

Crisis communication for elderly

Designing information channels ensuring elderly access to shelters and meeting points in a war-related scenario

Master's thesis in Industrial Design Engineering

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CHALMERS UNIVERSITY OF TECHNOLOGY
Gothenburg, Sweden 2022
www.chalmers.se

MASTERS THESIS 2024

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Master Thesis 2024

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Illustration by Gabriella Larsson

Gothenburg, Sweden 2024

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Abstract

Crisis preparedness has become a greater focus in Sweden since the Russian invasion of Ukraine in spring 2022. This is due to the Russia invasion of Ukraine. Therefore, a need to provide information on a national level to ensure citizens safety has been identified. However, there is a risk that elderly that have difficulties with different cognitive or physical disabilities where some can not receive and understand the information given since much of the information given is found on the internet.

This Master's thesis, using an exploratory design approach, investigated how different crisis and communication channels are formulated in Sweden currently, and how they can be tailored towards the elderly when it comes to information about shelters and meeting points. Further, how meeting points can be designed for elderly for them to feel included and receive information at a meeting point. To understand how crisis information is formulated an extensive literature research was done. To also understand war-related scenarios (e.g. crisis information given, shelters and meeting points) observations of shelters in Gothenburg and interviews with municipalities were done. The study identified the needs of the elderly that lived in the centre of Gothenburg and had nearby neighbours and shelters.

Methods for investigating and exploring elderly needs and areas of issues were used and concept proposals were developed. To guide authorities for future development of crisis information a combination of guidelines, personas and concept proposals are suggested. The concepts proposed are a physical shelter map that can be printed directly from the shelter map MSB (Swedish civil contingency agency). The map is supplemented with shelter visits that are suggested to be during one week each year and communicated with beach flags that can be seen from a far distance. Proposed concepts for meeting points are a brochure with information about the meeting points that each municipality will offer their citizens. Proposed solution for prioritising the elderly at a meeting point is also suggested with a queuing system and an "area for elderly".

To understand the concepts and feelings involved using the concepts, a storytelling for both proposals has been developed explaining the user journey according to the personas involved.

This project can be used for further exploration of concepts proposals and development of crisis communication channels and planning for meeting points.

keywords : *crisis preparedness; crisis information; elderly; war-related crises; shelters; meeting points*

Acknowledgments

This project has been in collaboration with the ongoing research group from Chalmers and Lund University “From passive receiver to active resource in the crisis management system” financed by MSB (Myndigheten för samhällsskydd och beredskap). I would like to thank the research group for the opportunity to be involved to contribute with research that is highly relevant in time. I also want to thank my examiner and supervisor Anna-Lisa Osvalder at Division Design and Human Factors, who gave me the opportunity to write this thesis and for sharing important insights and support during the project. Additionally I would also like to thank the design- and non-designer that participated with ideas in the case study. Further, a thank you to the property managers, municipality responsible people and the elderly that participated in their respective study.

Gothenburg, June 2024

Terminology

Crisis information - Information provided by authorities that supports citizens in a crisis situation.

Crisis communication - Different channels used to receive crisis information.

Elderly - People above the age of 75.

IPA/VMA - ”Important public announcement” (In Swedish; “Viktigt meddelande till allmänheten”).

Air raid warning / Flyglarm - Outside signal / “Hesa fredrik” that is a short burst of sound indicating that there is a threatful airway attack.

Standby warning / Beredskaplarm - A standby signal done by ”Hesa Fredrik” that is used if the government wants to warn people that there is an immediate danger of war or that the country is at war.

FFO (Frivillig försvarsorganisation) - A group of organisations that the government has assigned to help prepare and manage larger crises.

FRG (Frivilliga resursgrupper) - On a municipality level there also exist voluntary groups that exist of educated members from FFO.

MSB (Myndigheten för Samhällsskydd och Beredskap) - Swedish Civil Contingencies Agency is an organization providing information and knowledge for crisis related situations for the public.

1. Introduction

In this Chapter a background regarding war-related crisis and crisis communication will be presented. The project aim, objectives, research questions and demarcations will also be stated. Besides that, some ethical, social and sustainable consideration will also be highlighted in this chapter and to be taken in consideration throughout the project. A project process will be explained and visualised through a flowchart inspired by the double diamond model.

1.1 Background

In late February 2020, a few cases of covid-19 had been confirmed in Sweden. In the beginning, Folkhälsomyndigheten estimated that the spread of the virus would not affect Sweden on a large scale. However, this took a turn at the beginning of March 2020 when the virus started to spread significantly. It could be identified from a study that the information about the coronavirus was inadequate and did not reach all groups of people (RKH, 2022). Since the situation was new and terrifying for many citizens, the content and distribution of the information should have been better. The received information was shown to be of low quality and readability and some sources gave out false claims as well (RKH, 2022).

According to Myndigheten för Samhällsskydd och Beredskap (MSB), elderly compared to other age groups have a higher risk of being affected by different crises. Because the elderly can have different cognitive or physical impairments they can require extensive support from other people or adapted sources for receiving information about crises. In 2024, Statistikmyndigheten (SCB) - Sweden's statistics department- presented results from a study explaining that the number of people that are 60 years old or over are increasing in Sweden's population. The importance of including this group's needs when developing crisis preparedness products and services is therefore high and needs to be taken into consideration.

The Russian invasion of Ukraine started in February 2022 and has affected Sweden's security and the sequence of events has been difficult to foresee (Försvarsmakten, 2023.). Even though the risk of a military invasion of Sweden is estimated to be low, the authorities are following the development carefully. For some time, the question of whether Sweden will be at war has risen drastically and different actions have been taken by the Swedish defences to be better prepared. For example, Försvarsmakten - the Swedish Defence Unit - has decided to call in people who do not voluntarily want to participate in the military service education (Swedish; Värnplikten). It has been identified that many people feel scared and worried about the current situation between Russia and Ukraine and whether there is going to be a war in Sweden. In early January 2024, chief commander Micael Byden, explained the importance of letting all citizens be aware of how to act and how to be prepared in case of a war. It is therefore important to pay attention to this sensitive subject, as well as people need to be more prepared and solutions on how to shelter and make all the citizens feel safe are important to plan for.

MSB's task is to create awareness regarding crises and war and their consequences. They give out advice on what to keep at home in case of: power outages, war, floodings, and more. MSB also provides a digital map indicating where safety shelters are located close to one's address. However, there is no other source with information regarding where to find a shelter or a meeting point, if the municipalities have not provided that information themselves. For an elderly person with a cognitive or physical disability, it can be difficult to locate these shelters and meeting points and also to access them without help from someone else.

1.2 Aim and objectives

This study aims to investigate how to improve information and communication channels tailored towards the elderly in a crisis scenario, more specifically war. The project will focus on the context of receiving information

about shelter locations and meeting points as well as how the elderly can identify where they are and transport themselves to them. Moreover, the project aims to explore and develop a conceptual design proposal for shelters and meeting points targeting the specific needs for elderly. The main objective is to guide authorities on what improvements need to be implemented when communicating information and involving the elderly in a crisis of war. Besides the above stated, the objective is to propose solutions that can demonstrate improvements and be used when designing the information channel(s), shelters, and meeting points.

1.3 Research questions

To achieve the different aims and objectives, three research questions have been formulated;

- How are the information and communication channels during a crisis or war-related scenario formulated in Sweden today?
- How can the channels be adapted towards the elderly so they receive information about shelters and meeting points?
- How could a user journey look like, from receiving information about where the shelters and meeting points are located, to how to follow directions, transportation and knowing they receive the necessary help?

1.4 Demarcations

First, the project aims to focus on crisis preparedness in the scenario of war; other crisis -related scenarios will not be explained in depth. The project is taking place in Gothenburg, and aims to identify needs and requirements tailored towards elderly above the age of 75. It is limited to investigating elderly who live in the centre of Gothenburg , have nearby neighbours and access to shelters, and will involve elderly who have the Swedish language as their native language.

1.5 Ethical, social and sustainable considerations

Ethical, social, and sustainable aspects need to be considered when a large part of the project includes participatory research methods. Because interviews with elderly will be one method for collecting insights, it is important that the respondents feel comfortable and safe. Building trust and respect towards the elderly will increase the possibility of opening up about the topic and feeling like they can contribute to the project. Banks et al., (2013) explain that qualitative research on people's "everyday life" inevitably brings up emotions, some of which can be about difficult life experiences. When including elderly with a cognitive or physical impairment, it is therefore important, as an interviewer, to be aware of and mindful of those experiences.

The elderly respondents and other people from respective authorities or organisations included in the study have to also be informed about the project and its enumerated data usage. What kind of value they will bring to the project is also important to describe. When it comes to personal data, consent is needed from the participants to ensure respect for their freedom of choice, dignity, and integrity of personality (Leidner & Tona, 2021). In this study, consent will be asked orally before asking to record the interview, and data collected from both interviews and surveys will be deleted at the end of the project. Participants' answers will also be anonymously included in the report. The elderly, even if seen as a vulnerable group, are not a homogeneous group, meaning there may be deviations. No conclusions should be made based on their age, since they have

different life experiences. Instead, they should be seen as a resource of knowledge and experience. It is therefore important to have a respectful language, ask open questions, and avoid leading questions.

By studying and suggesting a solution on a communication channel for the elderly as well as a proposal for them to transport them to shelters and meeting points - in a crisis of war, it suggests improvements that help some global goals being reached. The project connects to global goal 10; reduced inequality, especially 10.2 and 10.3 described in “The Global Goals and the 2030 Agenda for Sustainable Development” (Government Offices of Sweden, 2013).

