafting services and products that prioritize creating value for individuals.

Gitte works as a Service Designer in a pension company, and her expertise is focused on utilising Design Thinking and business anthropology techniques to create value for the pension's clients.

Business anthropology, user centred design, user research, design thinking, design sprints, facilitation.

Main questions

Do you think that the current pension system needs any changes? What are the main positive and negative aspects about the pension system today?

In which way do you think having a fixed retirement age influences people into taking certain life decisions?

You said people don't wanna think about their pension before they're close to retirement age... What are some reasons for that?

Key insights

*"I think that **there's something really unfortunate about the word pension and retirement**, for a lot of people seems like it's far off in the future and it has an association with being able and not being able to do things."*

*"Any innovation is always focused on the people who are making payments. It's because they're basically the source of income, but the **pensioners are seen as a cost.**"*

*"Where do you want to implement change when you say mental models? Because it's a pretty complex question of both people's attitudes towards retirement and towards the workforce, but also **employers attitudes towards people ageing**, which is the other side of the coin."*

We have summarised the interview insights in Figures 12 to 15.

Gitte Jonsdatter's interview transcript can be found in Appendix D. Therese Bay-Smidt's interview transcript can be found in Appendix E.

Sociologist

Therese Bay-Smidt

In her Ph.D.-project, she investigates how social relations as family and colleagues affect decisions about retirement and labour market participation in the last part of working life. She works with register and survey data and applies statistical and econometric methods.

Sociology, academic, individual social context

Main questions

What are the main reasons why people stop working?

What are the challenges that people face when leaving the labour market?

How could we create a softer transition from working life to retirement?

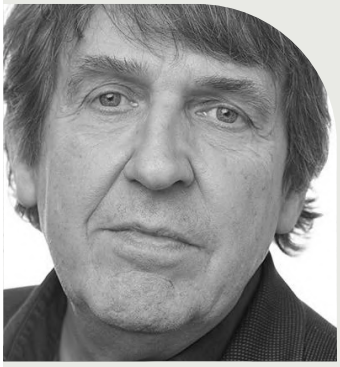
Key insights

*"If we could create a more flexible and thereby **more sustainable working life over the whole life course**, it may be easier for people to keep working up until older ages."*

*"Your family and your **social circumstances actually might also matter for this** and even be more important than how much money you could have earned and sort of those concerns."*

*"**What does parenthood mean over the whole life course?** Could it be that women actually catch up on that penalty later in their working life?"*

Figures 12 and 13. Visualisation of interview insights from Gitte Jonsdatter and Therese Bay-Smidt.



Professor

Jørgen Goul Andersen

Professor at Aalborg University at the Institute for Politics and Society and at the Faculty of Humanities and Social Sciences. Academic researcher with over 447 publications. His key topics of work are: labour and the labour market, the public sector, democracy and the welfare state.

Academic, social sciences, welfare state, labour market

Main questions

The age dependency ratios in DK in 2050 will be 42%. In which ways do you think the welfare system would have to cope with this problem?

What are the main challenges that young generations face within the current pension system?

Expanding productive life / delaying retirement age: beneficial or damaging?

Key insights

*"There is nothing that influences people's quality of life as much as having **influence on your job**. It is extremely correlated with everything."*

*"Basically in Denmark it (the pension system) is not a financial problem. **You have a problem with sufficient labour power.**"*

*"If you can offer them (65+ people) **relatively flexible conditions and perhaps shorter hours**, then you can include very many of these people. And it is good!"*

Jørgen G. Andersen's interview transcript can be found in Appendix A. Ingun Bol's interview transcript can be found in Appendix C.

Social Activist

Ingun Bol

Ingun has created the Wise Move Society, which aims to empower 50+ people. She promotes healthy ageing by offering entrepreneur courses and motivational talks where the 50+ become more resilient and positive. They reinvent themselves and prepare for the next stage of their lives.

Longevity economy, ageing, ageism, senior entrepreneurship, experience entrepreneurship, healthy ageing, active ageing, multi generational workforce, intergeneration

Main questions

What is the impact reached with Wize Move Society so far? Have you noticed any change on members' lives?

What do you think are the main stereotypes about ageing nowadays? Are they changing?

In your opinion: What are the best ways of challenging current stereotypes of ageing? How can we overcome ageism?

How could we create a softer transition from working life to retirement?

Key insights

***"Change starts with us.** [...] We have to start changing our mindset, our behaviour. And if it doesn't start here, government can change whatever they want, but it's not going to change if we don't change... We need to rethink retirement."*

***"The 50+ generation needs to transition**, they need to change, they need to move into that new phase of their life. [...] What's your next step? What are the skills that you need? Is there knowledge that you need? What are you going to learn?"*

*"There's a lot of research going on, there's study over study, but there's not so much action. And with Wise Move Society, we really want to **be very practical and giving them the opportunity to evolve, to grow again."***

Figures 14 and 15. Visualisation of interview insights from Jørgen G. Andersen and Ingun Bol.

Reframing

Interview Analysis

For the analysis of the 5 expert interviews, we decided to try a software called Dovetail (Customer Insights Platform - Dovetail, n.d.) - a tool to plan, execute and analyse qualitative research. With Dovetail, you can upload the video or audio of your interview and it will transcribe the audio and sync it with the audio file. Also in this platform, you can analyse the data using colour coding techniques and clustering the insights as explained further in the next paragraphs. We believed that this tool could facilitate the process of coding and identifying patterns from the data.

Colour coding

Colour coding (Bjørner, 2015) is an analysis method used to visually categorise and organise information. It involves assigning different colours to specific data or information, making it easier to differentiate between different elements of a document, chart, or graphic. By using colour coding, designers can quickly identify patterns and relationships within the data, making it easier to understand and interpret complex information.

Each of the colours represent a family of tags (see Figure 16). A tag is a word that represents what the interviewee said during the interview. For example, a family of tags could be an “emotional response towards retirement” which is set by the colour red. Then its tags could be for example excitement, worry, anxiety, or boredom.

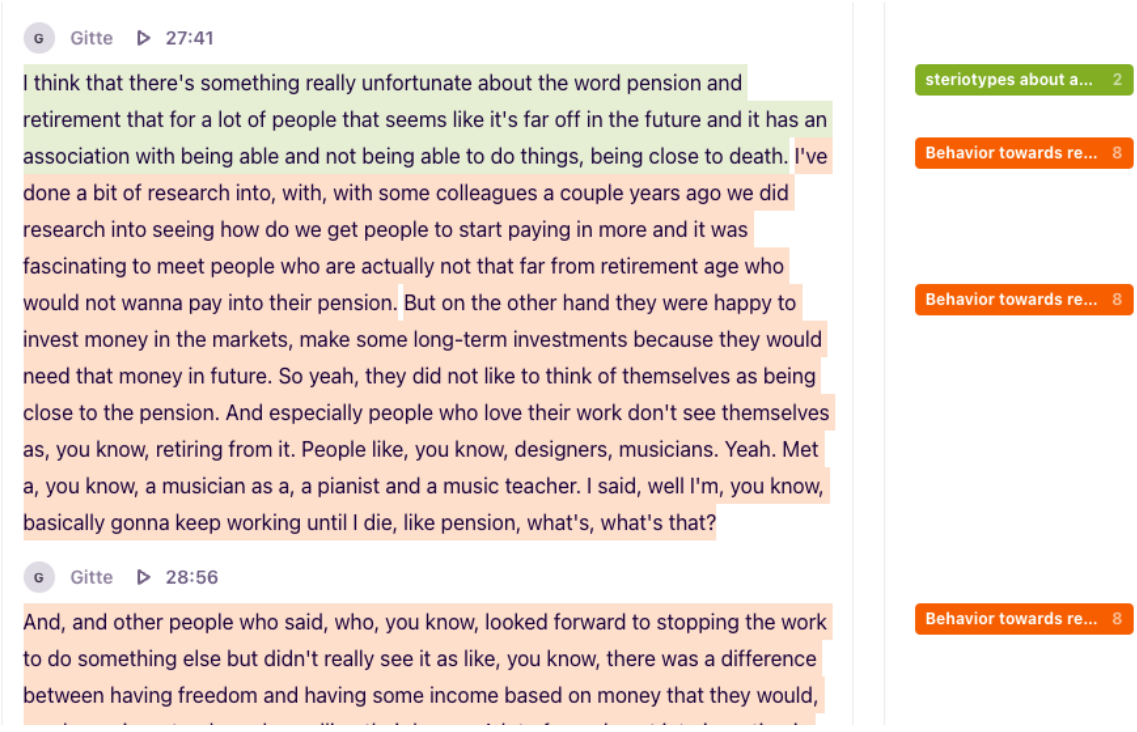


Figure 16. Screenshot of Dovetail from the analysis of one of the expert interviews.

Tags

We defined the categories that we would codify the transcript with, based on the topics that were discussed during the interview. There are two ways of defining the tags: deductively and inductively (Chandra & Shang, 2019). Deductive tags mean that the tags can already be defined before carrying out the interviews, whilst inductive means that the content of the interview suggests the kind of tags needed for the analysis. In this case, we defined the categories inductively, since defining them a priori does not adapt to the variety of the insights. We identified four main categories (see Figure 17):

- **Useful information:** Data that relates to our literature review such as terminology, references, how the pension system works, etc.
- **Behaviours:** Descriptions of attitude towards retirement.
- **Challenges:** Obstacles that we might have to deal with to provide a good solution such as relevant actors, risks, worries, and economic factors.
- **Opportunities:** Facts that benefit the situation and we should take advantage of such as existing good attitudes and habits, planned pension reforms, initiatives from employers, etc.

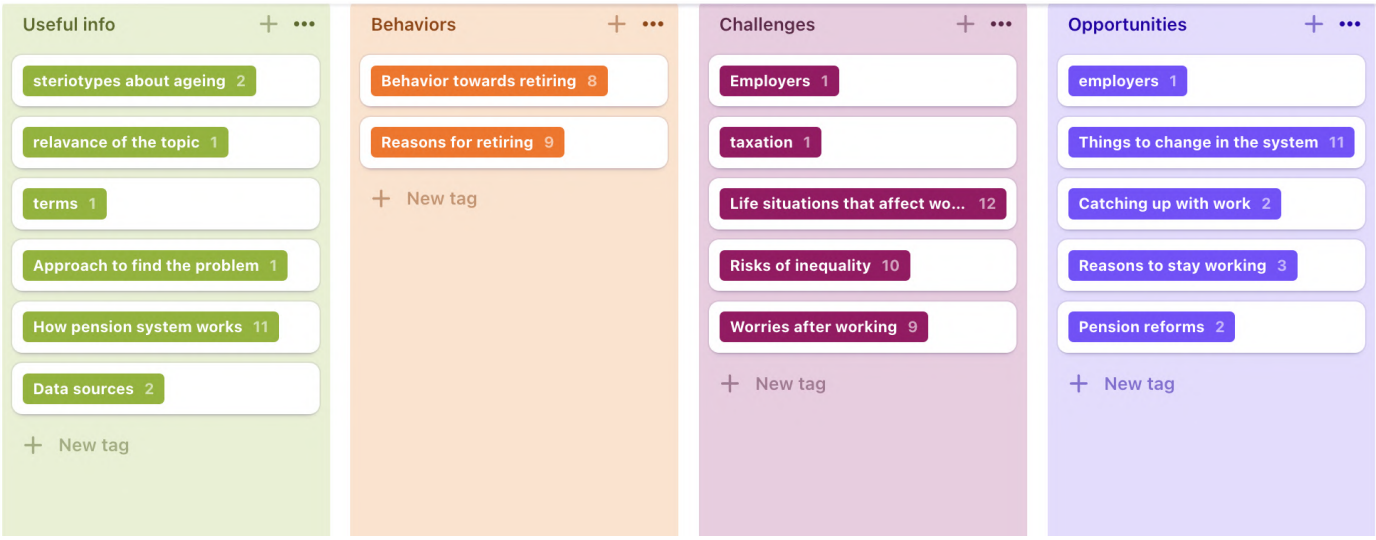


Figure 17. Tags used in Dovetail to analyse the expert interviews.

Systematic text condensation

The method of Systematic Text Condensation (Malterud, 2012) refers to the extraction of the meaning of a set of data. Our approach consisted in rephrasing heavy and long sets of data into short and to-the-point sentences that described the meaning of it. This method allowed us to extract insights and identify patterns easier (see Figure 18 for an example).

Figure 18. Example of a cluster of quotes, and a descriptive sentence.

The reframing of the insights from this qualitative method is being processed together with the insights from a survey which are presented in the next section. The reframing section is called “Reframing loops 1 & 2”.

Reflections on interview analysis

Dovetail was a great tool for our project because it gave us a lot of flexibility in how we organised our information. We could easily create, change, delete, and add multiple tags to each piece of information. This made our coding process more accurate because we didn't have to struggle with deciding where something belonged. We could simply add or change tags as needed.

When it came to analysing the interviews, it was helpful that each of us focused on one interview. This saved us time and allowed us to go into more detail for each interview.

The visual grouping of insights on the Dovetail canvas made it really easy to understand the main topics of each interview. As designers, we often understand things better when we can see them visually, and Dovetail did a great job in that aspect.

Staging the Wize Move Society coffee meeting

In Loop number 1, we interviewed Ingun Bol, the founder of the Wize Move Society and a passionate social activist. We asked if we could attend one of their meetings, and she kindly invited us to join one of their weekly coffee get-togethers. These meetings provide an opportunity for society members to catch up on their projects and share updates.

What is the Wize Move Society?

The Wize Move Society is a welcoming online community funded in 2020, where people all over the world who are over 50 years old can come together to share their experiences with others of the same age (Move in2 the Future, 2023). It's a safe space where they can plan for their upcoming life stage and get ready for what lies ahead.

The questions

For this group conversation, we prepared a set of questions for the group:

- How has Wize Move Society impacted your life?
- How could we create a softer transition from working to retirement?
- What are the best ways of challenging current stereotypes around ageing?
- If you could re-live your life again: Is there anything you would change?

The coffee meeting

The meeting went on for approximately 50 minutes. During that time, we had the chance to talk to several women who are part of the society. Each person introduced themselves, sharing their background and the reasons why they joined this community.

We engaged in conversations about various topics, including how they perceive their age and the concept of being old. We delved into discussions about the stereotypes commonly associated with older individuals, ageism, the importance of intergenerational friendships, and the significant role senior women play in society.

“The time that we can come together and we can be our true, authentic selves has made such a big difference where we can talk about anything and everything. And getting perspectives from people all over the world is just amazing.” - Wize Move Society member

“I think a lot of people forget ageism is the next ism which we need to battle.” - Wize Move Society Member

“I have a next-door neighbour who just turned 34 or 35, and we go for a walk every day, most days. And we have a great friendship. And I found it quite lovely that she doesn't think of me as 70. She just thinks of me as a nice lady who lives next door and we go for a walk and we have great talks. That is encouraging, and that is inspiring to be able to be with somebody. And she's, you know - our age doesn't matter with our friendship.” - Wize Move Society member

”We need more relationships of all different ages. You know, I learned so much from my 24-year-old son. I mean, he has taught me so much knowledge and different things.” - Wize Move Society member

”We can have a diverse workforce, but it's not going to be performing any better if people don't feel that they belong, that they have the psychological safety to be part of the conversations, to be part of the decisions.” - Wize Move Society member

How did this impact our project?

This conversation piqued our curiosity about intergenerational dynamics and highlighted the incredible value of the exchange of knowledge and experiences across different age groups. It was inspiring to witness how generations can learn from one another and find joy in spending time together, regardless of age.

Moreover, we were pleased to confirm the relevance of this topic in today's society. The members of the Society expressed enthusiasm that young students like us were researching such an important subject. Their excitement further reinforced our belief in the significance of bridging generational gaps and fostering meaningful connections between people of all ages.

In the upcoming section, we will explore the topic of age-related stereotypes and examine how the younger generation perceives other age groups. We will delve deeper into understanding the stereotypes associated with ageing and gain insights into the perspectives of the current youth towards different generations.

General reflections on Loop 1

This loop could be theoretically considered “Preliminary research” rather than being a loop in itself. The main reason is that the people who contributed to this phase acted as knowledge providers rather than co-creators. The primary focus was not intentionally involving the target user, but rather gathering knowledge from different experts. However, this part of the project goes through all three phases of the framework and thus we decided to consider it a loop.

The expert interviews proved to be highly successful due to the implementation of well-crafted questions and a clear methodological approach. Thanks to this qualitative method, we were able to extract valuable insights directly from the data collected from the conversations.

In conclusion, the participants in this loop acted as knowledge providers instead of co-creators but positively informed the design process playing a very important role in our research.

Loop 2
Mapping mental models - Millennials

The following section describes the second design iteration. In this loop, we gather insight from our target group - Millennials - for the first time. We prepare a survey to unveil their mental models about life stages and social roles and analyse the insights from it.

Staging: set the goals for the survey, decide on the questions and create it on Google Forms.

Co-creating and co-learning: sharing the survey and gathering responses.

Reframing: analysis of the survey insights.

After loop 2, we carry out a session of Reframing where all the insights gathered until then (loop 1, 2, and literature review) come together and are applied to reformulate the problem of the project. It is then that the insights from loop 2 are activated.

Staging

Staging the survey

Goal
By the time we finished carrying out the expert interviews, we wanted to understand the mental models of Millennials regarding ageing and life stages. With this ambition, we created a survey that we distributed through our personal, educational, and professional networks.

We chose to carry out a qualitative survey because our goal was to uncover mental models and for this purpose, we thought best a method where people could feel protected by their screen and by anonymity and express themselves truly, without the pressure of avoiding stereotypes or being politically correct.

Survey structure
The survey consisted of two main parts preceded by an introduction and followed by a good-bye page. The focus of the survey was twofold, thus the two parts.

Introduction
The survey's introduction consisted of a brief explanation of the project, the survey topic, and the length of the survey. There were two initial questions as well, asking gender and age since we wanted to have the possibility of understanding whether replies varied based on these factors.

First part
The expert interview insights hinted at the fact that our life stages are heavily dependent on our working lives and that these in turn tend to be long, constant, and not adaptive to our personal life circumstances.

We wanted to tap into this topic with a key factor for our project: Millennials in Denmark. Therefore, in the first part of the survey (see Figure 19), the questions focus on this generation's perspective on life stages. The goal was to figure out whether the stages we imagine for our lives are from a young age determined by shared mental models.

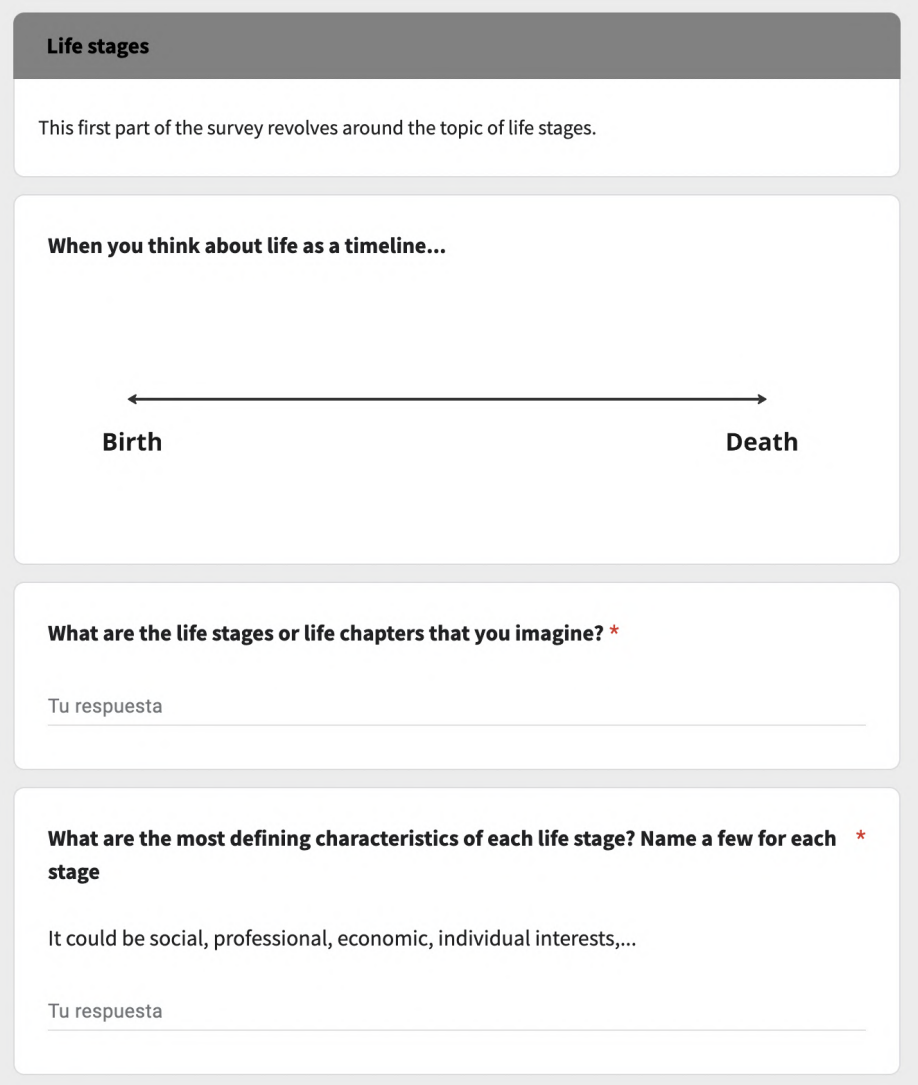


Figure 19. Screenshot of the first part of the survey

Second part
The second part of the survey (see Figure 20) focused on uncovering age-related mental models. We used an analogy-based format to understand the characteristics that we assume of people based on their age. The survey asked the respondents to say which animal they associated with someone 20, 45, and 67 years old. Then, for each animal, the respondents were asked to enumerate the three main reasons behind their choice.

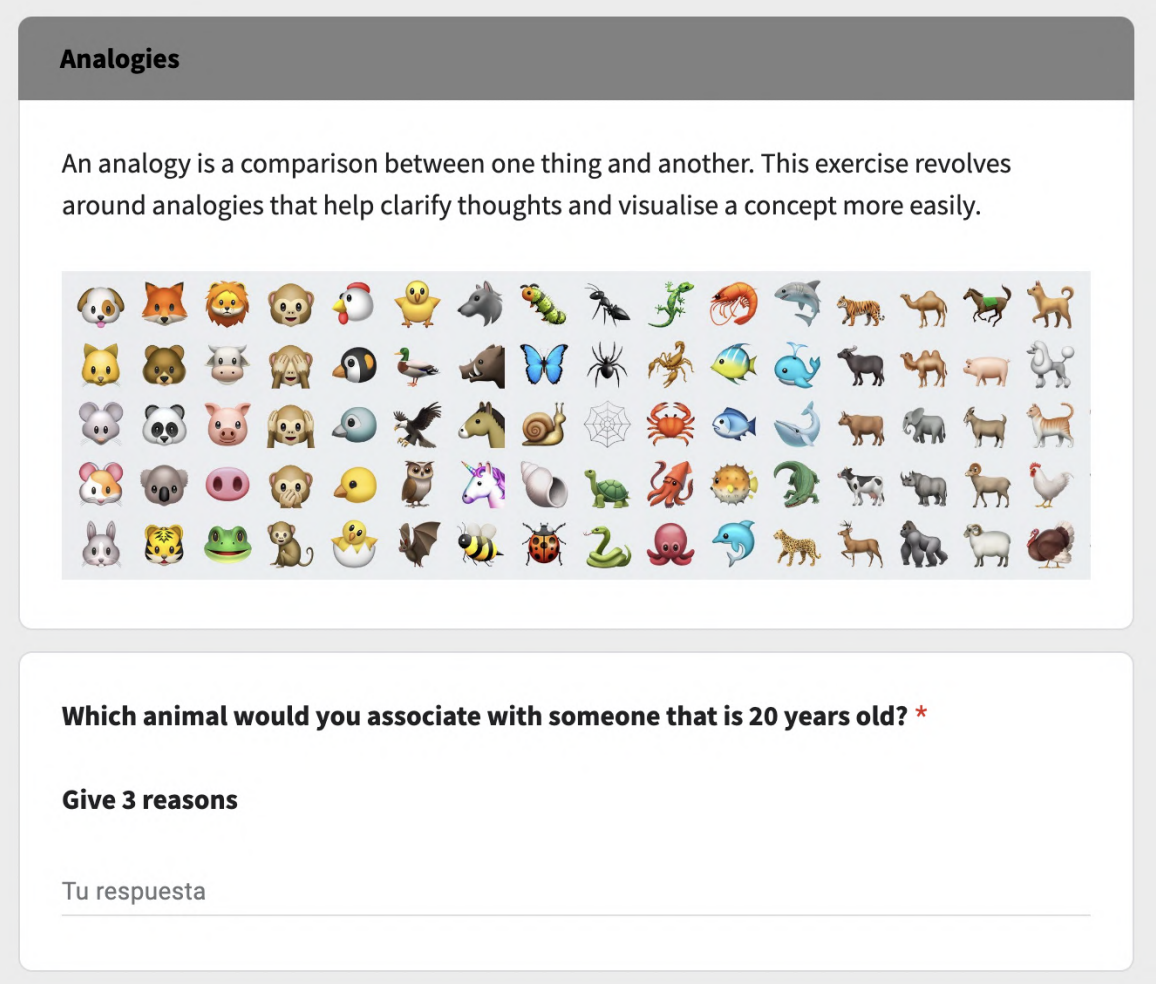


Figure 20. Screenshot from the second part of the survey.

Outro
On the last page of our survey, we asked for respondents' emails in an attempt to identify lead users who would be willing to take part in the project further on.

Co-creating & co-learning

The Survey

We shared the survey within our network on LinkedIn and Facebook pages of design communities and international workers in Denmark. Also, we shared it with friends and colleagues from the same studies. This approach was very successful because it allowed us to reach the target group we were aiming for in a very short time.

The survey was open for participation for 3 days. During these, we collected a total of 48 responses, and from those, 16 shared their email address to be contacted in further stages of the project.

Reflections on the survey

The survey evoked mixed responses from the participants, as some respondents found it challenging, while others expressed enjoyment in completing it. We understand that certain participants felt the survey was too open-ended in nature. However, it was a deliberate decision on our part to maintain a neutral and open approach while attempting to uncover mental models. We wanted to create an environment where respondents could freely express their thoughts. By allowing some ambiguity in the survey questions, we aimed to encourage participants to provide insightful and diverse perspectives, which would ultimately contribute to a richer understanding of the subject matter.

Reframing

Survey analysis

After 72 hours of collecting responses, we decided to close the survey and download all the answers. Since the survey was divided into two very differentiated exercises, we analysed each exercise using a different approach.

First exercise: life trajectory

As mentioned in the previous section, we asked the participants to name the life stages a person goes through from birth to death, and a short definition of each stage. From this, we obtained two types of long-written answers: one with an enumeration of the different life stages, and one with a description of each of the phases.

To analyse all answers, we first downloaded the responses as a CSV file (see Table 2). We quickly realised how hard it would be to get insights in this format, so we decided to, between two of the designers, represent the life trajectories in Miro using post-its to visually identify patterns and gaps (see Figure 21). The patterns showed a series of “mainstream life phases” that the respondents repeated very often, and we colour-coded the post-its based on these patterns. Next to each stage, you can read the description that is associated with it (in pink).

What are the life stages or life chapters that you imagine?	**What are the most defining characteristics of each life stage? Name a few for each stage** **It could be social, professional, economic, individual interests,...**
being a baby (not remembering, but still perceiving), being a child, being a teenager, being a student, adulthood, being a pensionist	stage of consciousness, character development, professional
birth, baby 0-2, child 2-10, teenager 10-16, youth-18-25, adulthood 25-35, grown up 35-65, ager 65+	education, school system until 25-30, career and relationship status, peer relationship (becoming an uncle, a mentor, an expert, ...), career status (studying, working, retired)
In accordance with my western European tradition, I think of life stages like the ancient greek thought temperaments - in four stages: sanguine (childhood), choleric (adolescents), melancholic (adulthood) phlegmatic (old age),	Childhood = finding out I'm not the centre of the universe Adolescents = finding out who I am in this universe Adulthood = fighting my way to the place I want in the universe Old age = settling with my place in the universe

Table 2. Screenshot of the CSV file with three answers from the survey.

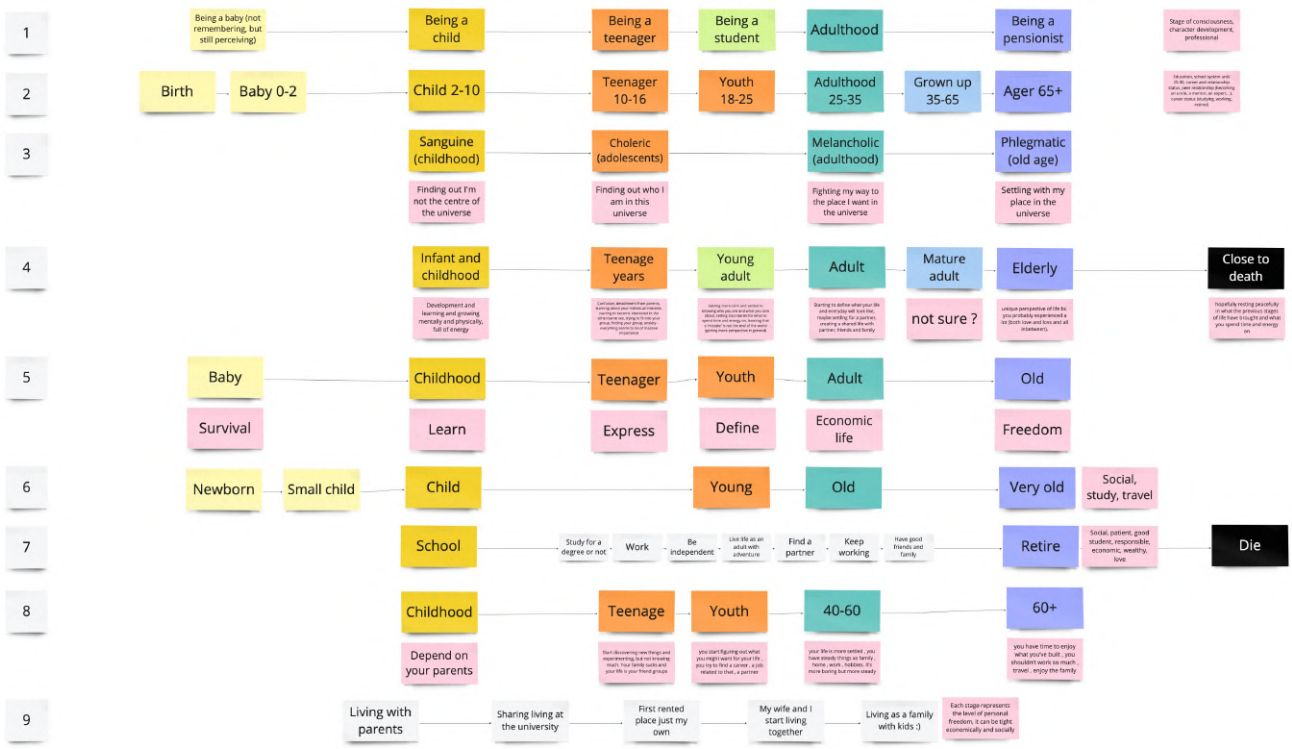


Figure 21. Screenshot of a Miro board with the answers to the survey.