1.6 Project process

The project process has been divided into different phases, with the double diamond method as an inspirational method. The method conveys a design process by dividing it into four phases; discover, define, develop and deliver (The Design Council, 2004). This project’s process is shown in Figure 1.

The double diamond model includes a discovery phase aiming to understand the problem by exploring the issues. In this phase extensive literature research has been done to understand how crisis information in Sweden is being received today, how to design for the elderly, and what information about shelters and meeting points exist today. Besides that, research has been done regarding Sweden handling war-related crises, including what information channels are used to share information. To get an understanding of how meeting points are being planned for and how shelters look, both interviews with municipalities and observations of shelter were done.

The second part of the discovery phase is the user study. Here, the aim is to study the targeted group to better understand their needs and requirements when it comes to receiving, understanding, and taking action on crisis information. Methods used in this phase were executing a web survey targeting the elderly group and also semi-structured interviews.

The Define phase consisted of an analysis using KJ-analysis method identifying areas of interest that were then visualised by two fishbone diagrams. The analysis method resulted in guidelines and personas that represented the needs and requirements for starting the Develop phase. The Develop phase was the ideation phase consisting of using two methods for generating ideas; brainstorming and an inclusive case study shared among designers and non-designers. To evaluate the ideas the evaluating method PNI (Positive, negative and interesting) was used.

The last phase was the Delivery phase. From the evaluation ideas were chosen to be further developed. Concepts in the Deliver phase were merged and explained both for shelters and meeting points. Besides that, a user test regarding the shelter concepts was done in order to receive insights about the final concept. To better explain the feelings and use of these concepts, storytelling was used. Here, resulting personas were involved in a storytelling in which the personas are interacting with the concepts in a fiction story.

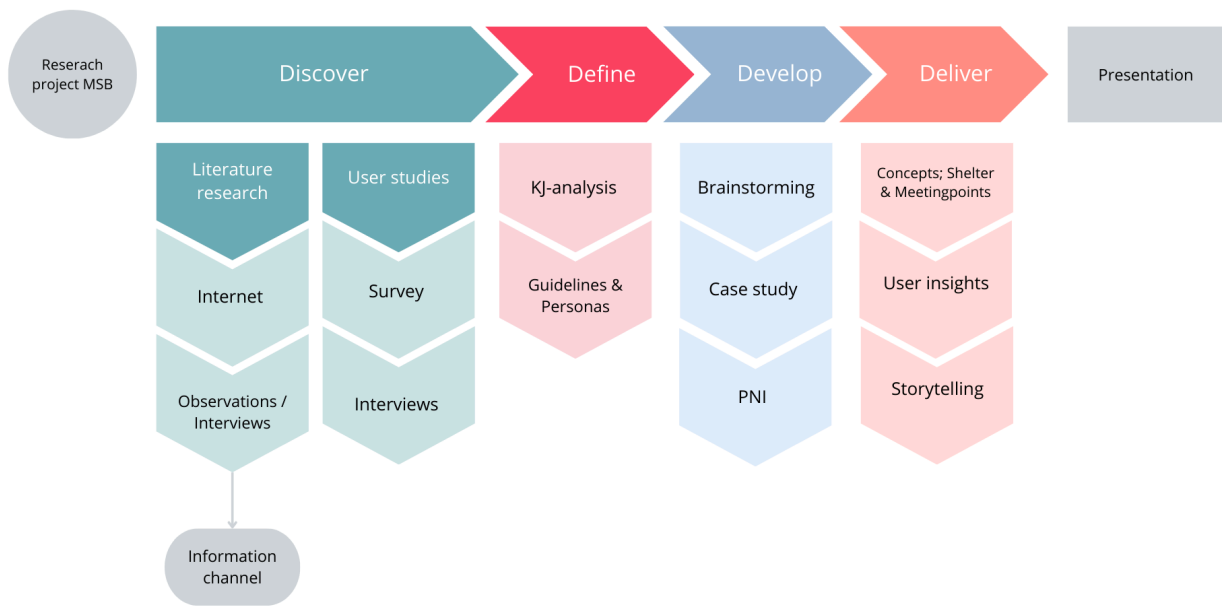


Figure 1. Project process - the double diamond model

2. Crisis communication in Sweden

In the following Chapter an explanation of crisis communication will be further described. After the COVID-19 pandemic, it could be shown that the need for good crisis information is important and will therefore be used as an example. In the Chapter, an explanation of what types of crisis information and communication channels that exist in Sweden will also be presented and how the process of sharing crisis information is executed today.

2.1 Crisis information during the Corona pandemic

At the beginning of 2020, the COVID-19 pandemic started, and the spread of the virus required people to receive and understand the crisis information given to them. According to the study, *Kommunikation om corona; medierapportering och förtroende i samband med covid-19-pandemin* (2021), communication channels such as the TV, Radio and newspapers are Sweden's most used information sources about Corona. Also, seniors over the age of 65 are the group that primarily reads the newspaper, watches Swedish news on the TV and listens to the radio compared to others. The study also confirms that 9/10 of the population trusted scientists and doctors more than politicians and journalists when it came to sharing information about COVID-19.

During the COVID-19 outbreak, elderly people over 70 were directed to follow specific measures to control their exposure, such as avoiding crowded spaces, wearing masks, and keeping social contact with family and friends (Folkhälsomyndigheten, 2020). Social isolation has affected elderly people's physical and mental health, especially when living alone. Social isolation among elderly people can lead to a higher risk of depression and anxiety.

Elderly people had difficulties doing everyday errands such as grocery shopping, going to the medical centre, or the supermarket during this time. According to Krisinformation.se (2024a), many elderly people received help from different volunteering organisations (FRG) to do shopping or other errands. It was also common for friends, family, and neighbours to do errands for elderly people. One way for neighbours to help was to write a note that was posted on the information board next to the apartment entrance. This way, the elderly could call the person offering the help and ask them to do shopping or other errands for them.

According to a report from Folkhälsomyndigheten, there is proof of negative consequences for elderly after COVID-19. Many have experienced loneliness and worriedness, where several telephone support lines have received phone calls from elderly stating that they had nothing left to live for. Studies from Novus could also confirm that many elderly felt frustrated and disfavoured and those who are socially, financially and health-wise vulnerable seem to have a greater risk of negative consequences. Different recommendations have been suggested by Folkhälsomyndigheten to prevent these experiences. First, to maintain contact with family and friends, different digital communication channels should be developed. This can be equalised with the digital meeting tool Zoom that different schools and work companies frequently used to maintain contact with classmates and colleagues. Besides that, different physical activities and training programs have also been recommended to offer elderly (Eriksson, 2014).

After the pandemic, increased use in social media could be identified (Wong et al., 2020). Spreading information about the virus through social media became an important information source and because of the distancing between elderly and younger adults, more elderly were seeking to find information there. However, there is still a lack of or inability in using digital media. Elderly have a lower level of knowledge of using digital media or no access at all to them (Fernández-Arvévol, 2016). Many became dependent on a second source, for example family or friends.

2.2 Information and communication channels provided

Different countries act on crises differently. In Sweden, we have a called “Statsorienterad Riskkultur”, where people expect the government and municipalities to act on crises. In Italy, a “Fatiliskt risk kultur” exists, where many people are doubtful that it is possible to prevent damage from a crisis. A more individualistic risk culture exist in the Netherlands; this means that planning and crisis preparedness where planning lies above all with the individual themselves and not with society at large. Sweden adapts to a more “Individual risk culture” where different organisations such as MSB, the Swedish defences and the government explain the importance for individuals to prepare for crises.

MSB - The Swedish Contingencies Agency

MSB is responsible for helping society prepare for major crises and the consequences of war (MSB, 2021a). At the MSB website, individuals can receive advice on how to prepare for war, natural disaster, fire safety at home, and more. It also provides loads of reading materials that can be provided for schools or municipalities. MSB also provides people with different courses on crisis preparedness and publishes news about current happenings. The website can be read easily in Swedish, sign language, English, and other languages, as well as audio, which enables people with different needs to take part in the information. In 2018, MSB provided every household with a brochure called “Om krisen eller kriget kommer” (MSB, 2021c) with the mission from the government, which aimed to provide people with information and checklists if a crisis occurs, more about the brochure in chapter 3.1.

Krisinformation.se

Information about different crises can be found on the website Krisinformation.se (2024). Krisinfomation.se is an organisation providing information about the crises happening in Sweden provided by the Swedish government and other authorities. The aim of the website is to provide easy access to information from the Swedish government by collecting it in one place. It also aims to strengthen the individual availability to act on and make decisions during a crisis. The website is driven by MSB, however, collaborating with other authorities in Sweden. Krisinformation.se is accessible on the website, in their app, and on social media. The information is available in both Swedish and English. During major crises, the information is translated to several languages depending on what language is deemed to be important during the crisis. Besides that, the information is also provided in easy-to-read Swedish and as an audio for people with visual impairments.

Municipalities

The foundation for crisis preparedness is the municipalities. When the municipalities have clear plans for tackling a crisis, they have a higher ability to make it through (Krisinformation.se, 2024). Municipalities have an obligation to plan for different extraordinary crises and also to practise how they are going to act in such scenarios. Scenarios include power outages, IT attacks, floodings, fires, or war-related crises. Each municipality runs a different organisation that has to work even during a crisis, for example, elderly care, rescue services, and schools. Municipalities have a crisis management board (Swedish krisledningsnämnd) that takes decisions linked to the crisis. The aim of this crisis management board is to create opportunities for faster political decisions during a severe crisis.

It is common for municipalities to have their own websites. On the website, different information regarding the municipality is presented. In many cases, the municipality informs locals about its crisis preparedness plan, where they can find meeting points and important phone numbers. Some municipalities offer their information in different languages, audio, and sign language.

2.2 The process of spreading information

When a crisis occurs an IPA - short for Important public announcement - (Swedish: VMA - Viktigt meddelande till allmänheten) is sent out to citizens (MSB, 2021b). IPA is a warning system that is used when there is a danger to people, property, or the environment. For example, fires, explosions, or gas emissions (SOS ALARM).

Different channels can send out public announcements. During a severe crisis, an outside warning signal “Hesa Fredrik” can warn people by indicating different messages through 4 different sounds; the warning system will be further explained in Chapter 3. The warning could also be sent out via the Swedish radio or TV channels, as an SMS on the phone (top people in the affected area), at Krisinformation.se, or on social media platforms.

In Figure 2, the process according to the paper “Inclusive communication of crisis information” (Hansenäs et al., 2022) of sending out a warning to the public is presented. It starts with a municipality, government, or rescue team identifying and reporting the need for an IPA to SOS Alarm (1). The request is then transferred and the information is sent to the Swedish transition line and also formulated together with the requester of the IPA (2). In some scenarios, a SMS can also be sent out, however this is something SOS Alarm oversees. Then, the transition line transfers the message through the nationwide radio channels such as FM channels and Swedish Educational Radio (3 and 4) . On a server, the message is then saved at the Swedish radio and is automatically transferred to apps and websites (5). The transition line on the Swedish Radio distributes the message to the assisting TV Channels (TV4, Swedish television, Channel 5 and 9) (6). More information will also be available on municipalities websites, at Krisinformation.se or the emergency number 113.

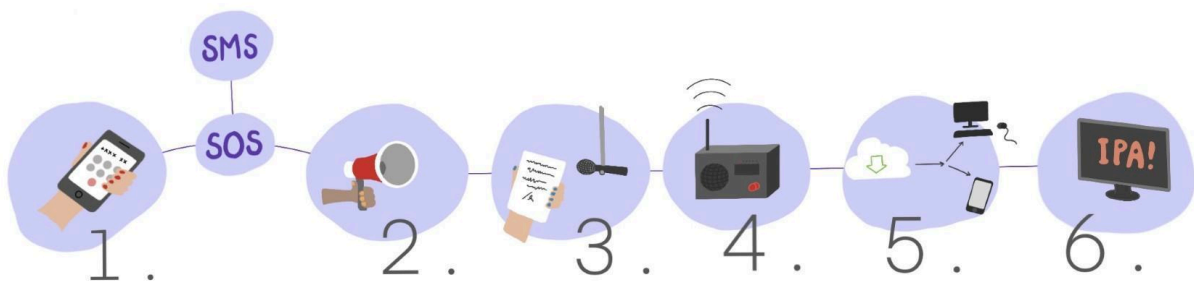


Figure 2. Communication chain for public warnings, illustrated by the author of this paper

3. War-related crisis

War-related crises will be explained in the following Chapter. The Chapter will clarify what different stages that exist during a war-related scenario in Sweden and also what types of outdoor signals that exist to indicate the different stages. Besides that an observation of shelters in Gothenburg will also be presented with insights. Regarding meeting points, two interviews with municipalities were done and will also be presented in this chapter. The Chapter will end with an explanation of how a larger crisis can affect people, both on how they understand and act on the crisis, however also the after effects of what could occur, specifically for elderly.

3.1 Methods

Different methods were being used to collect information and insight about war-related crises. The main method was literature research, which required an understanding of war-related crises to be solved. Besides more theoretical and literature studies, more hands-on methods, such as interviewing municipalities about shelters and meeting points and executing observations of shelters are used. Interviews with municipalities were held to get insights into how municipalities plan for meeting points, what type of information has to exist, where they should be located, and how information about where they need to be handed out. Open observations of shelters, in different apartment buildings in Gothenburg were made to understand the shelter's accessibilities and looks.

3.2 The different stages of the war in Sweden

In a war-related crisis, everyone is responsible for acting and preparing as much as possible. The responsibility is divided between all actors, citizens, and the government. The consequences of war could be power and water shortages, food rationing, and limited public transport. During such a crisis, help will be provided first to those who need it, and people are responsible for being as prepared as possible. It is recommended that everyone live without water or electricity for a week.

Sweden has something called Total Defence Responsibility (Swedish Totalförsvarsplikt), which means that every citizen between the ages of 16 and 70 can be called to help out with various assignments. There are three different types of responsibility: military service in the national defence, civil duty in different operations that the government decides (for example rescue service, healthcare, or childcare). The last one is a public service occupation which means that people serve in operations that work even during war. It could mean that you 1) keep going to your work 2) serve a voluntary defence organisation FFO (Frivillig Försvars Organisation) that you are a member of or 3) you get assigned by the employment agency a job that is carefully picked to help the total defence.

High preparedness (Höjd Beredskap) is the collective name for heightened preparedness (Skärpt Beredskap) and highest preparedness (Högsta Beredskap). It indicates that Sweden aims to prepare for war, that people must follow the government's regulations, and that citizens must keep themselves updated. It is the government that decides if a situation can be classed as high preparedness.

During a heightened preparedness, Sweden is assessed to be in a war danger zone or involved in a conflict that takes place outside of Sweden's borders (Krisinformation.se, 2024). At this time, the country is to start preparing to meet the needs of total defence. The second preparedness level is the stage called highest preparedness, indicating that Sweden is at war. However, it could also mean that Sweden is directly affected by a war danger zone.

IPA (Important public announcement), as section 2.2 mentions, is a warning system used during accidents and crises. IPA during a war-related crisis can occur via different channels: radio, TV, SMS, and the outside warning system "Hesa Fredrik". The outside warning signal does not exist everywhere, it is the municipality that decides where they are mainly needed. In the areas that don't hear the outside signal or have hearing loss, people are referred to Krisinformation.se, the SOS alarms app, or Swedish radio play.

There are four different signals that Hesa Fredrik can signal depending on what message the authorities want to say. An important public announcement (IPA) has a 7-second-long burst of sounds with 14-second-long breaks that is repeated 6 times (sos alarm). To indicate that the danger is over, a 30-second-long burst of sound is signalling (Figure 3).

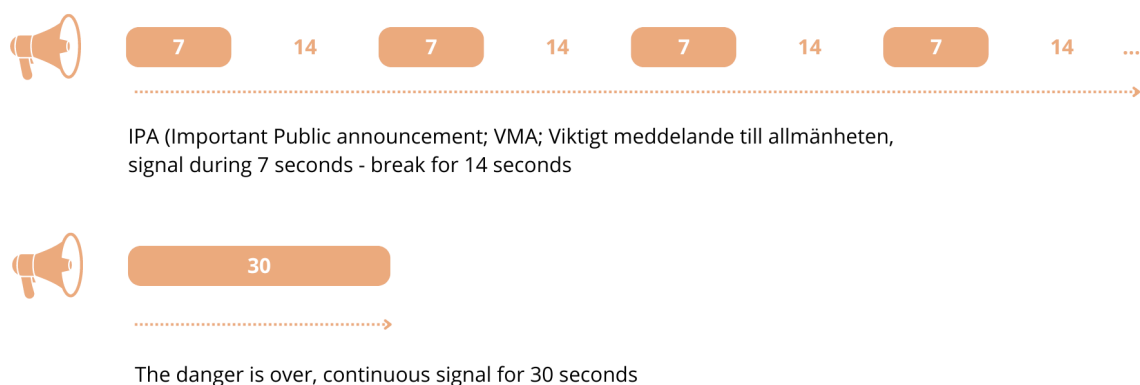


Figure 3. Outdoor signal “Hesa Fredrik”; IPA (Important Public announcement)

A standby alarm (Beredskapsalarm) is a signal that is used if the government wants to warn people that there is an immediate danger of war (Krisinformation.se, 2024b) or that the country is at war. People are referred to go inside and listen to Sveriges Radio P4 to receive more information. People are expected to be prepared to leave their homes with short notice and bring necessary equipment such as warm clothes, ID, medicine and some food.

Another signal will turn on if there is an expected air raid; it is called the air raid alarm (Flyglarm). This signal consists of a short burst of sounds that goes on for 1 minute. It is the military defences that can identify if there is a threatful airway attack. During such a signal, people are expected to go to the closest shelter as quickly as possible. To identify that the danger is over, a continuous signal for 30 seconds will be turned on. These signals are shown in Figure 4.



Figure 4. Outdoor signal “Hesa Fredrik”; Air raid alarm

3.3 MSB:s brochure “If crisis or war comes”

In 2018, MSB sent out a brochure called “*If crisis or war comes*” to all households in Sweden, on the behalf of the government. The brochure provides information to everyone about how to prepare for a crisis such as bigger attacks, military conflicts, or extreme weather. The brochure comes in paper format (Figure 5), however, it can be found on the MSB.se website as a PDF. It is also available in English, easy-to-read Swedish, 14 other languages, sign language, braille writing, and audio.

The brochure presents information about crisis preparedness, the Swedish defence system, and its warning systems. It further presents a checklist for individuals to prepare for crises at home, dividing the necessary materials into areas such as food, water, heat, communication, and others. There are also important telephone numbers listed and a blank page for the individual to write important notes, such as telephone numbers, shelter addresses, or equal.

According to Regeringskansliet an updated version of “*Om krisen eller kriget kommer*” is planned to be published during the year of 2024 (Regeringskansliet, 2024). The brochure drew the attention of many citizens in Sweden. With the security policy aspects in Sweden as well as its membership in NATO (North Atlantic Treaty Organization), Regeringskansliet sees a need for an updated version that aims to strengthen individuals' preparedness.