Results

We noticed some clear patterns in the answers. Another thing we observed was that since the people who responded were Millennials, they gave a lot of detailed information about the earlier stages of their lives. However, when it came to the later stages, they didn't provide as much detail and their descriptions were simple and often negative. Additionally, we found that although there were clear patterns in the data, there were no set rules that applied to all of them. Instead, each answer had its differences.

Second exercise: the analogy

We asked the participants to choose an animal that represents each of the following ages: 20, 45, and 67. The answers that we obtained were long-written answers with the selected animal and a short explanation giving three reasons for their choice.

Analysis

The goal was to identify what the patterns were in the answers, which was the most mentioned animal for each age, and the patterns on the description for that age group. We chose to use the tool Dovetail to analyse this exercise. We colour-coded the answers to identify the patterns in the adjectives. Each member of the design team analysed one of the ages (see Figures 22 and 23).

Figure 22. Screenshot of Dovetail with the answers from the analogy exercise from the survey for a 45-year-old person.

Figure 23. Screenshot of the clusters extracted from the survey on Dovetail.

Results

The results of the survey show that Millennials consider people in their twenties to be free spirits, free of responsibilities, full of energy, and very curious and playful, resembling a butterfly. A 45-year-old relates to a horse for being considered smart, powerful, and responsible for others such as their family. Finally, a 67-year-old is paired with an owl, perceived as very wise and experienced but lacking energy (see Figure 24).

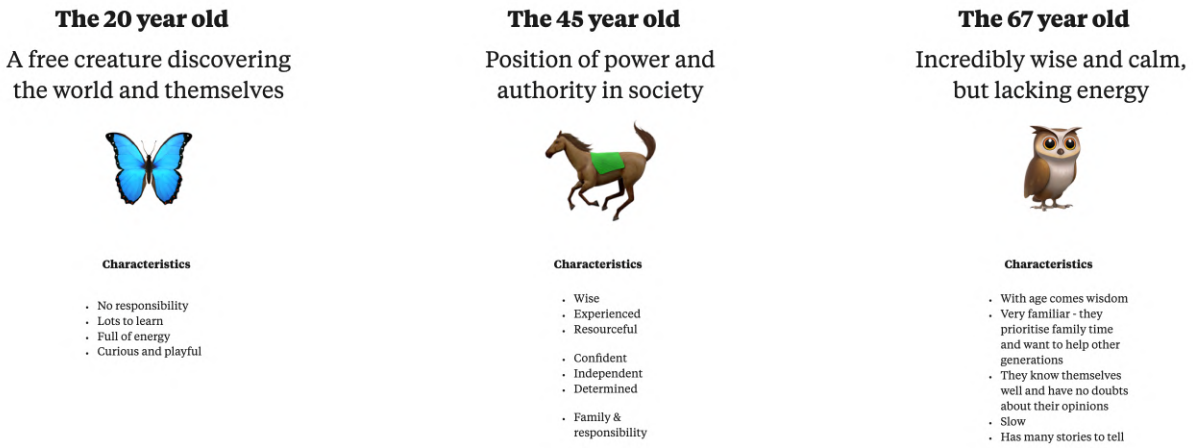


Figure 24. Results from the analogy exercise.

The results of our analysis shed light on how Millennials perceive different age groups. Each age group carries a distinct image in the minds of Millennials. Notably, when it comes to 67-year-old individuals, wisdom is commonly seen as a positive attribute, suggesting experience and knowledge. However, in comparison to the other two groups, characterised by vitality, energy, and power, wisdom takes on a nuanced connotation that leans slightly towards the negative.

In the eyes of Millennials, the younger age groups bring to mind vibrancy and dynamism. They connect these groups with qualities like big amounts of energy, enthusiasm, and a feeling of invincibility. This perception is likely influenced by the physical and mental vigour commonly associated with youth.

Conversely, the 67 year olds were assigned a lack of speed and agility. When compared to the younger age groups, wisdom may be seen as a trade-off for the absence of energy and power.

Empathy maps

An empathy map is a diagram that shows the characteristics of the behaviour of the user based on user data, as well as potential gaps in the data collection (Nielsen Norman Group, 2023). It is commonly used to map what we know about the user's behaviour, helping us with design decision-making.

The map is divided into four main areas: What the user sees, thinks, does, and feels. These four categories intend to map the whole spectrum of human behaviour, although they might be overlapping with each other (Nielsen Norman Group, 2023). We have created the empathy map to summarise the mental model that the Millennial expressed through the survey concerning a 67 year old person (see Figure 25).

Figure 25. 67 year old - the mental model of Millennials.

General reflections on Loop 2

The main goal of this exercise was to understand how Millennials perceive different life stages and find out what the most prominent mental models are. We believe it was successful because the answers they gave were detailed and provided clear insights into their thoughts on the topic. However, there were some areas that could have been better. For example, the question "Give three reasons why you chose that animal" confused some respondents, as they ended up listing three animals instead. If we had written the question more clearly, the outcome would have been more useful.

We could have used the software more efficiently - in this case, we used Google Forms. If we had a table where participants could write down different life phases, it would have saved us time from doing it manually. Unfortunately, advanced software like that usually requires payment.

One interesting thing to consider is that we cannot be certain if we really uncovered participants' true thought processes. We do not know if their written responses accurately represent what they think or if they were being honest with us or with themselves. We had to trust the survey results to progress to the next loop. A positive sign is, however, that we found many patterns in the data. This could indicate its veracity. We reflect further on the success of this survey to uncover mental models in Loop 3.

We believe it’s important to reflect on the fact that co-design was not part of either the first or the second loop of this project. Instead, we focused on understanding the users rather than creating something specific.

During this loop, our main goal was to gather insights about the target audience before diving into the creation process. Although there was no actual co-creation in this loop, the outcomes played a very important role in defining our mindset and project direction for the next loops.

Reframing Loops 1 & 2

This section explains the complicated reframing that we carried out after loops 1 and 2. It is divided in the following subsections:

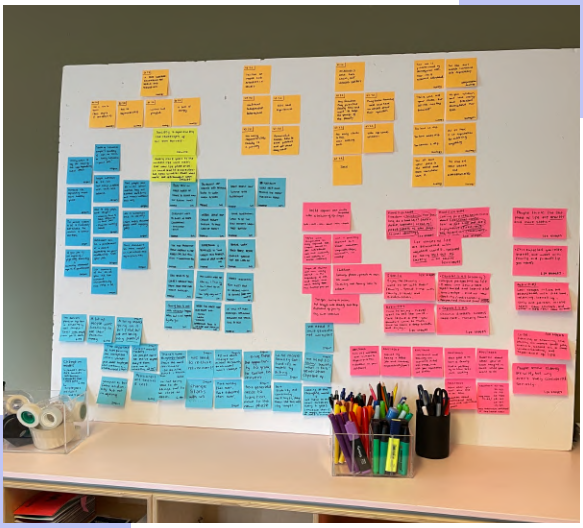
1. Reframing: the process
2. Reframing: the result
3. Unfolding reframing
4. Ageism
5. Intergenerational collaboration (IGC)
6. Target group
7. Current solutions for IGC

Reframing: The process

After carrying out expert interviews during loop 1 and the survey during loop 2, we learnt a lot about what the demographic challenges mean for Denmark, how the pension system works, how it deals with the ageing population, and how Millennials perceive life stages as well as social roles throughout life. With all this knowledge, we started a process of analysis and synthesis with the goal of simultaneously reframing and narrowing down the project focus. This process will be explained in the following sections.

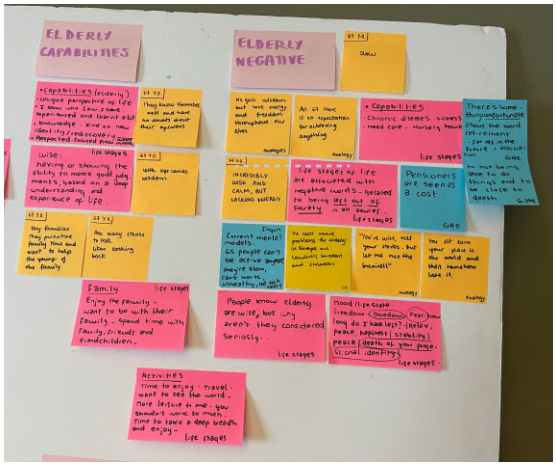
Reframing: From insights to new research questions

1 Reflected all research insights from loop 1 & 2 in post-its



- Survey - Part 1 insights
- Survey - Part 2 insights
- Literature insights
- Interview insights

2 Clustered them by topic and identified challenges and opportunities per cluster.



Clusters:
Demographic challenges, Ageism, Flexibility, Overall roles, elderly capabilities, inequality, elderly negative.

For example:
Elderly capabilities

Challenges
Millennials recognise elderly capabilities but don't see them as much use apart from the family context - Wisdom is positive, but when contrasted to the 45 y.o. "smart" or "strategic" it acquires a negative connotation

Opportunities
Millennials recognise that wisdom, good judgement, and care for others are strengths of the elderly

3 Brainstormed project directions based on challenges and opportunities

Example of one project direction:

- Increase flexibility in the workspace - benefits both young and old generations
- Create a new life phase (which already exists but is invisible)
- Encourage an age-diverse workplace
- Increase employability of the older

4 Concluded in two potential directions

We would benefit from extending our working lives

↓

Why don't we? → **Ageism in the workplace**

→ **Non human-centred careers**

5 Made individual suggestions (6 total) for each potential direction + plan for next steps

Example of a suggestion:

- Changing current mental models about older workers
- Creating awareness about the new years added
- Showing society what is this generation capable of

Next steps:

Loop 3

Present solution to an expert

Loop 4

Test solution

6 Defined new research and new problematic question

NEW RESEARCH QUESTION:

How might we unfold the practice of reframing to make it more replicable and useful to other designers and organisations?

NEW PROBLEM QUESTION:

How might we enable longer working lives by promoting intergenerational collaboration at the workplace through an open design process?

Final Next steps plan:

Loop 3	**Loop 4**	**Delivery**
10 to 28 April (Ideation)	April 30 to May 7 (Testing solution)	10 to 19 May (Preparing report)

Steps 1 & 2: Understanding

The expert interviews were analysed in loop 1, and the survey in loop 2.

Therefore, we collected all the insights and wrote them down in colour-coded post-its that we placed on a whiteboard (see Figures 26 and 27). To these insights, we also added the key literature review concepts and facts. For example, the yellow post-its came from the literature review, and the blue ones from the interviews.

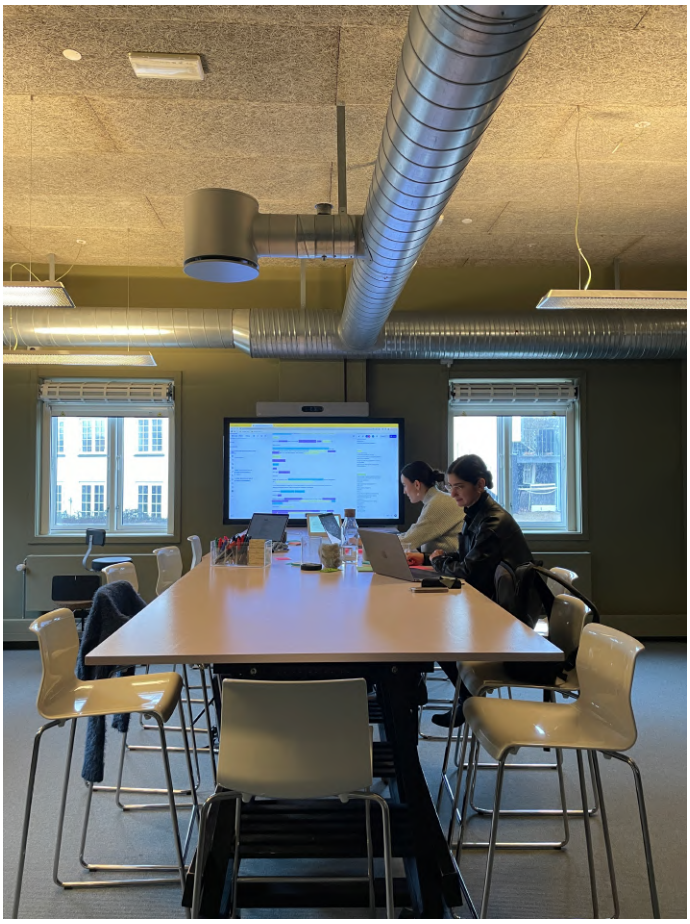


Figure 26. Picture during our reframing session at Designit

Figure 27. Picture of the clustering process

Then it was time to read all the post-its, find patterns and start grouping in quite an organic manner (see Figure 28). We wanted to let the clusters emerge rather than define them ourselves. This step took a whole day and ended up in these clusters.

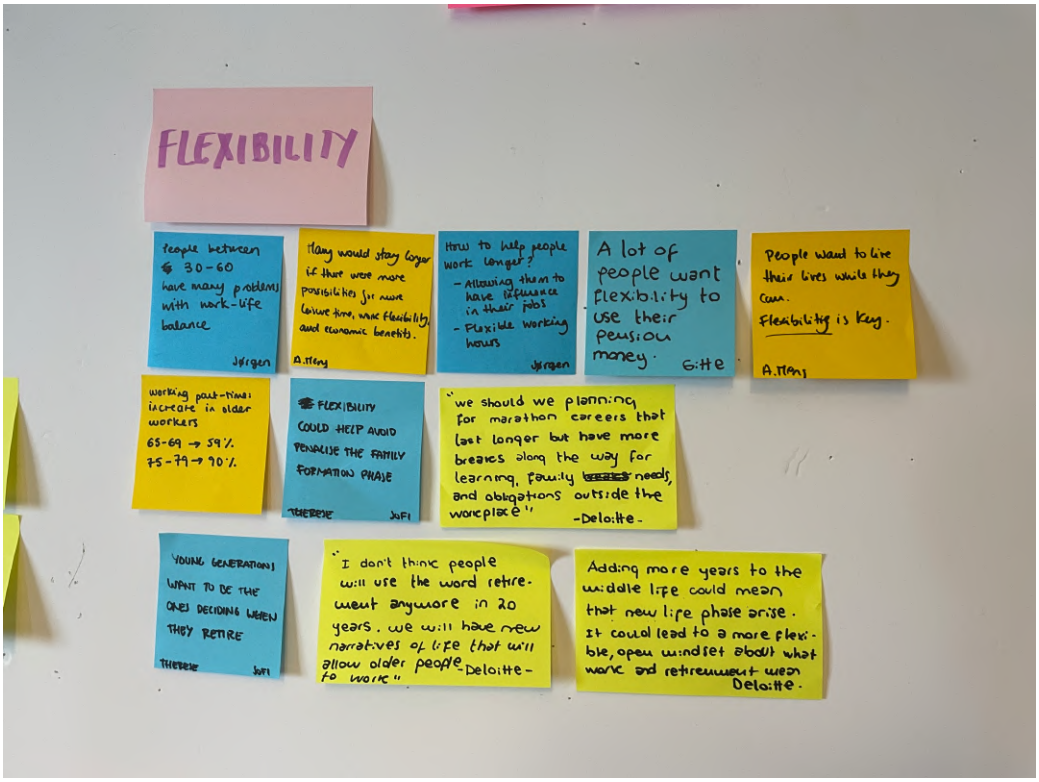


Figure 28. Picture of the cluster named “Flexibility”

Steps 2, 3 and 4: Synthesising

A few days later, we held another session to make sense of the clusters. For each cluster, we wrote down "Challenges" and "Opportunities" (Figure 29 and Table 3), which helped us individually generate ideas about possible project directions. We discussed the different directions that each of us had in mind (see Table 4) in order to arrive at a conclusion.

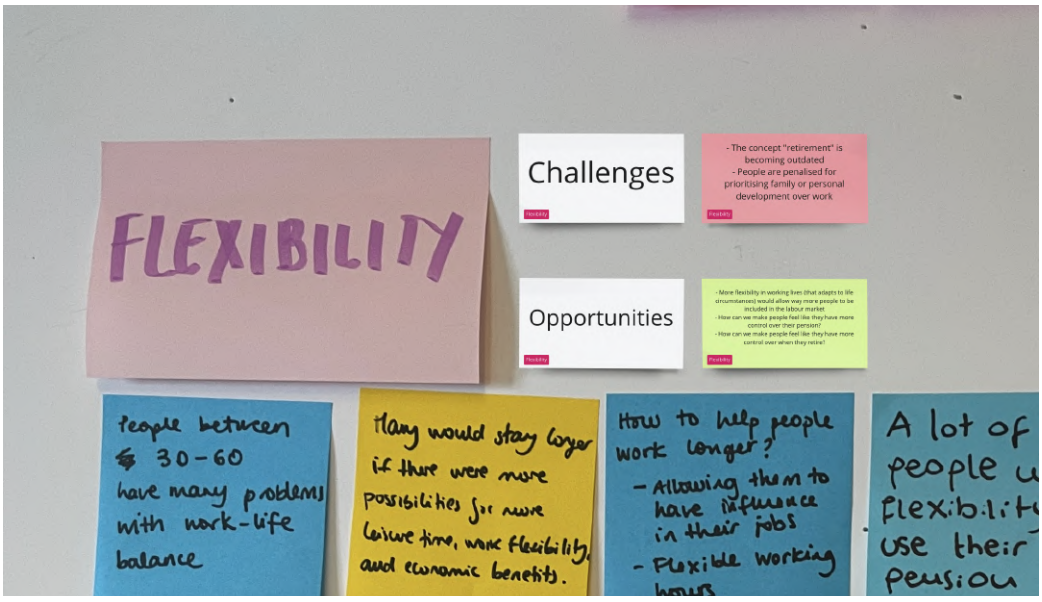


Figure 29. Example of challenges and opportunities extracted from the cluster “Flexibility”.

Flexibility - Challenges	Flexibility - opportunities
The concept of “retirement” is becoming outdated	More flexibility in working lives (that adapts to personal circumstances) would allow way more people to be included in the labour market.
People are penalised for prioritising family or personal development over work.	How can we make people feel like they have more control over their pension?
	How can we make people feel like they have more control over when they retire?

Table 3. Example of challenges and opportunities for the insight cluster called “Flexibility”.

The project directions naturally overlapped but none were exactly the same. In the next table, we have summarised the project directions we proposed to give context to the conclusion of this reframing session.

Project directions suggested by Laura	Project directions suggested by Anto	Project directions suggested by Sofía
How might an open SD process facilitate a more flexible work life that adapts to individual life circumstances?	How might an open SD process promote the creation of networks of support among generations?	How might an open SD process encourage the mentality of “work to live” and the prioritisation of happiness over productivity?
How might an open SD process facilitate the creation a more age-diverse workplace?	How might an open SD process change people’s attitudes towards retirement age?	How might an open SD process help tackle ageism in the workplace?
How might we create a service that helps both employers to hire senior citizens and the senior citizens to be employed?	How might we increase awareness about the health benefits and the usefulness of working longer?	
How might an open SD process facilitate intergenerational collaboration between Millennials and the elderly?		

Table 4. Project directions suggested for each design member.

After discussing the possible directions, we arrived at a conclusion that was as follows (see Figure 30):

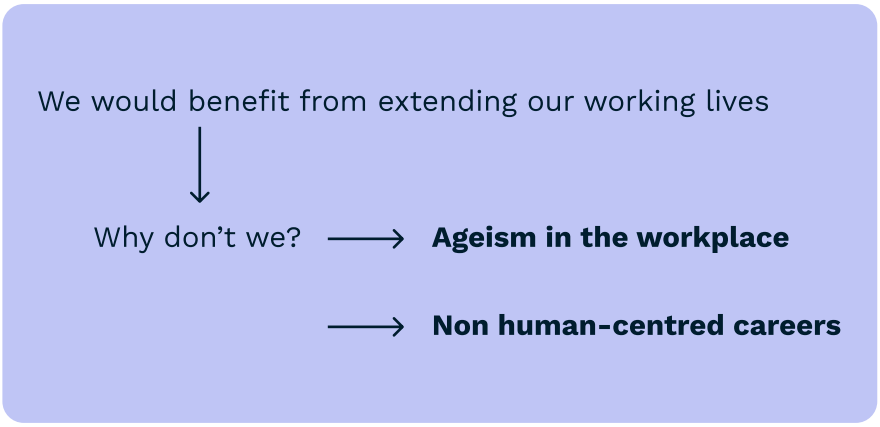


Figure 30. Conclusion from reframing step 2

With "we need to work longer", we reframe the project from quite a general perspective on demographic challenges and ageing to a concrete aspect of it which is the length of our working lives. This will be explained further in the next sections. Then, this need was turned into a question: ***Why don't we work longer?*** and we concluded with two answers.

a. Because of ageism in the workplace, which encompasses many aspects:
- Lack of investment in older workers
- Ageism in recruitment processes
- Feeling forced to retire by the prejudice which ends up causing self-directed ageism
- Mandatory retirement age in some private companies
- Intergenerational lack of recognition
- And the list goes on

b. Because our working lives are not human-centred, which involves:
- They are not adaptive to our personal circumstances
- They are focused on corporate productivity rather than on personal fulfilment
- They lack flexibility

Step 5 and 6: Decision

Arriving at the conclusion from the synthesis was definitely a huge progress. However, a multitude of very different projects could emerge from that conclusion. We still needed to decide on one specific problem.

From the previous conclusion, we each proposed two project directions (one for a, one for b; six in total) with clear steps forward. In Figure 31, we show the directions. They had a lot in common and the decision was quite clear: we decided to focus on a. Ageism in the workplace and specifically tackle it through intergenerational collaboration.

The most solid project directions went this way and we realised that coming from the first loops where we involved Millennials, this decision made sense. However, it also calls for a reframing of the research and problematic questions which will be explained in the following section.

A Ageism in the workplace

1

Find specific contexts where senior workers feel ageism. Then involve Millennials to find out how they could help. Co-creative workshop & testing.

Loop 3: Ideate
Loop 4: Prototype & test

2

Create a network of support between both generations (Millennials and Baby boomers). Map strengths of both generations and find areas for collaboration.

Loop 3: Create a service
Loop 4: Iterate it

3

Focus on the hiring process to remove ageism in that context. Include employers and employees in the process.

Loop 3: Challenge mental models & co-create
Loop 4: Test & ideate

B Non human-centred careers

1

Involve Millennials and employers to co-create a service that enables more flexibility in our careers.

Loop 3: Ideate
Loop 4: Prototype & test

2

A kit for companies to negotiate a high-quality end of career path with senior employees.

Loop 3: Ideate
Loop 4: Test

3

Involve employees and employers to create tools that help balance work and personal life. Test the solution with experts.

Loop 3: Ideate with employees & employers
Loop 4: Test with experts

Figure 31. The three proposed plans for each of the possible project directions.

Reflections on the process of reframing

What worked well?

Problem framing means the designer must “set its boundaries, select particular things and relations for attention, and impose on the situation a coherence that guides subsequent moves” (Van der Bijl-Brouwer, 2019). Based on this literature, we can affirm that the process of pasting post-its on a whiteboard and differentiating the source of information with colours is a method that works well to frame a problem because it allowed us to set the boundaries of the project from a very broad one (demographic challenges of ageing) to a concrete way of solving it (extended working lives).

What could have been better:

Steps 2, 3, and 4:
The expected outcome was reframing the problematic question to a more concrete one, and we reached our goal (the outcome is presented in the following section). However, the process of arriving at this question was quite stressful and overwhelming. It was hard to communicate our ideas and thoughts because sometimes we had not only different views of the problem but also different vocabulary. It would be interesting to find ways in which these communication barriers can be solved when reframing.

- Maybe we could have used some method to make team discussions flow better, or to align on the insights beforehand.

Moreover, at this point of the project, we read a large number of articles and books, conducted four expert interviews, and a survey. It was not easy to narrow the project down when having such a big amount of information in our heads.

- Maybe we were missing some analysis methods on how to manage large amounts of literature combined with qualitative and quantitative research methods.

Additionally, analysing the interview insights individually had an impact on reframing because each of us wanted to prioritise different insights - the insights we had analysed. Perhaps we should have dedicated more time to reading the analysis of all the interviews instead of trusting we would represent the insights fairly in a discussion. In that way, we could have had a better holistic understanding of the interview insights.

Van der Bijl-Brouwer (2019) mentions that reframing is a non-linear process that cannot be easily planned. However, it is also true that some authors have tried to find patterns in the reframing process:

1. Surprising information about the problem leads to a simplified version of the problem,
2. The recognition of the simplification, the feeling of having grasped the core problem (it is an emotional step),
3. The information obtained and the combination of information leads to similar solutions,
4. Turn the problem around to arrive at a solution (Dorst & Cross, 2001)

However, what occurs in each step is not clearly explained. Step 2 mentions “it is an emotional step and a feeling of having solved the problem” (Dorst & Cross, 2001). We can agree that it is a very emotional step where we had mixed feelings (frustration before reframing the problem and a feeling of satisfaction after reframing the problem). But, besides this information, it would have been nice to have some sort of guidelines explaining what could occur on each step of reframing.

Reframing: The result

Research question 2

During the process of reframing, we realised that the role of mental models in our research needed to change, and that the contribution of this project to the field of service design lies within the analysis of the practice of reframing to power a design process, which is something we have been applying from the start of the project. Therefore, we reformulated our research question as follows:

How might we unfold the practice of reframing to make it more replicable and useful to other designers and organisations?

Mental models

Challenging mental models go from being the goal of the project to being a tool that we will apply during workshops to open the key stakeholders’ minds to new meanings of ageing, and to reduce prejudice when generating ideas for intergenerational collaboration.

The application of service design practices to challenge mental models is explained in Staging Loop 3.

Reframing

The concept of reframing has already been explained together with the recursive framework that is guiding the project (section Methodology). However, we will elaborate further on this concept in the section “unfolding reframing” because it has become more central to the proposed research.

Problem question 2:
How might we enable longer working lives by promoting intergenerational collaboration at the workplace through an open design process?

From this renewed focus, it is worth defining:

Enable longer working lives
When we say “enable longer working lives”, we refer to enabling those close to retirement who would like to keep working, to do so. Our focus is on enabling, although it is possible that being involved in intergenerational collaboration might also encourage workers who previously did not want to work longer, to do so.

Intergenerational
By “intergenerational”, we mean involving young and senior employees. In the moment of our project, this means involving Millennials and Baby Boomers because these are the generations entering and soon exiting their work lives.

Collaboration
When choosing the word “collaboration”, we refer to interaction and value exchange between stakeholders. We are intentionally vague when picking this word since the nature and the object of the exchange are still unclear and will be developed during co-creative workshops in loop 3.

This reframing based on loops 1 and 2 has pointed the research in a different direction that was however present since the beginning of the project. It has furthermore narrowed down the problem and the field of action. In the following sections, we will elaborate on the concepts that have become more important for the project, like intergenerational collaboration and reframing.

System map

System maps are used to represent relationships between parts, especially when working with socially complex situations (Jones & Bowes, 2017). Human visualisations of systems are necessarily incomplete and biassed (Jones & Bowes, 2017), but they are useful to expand the focus and appreciate the interconnectedness of the problematic situation (Van der Bijl-Brouwer & Malcolm, 2020). In this case, we create a system map to illustrate the “hot spots” in our project context, as these interrelated points in the system made us decide on the new frame. In the lower part of Figure 32, we isolate the hot spots of the system from the rest of the system map.

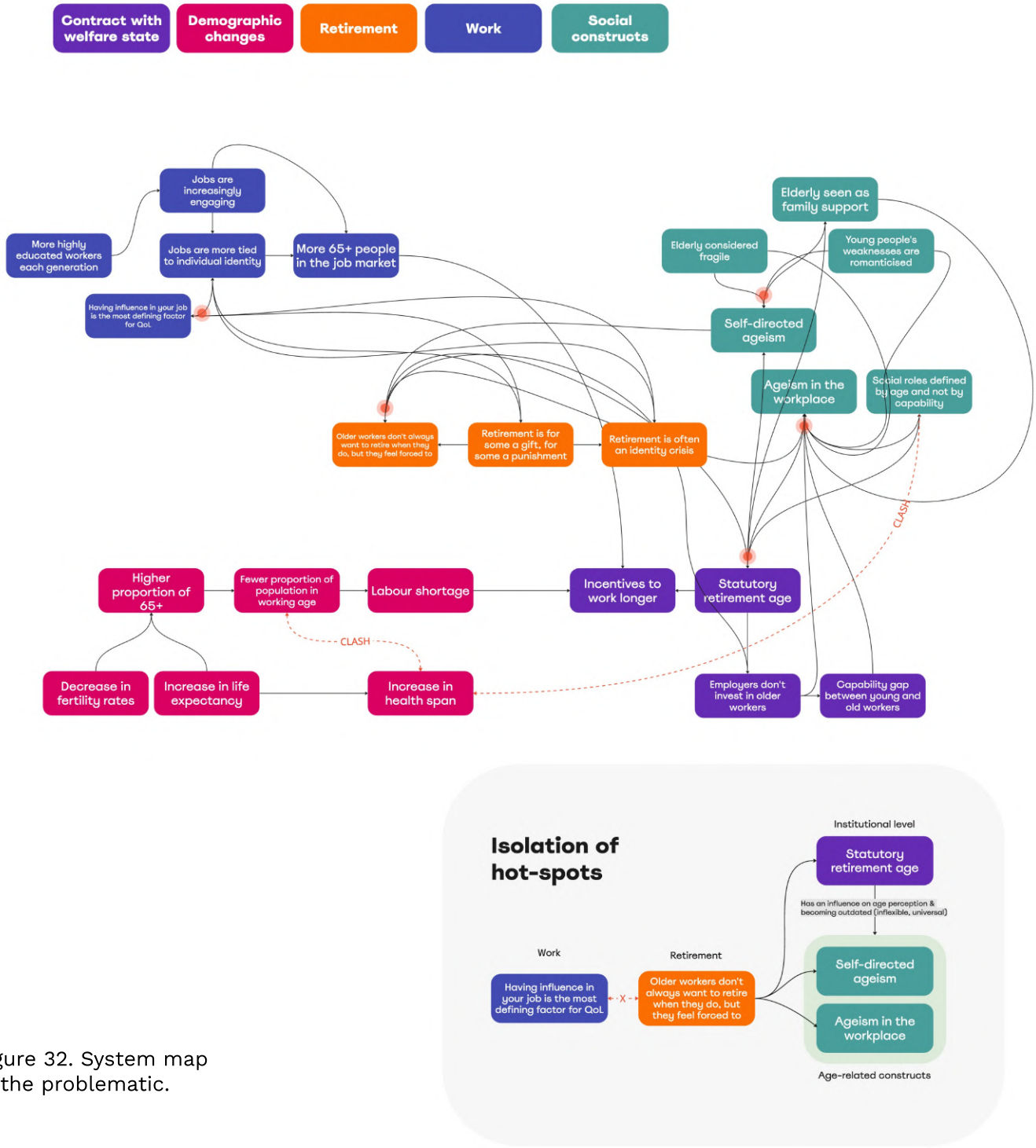


Figure 32. System map of the problematic.

Reflections on design for social innovation

As mentioned before “Design for social innovation is everything that expert designers can do to activate, sustain, and orient processes of social change toward sustainability” (Manzini, 2015, p. 62). After the reframing of loops 1 and 2, the link between our problematic question and design for social innovation is stronger and more direct.

Our problematic question aims directly to cause social change through intergenerational collaboration, with the purpose to create a more sustainable economy and welfare system.

Our problem is narrow because it’s happening within the confines of the workplace, but it will hopefully lead to a stronger impact. Our solution might change the way people perceive ageing, and reduce tensions between generations. The solution will be used in the context of the workplace, but the values acquired through this solution might also be applied outside the workplace, contributing to creating a world where people can age better.

Reflections on mental models

As stated in previous sections, Service design has already been identified in several cases (Vink et al., 2017; Vink et al., 2019) as a promising and relevant field with the tools to influence mental models, especially through aesthetic experiences or aesthetic disruptions” (see Section 2.8 about mental models). However, we discovered that even though mental models are a powerful tool to reduce ageism, it was not the right approach to combat the demographic challenges. We needed a solution that helped:

- Senior employees to feel valued,
- To reduce labour shortage in Denmark,
- To decrease costs caused by old age dependency ratios (pensions and health care)

Therefore, we concluded that changing mental models would work as a tool in our project and not as the main focus. Extending working lives is in fact an approach that helps to reduce labour shortage (OECD, 2015), and changing mental models is a relevant factor that allows longer working lives, but it is not the only one.

On a conceptual level, we realised that mental models could not work as the ultimate goal of our project since they, by themselves, do not cause real change. An example would be that, if we managed to change the mental model of a Millennial regarding intergenerational collaboration, but they never modified their actions, there would be no visible or meaningful impact. Therefore, in order to create value through service design, the ambition is to design a service system that enables the activation of the value. Mental models might be an enabler for this, although not the goal itself.

Unfolding reframing

Problem framing emerges as a key design practice that can be adopted and adapted to other fields, and one which provides a valuable alternative to conventional types of problem solving. - Dorst (2015)

Design is nowadays daring to tackle increasingly complex and interrelated problems in arenas that it did not venture into before. We have already mentioned the evolution of design to its fourth order (Buchanan, 2001), in which service design often operates, as well as the concept of a VUCA world that Buehring & Bishop (2020) use to describe today's environment. Additionally, the emergent links between design, social innovation, and systems thinking point towards the expansion of design to solve new types of problems. These changes have prompted the search for an understanding of how design defines and solves problems since design principles have proved useful in solving complicated challenges across disciplines. This in turn has led to an increasing interest in the concept of *framing*.

Framing is a core design practice (Dorst & Cross, 2001; Dorst, 2015; van der Bijl-Brouwer, 2019) where the design team defines the approach to a problem situation (Dorst, 2015). Schön (1992) explained it as a process where "we name the things to which we will attend and frame the context in which we will attend to them". The goal of framing is therefore to arrive at a problem formulation that allows for the problem to be worked with (Dorst, 2015). This involves understanding the context, evaluating it, embracing its complexity, and considering possible directions (Dorst, 2015). The behaviour and activities shown in the design process will be defined by the frame (Dorst, 2015; van der Bijl-Brouwer, 2019), and not the other way around, thus the huge influence of the frame not only in the process but also in the solution.

The frame and the solution, also called problem space and solution space, are in constant co-evolution during the design process (Dorst & Cross, 2001). This co-evolution happens in an exploratory, emergent, non-linear way that contradicts processes like the Design Council's Double Diamond (Van der Bijl-Brouwer, 2019). The goal of the co-evolution is to arrive at a bridge between the two spaces (Dorst, 2015; Dorst & Cross, 2001), the problem space and the solution space, something that has been linked to creativity and to having an "aha" moment.

But the challenge has been to describe the process from which this bridge emerges. It has been portrayed quite mysteriously (Van der Bijl-Brouwer, 2019), like a creative leap, an epiphany, or a moment of inspiration: expressions that offer little opportunity for learning or replication. At the same time, it is recognised that understanding this process of framing and co-evolution would be greatly beneficial since the practice of framing not only allows us to understand complex and dynamic challenges but also enables us to tackle them in a productive way (Dorst, 2015; Van der Bijl-Brouwer, 2019). Therefore, given the relevance of this practice for public and social innovation, and its potential to help organisations thrive, we aim to analyse the nature of the

process of framing and its potential to power design decisions through its iterative application in our case study.

Due to this recursivity, we have named the activity "**Reframing**" but it does not distinguish itself from framing in any other way. Although it is mentioned by Dorst and Cross (2001) and Van der Bijl-Brouwer (2019) that framing happens spontaneously out of an exploratory process, this does not mean that it happens unintentionally. In the design process, for example, the brief tends to prove inadequate in one way or another once the problem exploration begins, and it prompts a reframing that is often represented as the end of the "fuzzy front end". Reframing is thus something incorporated into design practice, something designers grow used to, and even though not guided by specific rules (Van der Bijl-Brouwer, 2019), it is also not accidental. With the proposed framework in the section Methodology, we intend to propose a recursive process with consecutive loops of design action and reframing (which guides the next design actions, and so on). Neither the length of a loop nor the number of loops to realise is defined, thus suggesting a very flexible process that requires a certain level of expertise to navigate. However, it does represent one step further in the attempt to "create coherent practices that do make sense outside of the confines of the traditional design disciplines" (Dorst, 2015). In this pursuit, the proposed framework supports processes like those of social innovation which are commonly open to a multiplicity of actors, and open-ended.

Throughout the project, we will apply this framework to guide design decisions and will focus on the activity of reframing. Firstly, we will attempt to describe it thoroughly to contribute an explanation that, without discarding creativity, offers more possibilities for understanding and replication. Secondly, we will iterate the framework based on our findings.

Ageism

In the reframing process of loops 1 and 2, we agreed that society needs to work longer. Additionally, many people in Denmark want to work longer (OECD, 2015), and have the energy and health to do so due to the extension of life expectancy. However, there are some reasons that make it harder for older workers to engage in the workforce for longer, and one is ageism. In the following paragraphs, we will define ageism, types of ageism, and what needs to change to overcome ageism.

What is ageism?

The World Health Organisation defines ageism as **"the stereotypes (how we think), prejudice (how we feel) and discrimination (how we act) towards people on the basis of their age."**

The gravity of ageism is often compared with sexism and racism. However, it is an unstudied and neglected term (Centre for Ageing Better, 2023). This happens because ageism is more socially accepted than other types of discrimination. Nevertheless, it is proven that people who suffer from ageism are socially devalued and marginalised which in turn causes negative effects on the economy and society (Centre for Ageing Better, 2023), it leads to social isolation, earlier deaths, and costs society billions (World Health Organization, 2021).

Something curious about ageism is that old age is a stage of life that every person hopefully reaches at some point if given enough lifespan. Therefore, one could expect society would show empathy. However, the opposite occurs and even people themselves disidentify as "old" with the purpose of protecting themselves from being discriminated against or categorised within ageist stereotypes. "This means that by having ageist beliefs, we are actually targeting our future selves" (North & Fiske, 2015).

Types of ageism

Institutional ageism occurs when ageism is present in laws, rules, social norms, etc. For example, when older employees are denied training courses or are not promoted, or they are categorised based on preconceived beliefs about their competency to perform a task (Centre for Ageing Better, 2023). Moreover, institutional ageism is also found in healthcare, where health professionals offer more treatment options to young patients than to older ones. Additionally, institutional ageism is present when governments ignore older generations and do not invest in age-friendly communities.

Interpersonal ageism happens in personal interactions among individuals. For example, infantilising older people, having negative assumptions about people based on age, or making negative comments about people's looks based on age (Centre for Ageing Better, 2023).

Self-directed ageism takes place when a person that has experienced ageism begins to internalise age-based stereotypes and modifies their behaviour because of this. For example, when people start to think that they are too old to train or learn new things (Centre for Ageing Better, 2023).

Ageism in the workplace

Even though age discrimination was prohibited in Danish law in 2004 (Williams, 2018), ageism is still a problem in the Danish labour market. Research shows that over a quarter of people over 60 are forced to leave the labour market due to a lack of opportunities for people of their age (Staffing Industry Analysis, 2013). Also, the United Kingdom is facing high levels of ageism at the workforce. Over 33% of UK citizens aged between 50 and 70 years old experience ageism in the workplace, and they feel disadvantaged during a job search (Centre for Ageing Better, 2023).

Some older workers are lucky to find new jobs, but, once they are employed they are attached to age-based stereotypes. For example, their colleagues think they learn slower, are lazy, have less energy, are harder to train, etc. (World Health Organization, 2021). Older employees are offered fewer training courses as their managers believe they are close to retirement and it is not worth the investment (Centre for Ageing Better, 2023). However, it is proven that older employees remain in the same company way longer than younger employees.

The aforementioned factors prevent older employees from developing during the last years of their careers and thus experience a lack of motivation (Centre for Ageing Better, 2023). Overcoming ageism at the workplace is essential to support older workers in extending their working lives (Centre for Ageing Better, 2023).

What needs to change

Centre for Ageing Better (2023) argues that a shift in all aspects of society is needed to ensure that everyone can age well, and propose some strategies to overcome ageism:

- Employers have an important role in allowing older workers to flourish in the workplace. Therefore, companies should recognise the positive aspects of older generations, and also improve their work conditions, adapting the work organisation to their needs.
- Local authorities should strive to become age-friendly communities where all ages are able to remain healthy and active for a longer time.

The World Health Organisation proposes three strategies to reduce ageism:

- Policy and law should prohibit all kinds of discrimination including ageism
- Educational activities might promote empathy, and change ageist stereotypes by providing the correct information.
- Intergenerational interventions that bring different generations together, might help reduce age-related stereotypes.

In the next paragraphs we will describe a solution that The Centre for Ageing Better has created. It is important for our project to look into solutions that aim to overcome ageism at the workplace, for the reason our project focuses on enabling extended working lives, and combat ageism in the workplace plays a crucial role in achieving this.

Becoming an age-friendly employee: a solution to overcome ageism in the workplace

It is a guide that includes five steps that companies should follow to become an age-friendly employer (Centre for Ageing Better, 2018). This guide, which is currently being used by more than 30 companies and organisations, starts explaining the labour shortage problem in the UK, and that companies should attract and maintain senior employees to tackle this (see Figure 33).

Figure 33. Five actions to be an age-friendly employer (extracted from Centre for Ageing Better, 2018).

This section allowed us to empathise with our target group. Moreover, it permitted us to gain knowledge about one of the main reasons that decrease the possibility of older generations engaging longer in the workplace and also limit intergenerational collaboration.

Intergenerational collaboration

Once we reached the new problematic question, it was needed to carry out a literature review related to intergenerational collaboration. In this section, we will present the main insights extracted from it.

There are many authors proposing methods to foster intergenerational collaboration. However, some reasons decrease the possibilities of such collaboration.

One of the reasons is, as mentioned in the previous section, ageism. Another reason is age-related stereotypes, which is the belief of what a certain generation is capable of (Hirsch, 2020), meaning that young workers are not certain of older colleagues' capabilities and vice versa. Moreover, young employees believe that it is time for older workers to step aside and leave the job opportunities for young generations (North & Fiske, 2015), which generates tensions between Millennials and Baby Boomers. Another reason that decreases the opportunities for collaboration is that people usually socialise and feel comfortable interacting with people of the same age. Additionally, generations present some differences between each other, for example, the technology gap between Millennials (digital natives) and Baby Boomers (digital immigrants) is one of the key differences (KnowledgeCity, 2022). Moreover, each generation has its own needs, values, and preferences when communicating (KnowledgeCity, 2022). For example, Millennials do not care about hierarchies and formality. Therefore, the way they communicate with their superiors at work can potentially offend older workers (Myers & Sadaghiani, 2010).

According to Mona Sedrak (2015), not addressing generational tensions can result in negative outcomes like increased employee turnover, loss of productivity, etc. (Sedrak, 2015). Nevertheless, some literature proposes some methods that help to reduce the aforementioned tensions and foster collaboration between generations which will be addressed in the following paragraphs.

To promote intergenerational collaboration, society should consider the strengths, skills, and needs of each generation in comparison with others, focusing on the overlapping parts (Cohen, 2022; Satterly et al., 2018) and promoting value exchange among young and older workers, where each generation obtain something from the interaction (Cohen, 2022).

Another way of fostering collaboration between generations is promoting communication among different generations using different methods, like email, instant messaging, video conferencing, and face-to-face meetings to encompass diverse communication preferences (Harper, 2023). Additionally, companies should offer flexible schemes that focus on accomplishments rather than hours

worked, therefore, the company adjusts to different work-life balance needs.

Moreover, young and older employees have diverse learning styles and career aspirations, therefore, companies should provide tailored career plans that fit each generation. For example, Baby Boomers might opt for traditional rewards like bonuses and promotions, whereas Millennials could prefer public acknowledgement and chances for career growth. Another important aspect to enable collaboration between different generations is to promote inclusion among employees who value and respect the diverse characteristics of all generations, and to overcome tensions between generations.

A different approach to promoting collaboration in the workplace is through the intergenerational mentoring model that focuses on traditional mentoring (older employees teach younger employees) and reverse mentoring (younger employees teach older employees) (Satterly et al., 2018). The method consists of three steps, the first one is analysing the skills and needs of the different generations, the second step is to find opportunities and overlapping parts of the needs and skills, and the final step is implementing mentoring relationships .

Target group

The intention of this section is to describe the different stakeholders that form our target group: who they are and why they are important for our project.

Senior employees (Baby Boomers)

Before the last reframing, the intention of the project was to create more flexible and sustainable alternatives for ageing, and we decided to include young generations to create a higher impact. However, after the reframing, the project changed focus to **fostering collaboration between young and older generations at the workplace, so as to enable longer working lives.** As a result, we realised that it was crucial to focus on creating value for senior employees to achieve our primary goal of extending working lives.

To understand senior workers, we have researched about them in a general way as well as through researching the Baby Boomer generation specifically, since they are currently in the latter stages of their careers. Thus the project acknowledges the contemporary as well as timeless characteristics of senior workers. Our attention is on those who feel undervalued, are experiencing ageism at work, and would like to continue working.

Senior workers' motivation

Senior workers, in this case, Baby Boomers close to retirement age, tend to be ambitious, problem solvers and work-centred (Tierney, n.d). They aim to engage in activities that generate a feeling of fulfilment, like for example learning new skills, expansion of social networks, and helping others. They wish to feel valued

and strengthen their identity (Ropes, 2013). Another Baby Boomer motivation is to lead and guide others, thus gaining recognition, titles, and certifications (Tierney, n.d). Moreover, senior employees tend to appreciate emotional rewards because they prioritise emotional satisfaction and social inclusion (Tang & Martins, 2021).

User journey

A user journey map (see Figure 34) is a representation of the path the users go through when interacting with a design (Service Design tools, n.d). This user journey is based on the information extracted from “Ageism: What’s the harm?”. We decided for the case to revolve around John, a senior worker who faces many obstacles that impede him to work longer, even if he wants to. The path is divided into steps and they are described from the perspective of the user who is performing it. It is important to illustrate not only the objective steps, but also the additional obstacles, challenges, and barriers. The emotions that the user feels in each step can also be reflected in the map.

Facing ageism at workplace user journey

Actors involved	**Senior employee**	**Manager** **Senior employee**	**Younger workers** **Recruiters** **Senior employee**
User action	Jonh has been working in a company for many years, and he does not find his job motivating anymore.	Jonh's manager suggested him to retire earlier, he said there is a company policy where they promote people to retire early and receive a bonus (institutional ageism)	Jonh starts searching for jobs that fits his skills. He had many interviews but companies always ended up choosing a younger candidate, even tho he was overqualified for many of the jobs. (interpersonal ageism) During his job search, Jonh notices that many companies seems to hire only younger workers.
Pain points		Jonh is frustrated because he is not able to work as long as he wants because of ageism at his workplace	Jonh is stressed because he really needs a new job, and it is not possible because of age bias in recruitment.
Opportunities from our problematic question perspective		"Ageism creates intergenerational division, therefore, Younger workers lose the opportunity to learn from older workers and vice versa" (Centre for ageing better, 2023).	"Addressing ageist stereotypes is essential in order to encourage and support older workers to extend their working lives" (Centre for ageing better, 2023).

Continues...

Figure 34. User journey of a senior worker.

Senior employee

After many months of intense search, Jonh found a job as a product owner in a big company.

Senior employee

Jonh's new job offers a free fitness centre where employees can work out and attend to classes like yoga. However, John decides not to join.

Jonh believes that he is reduced physically, therefore, he thinks he is too old for training, and does not engange in healthy habits. (self-directed ageism)

Younger workers

Senior employee

Jonh is getting use to his new professional life, learning the new system, getting to know his colleagues . And he is very excited to learn new things and attend new courses.

Manager

Jonh is interested in starting a leadership course, however, his manager did not accept the request. The manager was concern about Jonh not having energy enough to do his job and the courses. Moreover, the course required certain technologic knowledge that Jonh might not have (interpersonal ageism)

After the meeting with his manager, Jonh starts to believe that he is too old to progress and learn new things at work. (Self-directed ageism resulted from interpersonal ageism)

"Employers and younger colleagues should recognise the value of older workers, committing to improving work for people in their 50s and 60s and taking the necessary action to help them flourish in a multigenerational workforce" (Centre for ageing better, 2023).

Young worker

Now that it is clear what the motivations of senior workers are, we needed to find the “sweet spot” or overlapping parts between the senior worker's motivation and the young worker's motivation.

To recap a bit about what was said before (section The importance of young generations in ageing), we have selected Millennials because they are currently mature enough to understand the relevance of the topic, young enough to live well into the consequences of the demographic changes, and young enough to apply more flexible and sustainable alternatives for ageing to their own lives. Furthermore, they have a great influence in the workplace and the power to alleviate tensions between generations.

Young workers’ motivations

Young generations are usually willing to grow their careers causing a positive impact on their organisation (Tang & Martins, 2021; Myers & Sadaghiani, 2010). Regarding levels of workload, they value work-life balance (Myers & Sadaghiani, 2010), as they are very family oriented and prioritise spending time at home (Andersen, 2023, Appendix A; Myers & Sadaghiani, 2010). Another important aspect of the younger generations is that they appreciate flexible schedules and remote work (Myers & Sadaghiani, 2010).

Key differences between senior workers and younger workers

The existing differences between the actors are worth noting so that we may transform differences and tensions into opportunities.

These generations have different motivations, ways of communicating, wishes, work needs, etc. (KnowledgeCity, 2022). Senior employees possess less digital knowledge (Hirsch, 2020) because they have adapted to the technology growth throughout their lives; the opposite occurs with young generations who are natives in regards to technology (KnowledgeCity, 2022).

Moreover, senior colleagues are very experienced in their careers. Therefore, they can handle pressure, and stress (Centre for Ageing Better, 2018), solve complex problems and make fewer mistakes (NI Business Info, n.d.). Additionally, they are able to maintain wellbeing and high satisfaction at the workplace (Smeaton & September, 2018). On the other hand, young employees are more sensitive to suffering stress and tend to change jobs more often (Bol, 2021).

Another aspect to consider about senior employees is they tend to have fewer family responsibilities. In the opposite way, Millennials are very busy building their families (Andersen, 2023, Appendix A).

Empathy maps of our target group

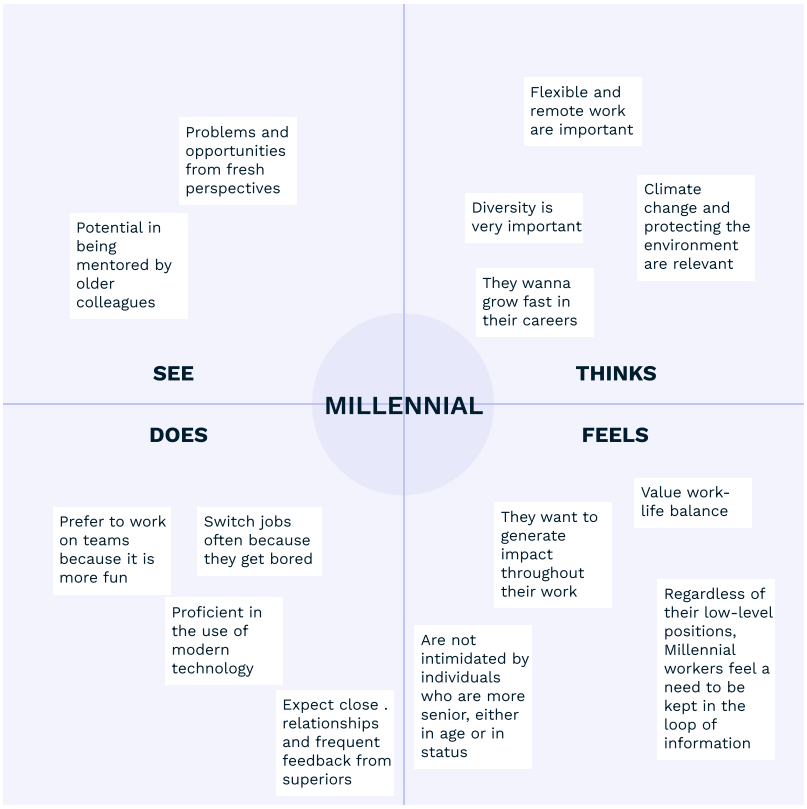


Figure 35. Empathy map of young employee (Millennial)

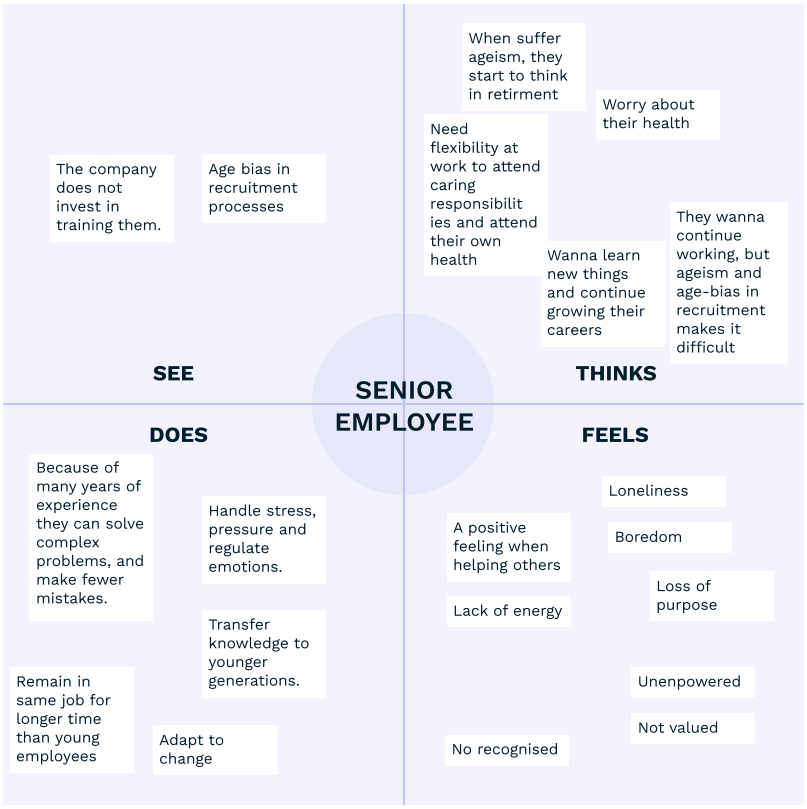


Figure 36. Empathy map of senior employee (Baby Boomer close to retirement age)

We have created the empathy maps to summarise the gathered insights about our target group and make them more reachable to continue the research. (see Figure 35 and 36).

Actor's map

An Actor's map is a visual representation of the stakeholders who are directly or indirectly involved in a system (Morelli & Tollestrup, 2007). The actors can be categorised based on different qualities and or their role in the system (Morelli & Tollestrup, 2007). We wanted to represent the current stakeholders that are involved in intergenerational collaboration in the workplace.

In this case, we have categorised the different actors (Figure 37) based on their ability to change the current situation (power), and their level of interest in doing so (interest).

Figure 37. Actor's map including the relevant stakeholders for intergenerational collaboration.

The workplace

This project aims to enable longer working lives by promoting intergenerational collaboration between senior and younger employees. However, we still need to clarify the context where this collaboration will happen.

Nowadays, many companies are investing in diversity making sure that people of different religions, ethnicity, races, nationalities, etc. are welcome. However, not many companies focus on creating an age-diverse workplace: it is often a forgotten topic (Bol, 2023, Appendix E). Ageism and age bias in the recruitment processes are usually perceived as normal (Centre for Ageing Better, 2018).

"The sort of thing around 'Well, they didn't grow up with technology, they'll be less agile, they'll be less able to pick up, and work on some of our systems" - Centre for Ageing Better, 2018

Companies must begin to realise that labour shortage will soon become a pressing issue and take measures to address it. At this point of the project, the context of our design project is the workplace on quite a general sense, but we will narrow down after progressing in our research in the next loops.

Current solutions for IGC

Sharing Our Space: A Toolkit for Developing and Enhancing Intergenerational Shared Sites

Sharing our space is a research-based website oriented to healing the negative impact caused by the pandemic Covid-19 through the fostering of meaningful intergenerational relationships (Generations United, 2021). The solution intends to create relationships between kids and the elderly. However, it can also be applied in other ages and contexts. The website is divided into ten sections (Figures 38 and 39) that include effective practices, challenges, tips from practitioners, examples, and concrete tools that help institutions to build an intergenerational space.

"You have so much knowledge and experience. Share it with the next generation. SHAPE THE FUTURE." - Generations United, 2021

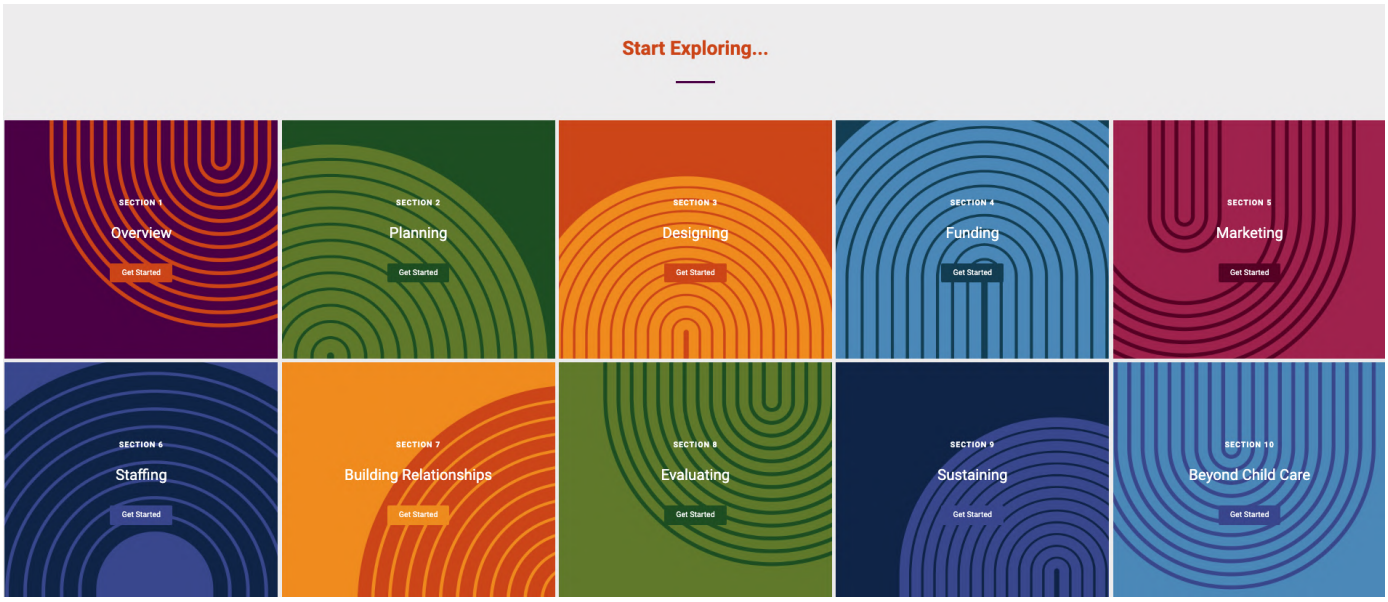


Figure 38. Example of solution for IGC (extracted from Generations United, 2021).