Figure 5. Ahammer, M (2024, 18 april) *MSB:s brochure “If crisis or war comes”* [Photography]

3.4 MSB:s digital shelter map

On MSB's website, an online map of the shelter's location is available (MSB, 2024a). The map allows one to search for an address or place. If one is looking for the closest shelter, the map has that function to choose from as well. The map shows shelters located in Sweden and is marked out with the orange shelters sign. If the shelter is not available anymore for different reasons, for example, it not being qualified to be one get, the sign is crossed with a red mark.

When selecting the right shelter, information about it is displayed. It says how many people fit in the shelter and the exact address. The distance from where you are and the shelter is also provided. The service demands people to have access to a computer, smartphone, or iPad. It also demands one to have internet access, and therefore, it would not be available in a scenario of a power outage or equal.

Besides the MSB shelter map, there are other websites informing about the whereabouts of the safety shelters. For example, different housing associations inform about their shelter on their website, which addresses they are placed and they refer their tenant to MSB shelter map. Some municipalities websites also refer people to MSB's shelter map, however general information about how many shelters exist in Sweden and who is responsible for them is not provided as well as no one is assigned to a specific shelter.

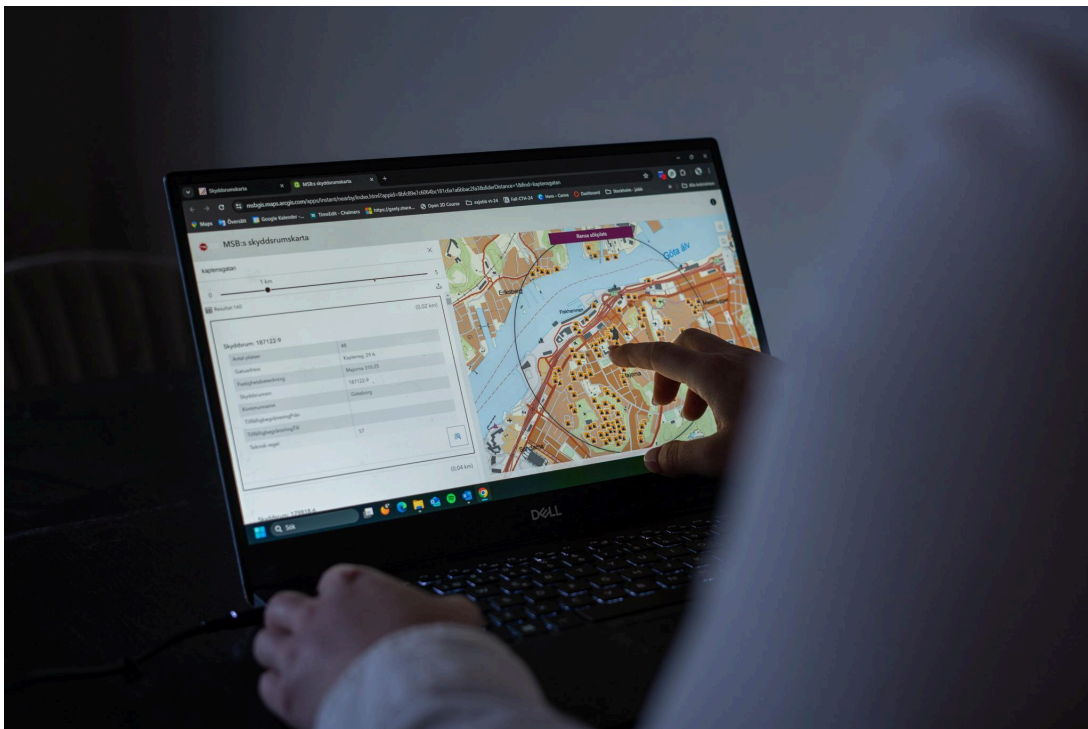


Figure 6. Ahammer, M (2024, 18 april). *Shelter map provided by MSB* [Photography]

3.5 Shelters

In Sweden, shelters are provided for the civilian population to protect them from physical harm in war related crisis. After the First and Second World War, Sweden understood that the civil population was more vulnerable

during wars, especially during the development of airplanes and weapons of mass destruction, like the atom bombs. In total, there are about 64,000 shelters in the country, mainly located in bigger cities since the cities are the target. They are located in different building types, such as apartment complexes, schools, industry buildings, and more, and are marked with the word “SKYDDSRUM”, see Figure 6.

These shelters exist to keep people safe from airplane raids, radiation, splitters, and other explosions. Today, these shelters can be used as storage rooms for keeping bicycles, people’s belongings, tools, and equipment. When a crisis occurs and these shelters need to be used, the property manager eller landlord has the responsibility to arrange these shelters by throwing out things and making sure they are properly prepared in 48 hours. It is people’s responsibility to know where the closest shelters to them are located.

3.5.1 Observation of shelters in Gothenburg

Observations of shelters in Gothenburg were made to better understand the comfort, size, and availability of the shelters. In total, 5 different observations were made in different apartment complexes around Gothenburg. Different property managers and owners were contacted to get access to the shelters. The areas were: Eklanda, Majorna, Johanneberg and Flatås. The observation followed a predetermined guide in order to gather the right data, see Appendix 1.

3.5.2 Insights - shelters

Some insights from the observations and those of the property managers were collected. Questions regarding what kind of instructions they had received from MSB in terms preparation for the shelter were asked. Clear directions were given from each visit, and the shelters were prepared for use. This included installing a water container and heat, ventilation, and toilet possibilities. Those who had been observed were either storage that is used by the property manager, storing gardening equipment and decoration. Others were storage rooms used by the tenants. According to the property managers, equipments and personal items are expected to be thrown away when they receive order to unlock and prepare the shelters within 72 hours.

One manager pointed out that they rely on help from the tenants in the building to throw out the items. It seems that, during recent time that people have been asking, through email or phone calls, where the shelters are, meaning taht the interest has increased. It was identified that some of the shelters have clear signs on the front door of the building, indicating that a shelter exists in the building as shown by the orange square with the blue triangle inside in Figure 7. However, some of the signs were not visible enough from a distance, especially when the storage door were about ground level. During a crisis scenario, larger temporary signs would help elders to identify the shelters from a distance.



Figure 7. Shelter observation in Gothenburg, [Photos taken by the author of the project]

3.6 Meeting points

Today, many municipalities in Sweden plan to set up meeting points for people when a crisis occurs. A meeting point is a safety location that provides more information about the existing crisis, food, water, and, during larger crises, a place to sleep (Krisinformation.se, 2024c). When a municipality identifies the need to provide people with meeting points, it will set one up. Meeting points are set up in buildings such as schools, libraries, or churches since these places can gather many people. However, how many meeting points will be set up is decided by each municipalities. For further information, see Appendix 2 for the interview guide with the municipalities.

MSB and SKR, an organisation that facilitates joint work between counties and municipalities in Sweden (Swedish: Sveriges kommuner och regioner), developed guidelines that municipalities should follow. These guidelines can be found on MSB's website. The report describes different roles and responsibilities, how to plan for the meeting points; analyze the need, find suitable locations and what to include at the location. One municipality in particular, Flen, has worked with identifying where their meeting points should be located and providing its inhabitants with a map and the according addresses. Moreover, they provide the inhabitants with information about what the meeting points will be stocked with and how they will reach out to their inhabitants when the meeting points will be set up.

To maintain a meeting point, some municipalities follow guidelines according to Energimyndigheten, Swedens energy efficiency agency. The agency measures and invests in renewable energy technologies (Energimyndigheten.se, 2024). It contributes with information and analyses about energy supplies and its use in society. During a crisis that involves heat and power outages, Energimyndigheten promotes directions for maintaining meeting points in a municipality.

When describing what a meeting point is and what should be included in a place, the meeting points are divided into three levels. The first level 1 being a *Simple day center*, the second level being an *Extended day center*, and the last and third level being a *For round-the-clock meeting point*.

The *simple day center* is used to provide help during a shorter period of time and can be set up in a library or cafeteria. It should give people information about the crisis. An *extended day center* is a meeting point where people can visit most hours during the day, it could be a gymnasium or school building. Here, information, food, showering and cleaning opportunities are some of the help that should be found at the meeting point. The last level of meeting point is the *round-the clock meeting point*. This meeting point aims to be a place where people can visit anytime of the day and night but are also able to sleep over, receive information, and execute daily personal hygiene.

To understand how municipalities plan for meeting points, interviews with 2 municipalities were held. The interviews were conducted through digital meetings and email writing. To reach municipalities several emails were sent out and two were able to take part in an interview. The municipalities differ in size and population; one was a larger city and the other a smaller city.

Questions were asked to obtain a better understanding of what a meeting is, for example:

- What is a meeting point, in your opinion? And when are they needed?
- What has been planned to be included at the meeting point, and where should they be located?

To understand how they have chosen to adapt the meeting points in a war-related crisis, questions about that were asked as well:

- What is important to include at such a place, in a war-related scenario? (material and information)
- How will people be informed about how to locate the closest meeting point?

Other questions about what information should be provided were asked:

- How do people receive information about the war-related crisis (public speakers, posters, brochures, etc.)?
- What kind of information is important to include? Also, when, how, and where do people receive information about the closest location?

3.6.1 Insights - meeting points

Some insight were gathered after the interviews with the two municipalities. First, it was clearly stated that both had followed MSB's (2022) recommendations regarding meeting points , one also mentioned that Energiemyndighetens way to organize the meeting points in three different levels was taken into consideration as well. This indicates that the guidelines are being followed. For example, one of the municipalities had identified different establishments such as schools, churches, libraries that fulfill the requirements and can be used to install water sources and ventilation systems. Some are big enough to accommodate people to sleep and eat. To select establishments that felt natural for people to go to during a larger crisis felt important to them. However, one municipality described an example of a smaller crisis in their municipality, and that a meeting point was set up to answer people's questions that lived nearby. There, people worked as communicators spreading information about what was happening and how they handle the situation which has proven to be valuable. The insights was analysed by using the KJ-analysis and lead to different areas of interest that will be presented in 6.2.2.