Figure 39. Example of solution for IGC (extracted from Generations United, 2021).

Together: mentoring software

Together (see Figure 40) aims to administrate mentoring between employees to reduce employee turnover, improve diversity, and increase employee engagement (Together, 2023). The platform adapts to different needs because it offers many kinds of mentorships (1:1, group, traditional, reverse, etc.). Moreover, it also adapts to different companies allowing them to customise the application based on their needs e.g. integrating the software with the company communication channels. In addition, the solution allows companies to measure the success of the implementation, for example calculating the reduction of employee turnover.

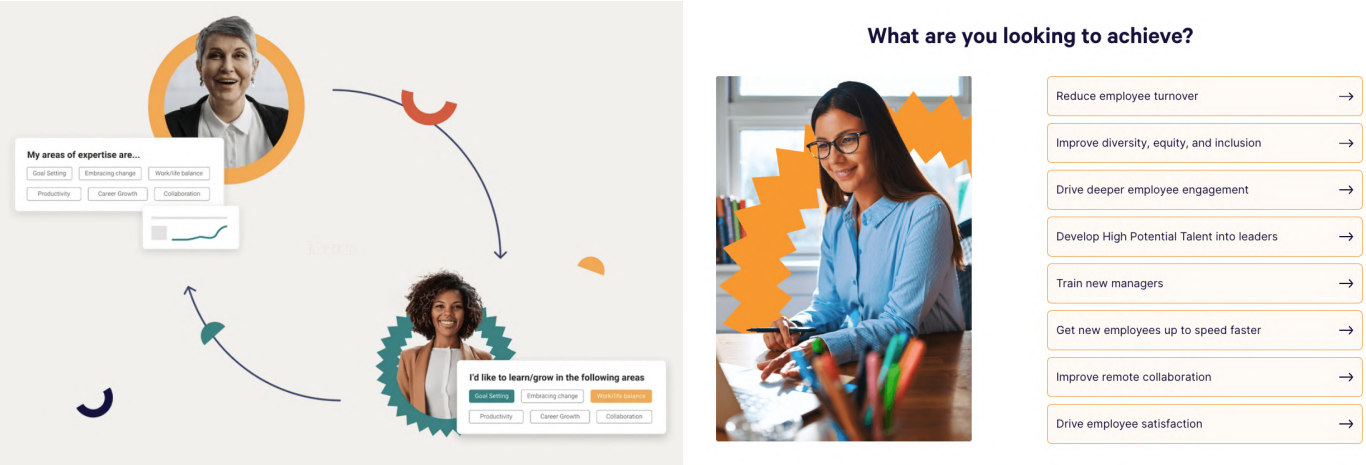


Figure 40. Screenshot of mentoring software (extracted from Together, 2023).

This section will orient the ideation phase on the right path, as we will use the insights as design requirements.

Loop 3 Intergenerational collaboration

Once we defined the new research focus and problematic question, we were ready to move on to the next loop. In this third loop, we kick off the ideation phase of the project through a series of workshops. We apply the input from the workshops to start developing a service and to test it with lead users.

Staging: preparation of two co-design sessions where we respectively ideated and developed service concepts.

Co-creation and co-learning: we held the sessions on the 21st and 24th of April with 5 and 3 external participants respectively.

Reframing: it happened twice. Firstly, between the two workshops, where we developed the ideas from the first session by applying design requirements (extracted from the literature). Secondly, after both workshops, where we created the first version of the solution.

Staging

Now that the project has been reframed and a clear focus has been selected, we set out to organise some co-creative sessions, or workshops, where we ideate with the users of our service. In this section, we explain the workshop goals, the organisation, and the exercises we planned, as well as the logic and research behind them.

Workshop goals

During this phase of the project, we organised two workshops (Table 5). They are interrelated because they all contribute to the same overarching goal: to kick off and advance the service development process. We will attempt to include key stakeholders during this phase, to get a holistic understanding of the service we propose.

Workshop	Goal	Participants	Date	Location
1	To generate ideas about how to promote intergenerational collaboration in the workplace.	5 Millennials	21st April	Designit
2	To focus on the ideas with most potential*, and further develop the concepts.	3 Millennials	24th April	Maersk

Table 5. Each workshop's goals and characteristics.
*Assessed by both the key users and the design team

Important design activities will happen between the workshops where the design team will develop the ideas, concepts or services proposed by lead users. We will take the lead users' input and build on it based on our knowledge acquired throughout the project.

Workshop 1: Generating ideas at Designit

a. Specific goal

The specific ambition of this workshop is to involve Millennials (one of the two key stakeholders) to generate a multiplicity of ideas about how to promote intergenerational collaboration in the workplace.

b. Participants
We will try to involve all key stakeholders throughout the project and, being the design team from the Millennial generation, this seemed like a logical place to start given the project's timeline as well.

One member of the design team, Laura, works at Designit and we, therefore, used this opportunity to invite some of her colleagues to the workshop and to host it there as well. We know that participation is a lot to ask for, so we tried to make it easier. We additionally invited the survey respondents that chose to give their email because they were interested in the thesis topic, and ended up having a total of 5 participants. The design group made 8 people in total.

c. Workshop facts

Location	Designit Copenhagen
Date	21st April
Time	16 to 17:30
Participants	6
Main facilitator	Laura
Secondary facilitator	Antonella
Participant (from design team)	Sofia

Table 6. Workshop 1 facts.

d. Agenda
We organised several exercises to contextualise the workshop within the project and guide the participants along ideation. The workshop would happen physically and the only person using a computer would be the facilitator, who would share a screen. All the writing, voting, and ideation would happen with analogue means as we think this promotes creativity and is more fun.

- **Part 0: Icebreaker**

The workshop will kick off with an icebreaker exercise aimed at giving everyone a chance to introduce themselves and talk to the other participants in a very relaxed format (see Figure 41). To tie the icebreaker to the workshop topic, we asked a question to share with the group: "What is something that you have learnt from someone from another generation?"

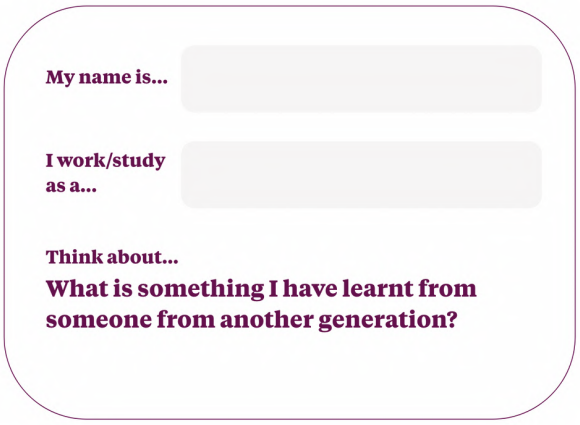


Figure 41. Each participant would get a card like this.

- **Part 1: Let's talk about ageing**

In this first part, we attempt to expose the participants' stereotypes and challenge their mental models about older people. From the survey we carried out in loop 1, we know that Millennials' idea of a 67-year-old is:

- Someone incredibly wise and with good judgement
- Someone who knows themselves and doesn't change their mind easily
- Someone slow with little energy
- The most picked animal as an analogy was an owl

Knowing this helped us organise an exercise where we could surprise the participants by showing that their mental model is not the only reality. For this, we applied principles to disrupt mental models through service design practices that we found during our literature review. They are summarised in Table 7.

From Designing for Aesthetic Disruption: Altering Mental Models in Social System through Designerly Practices (Vink et al., 2019)	From Reshaping mental models - enabling innovation through service design (Vink et al., 2019)	Summary
Engagement of the senses	Sensing surprise	These have plenty in common so are merged into "Senses"
Exposed assumptions		
Experience of disseensus	Perceiving multiples	These have plenty in common so are merged into "Dissensus"
Reflection		
	Enacting different mental models	This will hopefully be activated by the participants during Part 4: Ideation

Table 7. Summary of theory for changing mental models through service design.

Mental model exercise

Exercise

The application of the previously explained principles was carried out through 4 sequential steps (Figure 42) in a 10-minute exercise.

Principles

- Senses
- Dissensus
- Exposed assumptions

- Exposed assumptions

- Dissensus

- Reflection

Steps

1. Show the participants a few seconds of a video
2. Ask them: what do you think is happening here?
3. Show them what is actually happening
4. Introduce the concept of ageism

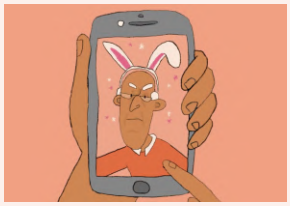
1. Briefly explain the results from the survey
2. Comment on the marked social roles that we assign to different ages
3. Explain that stereotypes are nor completely false, nor necessarily true

1. Tell three short stories about 60+ people that disrupt the common stereotypes that Millennials have of them

1. Space for sharing

First video

A man appears to be confused with his phone.



He is actually trying funny filters!

Second video

A woman appears to be resting and breathing loudly.

She is actually practicing yoga!

Figure 42. Illustration of the mental model exercise.

- **Part 2: Project recap**

In this part of the workshop, we explained why our topic is relevant today and how it will affect our working lives (Figure 43). We tried to keep it simple and provide only the necessary information for ideation in order not to overwhelm the participants. We explained this in around 5 minutes.

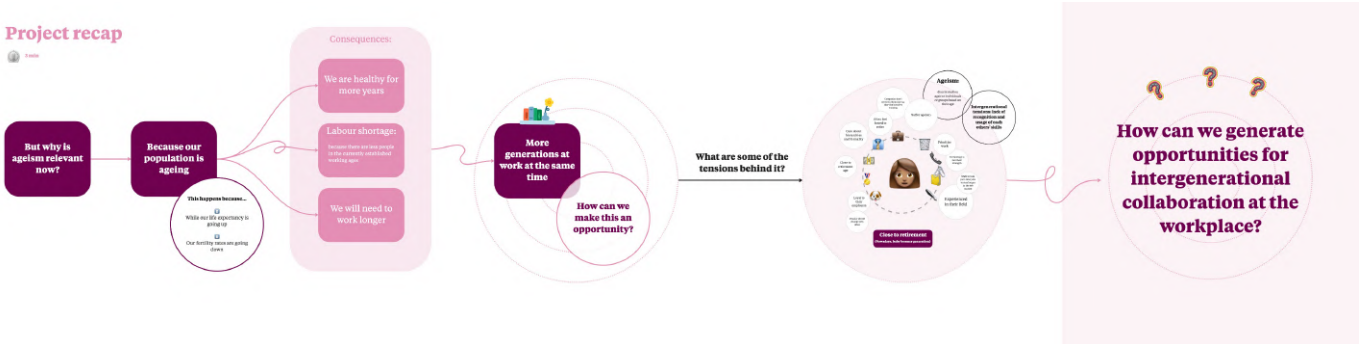


Figure 43. Miro board containing the Project recap that we presented in the workshops.

- **Part 3: User journey**

Ideation starts in this step, where the participants were divided in two groups to brainstorm together. We created a user journey as an anchor for ideation: to give context to the ideas and to give participants the information they need in order to generate relevant ideas.

The user journey included two simultaneous but different journeys: one of a Millennial and one of a Baby Boomer, who both end up working at the same company. The steps in the journeys are informed by research and by personal experience (in the Millennial case), and chosen to reflect how each has different experiences of the workplace e.g. how Baby Boomers face ageism or a Millennial thinks about forming a family.

The journeys have two-time scales: one that goes through several years and then a zoomed-in area where one day at work is shown from arrival to dismissal. We wanted to offer this flexibility to participants because the different scales might lead to different ideas. The participants could write down their ideas in Post-its and then place the Post-its in the space between both journeys (see Figure 44). Some example ideas were placed there beforehand for inspiration, but they were quite generic so we wouldn't influence them too much.

The participants were Millennials, so the idea was that they brainstormed from their point of view of the intergenerational collaboration i.e. what could I use help with? How could I interact with an older colleague? What would my collaboration with them look like?

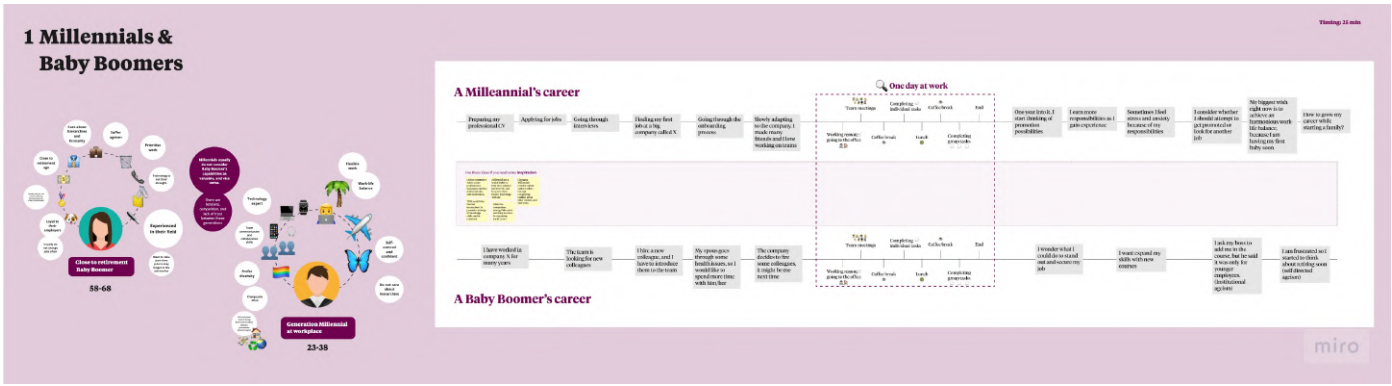


Figure 44. Miro board containing the user journey exercise.

As an additional piece of guidance, we created two schematic personas of a Baby Boomer and a Millennial, as you can see to the left of the image. We included statistical characteristics extracted from the research. The participants could choose to read them for inspiration or to go straight to ideation.

- **Part 4: Dot Voting**

The fourth step of the workshop was very simple and consisted in voting with stickers for the best ideas that emerged from the previous exercise.

- **Part 5: Idea development**

The last step of the workshop revolved around developing the most 2 or 3 voted ideas in 2 or 3 groups, depending on the result of the voting.

For this, we designed two ideation sheets (see Figure 45). The first one helped participants develop the characteristics of their idea, and the second one is more sequential as it prompts participants to explain the functionality of the idea in 3 steps.

After they were done with the exercise, the participants presented their ideas to the group.

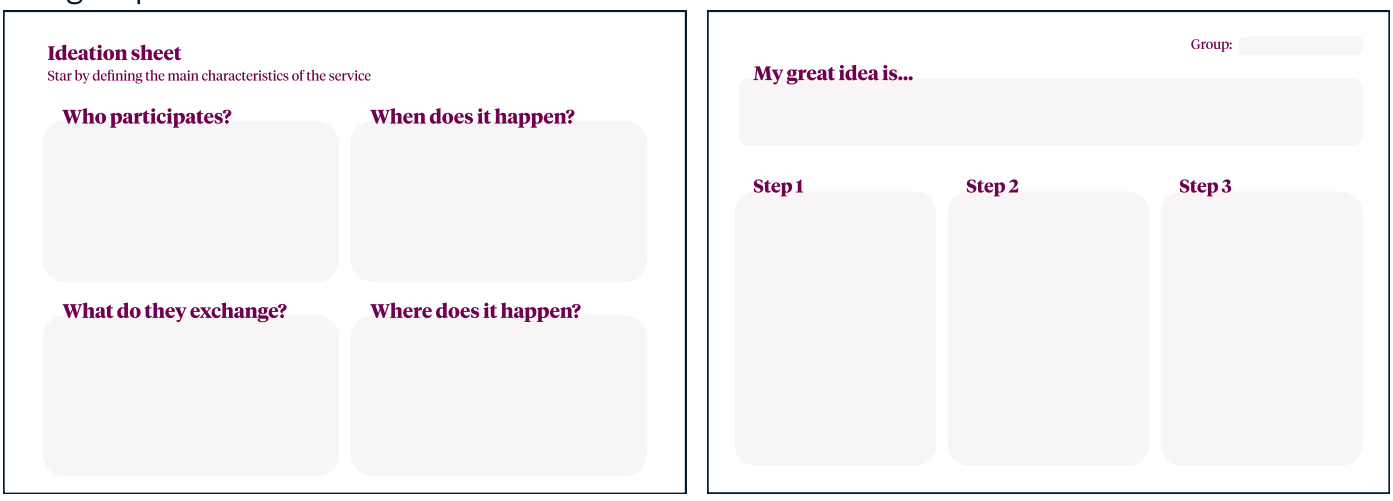


Figure 45. Ideation sheets.

- **Part 6: Goodbye**

At the end of the workshop, the intention is to have 2 or 3 concepts for intergenerational collaboration in the workplace. We also planned to give participants thank you cards and a small gift.

Workshop 2: Developing the concept at Mærsk

a. Specific goal

As previously mentioned at the beginning of this section, the goal of this workshop is to involve Millennials and further develop the ideas from the previous workshop.

b. Participants

We decided to organise a workshop at Maersk, where Antonella works, to make it easier for the participants to attend, as they were all Maersk employees. The participants of this workshop belong to the Millennial generation and were respondents to the survey conducted in loop 2. We trust these participants are interested in the thesis topic as they left their email at the end of the survey allowing us to contact them for further participation.

c. Workshop facts

Location	Maersk Copenhagen
Date	24st April
Time	16 to 17:30
Participants	4
Main facilitator	Antonella
Secondary facilitator	Sofia
Participant (from design team)	Laura

Table 8. Second workshop facts

d. Agenda

We opted to maintain the initial part of workshop 1, as it was still pertinent (the icebreaker, let's talk about ageing and project recap). Additionally, we introduced three new sections that will be described in the following paragraphs.

- Part 0: Icebreaker (same as workshop 1)
- Part 1: Let's talk about ageing (same as workshop 1)
- Part 2: Project recap (same as workshop 1)

- **Part 3: Allies**

In this part of the workshop, we aim to introduce the idea generated in workshop 1. However, we did not present the original idea as it was initially conceived. Instead, we made some adjustments by checking if the concepts

obtained in the workshops aligned with the design requirements obtained in the literature review (see Figure 46):

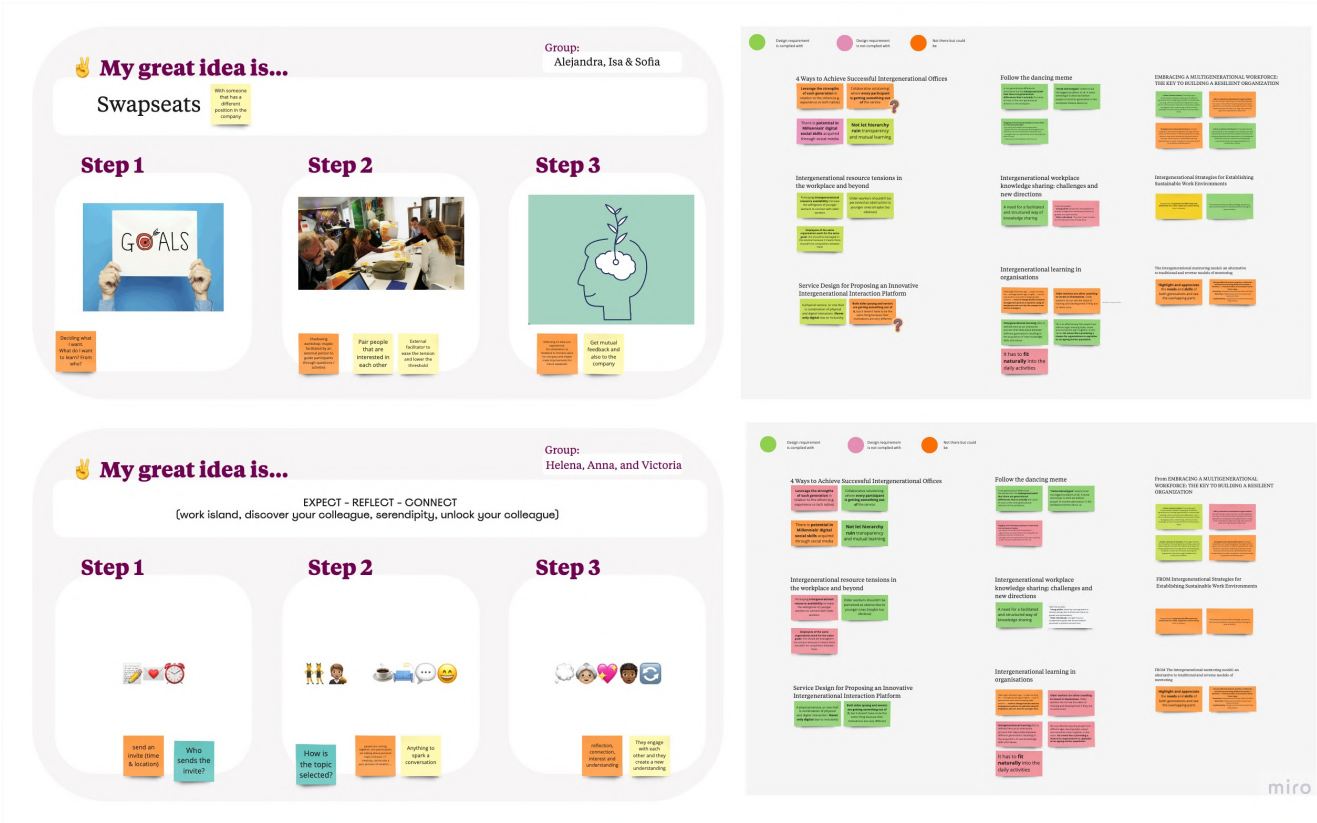


Figure 46. Screenshot from Miro board where the ideas were contrasted with design requirements.

We compared each design requirement with the solutions and placed them into three categories (see Table 9):
1. Solution follows the design requirement,
2. The solution does not follow the design requirement, and
3. The solution does not follow this design requirement but could potentially follow it.

Design requirements	Solution follows this design requirement	The solution does not follow this design requirement	The solution does not follow this design requirement, but could
Leverage the strengths of each generation in relation to the others (e.g experience vs tech native)	●		
Transmitting and sharing skills, knowledge, experiences, and resources attached to specific generations among all types of workers	●		
It has to fit naturally into the daily activities			●

Table 9. Comparison between solutions and design requirements

After this step, we were able to identify which design requirements were not considered in the initial solutions and made improvements accordingly.

The following step was to merge the improved solutions into three steps and simply described them so everyone could understand. Notice that we decided to leave the idea at a concept level without too many details, in order not to limit the participant's creativity. In this activity, the participants do not take any action besides paying attention and understanding the concept (Figure 47).

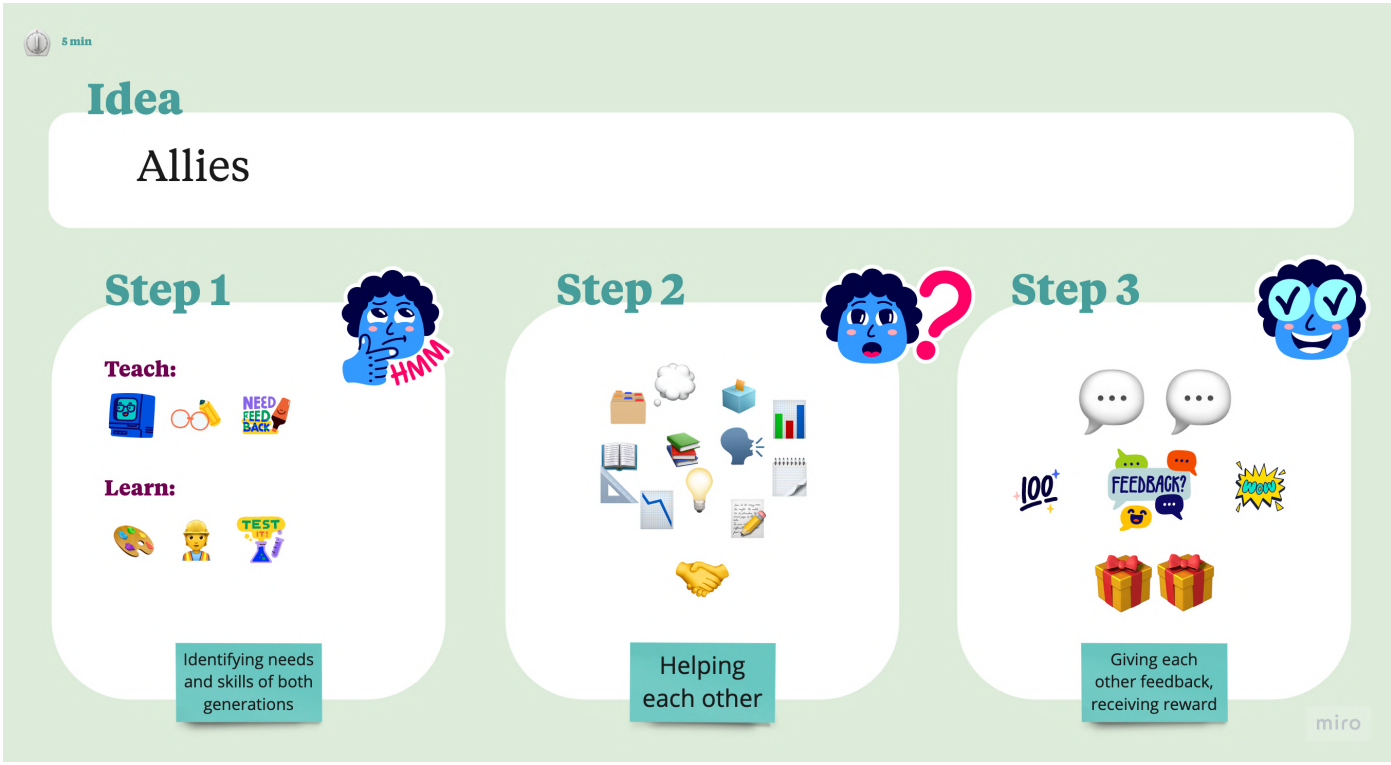


Figure 47. Miro board with the Allies storyboard.

- **Part 4: Thinking hats**

This is the first creative activity of the workshop, where the participants have to think about Allies' concepts and provide feedback. The feedback would be provided by applying the Six Thinking Hats method (de Bono, 2016), which was tailored to our workshop needs and the time frame we have available.

The modifications carried out to the Thinking Hats method are: firstly, using the hats that would provide more relevant feedback and removing the rest; secondly, each participant would wear only one hat and not all of them as in the original method. Otherwise, the activity would have lasted a long time. Finally, we added guiding questions to spark inspiration.

In this activity, the participants are encouraged to wear the assigned hats that correspond with a specific mode of thinking (Figure 48). The idea is that they spend ten minutes providing feedback on the Allies concept by writing on the post-its next to each hat. They can use the questions as an aid. The following and last step is to share the feedback with everyone in the room.

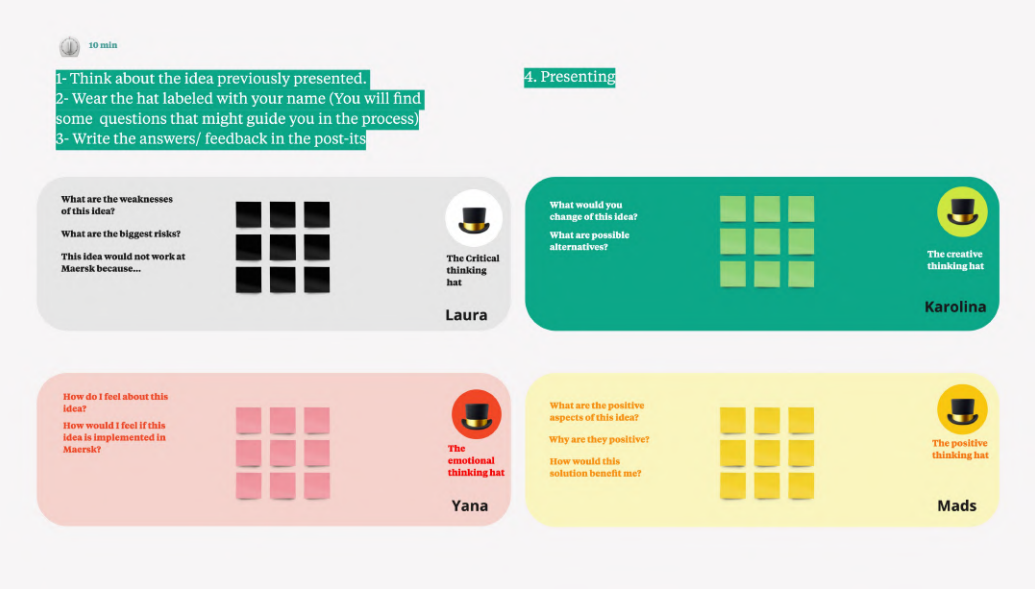


Figure 48. Miro board with the Thinking Hats activity.

- **Part 5: Allies 2.0**

In this activity, the participants should work together, in one group. This time, the participants are not designers so we believed teamwork might help to better foster creativity. Moreover, Laura, who will participate in this activity, will have the possibility of guiding the group in case they run out of ideas.

The goal is that the participants use 15 minutes to further develop the concept of Allies (Figure 49). They have a lot of freedom meaning they can use Allies' existing steps, remove them, create new steps, etc. In addition, participants are encouraged to use images, emojis, text, or whatever helps them to express the idea best. The only rule is they should use the feedback provided in the Thinking Hats activity to develop the idea. Finally, the group should present the idea to the facilitators.