The other municipalities described that they currently have something called *information points*, emergency accommodations and gathering places. Information points are being used by the municipality when a power outage emerges. They have a mobile information point that can be driven to specific places and share information to citizens. In a war-related scenario, in case of a power outage one mentioned the important of sharing information by writing signs and have audio information shared among people. If a meeting point is set up, the information about where it is located can be found on the municipalities website, social media, Sveriges Radio P4 or as a VMA according to the municipalities.

When asking questions regarding prioritization and sharing information to elderly, it was stated that this is something they still are planning and researching on. The need for meeting points can differ from municipality to municipality, since larger cities are seen as a target from the opponents perspective, however the location of these meeting points and which information should be shared as well as how it is understood by the citizens, especially elders, should be planned for. What kind of help a meeting point will offer is also important to include.

3.7 The effects and behavior of a crisis

During a crisis, people are given information about the crisis from different communication channels; TV, radio, social media, friends and family. First, people take in information, they process it and act on it (HHS, 2019). However, during stress or mental overload, people tend to miss details in messages by not hearing, misinterpreting or not remembering the information. Humans tend to discard information that is distressing or overwhelming, it is therefore important to express empathy for the audience's uncertainty by explaining what they know, what they do not know and the process they are using to get the answer.

Individuals confirm sources with each other when it comes to crisis information. People change television channels, call friends and family, and check multiple social media channels. Therefore, the first message must be simple, credible, and consistent. Besides that, the message should also come from multiple sources, and be repeated and specific to the crisis (HHS, 2019). If the audience receives and understands a consistent message coming from multiple trusted sources, they will be more likely to believe and act on it.

There is a wide range of emotions that can arise during a crisis. Besides uncertainty, fear, anxiety, and dread are common emotions in such a scenario (HHS, 2019). When a community has not experienced a crisis before, it becomes frightening, and as communicators, it is therefore important to alleviate those feelings. In some cases,

however, the feeling of fear and anxiety can motivate people to take desired actions. Other feelings are hopelessness or helplessness. Feelings can arise when humans feel that there is nothing they can do to help or that they have no power or control over the situation. This will lead them to feel less motivated and able to take action. Another behavior is denial, this feeling can occur when people have not received enough information to recognize the threat. When they receive a consistent message from multiple trusted sources, they will be more likely to believe the message and act on it (HHS, 2019).

According to Wong et. al. (2020) the effect of social distancing among elderly has had effects on psychological, social and physical health levels. For example, elderly with chronic conditions and people with low socioeconomic status are two of the most vulnerable populations. As mentioned, elderly mental and physical health was affected negatively during the COVID-19 pandemic. They felt isolated, alone, helpless and could not participate in activities as they could before. Therefore, if an upcoming crisis would occur, it is therefore important to think about how to not exclude elderly from the resources for getting help.

4. Designing for elderly

The following Chapter has though literature research investigated age-related changes that exist. The Chapter will present age-related changes such as vision and hearing, memory and mobility. Also, the concept of Universal design, which is a design concept that enhances equal opportunities, will be explained and an approach that will be taken into consideration when developing concepts.

4.1 Age-related changes

Age-related changes are unavoidable and affect people's daily lives. Today, the pace of population aging is faster than in the past. The proportion of the world's population over 60 years nearly doubled between the year 2015 and 2050. A common condition, that comes with age-related changes, is for example vision loss, dementia, and mobility loss. Also, as people age, they are more likely to experience several conditions at the same time (WHO 2022). With that comes a responsibility to pay attention and design products and services that are suitable for the elderly. By creating a more supportive social and physical environment, it enables the elderly to do things that are important to them, despite the losses in capacity. This could be creating a more safe and accessible public transportation system or buildings that are adapted towards the elderly and people with a cognitive or physical disability.

Vision and hearing

The vision is the most dominant human sense, taking in about 80+% of our input (Bohgard et. al., 2019). The eyes always scan for movements, structure, and patterns. Human beings rely on the sense of vision. One of the earliest signs of aging is the difficulties of near-focus, called presbyopia (Farage et.al 2012). Getting presbyopia is a result from a stiffening of the lens of the eye so that it becomes difficult to focus on near objects. When aging, the vision sense decreases, and one effect of this is difficulty distinguishing things with low contrasts. Higher contrast is needed to distinguish between objects. Besides that, with aging comes difficulties in adapting to different light intensities and being able to see up close. A common eye disorder that is detected in regard to aging is Age-related Macular Degeneration (AMD), which results in damaging sharp and central vision and affects common daily tasks such as driving or reading (CDC, 2023).

When designing information for the elderly, it is essential to think about sizes in text and pictures, colour codings and clear messages in order to convey the reader. According to Bohgrad et al (2019) can for example red text on a blue background be difficult to differentiate while black text on a white background is an ideal combination for both color and contrast purposes. In a scheme or a map, it is especially important to take into account to not include too many colours since it could confuse the reader. Because color perception diminishes, colors in yellow to red of the spectrum are more easily discerned, in comparison to the colder violet-blue-green spectrum because they discern and discriminate bright, warm colors more easily in comparison to cool colors (Farage et.al, 2012). It is crucial with simplicity of visual presentation and avoiding visual clutter. The information should be large, uncrowded, the font size should be 12 points or larger. Having decorative fonts or background should be avoided and to highlight key material, uppercase is useful.

The sense that complements the vision is the auditory sense that catches the humans attention quick. Sounds exists to warn us or get our attention. Therefore, it is an effective method to use as warning signals and especially when it is combines with visual informatio (Bohgrad et al., 2019). With ageing comes problems with decreased hearing especially with sound of high frequency. Age-related hearing loss (or Presbycusis) is a common disease that comes with older age. The disease makes it difficult for elderly to tolerate loud sound and understanding what other people are saying (NIH, 2024a). Tinnitus is a symptom that is common among elderly. The symptom is described as a ringing and buzzing sound in the ears and can be either loud or soft.

Auditory messages exist in our everyday life and affect the way we perceive and understand things. An example described in Bohgrad et. al. (2019) is how a deteriorated sound in a TV can affect the perceived image quality as well. Therefore, auditory information can be an efficient way to convey people to understand and act a certain ways. Spoken words for example, as to Bohgard et. al.(2019), need to be repetitive since sounds are transient.

Memory

With aging comes a deterioration in memory. Besides changes in our body and senses comes changes in our brain, it can for example become difficult to remember information or forget to do things (NIH, 2024b). With memory loss it can also become difficult to learn something new, getting lost in places you used to know well, and having to repeat questions. More serious memory problems could be symptoms of dementia or Alzheimer disease.

Dementia is an umbrella term for loss of memory and thinking abilities that effects the persons daily life (Alzheimer's Association, 2024). Alzheimer's is the most common cause of dementia, it accounts for 60-80% of dementia cases. It is a progressive disease, in an early stage memory loss is common and at a later stage individual loss the ability to carry on a conversation and respond to their environment (Alzheimer's Association, 2024).

According to Wickens et. al. (1985), memory can be considered as a store of information and that our memory can be divided into our working memory (short term memory) and our long term memory. The working memory is the temporary memory store that is used to retain information, such as a new telephone number. Wickens also describes the working memory as a "work-bench" that evaluates, compares and transforms different information. The working memory holds new information and rehearses it until encoded to our permanent storage in our long-term memory.

Mobility difficulties

Moreover, with aging comes a decreased mobility meaning a loss in motor skills like holding or grasping objects. A decreased balance is a recognition in aging and things like walking up stairs or standing up for too long become more difficult. Common conditions that can contribute to mobility problems are muscle weakness, pain, joint problems and neurological difficulties caused by diversities in the nervous and brain systems (HealthinAging.org, 2024).

4.2 Universal design

The elderly are living longer, remain more active, and stay longer in their home before needing assisted living arrangements (Fisk et.al., 2004). In addition to changes in demographics, there has been an enormous change in technology capabilities. What is known is the frustration that comes with understanding and using technology by the elderly, the elderly use fewer of them than young or middle-aged adults. According to a study (Fisk et.al., 2004), some technologies have been difficult to avoid, says the elderly, such as telephone, online card payments, and airport self-check in screens.

There are different approaches aiming for design solution that enhances equal opportunities and accessibility for as many people as possible. Universal design is one of the approaches, according to Nilsson (2013), universal design is a strategy that aims to make design solutions both products and services usable for everyone with no adaptations

or specialized design solutions. By designing for as many people as possible, universal design becomes both convenient and profitable and it removes distinctions among varying abilities.

Ron Mace developed principles of universal design, quoted by Null:

- 1. Universal design is supportive:** it makes environments work for the individual, stressing ease of use and maintenance.
- 2. Universal design is adaptable:** it serves a wide range of users whose needs change over time.
- 3. Universal design is accessible:** the everyday comforts and conveniences that “normal” individuals enjoy are provided to all users of the environment. Codes and ADA (Americans with Disabilities Act) guidelines for accessibility are minimal and the interpretation of accessibility is frequently limited to providing access to buildings for people with impaired mobility.
- 4. Universal design is safe:** it not only provides environments and tools for the presently disabled but also actually anticipates and prevents disabilities such as repetitive strain injuries.

5. User studies - Elderly

Chapter 5 will present the next phase during the project which is the user studies investigating elderly needs when it comes to crisis communication and information. The chapter will first present the methods used to collect the insight which was a web survey following a more in depth interview with elderly. The methods will be explained and insight from the web survey will be presented. Insights collected from the interviews can be found in Chapter 6.