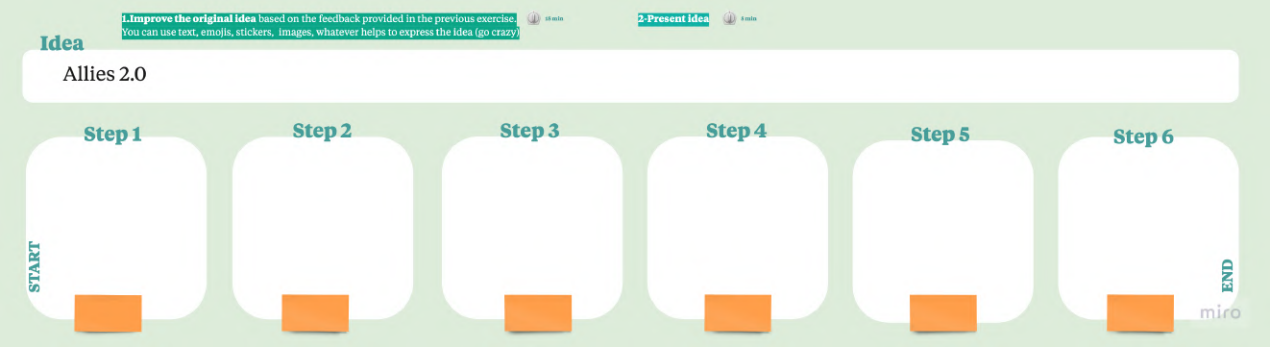


Figure 49. Miro board with the last workshop activity.

- **Part 6: Goodbye**

At the end of the workshop, we give a small present to the participants as a way of thanking them for their time and participation. At this point, we will hopefully have reached our goal, of having the idea of Allies further developed.

Co-creating & co-learning

The workshop at Designit

The workshop was a great success (see Figure 50). We began by sharing personal stories as an icebreaker, and everyone was eager to discuss their experiences with people from different generations. Throughout the workshop, everyone actively participated in the activities and enjoyed themselves while contemplating age stereotypes. The participants were pleasantly surprised by how simple and accessible the exercises were.

The videos

When showcasing the videos, everyone in the room said “aha” when discovering the truth about what the old man and lady were doing. One of the participants said that the videos were very surprising and made her change her perspective, and wanted to know more about where we had found these resources:

“The videos were very cool because they make you have a different perspective” - Workshop participant

“Where did you find the videos?” - Workshop participant

Individual brainstorming

After the project introduction, we asked them to individually think about some opportunities for collaboration. This exercise gave them the chance to take a moment to think deeply about ideas that could solve the problem at hand.

User journey

It's important to mention that we made a last-minute change to the exercise template just before the workshop started. We felt that the original template, which provided detailed user steps, had too much information and would not encourage participants to be creative. Instead, we simplified the template and used two lines to represent each actor's career path. We believe this decision was beneficial because it aligned with our desired outcome for the exercise.

From the individual ideas, we grouped the participants into small groups for them to combine the ideas and create more tangible design concepts to present to the rest of the attendees. We didn't facilitate the transition from individual to group ideas but left it open for participants to unleash their creativity. The transition was a bit hard for participants, who were not sure if they should share their existing ideas within the group or simply come up with new ideas together. This was a consequence of our last-minute change of plans, which we believe was beneficial for the workshop overall but perhaps not for this specific moment. However, as a result of the exercise, two well-developed

ideas emerged, providing great inspiration for the final solution.

Figure 50. Pictures taken during the workshop at Designit.

Once everyone shared their design concept, we handed over their gifts. Everyone said that this was a very nice gesture. After the workshop, some participants mentioned that their perspectives on ageing had completely changed. They enthusiastically shared their experience and the topic with everyone they encountered over the weekend (they told us this the following Monday). In addition, one participant expressed a commitment to change the way they talked about age in the workplace - this was the fourth step in the theory of changing mental models, “embodying alternatives” (Vink et al., 2019).

"I make jokes all the time about how old I am - I am going to stop that from now on." - Workshop participant

The workshop at Mærsk

The workshop took place at the Mærsk office as all the participants were employees of the organisation. We began by providing a short introduction to the project and discussing the problem we aimed to address.

The videos

The videos had a similar effect to the previous workshop at Designit. Just like before, all the participants were surprised by what they saw. The videos really caught their attention and made them think differently.

4 Thinking hats

This exercise worked well. We carefully assigned different roles to the participants based on their personalities, making sure to utilise their strengths in finding weaknesses, being creative, showing emotions, or maintaining a positive outlook. We initially allocated 10 minutes for this activity, but the participants requested a few extra minutes, indicating their engagement (Figure 51).

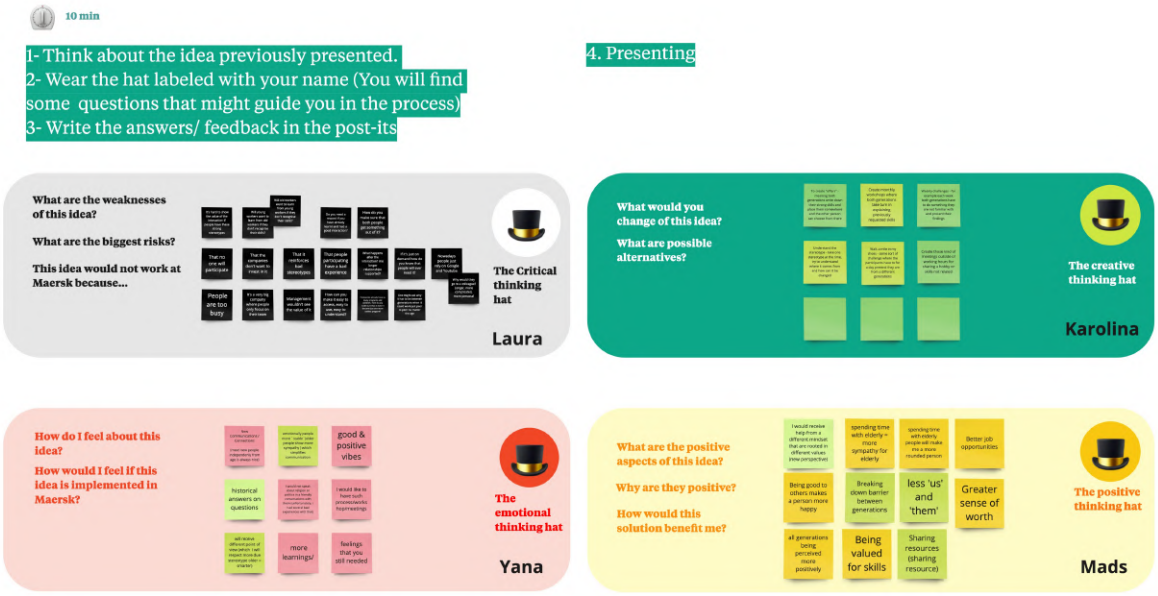


Figure 51. Miro board of the 4 Thinking hats after the workshop at Mærsk.

Storyboard

This was the toughest part of the workshop. Participants had to take the concept further using the insights from the previous thinking hats exercise. They shared their thoughts as a group, but sometimes the ideas remained as casual conversations rather than being put into a concrete form on the Miro board. This made the exercise take longer than we anticipated.

As the participants were working in the software development field, their minds naturally gravitated towards considering the functionality of a digital platform

rather than focusing on the abstract level of the concept and the interaction among the users. The challenge was to redirect their focus towards the interaction and not solely on the technical aspects. Furthermore, the participants were uncertain whether the idea was intended to be implemented within a work environment. Consequently, some of the generated ideas centred around personal hobbies or activities outside of work hours, which was not the intended outcome.

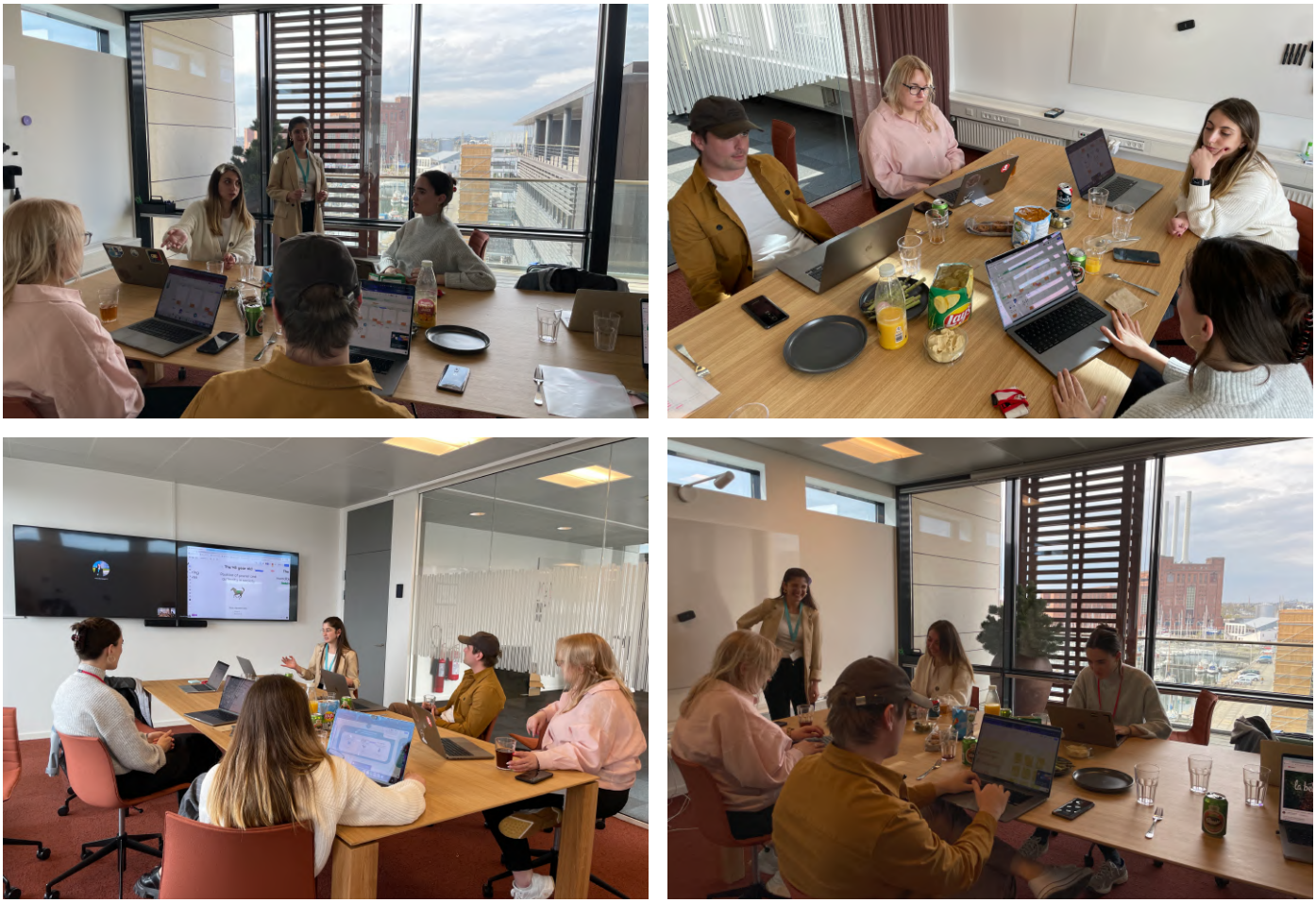


Figure 52. Pictures taken during the workshop at Mærsk.

While the workshop (Figure 52) did not result in a very developed design concept, we were able to gather crucial and valuable design requirements (see Figure 53). For instance, participants shared their thoughts on the idea of having one-on-one meetings with senior employees for learning purposes. Interestingly, they expressed a preference for a small group setting, highlighting that it would feel less awkward and more manageable for them. These insights provide valuable guidance for creating a successful concept.

The atmosphere in this workshop had a slightly different feel compared to the previous one because all the participants were colleagues from the same company and already knew each other. This aspect posed a challenge in maintaining their focus on the assigned task.

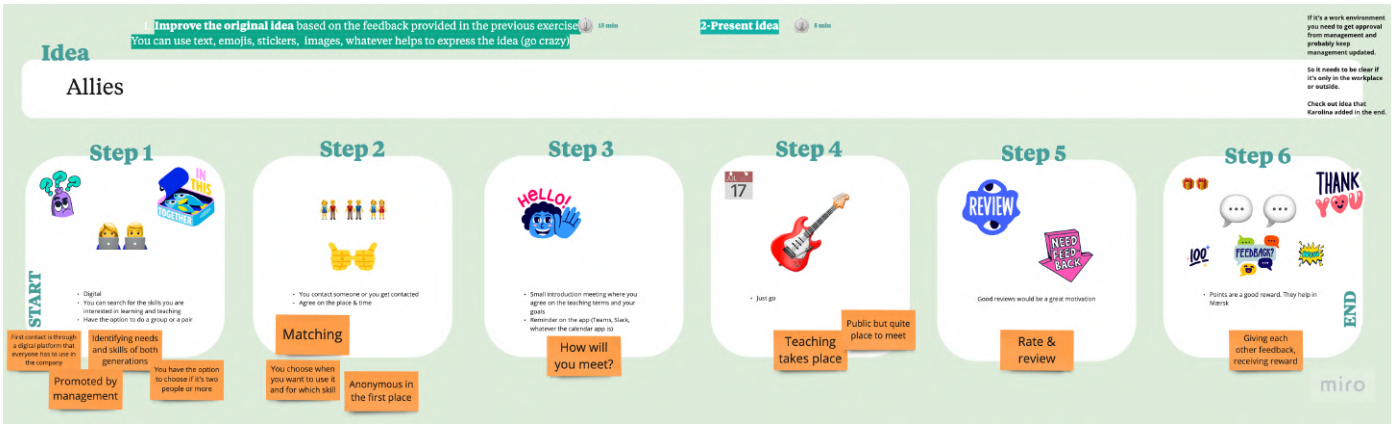


Figure 53. Miro board of the concept developed by the participants in the workshop at Mærsk.

Reflections on both workshops

What went well
We discovered that the participants were really engaged in the workshop activities and also in the topic, because even after the workshop, our friends and colleagues kept talking about how important it is to promote intergenerational collaboration. This is really inspiring for us: to know that by facilitating the workshop, we already generated a good impact:

"By the way, I thought about your topic and maybe would be cool to have more social events between the younger and older generations to break the border between generations, as usually, you change your opinion of a person after a beer or a coffee together." - Yana, participant of the second workshop

"I think is a really cool idea what you are doing for your thesis, I think we really need something like that in Mærsk." - Mads, a participant from the first workshop

Another way to prove the mental model activity was successful, is by observing participants' surprise reactions. By comparing the mental models we derived from the survey, the content in the videos and noting participants' surprises, we can infer that this activity successfully challenges the participants' mental models about ageing. This result also indicates the validity of the survey answers.

In workshop number 1, all the participants were designers. Therefore, the activities went very well, everybody understood the goal, and the participants had enough time to complete everything and reflect on what they did as well. Moreover, participants were comfortable and open to presenting the result of the ideation session which might not be the case with non-designers.

The Thinking Hats activity was very helpful to make participants reflect on the intergenerational collaboration idea. Even though our intention (that they develop “Allies” directly based on the Thinking Hats exercise) did not happen as expected, this activity gave us more useful insights. Therefore, we agreed that as facilitators we should focus more on what worked well and analyse those insights straight away and not focus on analysing activities that did not go as expected (as the ideation session).

What could have been better:
We believe we should plan activities based on the participant's background. In the workshop carried out at Maersk, the participants were developers, so it was much more difficult to complete the ideation session, which was very natural in the workshop at Designit. So, next time we plan an ideation session for non-designer participants, it should be a simpler activity or it should be guided differently.
The main goal of the workshops was to involve Millennials and co-create a solution together. However, we found out that ideating with participants that do not know anything about the project does not go very well. The design team knows much more about the topic and thus would generate ideas that fit the insights better. Furthermore, combining the solutions created in the workshops with the rest of the design requirements (obtained in loops 1 and 2) was very challenging and not too effective. We conclude that the most valuable outcome is not the ideas resulting from ideation sessions, but the conversations that emerge from the creative exercise. However, open conversations and feedback activities (like the thinking hats) allowed us to gather more insights and were more successful. Even though we could not use the final solutions as expected, we still used the workshop's insights in our development process.
In figure 54, one can visualise a comparison between the different participants involved throughout the project.

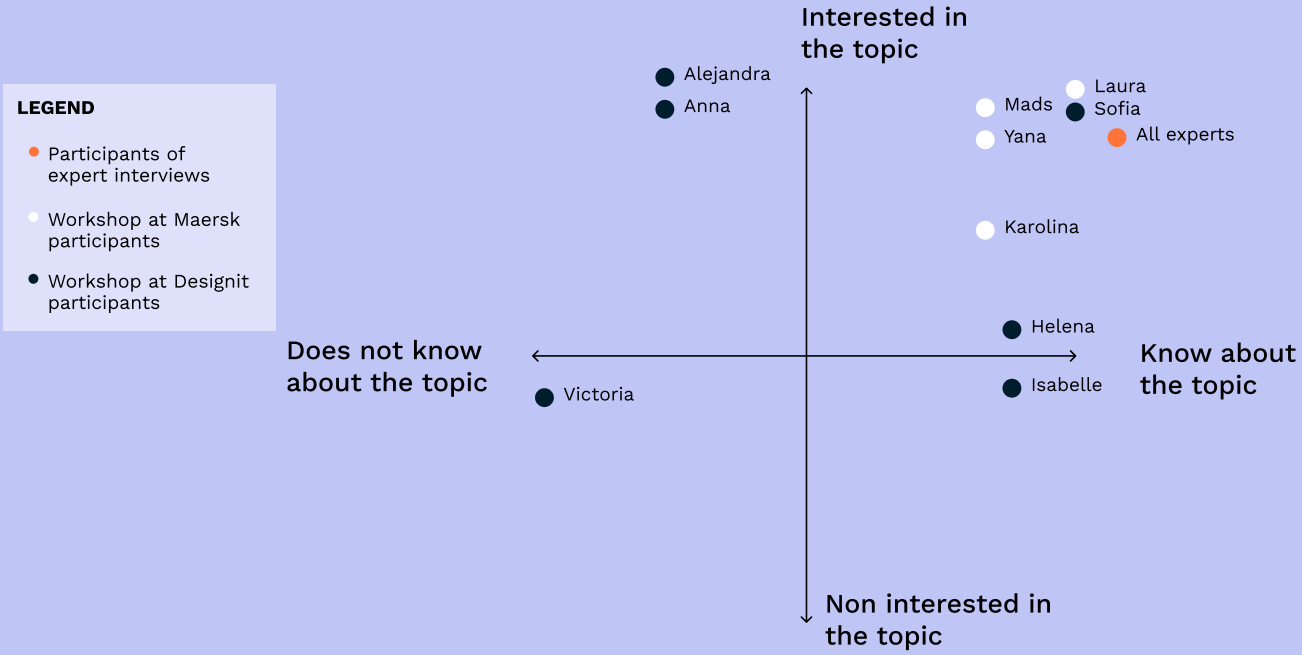
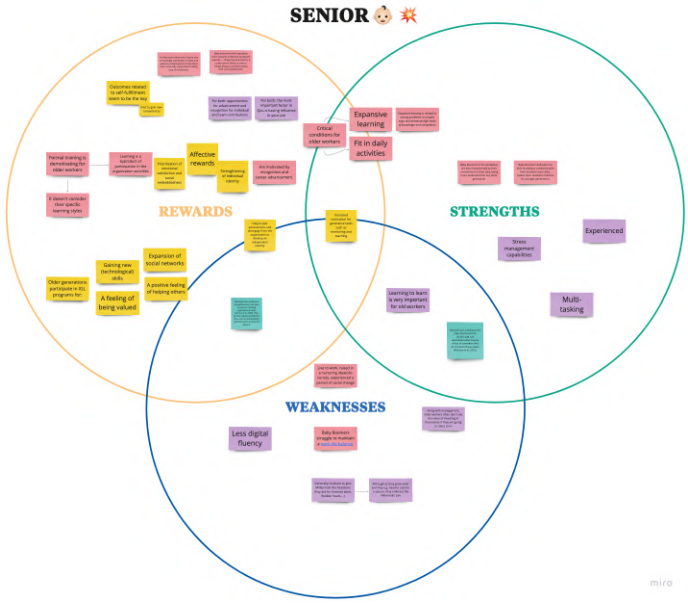


Figure 54. Graph that represents how lead users were the involved stakeholders

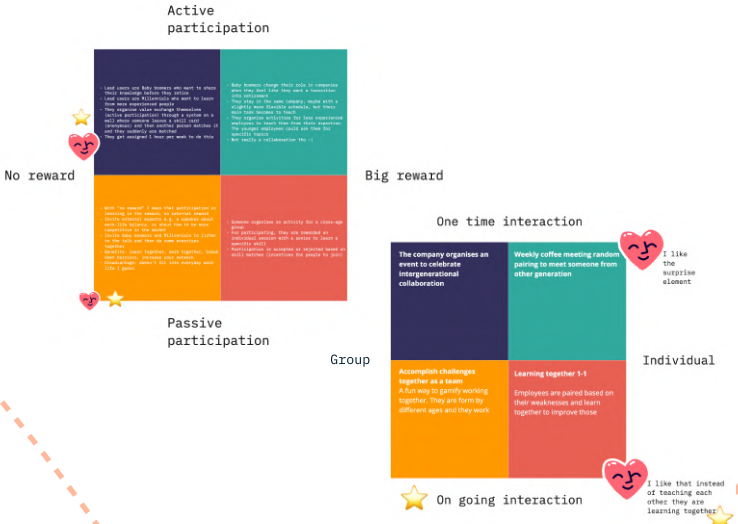
Reframing loop 3 - Part 1

After carrying out the two workshops, we analysed the insights from both through a series of activities that will be explained in this section (Figure 55 and 56).

1 To keep in mind the final users of the solution, we created a Venn diagram with Strengths, Weaknesses and Wishes for both young and senior employees. These we based on research (see section Target group).



2 The goal was to play with the insights to see if they gave way to some new ideas, so each member of the group took a group of insights: the workshops, the users, or the design requirements. We suggested axes to create Quattro Stagioni and then generated ideas around them.

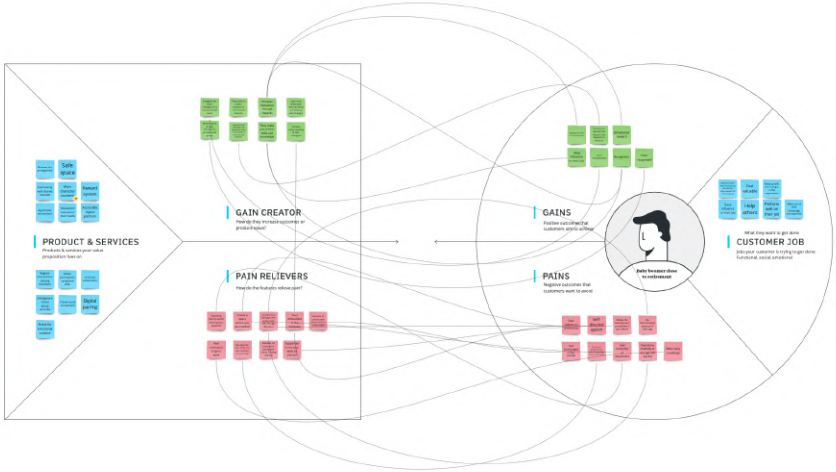


3 Some patterns emerged from the Quattro Stagioni, e.g. ways of interaction or specific sets of axes that resonated with the insights. We created a board with “characteristics of the service” based on these.

Figure 55. Explaining reframing loop 3.

Reframing loop 3 - Part 2

4 The fourth step took place the following meeting, two days after. It consisted in making sure that the solution we had ideated would make senior employees feel more valued, since this is the ultimate goal. For this, we used a value proposition canvas.



5 Once we made sure the intended value would be created through the service, we developed user stories. User stories are a good way to agree on the sequence of the service and the functionality behind it without reaching the level of complexity of a blueprint, which we considered was not needed for a test.

Phases · Users' tasks · Requirements · Materials

6 Lastly, a storyboard was developed based on the key steps from the user stories. It was meant to be used during testing, and went further than the ones used in the workshops in terms of level of detail: it was no longer at the conceptual level and showed more functionality so that the participants could form a proper opinion around it.

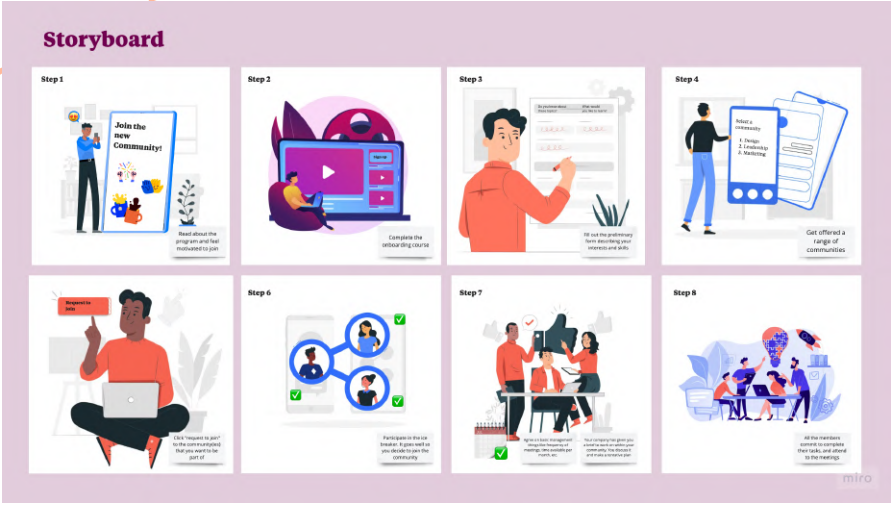


Figure 56. Explaining reframing loop 3.

In step 1, we applied a Venn diagram to show the specific and shared qualities of the individual actors. This type of visualisation is useful to compare the differences and find opportunities in the commonalities (Miro, 2023). In the following step, we apply a Quattro Stagioni diagram which is also referred to as a polarity diagram (Manzini et al., 2009). In this format, mutually excluding polarities are selected to intersect and create different combinations until they converge to a final matrix in which 4 promising scenarios emerge (Manzini et al., 2009).

Through this process, we combined co-design insights with our previous research and created a service proposal to test during the next loop. We will elaborate further on steps 5 and 6, where we developed this proposal.

User story map

A user story is a method commonly used by development teams to collaboratively decide the features of a digital application with a user-centred approach (Kaley, 2021). A user story could be something like this:

"As a young employee, I want to gain company-specific skills so that I have more possibilities for promotion." - Example of a user story

In this case, we applied a user story map (figure 58) which is an evolution of user stories since it adds more detail and complexity to become an exhaustive and independent tool. User story maps typically involve three levels of detail: activities or high-level tasks, steps or subtasks, and details which are granular interactions (Kaley, 2021). We adapted the format to suit our needs, describing overarching phases and making a row of activities for each actor. On the lowest level, we created a row called "Materials" to correspond with the physical or digital materials needed for the realisation of the interaction. This would not be needed in the usual context of the application of user story maps around a digital product.

Even though our service proposal combines both digital and analogue interactions, the format proved very useful because it allowed us to agree on the service characteristics from the overarching phases to the detailed tasks of each actor. In comparison with a service blueprint, a tool more commonly associated with service design, a user story map:

- is quicker to make
- focuses less on relationships between actions

At this point of the project, these characteristics suited our goals best since the intention was to create a first proposal of a service that would be tested the following week.

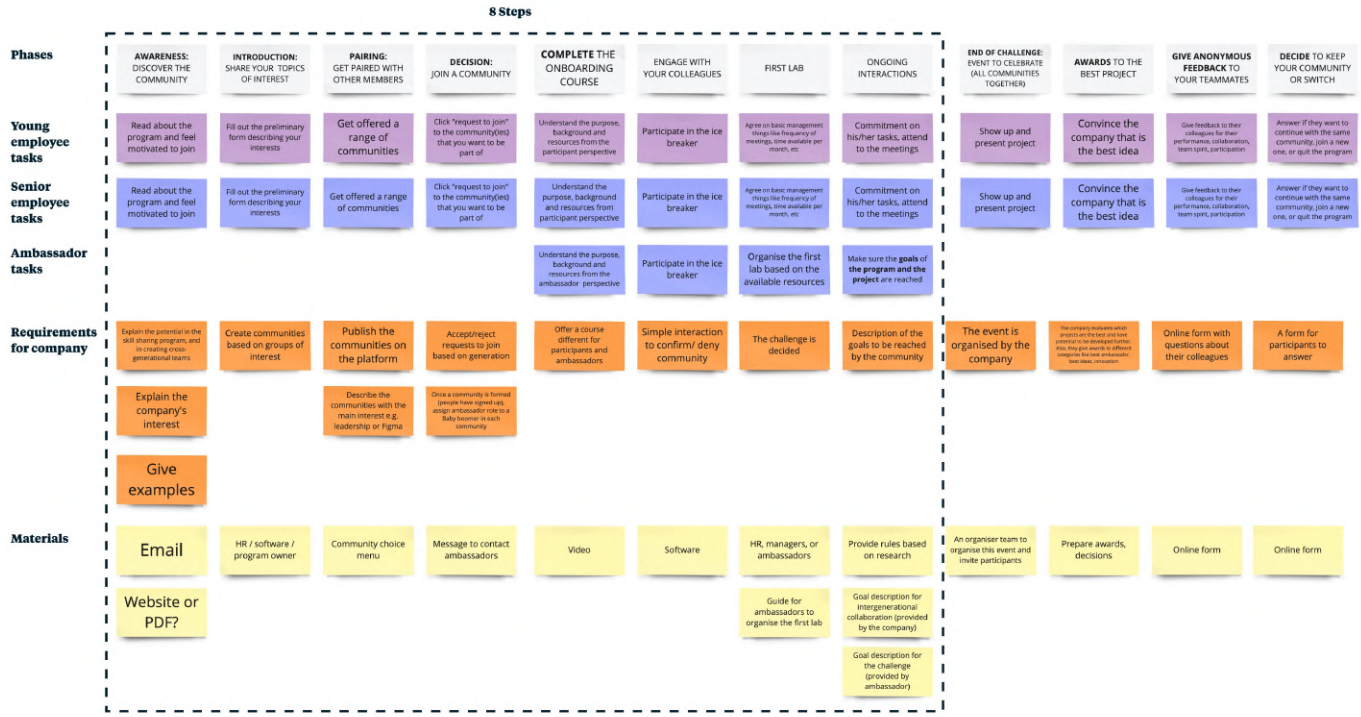


Figure 57. User stories show the tasks and requirements of the different actors participating in intergenerational collaboration.