5.1 Method

Several data collecting methods have been used to gather insights from elderly about shelters and meeting points. The first data collecting method was a web survey that was published in different housing and senior groups on Facebooks and aimed to gather quantitative data about crisis information, shelters and meeting points. The second data collecting method was semi-structured interviews with elderly aiming towards gathering qualitative insights in how well elderly are prepared for a crisis, their use of information channels and shelters and meeting points. The insights from the semi-structured interviews can be found in Chapter 6.

5.1 Web Survey

A survey was made and published in different Facebook groups. These groups were housing cooperatives in Gothenburg and senior groups since the survey aimed to collect answers from elderly about or over 70 years of age. The names of these groups are “Kvarteret Kolumbus”, “SPF - Linnestaden”, “Nymilsgatan - Nya hyresgäster”, “Grannverksamheten Flatså” and “Vi Seniorer”. In the post, a clarification was done to make sure elderly about or over the age of 70 answered the survey. The web survey questions can be found in Appendix 3. In total, 32 people answered the survey and the questions were mainly about how they experienced the information provided during COVID-19, and what types of information channels they mainly used to find out more about the crisis (e.g. television, radio, social media). Questions about whether they knew where the closest shelters in their area were located and if it was something important for them to find out were also asked.

The objective of the survey was to recruit possible interviewees. This was done by asking the survey respondents to write their email or mobile contact if they wanted to participate. All the collected data was to be deleted at the end of the project according to GDPR, which the respondents had to accept at the beginning of the survey.

5.1.1 Insights from the Web Survey

Different insights and understandings could be drawn from the web survey. One of the first questions asked was what kinds of information channels were used to collect information during COVID-19. The respondents could choose several answers that correspond to what they used. 96.9% of the respondents answered TV, 65.6% Radio, 40.6% the newspaper, 50% social media, 37.5% family and friends, 40.6% digital new paper, and 15.6% other, see Figure 8. TV and radio are most frequently used and also confirmed in other research. Another conclusion can be made that many elderly have adapted quickly to using smartphones and social media and receive information from those sources as well. The newspaper is also an information channel that is still used by the elderly. Something that can also be concluded is that since 37.5 % of the respondents said they rely on family and friends to receive information about COVID-19, we must still consider that people receive and in many cases trust the information provided by people. Therefore, the solution could incorporate friends, family, and neighbors to inform the elderly about the current crisis in some way.

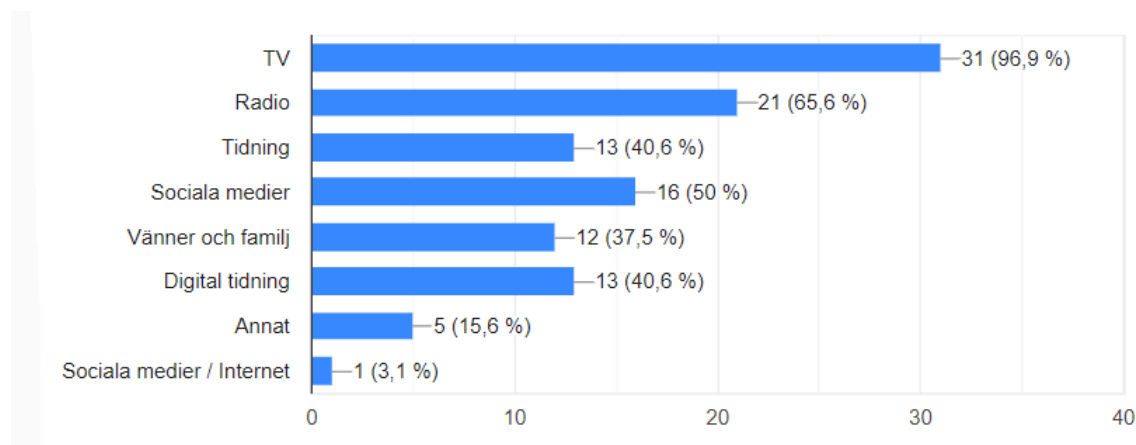


Figure 8. Results of the user web survey

When asked about whether or not it was easy to book and find the right vaccination location for the COVID-19 vaccine, 87.5% stated that it was “easy” to book and find the right vaccination location. 12.5% said it was “quite easy” and no one thought that it was not easy to book and find the location. This can be due to Sweden offering the elderly vaccination and location before everyone else. The elderly can locate the hospital or equal since it is a location close to them. Many of the respondents (90.6%) also stated that they live in an apartment, the others in a house or terraced house. Because the study aims to look into the elderly who live in apartments, the survey has been published in Facebook groups aiming towards people living in apartments to aid finding correct data. Since an airplane attack, in a scenario of war, targets the center of bigger cities, people living in the center of the city and apartments are the most vulnerable people.

Going into questions about shelters, one question was also whether the respondents knew where the closest shelters to them were located. Almost 50% answered that they didn't / maybe knew where the closest shelters were located, see Figure 9. In a scenario of war, the source of finding the shelters is that the MSB shelter map can be screenshotted, or saved on the phone, yet, what if the power shuts down? The other sources could be neighbours, friends, and family then, however, what happens if the shelters are full? How does the elderly know where to go next?

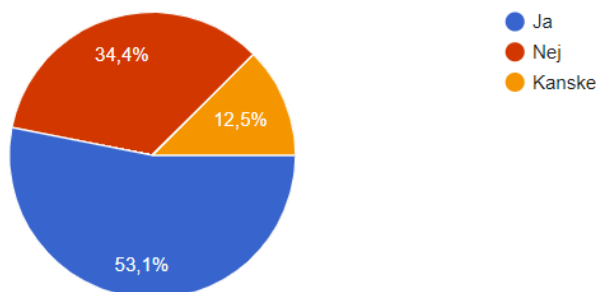


Figure 9. Question; “Do you know where the closest shelter is located near your home?”

Another question was asked about through which information channel they received the information about where it is located they used. 25 % of those who answered have received the information through the MSB map that can be found on their website. 15% said friends and family and 10% did not remember. Another option was “other” and 50% of the respondents chose “other”.

It was also asked if the respondents felt it was important to them to find out where the shelters are located beforehand. 26 of 32 people answered that it felt “very important” (5) on a scale from 1 to 5. Two elders answered that it did not feel important to them that they knew beforehand where the closest shelter was. When investigating the other answers from those respondents, one of them lives in a house, which can be the reason for them to feel that they did not need to know where the shelter is located. If the house is located in the countryside, it is known to be safer staying in the house, since they target cities. 90.6% of the respondents answered that they did not feel the need for help from other people (family, friends, neighbours) or equal to transport themselves to the shelter, they felt that they would perhaps need help or that they did not need support.

Going into the question about meeting points, a question was asked about what felt most important to include in a meeting point. The alternatives were: food and water, a charging station for phones, information about the crisis, a place to sleep, people to talk to, healthcare, and “other”. The respondents could pick several things that felt most important to them and 93.6% chose food and water as one, the second most important was information about the current crisis and also a place to sleep, then a charging station and healthcare.

5.2 Semi-structured interviews with Elderly

As mentioned, the web survey gave respondents the opportunity to be interviewed and delve into the subject more deeply. The interview was semi-structured which had the purpose of collecting more qualitative insights. The interview included both pre-determined questions, and follow-up questions, about crisis preparedness, shelters and meeting points, however, it also allowed them to explore particular questions further. The interview guide can be found in Appendix 4. Also, the insights and findings from the semi-structured interviews with elderly lead to different areas of interests; no knowledge of their existence, lack of information, no knowledge of what to bring, worrying and uncertainty, usage of non-digital channels and an expectation to receive physical information. These areas of interest are described more in depth in 6.2.1.

One interview took place as a physical meeting in an undisturbed environment and the other interviews were done via telephone for convenience purposes. The interview was offered to take place as a physical meeting, telephone call or a digital meeting since the target was to create an environment that felt comfortable and suitable for the respective participant. The interview took about 30 minutes and was held in Swedish. The interviews aimed to get an insight into how prepared the elderly were for a war-related crisis and if they can receive and understand the information distributed by various resources, and even how they would have wanted the information about shelters and meeting points to be published.

6. Analysis & resulting guidelines and personas

In the following Chapter an analysis of the user studies with elderly and the interviews with municipalities will be presented. Different resulting “Areas of interest” could be identified (both for shelters and meeting points) and is further explained in this chapter. The “Areas of interest” was the base for the development of the resulting guidelines and personas that will also be presented in this Chapter. In total, four personas was developed; two elderly persons, one property manager and one volunteer person working for a FRG group.

6.1 Method

The collected data from the user studies and the interviews with the respective municipality have been analyzed through a KJ-analysis. With the KJ's different areas of interest identified, for both shelters and meeting points, they were visualized by placing the areas of interest by using the structure of a fishbone diagram. The method is used to visualise problem areas of root causes of an issue or a specific event. They are grouped as major causes or areas of interest and can include sub problems underneath the major causes. After using these analysis methods, guidelines and personas were created to summarise the research and user study phases to later support the concept development for the areas of interest.

6.1 KJ-analysis

To analyze the data from the research and user studies, a KJ-analysis was made. The KJ-analysis is a method used for organizing and prioritizing data that was developed by a Japanese ethnologist Jiro Kawakita (Scupin, 1997). To map out the data collected the web program MURAL was used. The program allows one to analyze much data efficiently by digitally adding and sorting post-it notes. The program also allows one to pick different geometrics and colors to present the results in a presentable way. Because the studies aimed to both look into shelters and meeting points, the insights and statements were divided accordingly, see Figure 10.