Storyboard

From the user story map, we selected the most relevant steps to test the service and represented them in a storyboard. The storyboard portrays a higher level of detail than the ones we created during/for the workshops and defines the functionality more accurately. In this way, we give test participants the chance to comment not only on the conceptual but also on the detail/ interaction level. This will also allow us to understand better what resonates with them and on which level. The application of this storyboard for testing will be explained in the next sections.

The concept: Intergenerational community at the workplace

This solution (figure 58) aims to create a community that would foster intergenerational collaboration at the workplace between Millennials and Baby Boomers.

The company would create announcements about the new community that depicts relevant information to join the program. The interested employees should complete an onboarding course where they will learn the importance of intergenerational collaboration, additionally they should fill out a form explaining why they are interested in joining the community, what they would like to learn and share during the meetings. Once completed the onboarding course and the form, they would be offered a range of communities that matches their interests, for example “you are invited to joining the following communities: “design, leadership, and marketing, please choose one”.

After choosing their favourite community, they would participate in a “blind” ice breaker, this activity aims to expose the members of the potential community to a short fun activity, which would be anonymous. In this ice breaker, they could

test their compatibility with the community members, and have the possibility of accepting or rejecting the matching depending if they felt comfortable, or not.
If all the members clicked accepted after participating in the ice breaker, the community is formed. In the following step, the community members meet, and start working on a project provided by the company. After several meetings, Millennials and Baby Boomer would get to know each other, learn new things, and hopefully transform their mental models about the other generation for a more positive ones.

Figure 58. Storyboard representing our service proposal.

Reflections on Reframing Loop 3

In this case, the activity of reframing consisted of a combination of analysis and ideation (convergent and divergent thinking) which resulted in an IGC service proposal that intends to answer our problematic question. Therefore, the question did not change because it was not the expected outcome.

What worked well:

- This reframing was easier than the previous one. It will be insightful to analyse the different methods we used and reflect on why this sequence of methods worked better. Of course, the amount of information for this reframing was smaller than in the previous one, but it is still a valid comparison.
- Value proposition canvas and Venn diagram: effective methods for reframing? These methods worked well for the reframing, as they allowed us to summarise a big amount of information about the senior employees and make sure that we, in the end, were generating value for them.

What could have been better:

- Did we use the Quattro Staggioni method correctly? We might have used this method a bit too early in the ideation process. We used it to ideate the first solution, which means, we carried out the activity using all our design requirements, and maybe it would have been better to first decide on a solution and then use the Quattro Staggioni to develop it further, as it might work better to improve solutions and not to develop solutions from the beginning.

Loop 4
IGC - Testing the solution

After conducting two co-creation workshops, we proceeded to test the concepts that emerged from them. This section will outline the preparation of these testing sessions, their execution, and the impact the results had on shaping the final solution.

Staging: preparation of two separate testing sessions with two senior employees.

Co-creation and co-learning: we held two testing sessions.

Reframing: After each testing session, we iterated the design concept based on the insights gathered. Both tests helped us understand the target group better, and develop our solution.

Testing the concept on IGC

Staging

Our objective with this loop is to test the concept we developed during the reframing of Loop 3. We wanted to make sure the idea is aligned with the users' needs and wishes, and with our project goals.

Planning the session

During the one-hour testing session, our main goal was to get feedback from a senior employee about the service for IGC at the workplace. We wanted to hear his thoughts since the concept was mainly developed by younger generations.

The agenda for the session was as follows:

1. We gave a quick update on the project's progress since we last talked.
2. We walked the senior employee through the concept storyboard to explain the idea clearly.
3. We asked him specific questions to get his feedback on the concept, including any concerns or suggestions he had.

We selected specific questions (figure 59) to test if the concept is practical and feasible. Additionally, we wanted to know if the senior employee had already encountered a similar concept in their work. By asking these questions, we aimed to gather insights on how the concept could be implemented and if any existing strategies could be integrated.

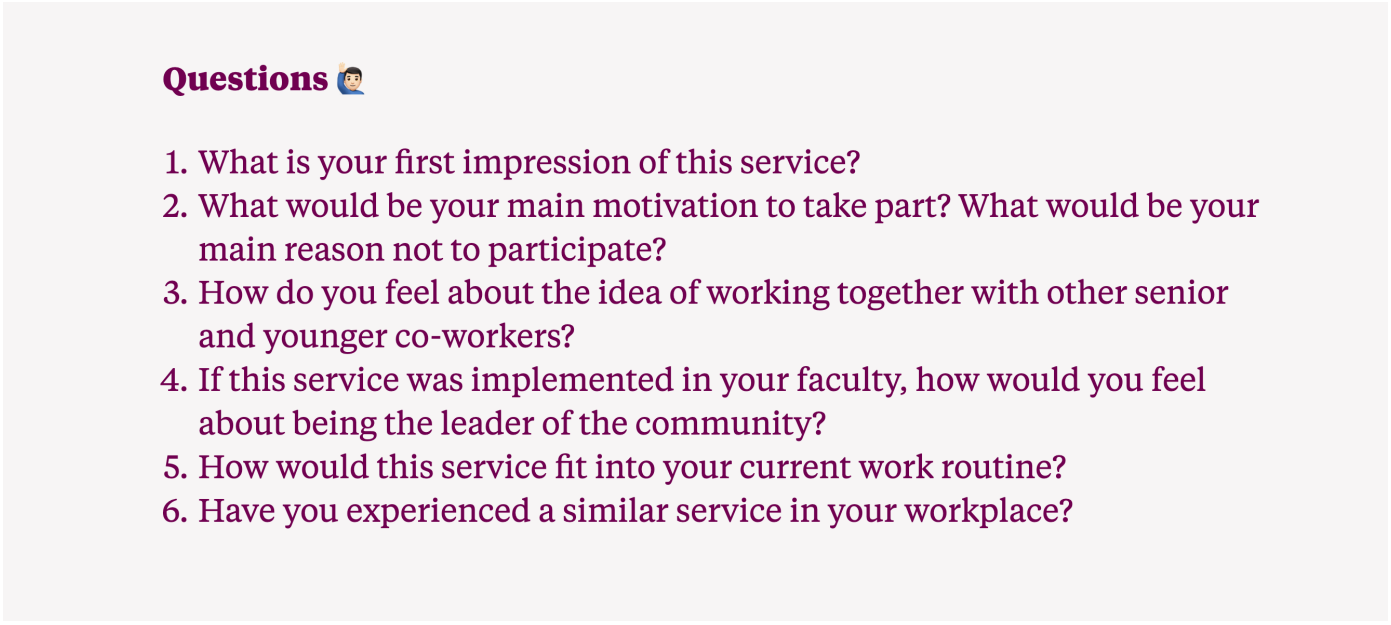


Figure 59. Screenshot of the board in Miro with the questions asked during the testing session.

Co-creating & co-learning

We held an online testing session for 1 hour. The test was in the shape of a semi-structured interview where he shared his thoughts about the design concept, which was portrayed in a storyboard.

One of the biggest learnings that we got from this intervention was that this type of collaboration already exists naturally at universities but in an informal shape, meaning that it is indeed an effective way of working and making employees engaged in their practice:

"But again, the university is perhaps very atypical. Because it is a place where you are constantly forced to work together with all your colleagues and colleagues from abroad and very often across generations." - Andersen, 2023, Appendix F

When we asked him about matching employees based on their skills and abilities, he said that it has been a great approach for projects based on his experience:

"If you take the best from each of them and then you can do good things, even fantastic things, that's really what I have been enjoying in my professional work. [...] Take people with complementary competencies and then combine the best of them. That's a fantastic experience." - Andersen, 2023, Appendix F

Our overall feeling from this testing session was that we picked the wrong participant since senior workers are more comfortable in university than young workers. Young workers often have temporary contracts and their work is not fairly credited. Therefore, the participant was not in our target group.

Reframing

Based on the insights gathered from the testing session, we reached three significant conclusions for our project:

1. **We need to specify the target company:** During the interview, he expressed that senior employees are in a very powerful position in this field, whereas younger employees suffer from other ways of discrimination until they acquire experience and get an offer for a permanent contract. This insight made us realise our solution is more suitable for big corporations where senior workers have more challenges as they reach retirement age. We elaborate on this conclusion in Reframing Loop 4.

"As I see the main problem at a workplace like a university is perhaps not that of maintaining the old, because they usually have some positions of power. The problem is that of integrating the young and avoiding exploiting the young, which is often seen." - Andersen, 2023, Appendix F

2. **We need to specify the benefits for each actor:** It became evident that we should clearly articulate and communicate what each actor involved in the service will gain from their participation, something that we did not specify up until this point even though we had the necessary insights.

3. **We need to reduce the time commitment for senior employees**: Jørgen said that a reason why he would not be interested in participating in the service is that he would not have time to engage in other activities, especially, because this kind of collaboration already happens informally. This feedback emphasised the importance of minimising the time and effort required from senior employees and highlighting the gains for them.

"But I think your concept is what we do informally. Putting a formal structure to it – I think people would be afraid that it would take too much of their time." - Andersen, 2023, Appendix F

The following section shows how we iterated the solution based on these insights and tested the concept with a different expert who gave us many examples of how to implement this concept.

Testing the Tacit knowledge sharing concept

Staging

After carrying out a testing session with Jørgen Andersen, and having had supervision with Anders, our tutor from DDC, we started preparing for our second test with Gitte Jonsdatter.

She is a service designer who works at Sampension, a Danish corporate company managing pension systems. We had already interviewed her once before during our expert interviews in loop 1, and now we are taking the opportunity to test the solution with her since she is not only an expert but also in our target group of senior workers.

Anders gave us meaningful advice: to focus on what makes senior workers special and turn it into an opportunity for them to feel more valued. Inspired by the supervision and the previous test, the concept of tacit knowledge emerged. Tacit knowledge is knowledge acquired through experience that is not easy to articulate. Senior workers hold plenty of field-specific or even company-specific tacit knowledge, something that young workers lack. Furthermore, companies are interested in retaining this knowledge that is usually lost when senior workers retire. Therefore, an opportunity arises.

We wanted to test this idea in our session with Gitte, and knowing that she is a service designer, we prepared a simple and quite malleable agenda where we:

1. Introduced our project progress since she had shown interest in it via email
2. Explained the project context and the new narrowed-down focus
3. Presented a Venn diagram where Tacit knowledge transfer is shown as the opportunity uniting three circles that represent the company, the senior worker and the young worker (see Figure 60).

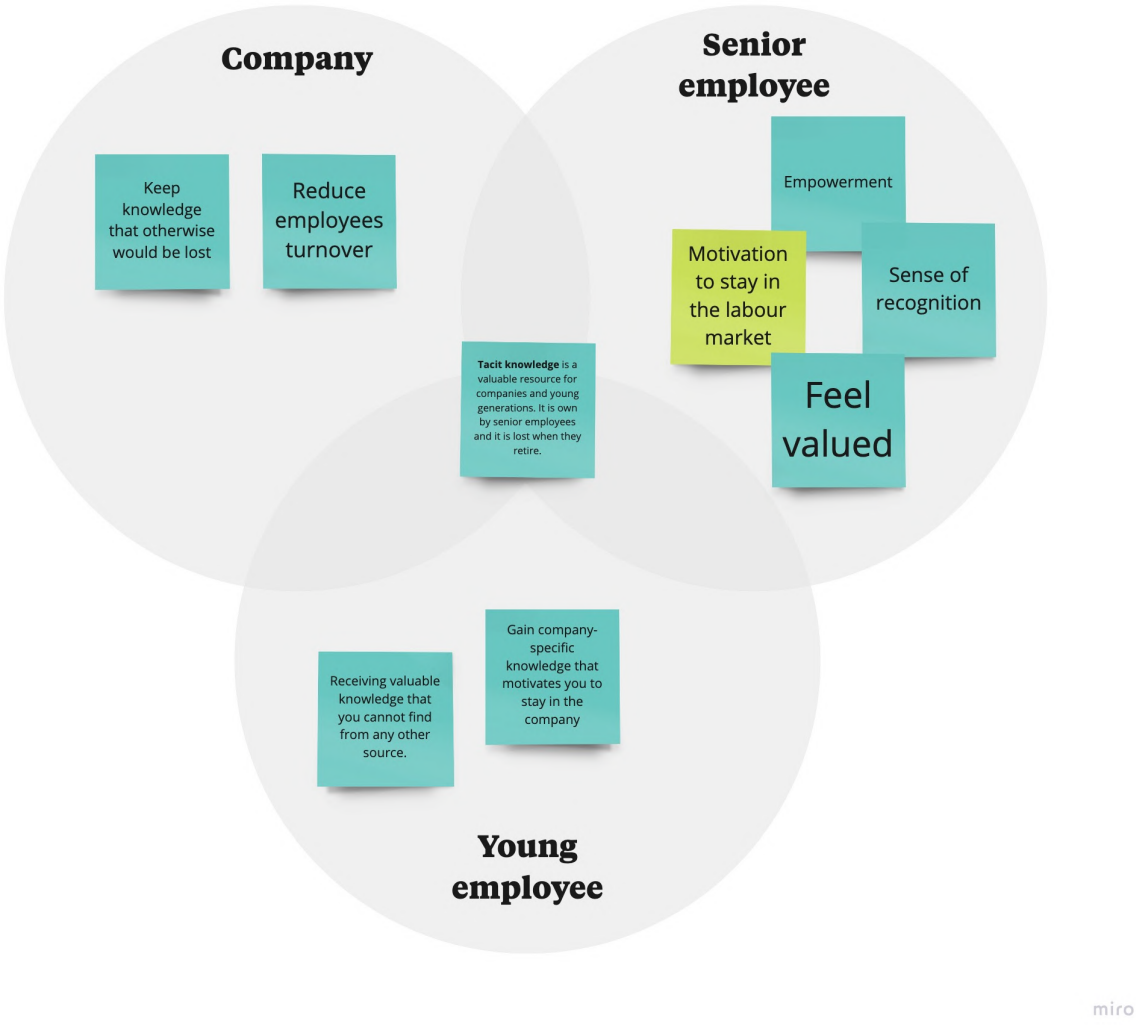


Figure 60. Venn diagram used during the second testing session, explaining the value proposed to senior employees, young employees and a company during tacit knowledge transfer.

4. Started a discussion mainly revolving around the following questions:
    a. What is your first impression of this idea?
    b. What would be your main motivation to take part? What would be your main reason not to participate?
    c. Have you implemented this in Sampension?
    d. How would you implement this in Sampension?

The testing session took place in person at Sampension (figure 61), where Gitte kindly invited us. We met there on Thursday the 4th of May for one hour. We took notes while she was speaking to capture the most relevant pieces of information.

Co-creating & co-learning

Figure 61. A selfie from our session with Gitte the 4th May 2023.

The test was very insightful and inspiring, and confirmed that tacit knowledge is considered very valuable in big companies since Sampension had implemented several programmes to try to capture it:

"How do we replace all these brains that know all the rules but won't be here forever?" - Gitte Jonsdatter, service designer at Sampension, during an interview on May 4th 2023

The discussion we had with Gitte was quite organic and we did not necessarily ask the questions we had prepared but rather the most relevant questions in regard to the topic that she brought up. In this way, she told us what she considered most relevant for our project and we elaborated on it by asking follow-up questions.

Reframing

During the session, Gitte shared a few examples of tacit knowledge and attempts to capture it that she has experienced:

Capturing tacit knowledge: example 1
The knowledge base: a project to try to get people at Sampension to write knowledge down. It is not only for people retiring, also for people changing jobs.

Capturing tacit knowledge: example 2
There is a digital structure in Sampension where some documents with procedures and so on (tacit knowledge) are stored. And then, there is the analog counterpart: "some trees of knowledge like huge posters and the person that has created the program has drawn all the branches of knowledge and hung them up on the walls so that people can say if there's a branch of knowledge missing." - Gitte, service designer at Sampension, during an interview on May 4th 2023

Apart from these examples, Gitte also suggested some ideas of her own like:

- **Formalised mentoring:** Set up mentoring hours where the younger workers could consult the older workers

"We don't have any formalised mentoring - it would probably be a good idea." - Gitte, service designer at Sampension, during an interview on May 4th 2023

- **In between mentoring and documenting**: Following somebody through their thought process

And raised some considerations for when we develop our solution:

Considerations:
- How to make sure people take the time to document their knowledge?
- Do they know if the knowledge they have is special or important?
- Do they know how to articulate it?

This testing session inspired us to take the following steps:

- Develop the idea of tacit knowledge transfer further since it benefits both senior and young employees (based on our previous research as well), and companies are already implementing solutions related to it, which proves their interest.

"If they [the young employees] listen and they are genuinely interested, you [as a senior worker] feel flattered. You get attention for what you know." - Gitte, service designer at Sampension, during an interview on May 4th 2023

- Make the research that backs up our idea very clear so as to give context and argumentation that it is relevant for the involved actors
- Take into account the considerations she proposed when developing the service

Reframing Loop 4

The activity of reframing happened iteratively within the loop, after each interaction with the testers. The changes made to the solution and approach were already explained together with the testing sessions. Therefore, the following table shows a summary of the different decisions we made in this loop (Table 10).

Decisions from first test	Decisions in between tests	Decisions from the second test
Definition of target company is needed	Defined the target company (below)	Highlight upfront the research that the solution is based on (in the section delivery)
Solution must fit better into the daily activities and be less time consuming	Focus on tacit knowledge transfer since it proposes a clear value to every actor and it can fit (and benefit) employees's daily activities	Keep this focus on tacit knowledge transfer given its relevance for the key actors
The value proposition for each actor must be clearer. Clarify pains and gains with research	Based on a supervision with DDC, focus specifically on the benefits that matter to the senior since our impact is directed toward this group	Take into account the three considerations that the participant proposed when developing the service (in the section delivery)

Table 10. Summary of decisions throughout Loop 4.

Reframing, in this case, does not require a change in our project direction, but rather a specification in the following aspects:

- Type of company
- Content of the value exchange

The research question until now was as follows:
How might we enable longer working lives by promoting intergenerational collaboration at the workplace through an open design process?

And now it could be modified to:

How might we enable longer working lives by promoting intergenerational collaboration through tacit knowledge transfer in age-diverse corporate environments through an open design process?

Definition of the target company

After conducting the interview with Jørgen Goul Andersen we realised that we should define further what kind of companies would use our solution. Therefore, the target companies are corporate organisations with an age-diverse workforce. The service is dedicated not exclusively but especially to companies in Denmark. The impact it aims to cause is focused on white-collar senior workers.

The participants that we had the chance to involve during our co-design workshops were from Mærsk, Sampension and Designit, three international companies with many employees of varied ages (especially Mærsk and Sampension). Furthermore, big corporations are the type of company where age-related tensions are most common (figure 62) with 37% of them experiencing intergenerational issues (Centre for Ageing Better, 2018). In comparison with 22% for SMEs and 16% for micro companies, this is a concerning number that influenced our decision to focus on corporations.

Figure 4.1: Percentage of employers that have experienced the following intergenerational issues:

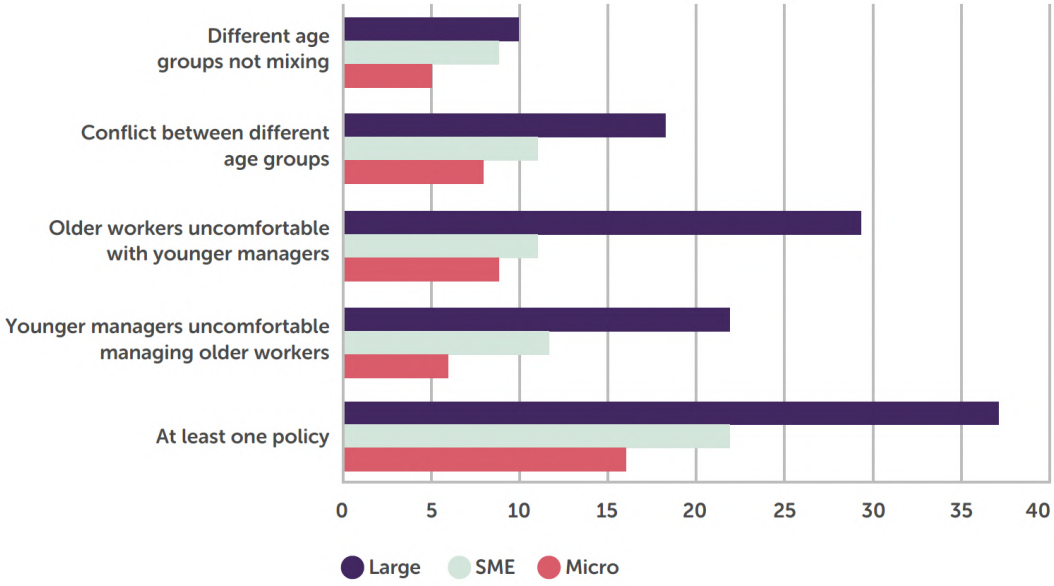


Figure 62. Extracted from Becoming an Age-friendly Employer (Centre for Ageing Better, 2018)

Next step:

Before diving into service development based on our new findings, we carried out a brainstorming session to decide what we would aim for when creating the solution. This brainstorming thus centred around formats and tangible outcomes e.g. blueprint, infographic, user journey, and ecosystem map.

We carried out this exercise in Miro. The following image (Figure 63) shows an example of an idea.

Figure 63. Extracted from Miro. Example of an idea during the output brainstorming.

The result of this activity was a Table of Contents for our Product Report and a series of clear steps forward towards the finalisation of our service delivery. This will be explained in the following section.

Service development

The following service development implements the decisions mentioned in Table 10. An illustration of how the service characteristics changed is shown in Figure 64. This service development could well be considered part of Reframing. However, since in this case the development is oriented towards a hand-in to an external actor (the university), it will be explained in the next section called Delivery. If this weren't the case, the development would be part of Reframing 4 and used for Staging and Co-creating with different actors in a hypothetical loop 5.

Figure 64. Characteristics of the service before vs after reframing. The red are the ones that are not present in the final service, and the green are not necessarily there but could be. E.g. the participants can choose whether it is an ongoing interaction or not.

General reflections on Loop 4

In Loop 4, we tested our service proposal with senior employees who were also familiar with our project topic. Testing sometimes means a step forward; sometimes a step back; but it always represents progress towards a better solution that is more true to the stakeholders' wishes and needs. This is sometimes hard to keep in mind, especially when finding out that significant improvements are needed. After the first test, we redefined the goal of IGC (a step back regarding service development). After the second one, we were reassured that the new focus was relevant (a step forward).

Having a concrete service proposal enabled the different stakeholders (our DDC supervisor, Gitte, and Jørgen) to provide quite concrete feedback, more than in previous phases. Moreover, their advice had plenty in common. This allowed us to arrive at quite straightforward decisions based on the interactions, and to move the project forward quite fast.

In addition, at this point of the project, we implemented a more productive way of discussing the interaction with stakeholders within our team. Instead of jumping straight into discussion after the interaction, we gave ourselves time to reflect individually first and the results were very positive as, in this way, we were generally more aligned on what the interaction meant for the project.

On iterative reframing

In this last loop, we carried out several instances of reframing within the loop: after the first test, after our supervision with the DDC, and after the second test. Due to the timeline of the thesis and to the clarity of the feedback, we considered this would lead to better results. Hence, through this example, one could argue that the designer navigating the process can decide to define a loop based on:

- **By Its goal:** what we did. We defined loop 4 as just one loop, even though we reframed within it, because all the interactions within the loop had the same goal: to test the service proposal.
- **By interaction**, where loop 4 could be divided in 3 loops for each stakeholder interaction.

Our decision was based on clarity when writing this report, and on the grounds that the three "sub-loops" were very similar, short, and would naturally have been linked anyway through their purpose.

Reflecting nn the tests

As previously mentioned, Jørgen, the first tester, was not part of our target group because universities are organisations where IGC is already implemented and where senior workers are in a position of power compared with younger workers. Thus, it would have been beneficial to define our target company before selecting the test participants, both for the project and for the participant's sake.

We would also like to point out that we made a considerable effort to recruit senior workers via Facebook groups, and personal networks, and by contacting several organisations (like Ældresagen), who did not get back to us. We have tried to compensate for the little contact with this vital target group through:

- Extensive primary (expert interviews) and secondary research (literature review) about them
- Portraying tacit knowledge sharing as an option for IGC within a broader opportunity space

Delivery

The development process

During the phase Delivery, we format the service proposal to hand it to target companies. We do this by creating our Product Report. In the following sections, we will dive deeper into some parts of this process.

1. The content

The first step was to develop all the content we needed for the report. For this, we put together all our relevant research outcomes and carried out a small literature review into concepts that acquired relevance at this point.

Relevant research outcomes were extracted from:

- Primary and secondary research about the characteristics of young and senior workers
- Outcomes from workshops, expert interviews and tests e.g. quotes and ideas
- Mental model exercise

The literature review looked into:

- Benefits of IGC for corporations
- Tacit knowledge

All this helped build a narrative that not only reflected our design process (from a general focus on an ageing population to narrower focuses on IGC and tacit knowledge) but also made it engaging and relevant for companies.

2. Format

We wanted to find a visual language that was both serious and appealing to make our point resonate better (Figure 65). We applied our communication skills to make a solid case supported by evidence and engaging graphics.

Figure 65. Example of the graphic style and illustrations in the Product Report.

3. The service

At this point, we also agreed on the service design tools that would help us portray the service proposal in the best way. We agreed to create a user journey with several actors and to expand the key steps from the user journey into a use case. These tools are easy to understand for non-designers, which was a key decision factor.

The following sections expand our research on tacit knowledge, and the benefits for companies.

Tacit knowledge

What is tacit knowledge?

Tacit knowledge is the knowledge that individuals own but cannot be easily explained or articulated (Polanyi, 1966). This is different from explicit knowledge which can be easily communicated through language or other forms of communication (Hugo-Burrows, 2022).

Explicit vs. tacit

Just because knowledge cannot be put into words does not mean it's automatically considered tacit knowledge (Miton et al., 2022). Tacit knowledge is generally acquired through experience, it consists of know-how and involves a particular thought process (Nonaka, 1991). It's worth noting that explicit knowledge can become tacit if it's lost or forgotten, while tacit knowledge can become explicit if it's put into words or codified (Miton et al., 2022), something that we aim for with our service. When it comes to passing down tacit knowledge from one generation to the next, it's crucial to do so accurately for the knowledge to evolve (Miton et al., 2022). However, the challenge lies in the fact that tacit knowledge is not easily transferred through traditional means of communication (Miton et al., 2022). Therefore, the company can support this process by providing clear roles to the different participants of IGC and resources or formats that help the conversion from tacit to explicit knowledge.

Challenges of transmitting tacit knowledge

Transmitting tacit knowledge is difficult for three main reasons (Miton et al., 2022):

Challenge	How the service deals with it
1. Tacit knowledge is mental, meaning it is not easy to put into words or explain to others.	The company provides a specific topic to treat during the session and a template to codify the knowledge
2. It is complex and interconnected, so it may not be possible to fully understand all aspects of it just by observing.	Instead of observing or shadowing, something that other solutions propose our service promotes and attaches value to intentional tacit knowledge transfer
3. Figuring out which aspects of behaviour are important to imitate is also tacit knowledge	The company provides a template to codify the knowledge. Furthermore, the young employees will ask about and write down the tacit knowledge that is useful for them in their daily tasks.

Table 11. Challenges of transmitting tacit knowledge and how the service addresses them.

Examples

When compared to explicit knowledge, tacit knowledge in a corporation includes examples such as (Hugo-Burrows, 2022):

- Practical, unwritten processes for resolving production halts as opposed to formal costing procedures and code understanding.
- Informal networks and methods for processing sales orders should be used in tandem with formal business review procedures that provide explicit awareness of new product development
- The specific knowledge of the company's recorded history of its past events, end experiences, triumphs, and failures—often quite limited—combined with the experience of what has worked in practice in branding development over the years

Conversion of knowledge

Through social interaction between tacit knowledge and explicit knowledge, human knowledge is formed and extended (Nonaka, 1991). The contact between people is a social process that may be referred to as knowledge conversion. Nonaka (1991) asserts that tacit and explicit knowledge both increase in terms of quality and quantity as a result of this social conversion process.

There are four different modes of knowledge conversion: socialisation, combination, internalisation, and articulation (Hugo-Burrows, 2022). Please notice that we will only describe the one that is more relevant for our solution.

Articulation: Tacit → explicit knowledge. It is the process of turning implicit information into ideas that can be shared with others and thus the most interesting conversion for our service. It is usually sparked by conversation or group contemplation. The person who expresses tacit knowledge (in our case, the senior employee) must be certain that sharing their knowledge would be advantageous. We will elaborate further on this conversion given its relevance for our solution.

Articulating tacit knowledge

Articulation may be done through a variety of methods, such as narrative, metaphor and analogy.

a. Metaphors

A metaphor is a way of connecting two seemingly unrelated concepts or experiences to create a symbol or image (Morden 1999, as cited in Hugo-Burrows, 2022).

An approach focused on metaphor can help to make tacit knowledge apparent (Nonaka, 1991; Martin & Hammer, 1982; Munby, 1986 - all as cited in Hugo-Burrows, 2022), particularly in the case of complicated confusing experiences (Srivastava & Barret, 1988, as cited in Hugo-Burrows, 2022).

b. Storytelling
Storytelling is especially reflected in our proposed solution. According to Ambrosi and Bowman (2001), **semi-structured interviews** may be used to elicit tacit knowledge from participants, something we apply in our service by promoting a Q&A meeting style where young employees bring questions and senior employees, the answers. Stories are seen as a type of implicit communication that might disclose perspectives that organised interviews could miss.

Why are companies interested in it?

As companies start to value information as their most precious resource, knowledge management initiatives have been launched (Davenport & Pruzak, 1997, as cited in Hugo-Burrows, 2022; G. Jonsdatter, personal communication during an interview, 2023). Organisations are starting to recognise the significance of tacit knowledge, which is conveyed through social ties or is ingrained in an individual's specialised knowledge. We also got a chance to understand this more in-depth during our second testing session.

Companies contain both explicit and tacit knowledge, which refers to complicated information that is hard to define and frequently goes unrecorded as well as the knowledge that has been extensively examined and defined (Hugo-Burrows, 2022). But since rivals typically find tacit knowledge hard to duplicate, it is often tacit knowledge that provides a long-lasting competitive advantage.