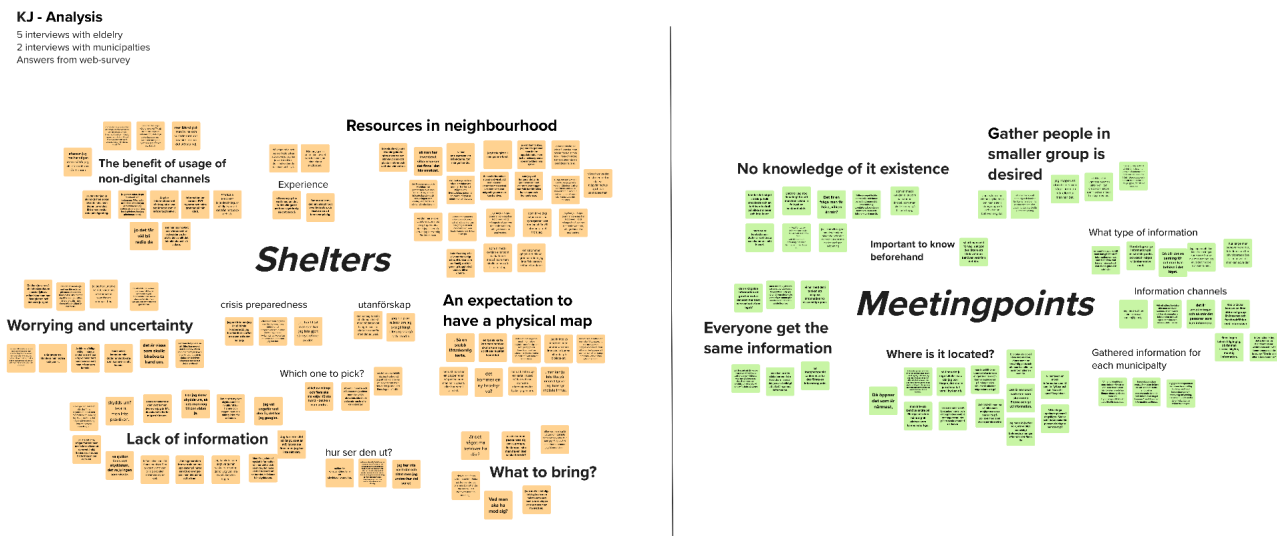


Figure 10. KJ-analysis according to the data collected

6.2 Areas of interest

Using the KJ-analysis, different areas of interest have been identified. The insights and statements collected about crisis information on shelters were from the web survey and semi-structured interviews with elderly. The insights collected regarding meetingpoints were gathered from the semi-structured interviews with the elderly as well, the web survey and the interviews with the two municipalities in Sweden. To better present the areas of interest two fishbone diagrams have been created, one focusing on shelters, the other one targeting meeting points.

6.2.1 Shelters - Areas of interest

The areas of interest regarding crisis information at shelters is presented first. The areas of interest are: Neighbourhood community - a resource, unawareness of what to bring, lack of information, worrying, fear and anxiety, the best information channels are used by elderly, property managers possibilities and responsibilities. The areas are displayed in Figure 11.

Neighbourhood communities - a resource

The first area of interest is the possibilities of a neighbourhood community. Present days elderly struggle with every day life errands and what can be seen from after the corona pandemic is that many neighbours offer elderly or people with different disabilities to help them with grocery shopping or picking up packages. According to what mentioned before, it can be proven that many people feel the urge to help others in need during crisis. Notes have been put up in buildings offering elderly the help they need, which has been very effective.

Many apartment complexes inform each other or the property manager informs the tenants about different things such as; water shortages, apartment checks or activities happening. The information can be found either on the buildings common board next to the door, email or a Facebook group. The spread of information between tenants and property manager seems to be efficient, however what can be identified is that many elderly do not have a computer or smartphone to use as a communication channel. One respondent stated that the information she receives comes from her son, which is the person that takes care of all of her errands and emails. Many also states that they have lived in the building for a long time and made some friends that they can ask questions. When asking who you would go to first, if the power shuts down and you do not know where the closest shelter is, all respondents said their neighbours. One respondent states:

“In my community we are very close, we act as a family and it gives me a feeling of safety since I can go to a neighbour and ask for help, about anything”

Another respondent explained that her neighbourhood has developed a system where people have informed each other what they could help with, for example; someone is good at electric problems, another is a good pianist or knows cars etc. A neighbourhood community acts as a support system when it comes to spreading information or helping with other things. Having a good neighbourhood community allows elderly to ask for help and be informed efficiently. According to the respondents, in a war-related crisis their neighbours are the first people they would ask for help; (1) since they live close by (2) there has probably been a power outage and people can't transport themselves as before and (3) many have developed a close friendship with neighbours and can trust them.

In Sweden however, it is common to not interact too much with neighbours or people we know, however in crisis like war, one can really benefit from taking help of neighbours and spreading important information since neighbours are geographically close. The property manager in this scenario is one who has the ability to spread much information and could be a very useful resource for providing people with information about where the shelter is, or even show them to people who are curious.

Lack of information

It has been identified that people have questions regarding the shelters. On different channels such as Instagram, Facebook and websites, authorities answered questions, like: *“Are one assigned a shelter, how do they looks like and what is in there, what to bring and who is responsible for opening them?”*. It is clear that many seek answers, besides wondering where they are located. Some respondents explained that they have asked the property manager where the closest shelter is, one specific told the elderly that the shelter is located in the basement. The respondent felt safe knowing there is a shelter in the basement, however kept thinking if there are bigger ones somewhere else. Another respondent mentioned that she had searched on google where to find the closest shelters to her address, a website with a list of addresses showed up. The respondent said:

“I know where shelters are located in theory, however not in practice.”

Another stated:

“I can't just take my bag and go there since I don't know exactly where it is”

Respondents felt like they would have wanted to know more about the shelter and that it would be a good idea to visit some beforehand. The shelter map was something the elderly had never heard of or not tried. During the interview, a task was (if they had a computer or equal) to go into the MSB shelter map and find a shelter close to their address. However, this task was difficult for the elders or no shelter could be found. The shelter map was difficult to navigate and non-intuitive, and it took too long to find answers. They also felt a worry about it not working when the power turns off. The respondents who had found a shelter, had help from either friends and family, the property manager or an external website allskyddsrum.se, where shelters are listed by distance from the addresses that is searched on.

A concern regarding for how long one is supposed to be in a shelter also came up. Two of the respondents had previous experience from war; one the irak-iran war and the other the second world war. They knew for how long one is to stay in a shelter and how quickly one has to act to take shelter. Information provided today is that everyone should take themselves as quickly as possible when hearing the air-raid alarm. Also, according to MSB, the shelters are obstructed to provide people with a place to stay for at least three days.

No knowledge of what to bring to the shelter

Another area of interest regarding shelters is that elderly felt that they did not know what to bring to a shelter, beside the difficulty of finding one. Information about shelters and where to find them they felt were not collected in the same place. Respondents commented:

“If you have to stay there for a while, what should you bring?”

“Ehm, should you pack passport, money, flashlight? Should you have a little bag prepared?”

It is clear that elderly would want the information to be collected somewhere. Having the knowledge of what to bring to the shelter and feeling more prepared would have lessened the stress and anxiety that comes with a major

crisis. According to the people that had experienced a war before, they knew what they would have brought with them. One stated that warmer clothes, a blanket, flashlight and some food and water are things that she would bring.

Worrying and uncertainty

Elderly being worried and fearful regarding not knowing where the closest shelter is. Different uncertainties did emerge regarding feeling worried that the shelter is full when arriving there, because of people living closer and can take them there quicker. There is also a worrying about which of many to choose from, the largest one or closest?

“So many shelters exist in the area, and what do one do if there is no room? Should you go to another one, which one is the best out of two?”

Beside that, one respondent mentioned that she would be worried about her family and how she would handle her fear and panic during such a crisis. Therefore, a solution that allowed people to know if their family is safe would be a benefit. Having people look into the shelter would also eliminate the concerns that the elderly have regarding where it is located, availability and how it is perceived. This is something that some property managers arrange today, however it should be available for everyone to take a look, not just as a tenant at that apartment company but also if the shelter is the closest nearby. Interview respondents also felt worried about other elders that are more vulnerable than themselves.

“There are some people that needs to be taken care off”, one respondent stated.

An idea that one respondent came up with was to gather elderly in smaller groups and talk about crisis preparedness and shelters.

Usage of non-digital channels

From both, the web survey and the semi-structured interviews, knowledge about what information channels are used during the crisis could be collected. From the web survey, it could be noted that elderly mainly use the TV, radio and the newspaper to receive information about different happenings and crises around the world. The channels allow elderly to receive information even though there is a power outage. The elderly that were interviewed all had an emergency radio with a crank or solar panel (Swedish; *veveradio*), which is not that common among younger people. The radio is very useful during war-related crises since they work without power, the same with physical paper information (newspaper). When asking about experiences regarding information provided during the corona pandemic about where to go and get vaccines, the elderly thought very positively about the experience. One mentioned she got a sms and a letter stating they had to book a timeslot for her and the vaccination place was located only 200 metres away.

An expectation to have a physical map

An area of interest was the expectation of having a physical shelter map. When mentioning the idea to the elderly, the reactions were very positive. Different benefits were mentioned such as that it is available, only showcases shelters in the area, can be placed on a wall at home or the apartment building. Also, as mentioned a new broshyr

is to be developed and published, a solution could for example be to then incorporate a physical map in the brochure. The difficulty would be to customize every brochure to each area.