IGC and its benefits for companies

This section, also included in the Product Report, allowed us to establish the value generated for the company. The benefits obtained by the company when using our solution are very important as they will be the ones purchasing and using the solution.

The benefits of hiring senior employees

Senior employees transfer vital knowledge and skills that have accumulated over many years of working (Centre for Ageing Better, 2021). They usually perform well in training and mentoring younger workers (NI Business Info, n.d.).

Senior workers are less likely to switch jobs (Centre for Ageing Better, 2021; NI Business Info, n.d.; Entrepreneur, 2006). A reduction in staff turnover can create stability in the workforce and is more cost-effective than recruiting and onboarding new staff.

Senior employees are able to maintain well-being and high satisfaction at the workplace (Smeaton & September, 2018).

Senior employees are able to adapt to change, deal with pressures and regulate emotions; thus, they are more likely to make fewer mistakes (NI Business Info, n.d.).

Contrary to age stereotypes, a higher amount of older workers does not reduce productivity.

In a case study of a Days Inn call centre (Smeaton and September, 2018), senior employees seemed to be less productive, as they took longer on average to complete each call (Smeaton & Parry, 2018). However, regarding productivity, the study resulted in a positive association between age and productivity because older employee generated more revenue per call.

How extended careers benefit employees

Benefits for younger employees

Young employees have demonstrated a strong motivation to engage with senior colleagues. Specifically, they have expressed interest in exchanging life stories, creativity, reflecting on positive experiences, sharing hobbies, and seeking to understand each other better. - Millennials during a workshop, May 3rd, 2023

Young employees believe IGC is an opportunity to advance their careers by exchanging skills, perspectives, and receiving guidance from their more experienced colleagues. - Millennials during a workshop, May 3rd, 2023

Benefits for senior employees themselves

Research suggests that individuals that work longer have a higher quality of life, better self-esteem, improved psychological well-being, and a greater sense of autonomy, in contrast to those who retire early or do not work longer (Kleiner et al., 2022).

During an intergenerational collaboration workshop (2023), young employees shared several ideas that highlighted their motivation to collaborate with older colleagues:

“Both generations could write down their strong skills and place them somewhere and the other person can choose from there.”

“Weekly challenges, for example: each week both generations have to do something they are not familiar with and present their findings.”

“Create monthly workshops where both generations take a turn in explaining previously requested skills.”

The sweet spot for IGC

In previous sections, we presented the profiles of senior and young employees and portrayed the opportunity space for their collaboration. At that point of the project, we had read about the benefits of intergenerational collaboration for companies but we had not materialised these benefits into any representation - something we did for the product report since corporations are its target audience. The following Venn diagram (Figure 66) shows the opportunity space for IGC taking into account the three main actors: young and senior employees, and the company.

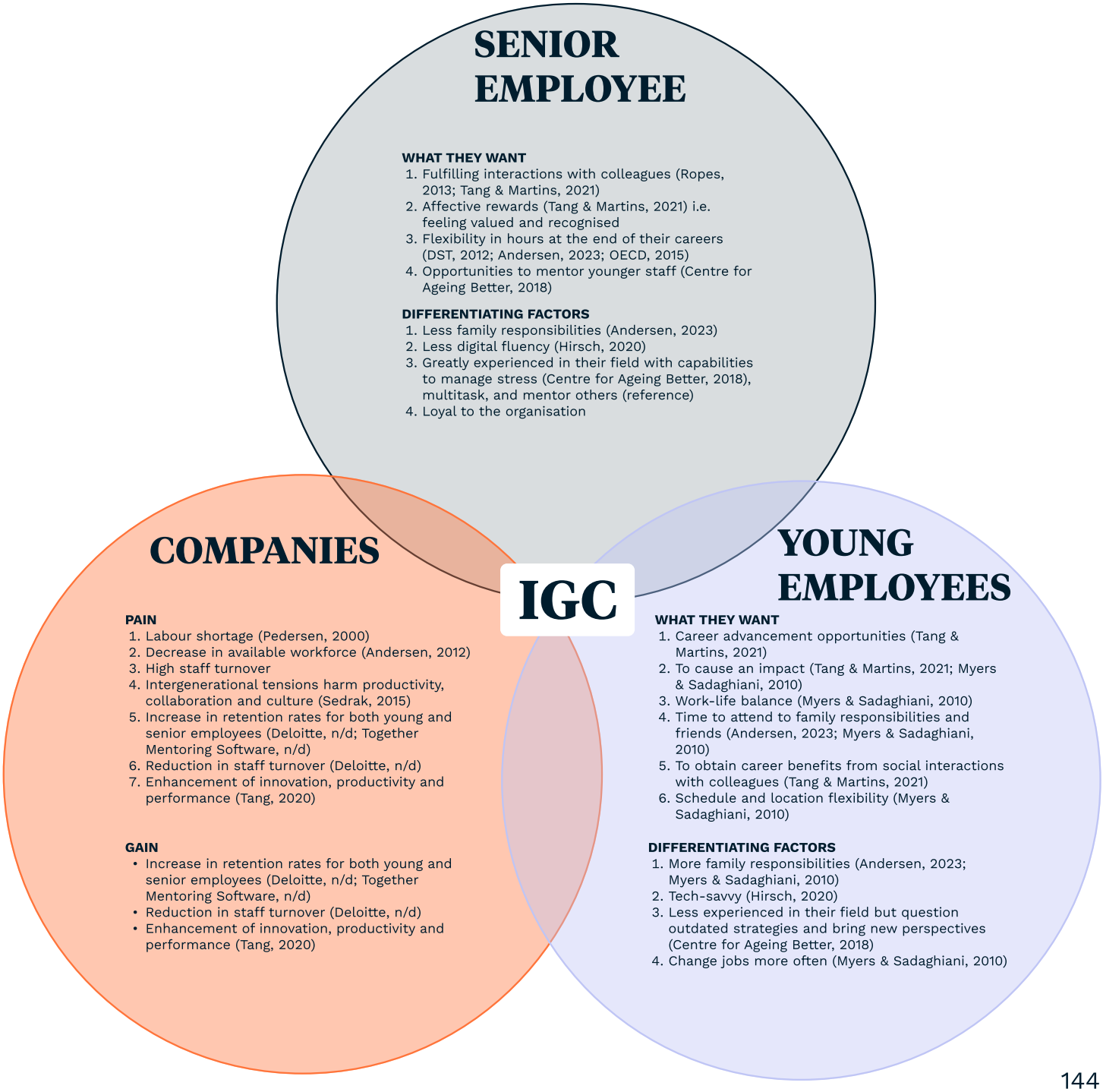


Figure 66. The sweet spot of intergenerational collaboration

Use case: Tacit knowledge transfer

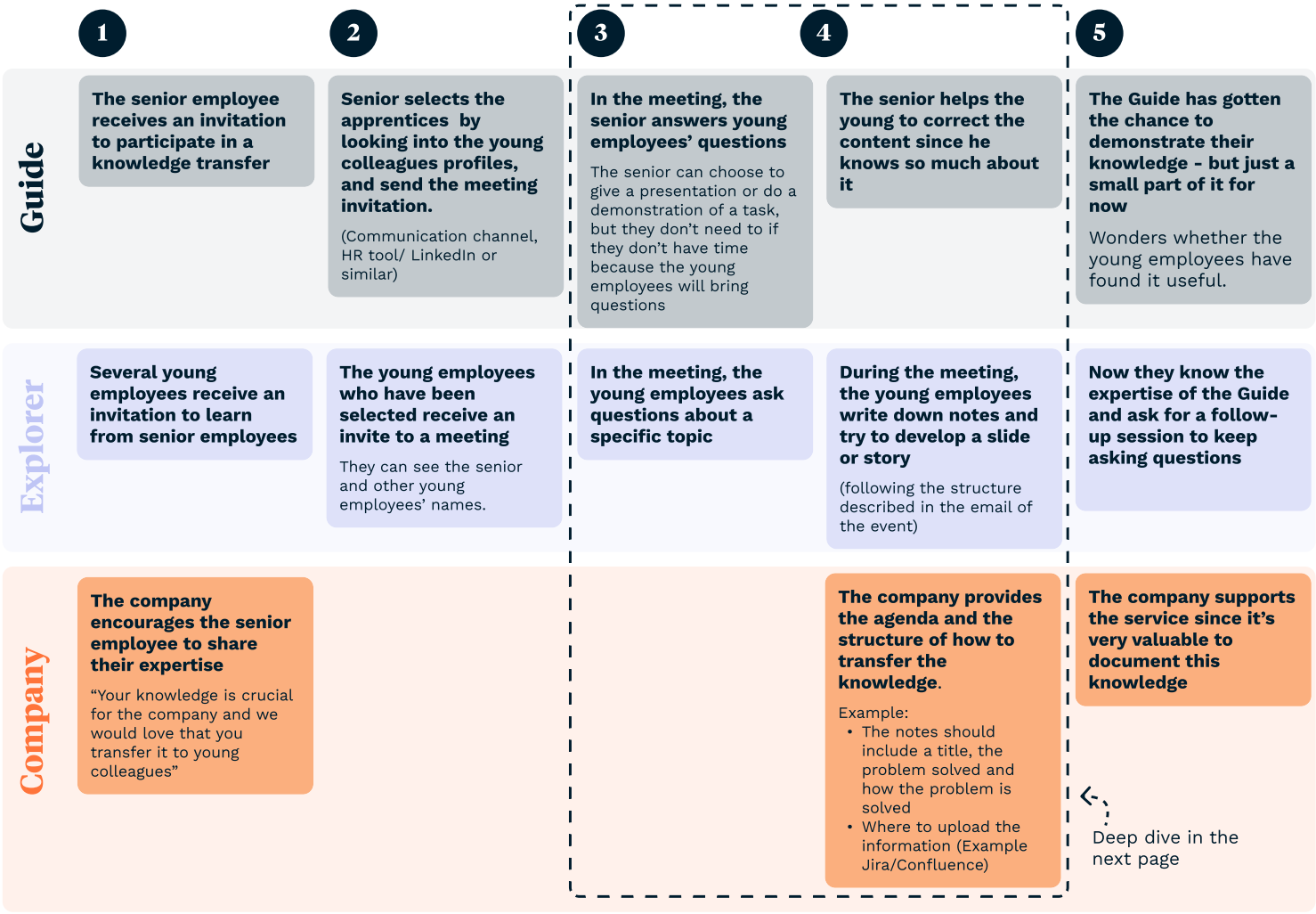


Figure 67. User journey exemplifies the use of the solution at Maersk.

This user journey (Figure 67), which is also part of the solution, showcases the flexibility that we considered when creating the solution. Our aim was to design a solution that adapts to different companies. Therefore, its structure accommodate different settings like communication channels, tasks applications, processes, companies's mission, etc.

In this section, we have added a use case that illustrates this adaptability to different settings through an example of our service when applied at Mærsk. A use case is a sequential depiction of a specific situation of use of a service and it shows its behaviour (Usability.gov, n.d.). We have chosen Mærsk since it is a corporation and thus a target company, and because we are familiar with the company's systems and structures. The use case can be read in the following page.

Use case: Mærsk

Step 1:

A PO (Product Owner) at Mærsk receives an invitation from HR in Outlook, the email system of the company, to participate in a knowledge transfer about leadership skills. HR encourages him to participate as he has very valuable skills for the company and it is very important that his knowledge is transferred to younger employees.

Step 2:
Millennials of the company have been offered the possibility to add their names into an Excel file to participate in a knowledge transfer program. Now, the PO can pick from the list the young employees that we would like to share his knowledge with based on their profiles. He decides that he would like to invite 5 younger colleagues to the meeting and explores some of their LinkedIn profiles from the list. He picks the ones most aligned with his own profile and that he thinks would benefit the most from his knowledge.

The young employees who have been selected receive a meeting invitation from HR on their emails (Outlook). They accept the invite and download the PDF attached to the email, prepared for them to take notes during the meeting and capture their learnings. They also prepare some questions for the session as the template instructs.

Step 3:
The following week, the meeting is set for Friday. On Thursday, the PO prepares a brief presentation where he tells a few leadership stories that portray his wide experience. He feels excited to share his knowledge and valued to get a space to do so.

Friday arrives, everyone introduces themselves and the senior employee presents. The young employees take notes and feel very privileged that they have the chance to hear about the senior's first-hand experience and to receive useful tips for their own careers.

Step 4 and 5:
At the end of the session, they get time to ask a few questions but time has gone fast and they feel like they could learn much more from their experienced colleague. They ask for another session in two weeks so that they can keep asking relevant questions. In this second session, they will also review the Millennials' notes together, making sure they are correct and follow the company's template.

General reflection on the case study

As a way to conclude the case study, we will reflect on the positive and negative aspects of the design process we have carried out as well as comment on the validity of the proposed solution, and the link between the case study and the research question.

1. Positive and negative aspects of the design process

The case study departed from quite a broad problem context and evolved through several iterations to a constrained context and lastly, to the proposition of a service for companies. Even though the timespan was quite limited, we have managed to narrow down the focus by reframing the problem question iteratively, grasping the complexity and explaining it along the way in this process report and with the help of service design tools e.g. system map, empathy map, user journey. The application of reframing to solve complex societal problems is very relevant today when this kind of problem is increasingly common and the understanding of this practice is crucial for designers and organisations (Van der Bijl-Brouwer, 2019).

Given we have carried out an open design process, we have attempted to involve all the key stakeholders - and mainly those who wanted to take part. We successfully invited young employees to participate on a survey and in collaborative workshops. However, senior employees have not been involved to such an extent. Even though we tried, our efforts were mostly unrewarded. This would be a clear next step for the project, as well as the involvement of corporations. The stakeholder involvement that we did not manage to do ourselves, we tried to compensate for through secondary research, which is not equivalent but shows the intention to represent all key stakeholders' interests in the value proposition.

In regard to the methods we applied during the design process, they were a combination of new ones that we had not practised before and others which we had experience with from previous projects. The expert interviews, for example, are something neither of us had tried before and that resulted in a great method to understand the problem context in a short amount of time. The different methods have taught us a great deal, something we will reflect upon in the Discussion.

Time-wise, we initially planned to carry out four loops: a goal that we achieved although with less participation from senior workers than we had aimed for. The only activity that took remarkably more time than what we had planned for was the reframing after the first two loops. This reframing delayed the project as arriving at a new problem definition was harder than expected. We will apply this learning when planning for future projects.

The collaboration we established with the DDC was successful in most ways: our supervisor questioned our approach in a productive way, enabling us to acquire different perspectives and refresh our take on the project. He also encouraged us to be collaborative and helped us get in touch with some of the experts. However, the collaboration might have benefitted from a clearer goal.

Finally, we believe we have succeeded in establishing a structure to manage the project with a combination of tools that allowed us to keep track of our progress, our goals, and our schedules. This is a very important skill to have when we enter the professional world after the master's. Furthermore, we are all satisfied with our teamwork, something we should not underestimate since it has made the whole process enjoyable.

2. The validity of the solution

Secondly, we will reflect on the degree to which the solution answers the problem question and its validity and readiness to be implemented.

As the design process advanced, we attempted to keep the focus on arriving at the best definition of the problem and tried to avoid thinking of solutions too soon. This was due to several reasons, but mainly because reframing is problem-focused as “the nature of the outcome is unknown” (Dorst, 2015). However, we also wanted to keep the project relatively open to complexity as this allows for the appearance of a wider variety of opportunities (Dorst & Cross, 2001; Dorst; 2015). Although this approach was challenging as it involved prolonged uncertainty about the focus of the project, it also meant that multiple avenues for IGC emerged through the process. These avenues have been presented in the Product Report (see Appendix G) as forms of IGC, with Tacit knowledge sharing as the most developed example and a section describing additional opportunities. This product report structure is thus quite true to our design process in the way that tacit knowledge transfer emerged quite late in the process, but the framing of IGC within the demographic challenges took a great amount of time and thought. Portraying tacit knowledge transfer as an option within an opportunity space is consequent with our process, while still bringing great value to both companies and employees which was our ultimate goal.

The proposed guide, or Product Report, includes a clear value proposition for each stakeholder as well as a set of guidelines for companies to implement IGC. The purpose of outlining the value for each stakeholder is to be structured rather than prescriptive, and in that way propose a more flexible service where the value is crucial, and the exact steps through which it is obtained are adaptable.

Additionally, we present a user journey where three actors participate in a service where senior employees share their tacit knowledge and young employees document it. The company facilitates this process. Although this user journey is detailed in terms of steps and roles, it is still quite flexible in the way that any corporation could adapt it to the software they already have, the culture in the company, and the knowledge that they would like to materialise. This is our way of creating a service system that supports the different stakeholders in their varied roles and competencies (Morelli, 2015), without becoming so specific that relevance is compromised.

3. The relationship with the research question

Lastly, we will reflect on the relationship between the case study and the research focus. The case study has exemplified the activity of reframing on numerous occasions. Furthermore, it has done so in a relevant context since reframing is different when applied to tackling wicked problems (Van der Bijl-Brouwer, 2019) which are of high importance today. The case has served to demonstrate the flexibility of reframing for different purposes in different stages of the process, and its overall usefulness to grasp complexity and narrow down the focus in an interconnected problem situation.

A challenge we have faced has been the application of an open design process within a traditional project setting that has a predefined deadline. We will reflect further on this in the discussion.

6
Discussion

Unfolding reframing
Reframing in an open design process
Reframing and the service designer
Framework iteration
Guidelines for the application of the framework
The role of the service designer and reflecting on our learning goals

In 2022, while working on a community-building project, we were in need of effective ways to coordinate interactions with different stakeholders and deal with the complex problem we were facing. As a response, we implemented an approach based on iterative reframing (Morelli et al., to be published in 2023). This research experience was the start of a pursuit of finding the best way to approach complex problems by iterating the problem definition in a loop format. In this thesis, we aim to uncover the practice of reframing in order to make it more replicable for practitioners trying to address complex challenges.

Our intention was to make reframing more explicit by providing an example that goes beyond the mere ephemeral discussions or “aha” moments. While we ensured that the process remained manageable in terms of length and complexity, we remained highly conscious of the role of reframing in every design iteration. After each loop, we intentionally engaged in reframing the problem, recognising the importance of applying newfound knowledge to our project.

Many design approaches lack practical insight into reframing, often treating it as a mysterious activity for experts. In contrast, our approach actively practices reframing with an emphasis on transparency and documentation. By demystifying and integrating reframing into our design iterations, we bridge the gap between theory and practice, contributing to the broader community's understanding of this essential aspect of design.

6.1 Unfolding reframing

In order to understand the nature of reframing better, we have taken inspiration from Dorst & Cross (2001) and Van der Bijl Brouwer (2019) to create Figure 68, where the activities that we applied during reframing are schematised and classified (convergent or divergent, group or individual). The ambition is to arrive at conclusions to uncover the process of reframing.

Reading about context: demographic challenge, ageing, welfare system, etc.

Activity: Create an insights board

Goal: Gather literature review insights

Activity: Find patterns

Goal: Decide the impact of the project and problematic

- Age dependency ratio as a global problem
- Increase in the costs of pensions, health services, and a small part of society to contribute
- Millennials as our target group
- Change how people perceive ageing through mental models

What is the impact of an open service design process in changing social and mental models when applied to creating more flexible and sustainable alternatives for ageing?

Method: Semi-structured expert interviews

Goal: Get knowledge about withdrawal from labour market, Danish pension, welfare system, and people close to retirement age

Method: Color coding + meaning condensation

Goal: Analyse experts interviews

- Labour shortage as the main problem in Denmark
- 65+ people more empowered than ever (educated, healthier, more energetic)
- Negative attitude of employers towards people ageing

Legend

- Divergent thinking
- Convergent thinking
- Group activity
- Individual activity
- Frame
- Reframing
- New insights

Figure 68.
Reframing steps.

Continues in next page

Preliminary research

Loop 1

Method: Qualitative Survey with Millennials

Goal: Find out existing mental models of ageing and life stages

Method: Focus group with Wize Move Society

Goal: Get to know people close to retirement age

Activity: Color coding + meaning condensation + pattern recognition

Goal: Analyse Millennial survey and focus group

- To reduce the impact of demographic challenges, we need to promote longer working lives, and to achieve that we need to overcome obstacles like ageism and tensions between generations
- Senior and young people benefit from intergenerational friendships
- Ageist mental models are a prominent problem around the world

Activity: Create an insight board
Goal: Reflect on the insights from loop 1 and loop 2

Activity: Individual brainstorming
Goal: Generate possible project directions

Activity: Groupal brainstorming
Goal: Decide the project direction and make a plan

How might we enable longer working lives by promoting intergenerational collaboration at the workplace through an open design process?

Loop 2

Method: Reading about Intergenerational Collaboration in the workplace

Goal: Understand what it is and how it is applied

The sweet spot:
What do the senior employee and young employee want?

Method: Workshop with Millennials 1

Goal: Generate ideas for IGC

Essential steps for a solution for IGC

Method: Workshop with Millennials 2

Goal: Analyse idea from previous workshop and improve it

Design requirements for IGC:
- Millennials seems positive about receiving mentoring from older colleagues
- Millennials empathise with older colleagues

Method: Contrast idea with design requirements, groupal brainstorming and service development

Goal: Develop service proposal to a more detailed level

Design concept of IGC in the shape of both generations working in a project together in the workplace context

Continues in next page

Loop 3

Method: Testing design concept with senior employee 1: University professor

Goal: Get the senior employee's opinion on the concept

- Redefine the target company
- Emphasise the senior employee's benefits
- Reduce time commitment from senior employees

Method: Testing with senior employee 2. Sampension employee

Goal: Get feedback on the idea of tacit knowledge sharing

- Confirmation of the relevancy of the topic
- Insights about real cases of Tacit knowledge transfer at Sampension
- Backing up the solution with research

Method: Insights analysis through brainstorming

Goal: Get feedback on the idea of tacit knowledge sharing

How might we enable longer working lives by promoting intergenerational collaboration through tacit knowledge transfer in age-diverse corporate environments through an open design process?

Loop 4

Method: Reading about Tacit knowledge transfer in organisations

Goal: Learn how it can be applied and the benefits for organisations

Activity: Ideation and solution development

Goal:

- Create a solution that provides value to all the actors
- Decide on the solution format
- Justify each section of the guide with research and insights from workshops, surveys and interviews
- Create final design

Guide for enabling age-diverse workplaces

- **Generating awareness**
- **Tacit knowledge sharing approach**
- **Alternatives: mentoring, flexible schedules**

Delivery

General conclusions

Firstly, reframing is not a method nor is it a tool. It is instead a process that leads to a goal: a new frame or “set of principles, or rules, or organisational pattern that we use to delimit, identify, and make sense of a situation” as defined by Van der Bijl-Brouwer (2019). This elevates the complexity of reframing as a practice as the designer must choose the right methods to achieve the goal - something we will touch upon later on.

Secondly, reframing has been defined as a co-evolution of the problem and solution spaces that only stabilises when a new frame bridges the two spaces through an idea (Dorst & Cross, 2001). However, in our case study, we refer to a frame not only as a bridge between problem and solution but also as a bridge between a problem and a better-defined problem. “Better-defined” might mean more accurate, more contemporary, more specific to an audience, and more likely to spark creativity,... it depends on the goal of the reframing. When operating in the fourth order of design, and working with complex and interconnected problem situations, the designers must spend a great amount of time arriving at a problem definition that allows them to treat the problem (Van der Bijl-Brouwer, 2019). Thus, reframing pushes the project forward, which in this context does not always mean arriving at a solution but progressing in the problem definition. In our case, we improved the problem definition throughout the whole process and started developing a solution towards the end of Loop 3.

Thirdly, reframing is heterogeneous as it varies depending on the input, which is different each time as the project develops. The input will influence the methods of analysis, which in turn determine the outcome. Reframing is firmly grounded on content, hence the input shaping the activities and not vice versa (Dorst, 2015; Van der Bijl-Brouwer, 2019). Therefore, reframing cannot be standardised to a high degree (nor is that our goal), but rather emerges based on the content at hand at the point of the design process.

About the activities within reframing

In Figure 68, one can observe that all reframing processes include a combination of group and individual activities, except in Loop 4 where only group activities were necessary. The most common individual activities consisted of analysing insights, and in Loop 4 the amount of insights was quite limited, which allowed the group to carry out the analysis together. We consider this combination of individual and group activities beneficial for reframing and teamwork.

All reframing processes include a mix of divergent and convergent exercises where (1) New information comes into play, and (2) It is analysed and activated in a new problem definition, always ending in a convergent activity that leads to the new frame. The activity before the decision on a new frame is generally a group activity where the designers reach an agreement.

Some exercises were used repeatedly throughout the design process with the goal of reframing. Firstly, some sort of insights board was applied for the team to align on the input for the reframing. Secondly, analysis was commonly individual since it is a task that requires a high level of concentration on specific

pieces of information, e.g. traditional coding or meaning condensation. Afterwards, a group activity would usually follow where the insights are activated. Thirdly, group brainstorming appeared on several occasions as a way for the designers to explore potential new frames.

The level of difficulty in reframing

We experienced that, the more divergent activities carried out between frames, the harder the reframing would become. Note that, before reframing after loops 1 and 2, we applied 5 divergent methods. This made the reframing extremely complex. Divergent activities consist in letting stakeholders and insights into the project and thus the more of them, the harder it becomes to make all new pieces of information come together into the new problem definition.

Although the complexity increases when applying many divergent methods, it is also true that it leads not only to a better understanding of the problem situation but also to a wider range of opportunities (Dorst, 2015). Therefore, it is crucial to balance conversion and diversion in a way that is feasible for the design team while simultaneously allowing them to grasp the broader context.

Reframing collaboratively

With the purpose of further analysing the process of reframing and the team dynamics throughout it, we have exemplified our personal experience of the most complex reframing process of our case, after loops 1 and 2, through an emotional line which is shown in the following pages (Figure 69).

When done collaboratively, reframing is heavily influenced by the team's dynamics (Van der Bijl-Brouwer, 2019), something apparent in the emotional line. The process can take a toll on the team unless there is a clear common goal and all members are on board with the plan. This is also the reason why we used an insights board on several occasions - because it allows the team to depart from the same point.

Reframing is, in our experience, an alternation between activities and discussion. During the discussion, each team member tries to represent the research insights as best she can and it becomes crucial to keep this goal in mind in order to have a research-based and not an ego-based discussion. The most positive moments of reframing are when an agreement is achieved. Here, a mix of relief and excitement brightens the spirit. However, the process leading up to the agreement can be tiring and draining and might feel like a negotiation between the designers who might have perceived the insights differently.

In the upcoming sections, we present an iteration of the recursive framework previously presented together with some guidelines on how to optimise the activity of reframing.

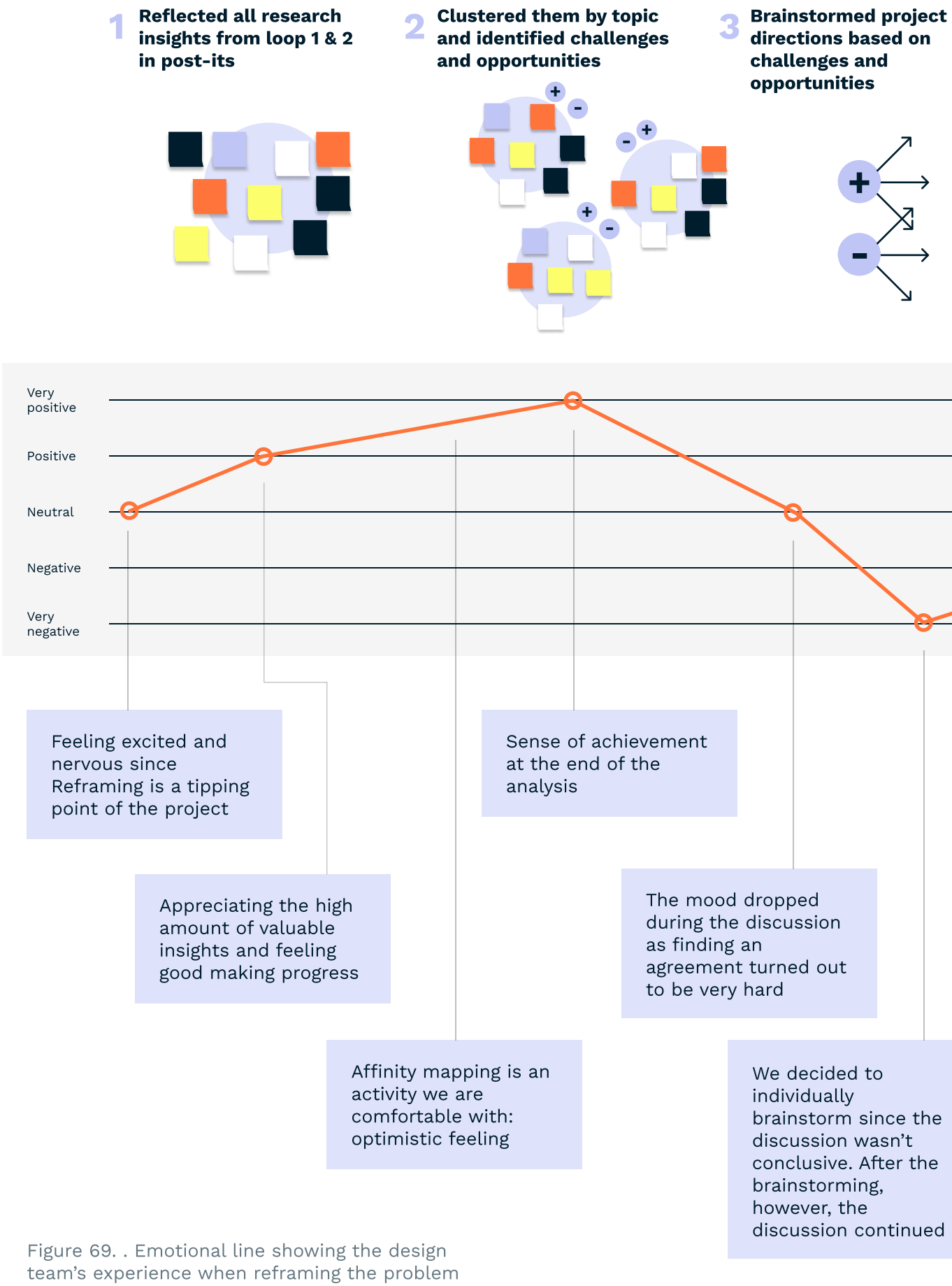
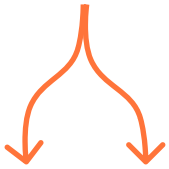
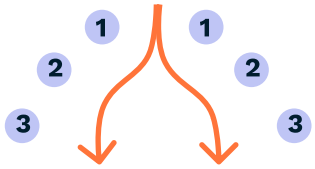


Figure 69. . Emotional line showing the design team's experience when reframing the problem after loops 1 and 2.

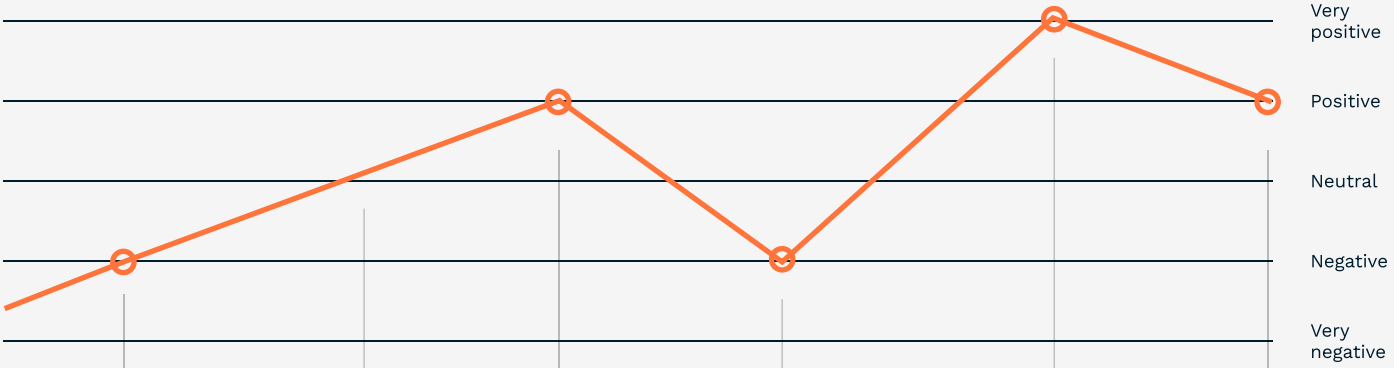
4 Concluded in two potential directions



5 Made individual suggestions for each direction



6 Defined new research and problematic questions



In the end, we managed to agree on two potential project directions. However, since our intention for the day was to finish the Reframing, it was not an overall positive feeling. We were discouraged by the lack of agreement

When sharing, we found many commonalities in our suggestions and thus started feeling optimistic

Although we worried about the disagreements, the final feeling was a positive mix of relief and excitement

Individually, the mood raised as we saw potential in both project directions

The final discussion before deciding was easier than the previous ones, but there were still compromises to be made in the decision

Reaching a common understanding was definitely the highest point of the Reframing process and we felt relieved

A new space in the project

Lastly, we have noticed that reframing signifies the creation of a new space within the design process where the insights are not being gathered nor analysed - they are being activated. The abundance of methods to analyse quantitative and qualitative information is remarkable and has helped us understand the different insights efficiently and accurately. However, the translation of the insights into a new project frame is not aided by any standard method or tool. This is probably part of the reason why the bridging of the problem-solution spaces has often been portrayed so mysteriously as an “aha” moment (Van der Bijl-Brouwer, 2019).

The recursive framework that we propose does not solve this question, but it begins by creating a space in the design process where the designers must not only analyse and understand the insights but also consciously implement them in a meaningful way that affects the approach to the project. In this way, it encourages the reframing to be grounded in content (Dorst, 2015) and not in the designers’ assumptions or personal experiences.

All these conclusions are materialised in a set of guidelines for the application of the framework, which are presented on page 169.

6.2 Reframing in an open design process

There are two main characteristics of an open design process that we already mentioned in the Literature Review: the openness to stakeholders and the open-ended nature of the project. In this section, we discuss these two characteristics in regard to the degree to which iterative reframing is compatible with an open design process.

Firstly, carrying out an open design process means to practise *infrastructuring*: to continuously build relationships with a multiplicity of actors (Hillgren et al., 2011), and slowly build support for the project within the context (Dorst, 2015). The activity of reframing, especially in a recursive manner as it is in the framework, is very suitable for this purpose because it enables the continuous update of the frame following the interactions with the stakeholders. But an aspect worth considering is the fact that reframing preemptively influences stakeholder involvement in the way that involvement methods are chosen to inform reframing. This is not a unique characteristic of reframing: all design processes choose methods that will provide valuable insights. But what are the most useful stakeholder involvement methods for successful reframing? In our experience, gathering conversational insights has been the most useful. This type of insight we could apply as input to the reframing without further interpretation, and thus retain a high degree of fidelity and accuracy. Other types of insights such as ideas, which we obtained during two workshops, were not as compatible with the process of reframing as the insights - the ideas - were not easily interpreted nor was the meaning behind them. The options to obtain conversational methods are still endless: interviews, focus groups, any kind of workshop exercise based on an open discussion, and most types of

testing,... So we do not consider this a limitation as it still allows a high degree of flexibility.

Secondly, an open design process has no fixed result due to the flexibility of the process (Manzini & Rizzo, 2011; Hillgren et al., 2011). Reframing is complementary to this characteristic as well as it enables an exploratory process where the problem-solution spaces evolve in a non-linear way (Van der Bijl-Brouwer, 2019). Hence, aiming for a fixed result would not be possible when applying iterative reframing. Furthermore, reframing is problem-focused by nature (Dorst, 2015) which, added to the complexity of managing a multiplicity of actors (Dorst, 2015; Hillgren et al., 2011), stops the design team from looking for a solution too early in the process.

Overall, the application of an open design process in the thesis context might seem incoherent since the project requires a fixed result (which is quite flexible but must be reflected in a PDF called Product Report) and has a set timeline of approximately 4 months. Our goal when applying this type of process is to involve all relevant stakeholders and create a longer-term impact since the project can continue until a new value configuration emerges, or even further. However, this is not possible in a traditional project setting such as the thesis where at a point we are forced to exit the “loop” and enter the Delivery stage. We chose to carry out an open design process because we consider this to be the way that service design contributes the most value to society and the way that it can best grasp the complex challenges of today. That is the same reason for the emergence of our framework: our belief that a design process does not end when the designers or the deadline say, but rather when a new value configuration is achieved by all stakeholders.

6.3 Reframing and the service designer

What is the role of the service designer when reframing? In this section, we discuss the service designer’s responsibilities and capabilities in this context.

In our experience, even when carrying out an open design process, reframing is not a co-design activity. It happens within the limits of the design team. The designers immerse themselves in the problem context through research and stakeholder involvement. This provides them with rich knowledge about the situation - knowledge that the external stakeholders do not share. Stakeholder involvement usually happens momentarily, meaning that they do not have the necessary information to practise reframing successfully or comprehensively - even if they had the necessary skills. Therefore, the design team is solely responsible for reframing.

This places quite a responsibility on the designer's shoulders, who must be the voice of the insights during the reframing activity. This might seem like a step back in the user involvement scale, where the expert designer has evolved towards a co-designer and facilitator. However, we see it differently. We consider that reframing, specifically within the recursive framework, pushes the designer to listen to the stakeholders and to never guide the project with assumptions or personal experience as the reframing must be backed up by insights (Dorst, 2015). We believe the proposed framework diminishes the likelihood of insights being ignored or useless, through the conscious act of activating them during reframing.

In regard to the application of reframing to solve complex challenges, Van der Bijl-Brouwer (2019) posits that it requires a high level of expertise and that a novice would not manage to keep up with such a dynamic and organic project. We do not have such extensive experience ourselves, but we mostly agree that the practice is highly complex, more so when taking into account that the context of the application will probably include a multiplicity of stakeholders (Dorst, 2015). Specifically referring to reframing, most of the complexity arises from having to decide which methods will achieve the desired result, since these methods vary in each instance of application of reframing (Van der Bijl-Brouwer, 2019).

Then, the question is: who should apply iterative reframing to solve complex challenges? Van der Bijl-Brouwer (2019) proposes the integration of capability building into the process so that novice designers learn to realise an exploratory and dynamic process as it happens and thus they themselves would become part of the innovation. We consider that an interesting perspective, and we do not want to limit the use of the framework only to highly experienced designers. We in the design team believe that each designer would be able to judge whether the framework (and iterative reframing) is an adequate approach for the project at hand and for their level of skills. In our personal case, we developed the framework in our master's education when no other design framework seemed to satisfy our project needs. Perhaps the designer's alignment with the framework's principles, or their motivation, is more relevant than their years of experience.

In this discussion, we have unfolded an example of reframing in an attempt to make the practice more explicit and replicable given its relevance for people and organisations dealing with complex problems (Van der Bijl-Brouwer, 2019; Dorst, 2015). To conclude this discussion, we have iterated our proposed framework and will present it in the following section.

6.4 Framework iteration: A design framework powered by reframing and stakeholder involvement

As previously mentioned, this framework emerged in 2022 when a group of five service systems design students, including the three authors of this thesis, carried out a community building project. Projects that belong to the fourth order of design need different methods from design thinking (Buchanan, 2001) in order to solve social problems (Hillgren et al., 2011). Thus, we co-created this framework to fill this need, and an article describing this framework (Morelli et al., to be published in 2023) was approved for the design conference ServDes 2023 in July 2023.

We have applied this framework throughout this project and have found several improvements to potentiate its functionality and usability. This section is divided into two parts. Firstly, we will describe the improvements applied to the framework, and secondly, we will provide an updated guide with examples that intends to guide designers when using the framework.

Framework improvements

In this section, we list the changes made to the framework (figure 70 and figure 71) but we elaborate on them in the next section.

- **Remove preliminary research and include it inside the Framing phase:** We discover that preliminary research or literature review, in general, can occur at any loop (in the framing phase). Therefore, it is not only present at the beginning of the project.
- Regarding **staging** and **delivery**, we have not changed anything as the steps worked perfectly during the project.
- **The phase called "Co-creating and co-learning" has been renamed to "Stakeholder involvement".** In the previous iteration of the framework, this phase focused on co-creating with users. This phase suggested including boundary objects that would trigger creative thinking and conversation during collaborative sessions (Pedersen, 2020). However, after applying the framework in our thesis project, we conclude that co-creation sessions are not essential as long as the relevant stakeholders are somehow involved.
- **Meaning of framing, and definition of a frame:** The term "framing" can adopt different interpretations depending on whether a designer is initiating a project or has already gone through several loops.
- **The nature of the outcomes:** Each loop might result in different things, and to illustrate it, we have added some examples of outcomes obtained in different loops.

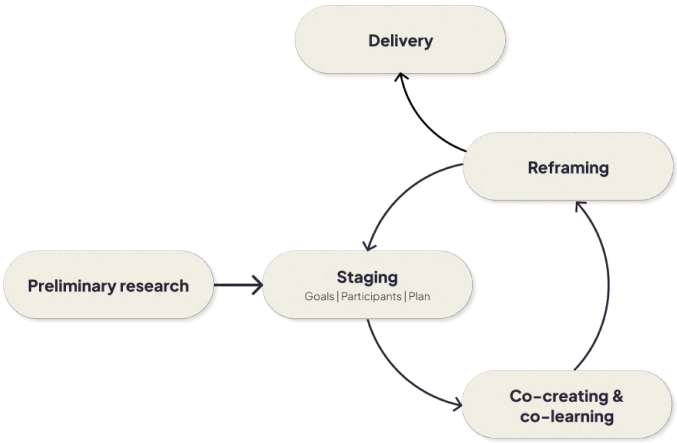


Figure 70. . Depicts the phases of the framework before improvements

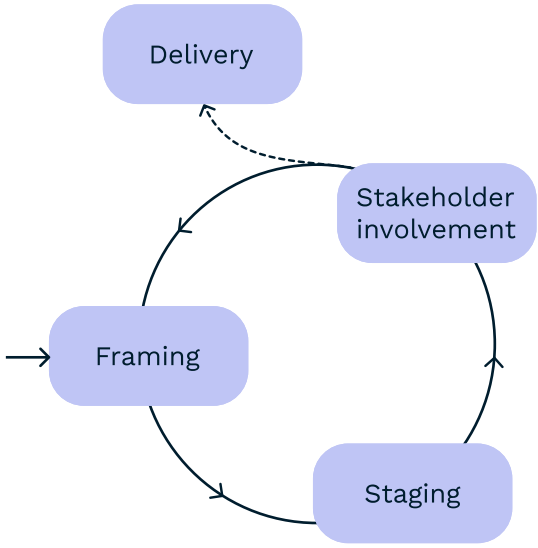


Figure 71. Depicts the phases of the framework after the improvements

A design framework powered by reframing and stakeholder involvement

This framework has the purpose of structuring an open design process and can be applied to address many different design problems. However, it is mainly intended to be used in contexts related to social innovation and to tackle complex problems. Therefore, the use of this framework requires certain knowledge of the design field (Van der Bijl-Brouwer, 2019). Please notice that in order for this framework to provide relevant outcomes, it should be powered by research and stakeholder involvement.

The proposed framework (Figure 72) consists of four phases, (1) framing, (2) staging, (3) stakeholder involvement, and (4) delivery. Phases 1, 2, and 3 are part of a loop which can be repeated as many times as needed based on the project state and complexity.

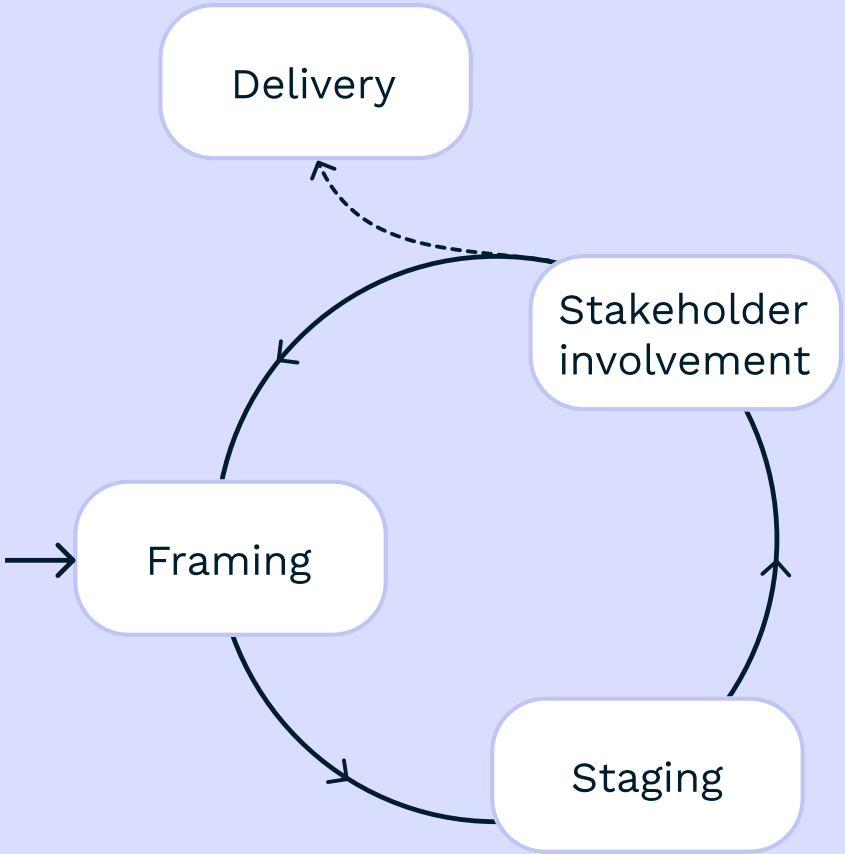


Figure 72. Depicts the phases of the framework.

Phase 1: Framing

Frame definition: To address any design problem, our starting point should be the only known factor when kicking off, which is the value to be created. The next step is to develop a frame (Dorst, 2015) that will limit the scope of the project and guide the designers in the next steps.

Framing can be applied in two ways:

- **If the designer is starting a new project,** he/she might have the needed knowledge to carry out the project, or might need to find it through the literature review. Afterwards, they must set the project boundaries that will guide the next steps (Van der Bijl-Brouwer, 2019). We encourage designers to spend time on framing the problem as this will result in better creative results (Dorst & Cross, 2001). An example of a method that works well for creating the problem frame is:

    a. Summarising the literature review,
    b. Write it on Post-its,
    c. Colour-code them by the source of information (e.g. articles are yellow, case studies are blue, interviews are red)
    d. Find patterns and categories (affinity mapping)
    e. Set the limits of the project

- **If the designer has already gone through one or more loops:** Firstly, he/she should analyse the insights obtained during the 3 phases of the loop. Some examples of analysis methods that work well for reframing are colour coding and meaning condensation. Secondly, the insights will be used to reframe the problem. Thus, it would become more updated to the current state of the project and adapt to the knowledge acquired through interactions with the stakeholders. Finally, reframing might include creating new ideas for the solution based on the updated problematic question (Dorst & Cross, 2001).

As mentioned in the previous paragraph, designers might need to carry out a literature review at the beginning of the project to frame the problem. However, it is also true that research might be needed in other loops as well and not only at the beginning. In the example of Figure 73, the design team carried out a literature review in several loops because sometimes, after reframing the project, it is necessary to gather new knowledge related to the new problematic question.

Preliminary research	Loop 3	Delivery
Reading about context: demographic challenge, ageing, welfare system, etc. **Goal:** frame the problem for the first time	**Method:** Reading about Intergenerational Collaboration in the workplace **Goal:** Understand what it is and how it is applied	**Method:** Reading about Tacit knowledge transfer in organisations **Goal:** Learn how it can be applied and the benefits for organisations

Figure 73. Example of literature review carried out at different stages of a project addressing the demographic challenges in Denmark.

Phase 2: Staging

Once the framing is ready, the next phase of the loop is called “Staging” which aims to:

- Set the goals, scope, and desired outcome when involving relevant stakeholders.
- Gather relevant actors, ideally lead users: those that are willing to share their knowledge with designers and other actors. Moreover, lead users are distinguished by their enthusiasm and expertise for the project they are taking part in (Sanders & Stappers 2008; Brandt 2006).
- It is important to mention that designers should prepare themselves for the facilitation, and arrange certain elements that might be relevant to the sessions like the venue, furniture, recording devices, writing elements, time slots, etc.

Phase 3: Stakeholder Involvement

This phase's main purpose is to involve the target group and other relevant stakeholders for the project.

The activities carried out with the stakeholders depend on the input of the loop. For example, if the last frame is a problematic question, the stakeholder involvement might have the goal of answering the problematic question. Therefore, this phase might include co-design sessions, expert interviews, focus groups, surveys,... But when the input of the loop is a design concept, the phase might have testing as a goal.

Designers should plan the activities carefully, based on the project needs and on the profile of the stakeholders. For example, if the participants do not know a lot about the project, ideation activities are not the best option. Designers should try open conversations, and feedback sessions instead.

Phase 4: Delivery

> It is important to notice that the Delivery phase might be relevant when the project is carried out for a client, e.g. in a design studio, so the solution would be handed over. In other cases, the Delivery phase would not exist and the solution would exist in the reframing phase because it would be temporary and improved in future loops (Dorst, 2015) as is common in open design processes.

The purpose of this phase is to materialise the solution and get it ready for end users. Delivery might result in anything from a concept to a finished product or service.

Other aspects to consider when using this framework:

Please notice that the outcome of each loop can be different as it depends on the input and on how many times the designer has gone through the iteration. Figure 74 illustrates how different the outcome might be in different loops: in loop 1, the outcome was the first definition of the project problem (frame), and in loop 3, the outcome was a design concept.

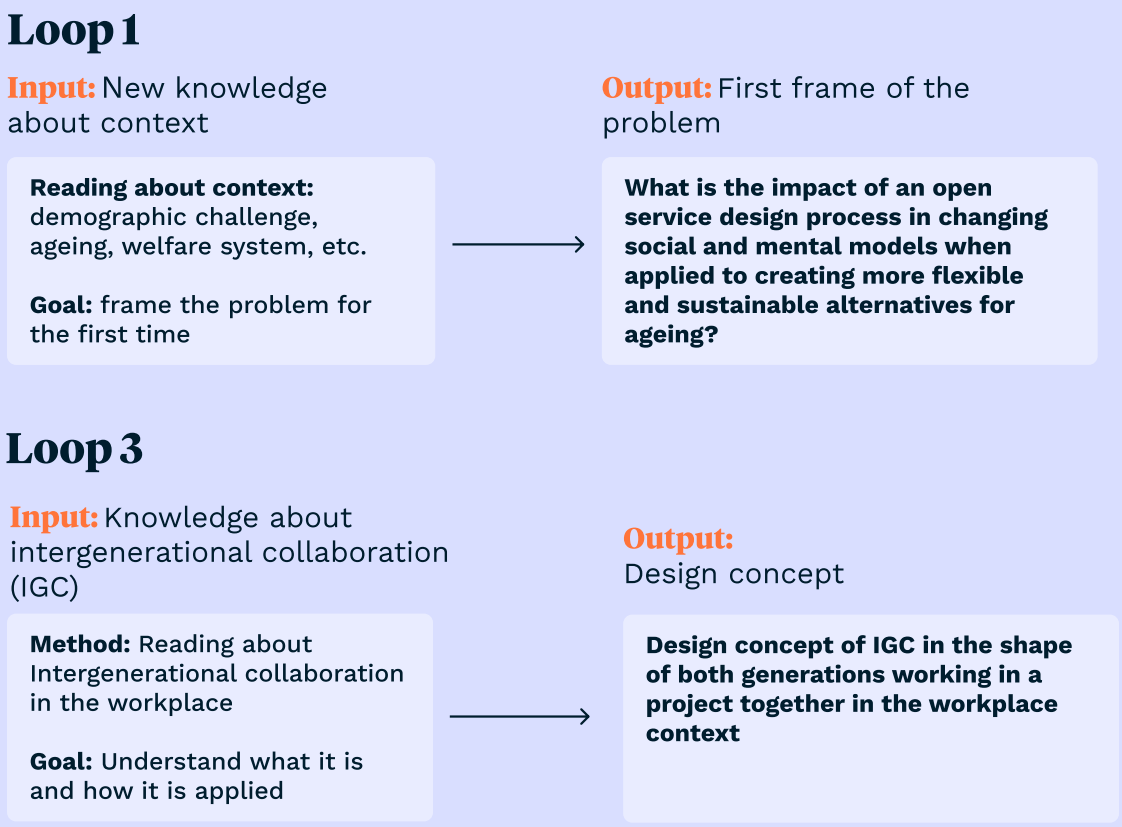
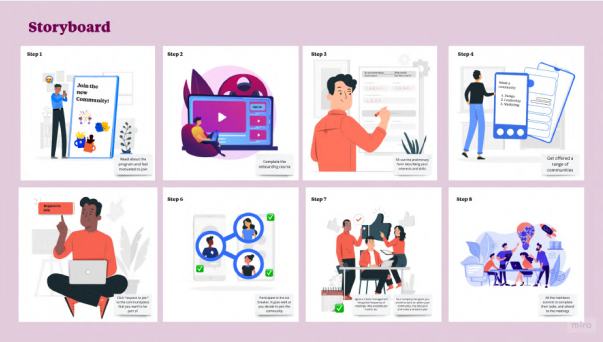


Figure 74. Different outcomes obtained on two different loops of the same project.

As mentioned before, the more problem exploration, the higher likelihood of creative results (Dorst & Cross, 2001) and finding wider opportunities (Van der Bijl-Brouwer, 2019). Therefore, the more times the designer goes through the loop, the more creative and effective the solution would be.

It can be observed in the example of Figure 75 that the designers obtained a design concept in loop 3 which solved the problematic question. However, by going through the loop two more times, the designers were able to generate more value and create a solution that was more positive for all the actors involved in the system. Therefore, we encourage designers who use this framework to go through the loop several times in order to create a sense of ownership of the project among stakeholders and to provide different potential solutions.

Design concept obtained in Loop 3



Solution obtained after two more loops

Figure 75. Illustrates the impact of reframing in the outcome of the project.

Guidelines for the application of the framework

During the process of reframing, designers can benefit from having guidelines or advice to support them. These guidelines can help create an environment that fosters creativity and ensures an optimal working experience. In the following paragraphs, we will provide a series of tips that intend to make the process of reframing more manageable and fruitful.

- **Create a “reframing environment”**

We recommend carrying out this process in a quiet environment, allowing the design team to concentrate and think deeply. Sufficient time should be allocated for this activity, ensuring that the designers can explore ideas thoroughly. Additionally, creating a space that encourages creativity, such as providing materials like Post-its, can stimulate innovative thinking.

- **Create a positive and collaborative team environment**

The overall atmosphere within the design team during the reframing stage significantly impacts the overall process (Van der Bijl-Brouwer, 2019) and potentially the outcome. Establishing a positive and collaborative mood during reframing is highly beneficial. It is crucial that everyone involved is on board with the plan and engaged in the activities. This can be compared to a workshop where creating a “safe space” is essential for participants to feel comfortable sharing their thoughts and ideas openly. Also, it is crucial that all team members are well informed and up-to-date on project insights, the current situation, and the overall goal of the project in order to maximise the effectiveness of the reframing session. This shared understanding provides a solid foundation for the reframing process and enables the team members to contribute to the discussions and activities.

- **Be cautious when selecting activities**

Avoiding the accumulation of too many divergent activities before the reframing stage can be helpful. It is advisable to spread out divergent and convergent activities. For example, by conducting individual analysis, team members can prioritise different insights, making it challenging to reach a consensus. Similarly, excessive divergence before the reframing stage can hinder the process. By alternating between divergent and convergent activities often, the team can maintain a balanced and effective workflow.

These guidelines can enhance the designer’s experience and facilitate the identification of new problems and solutions. Establishing a positive atmosphere within the design team, combining individual and group activities, ensuring team members are well-informed, and managing the dosage of divergent and convergent activities all contribute to a more productive reframing process.

6.5 The role of the service designer and reflecting on our learning goals

5.1 Our view on service design practice

In our opinion, service design plays a crucial role in tackling social wicked problems - something that we have focused on in this thesis. We recognise the need to bridge design with systemic perspectives and acknowledge the interconnectedness of the world. Nevertheless, we believe that there is no one-size-fits-all approach. Our perspective on the “right way” to apply service design is where flexibility, adaptability, and openness to experimentation are at the centre of the practice. This is something that also characterises reframing, our focus of research: the flexibility to suit different contexts and grasp complexity. We value the ability to embrace ambiguity and uncertainty, as these are inherent in tackling wicked problems. Our ambition in regards to our contribution to the field of service design is to facilitate the understanding of how design tackles these wicked challenges since we believe in the potential of our discipline to do so, and in its high relevance nowadays.

In the pursuit to achieve this systemic understanding of the problems we work with, we must actively engage different stakeholders at multiple levels. We have done so during this project, as we consider this a crucial role of the service designer: the ability to bridge perspectives and to foster a culture of collaboration. In this way, our role goes beyond mere problem solvers. We aim to empower stakeholders, ensuring voices are heard and expertise is leveraged, which hopefully prompts the emergence of holistic solutions.

In our profession, we carry the responsibility of considering the broader impact of our proposals and to recognise the social, ethical, and environmental dimensions of our work. We believe that the most value we can deliver is to give others the right structures and tools to activate the resources around them in the way they need.

These values, we have applied throughout this project and reflected upon - also in relation to our learning objectives that we originally set out to achieve.

5.2 Personal learning goals

For the development of the thesis, we took important steps on exploring how service design can solve complex problems. Our main motivation for choosing this case study was to work on a project that had a social impact, to develop critical thinking skills, to expand our knowledge about social innovation, and to gain practical experience in organising co-design sessions.

We achieved these goals by carefully selecting a relevant project that addresses current challenges in Denmark. We focused on engaging stakeholders who were willing and capable of contributing to our project to ensure that our efforts

would have a meaningful effect on their lives.

To improve our critical thinking skills, we studied and applied theoretical concepts related to social innovation, primary and secondary research, behavioural change - like changing mental models, and participant involvement - and of course service design. This helped us better understand how to use these concepts to solve systemic problems through service design.

We also gained hands-on experience by organising co-design sessions in the shape of workshops, where we collaborated with users to gather valuable insights and ideas. The set of capabilities that we develop when organising workshops is very relevant for our careers as well. Furthermore, we learned how to analyse and make sense of the information we collected during these sessions, using it to guide our problem-solving approach.

We made efforts to manage the expectations of all the people involved. Having carried out an open design process before, we knew this is not an easy task. We communicated openly with stakeholders, ensuring everyone understood the project's goals, limitations, and potential outcomes. This helped us maintain a positive working relationship and navigate any challenges that arose.

This thesis allowed us to apply service design to address wicked problems and strive to make a real impact on the users. We enhanced our critical thinking skills and constantly reflected on our work, the adequacy of the methods we chose along the way, and the degree of success of the different stakeholder involvement sessions. These accomplishments have equipped us with valuable skills and insights that will be useful for our future careers.

This thesis has meant for us a reaffirmation of the capacity of service design to obtain strong research outcomes, and to deal with complexity. It has increased our ambitions regarding the impact we can cause throughout our professional lives.

7
Conclusion

The research has contributed valuable insights to the field of Service design by unfolding the practice of reframing. We aimed to make the practice of reframing more accessible and replicable for individuals and organisations dealing with complex problems.

Reframing is not a fixed method or tool, but a dynamic process driven by specific goals and supported by carefully chosen methods based on data-driven outcomes. It is the responsibility of the design team to thoroughly research the problem context and involve stakeholders. While stakeholder input is important, the designers' expertise plays a crucial role in leading the reframing process and incorporating relevant insights.

In our case study, we applied iterative reframing to tackle the complex topic of ageing and promote longer working lives. We developed a solution that amplifies the importance of senior employees in diverse workplaces and facilitates organisational growth, by fostering collaboration among individuals from different age groups and sharing invaluable knowledge. This approach creates an inclusive culture where everyone has opportunities for continuous learning and improvement.

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