“A physical map would be useful. It could go out to everyone in the area”

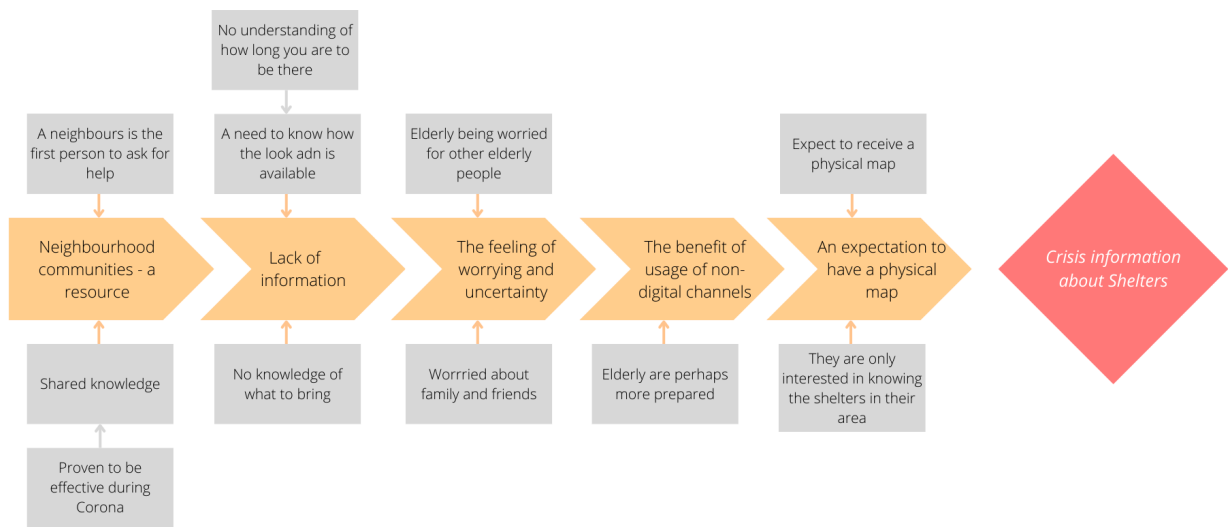


Figure 11. Areas of interests regarding shelters

6.2.2 Meeting points - Areas of interest

Different areas of interest have been identified when it comes to understanding what is important to include when setting up meeting points (see Figure 12). As mentioned, meeting points are planned for by each municipality, some have planned none, more or less for them. To collect insights on what elderly felt was important to include at such a place and how they would have wanted to be informed about where they are located, respondents in the semi-structured interviews were also asked questions about them. Two responsible people regarding crisis preparedness in their municipality were also interviewed.

No knowledge of its existence

In Sweden, meeting points for providing people with information and help during a major crisis have not been used. The knowledge elderly and people in general have, is therefore very little about them. After explaining the aim of the meeting points, all had a positive reaction towards them. When asking where to search for a meeting point if there was no information provided and they were in a war scenario, elders said they would have asked someone first, i.e. the neighbour or follow people to find a meeting point.

“I would have tried to follow people, I think it is a common human behaviour”

Otherwise, elderly felt that they would have to search at public spaces, such as libraries, churches or schools. This corresponds to what municipalities have planned for these points to be located. Also, as mentioned, meeting

points have already been planned in some municipalities and by research one can see that they have chosen schools, libraries and large establishments. However, one mentioned that it would be good to both know beforehand where they are located and what kind of help you can receive there.

The importance of receive the same information as everyone else

Explaining the goal of prioritising elderly and people with cognitive or physical impairments sounded like a good idea. For example setting up an area where the elderly can sit and relax was an idea of one respondent. Also, the personnel could come and ask what kind of help they want to have.

“To be able to sit down and perhaps get some coffee or something would be a good idea”

Another respondent mentioned it would be of high importance that even though they are a prioritised group and perhaps get referred to a specific spot or equal - receive the same information as everyone else. This is also something a municipality working with planning a meeting point, that the meeting point is primarily a place to collect more information about a crisis. The most important information to share is what is happening and what we know about the crisis as of right now.

“We see that a meeting point is first of all a place people can receive information and the most important information to share is what have happened and what we currently know about the crisis”

In war-related scenarios, a meeting point can come of use both before an attack has happened, during the happening and after. The information then differs and what kind of help is necessary depends on the situation. If there has been an attack and people need a place to sleep for example, one respondent felt that it is important to know that such a place exists beforehand.

Smaller groups is desired

Another area of interest was for elderly to feel more safe and receive the information and help they want - dividing people in smaller groups at the meeting point would be beneficial. One respondent mentioned that they would feel more calm sitting in a smaller group and have personnel to talk to them and calm them and receive help. The personnel helping priority groups such as elderly could help them collect the information (paper), share information orally, collect materials such as water, equipment, charges and more. They could also exist for the elderly to talk to and be supportive and encouraging. One statement was as follows:

“I hope the come and ask you how you feel and cope”

In a war-related scenario, there could be a lot of people gathering and feelings such as panic, stress and uncertainty could exist. Being in a vulnerable state with conditions or cognitive disability as an elderly could therefore enhance the feeling of being alone in that moment. Therefore, having a predefined and planned out area, e.g places to sit, information paper, and not a scenario where people are queuing or it is too crowded would be of benefit.

To know beforehand what the meeting points provides

To know beforehand what the meeting point provides, is desired among elderly. An insight collected from the interview with the elderly is that there exists an expectation that the meeting point can provide information for them and as mentioned, the same information everyone else receives. Information is something every meeting point should provide, in a war-related scenario, meeting points, however, offer different things. One could provide a place to sleep and not the other one. When there is no power and the information about such things can not be provided through social media or websites, it is therefore important to plan beforehand what meeting point locations could provide different things. What they provide should also be clearly stated before or outside of the building so that people are not queuing in vain. If not technical information, sign and oral information should be given.

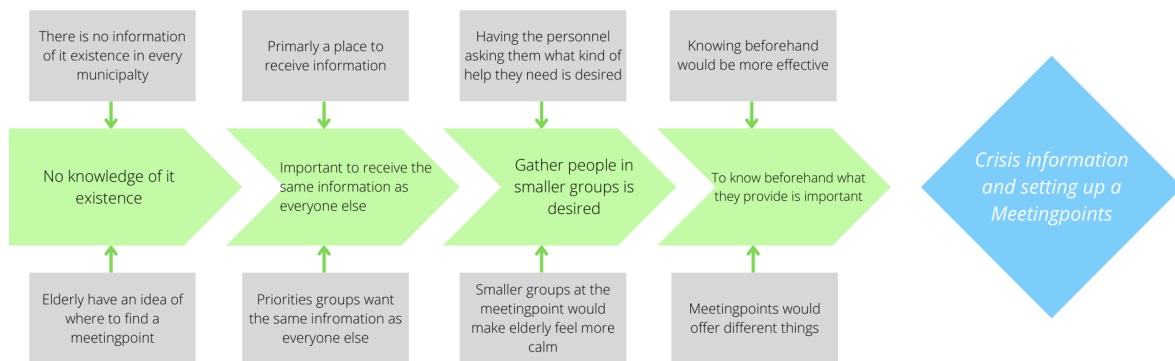


Figure 12. Areas of interest regarding meeting points

6.3 Resulting design guidelines on shelters & meeting points

This section summarises the insights and areas of interest collected during the user study of elderly, interviews with municipalities and observations of shelters in Gothenburg, research in guidelines that relevant authorities can be inspired by and follow. Because the subject is divided into shelters (Table 1) and meeting points (Table 2), the guidelines will be divided equally. For efficiency, the guidelines will also be divided into different sections, for shelters like information about shelters, finding a shelter and when the day comes. Guidelines for meeting points will be divided into how to find a meeting point, what information should be mentioned, how to organise the meeting point so that elderly can take part, obtain help and support while feeling safe. To indicate which guidelines and needs are more important than others, they will be assigned Necessary (N) or Desired (D).

Shelters	N/D	Explanation/Comment
Provide a physical shelter map	N	The map should showcase the shelters in the area that the elderly live in and because many elderly are not familiar with digital channels, it would allow them to receive the information more easily.
Shelter visits would reduce the uncertainty	D	Shelter visits exist today, however, they should be mandatory for each housing company to part take in. A selected date, week or month could be chosen where property managers would open them for people to look inside.
Include information about what to bring to the shelter	N	A checklist similar to the checklist for home preparedness in the brochure " <i>Om kriget eller krisen kommer</i> " would be beneficial to include. Elderly feel uncertain of what to bring since they do not know what exists there and for how long they should be in there.
The information should include for how long you are supposed to be in the shelter	D	Knowing the amount of hours people are to be in shelters approximately would reduce the uncertainty about what to bring and also lessen the feeling of worrying.
State that you are not assigned to any shelter	N	An uncertainty has been brought up during the semi-structured interviews about if you are to be assigned a shelter. The information that exists on different sites has not reached much and the information should be more clearly stated so elderly will not wait to be assigned one.
Gather all information about the shelters in one place	N	Having information gathered in one place would enhance the understanding of all questions regarding shelters. Because elderly could forget or not find the answer on the internet, having it gathered would make them more self-assured.
Neighbours and property managers are a huge resource for sharing information	D	According to the user studies, many elders have developed a good relationship with their neighbours and feel that they can trust them. During a war-related crisis, the neighbours are the ones living the closest to you and elderly felt that they would have asked questions to their neighbours during such a crisis. A better neighbourhood community is therefore beneficial.
The information should be from authorities since elderly relies on them	N	Non-digital channels such as TV, radio and newspaper are commonly used by elderly and during corona, elderly relied on the information from different authorities such as the government and doctors. The information should then be coming from a known source.
Information about size of the shelter is important to include	N	Which shelter to pick has been a question and statement from the semi-structured interviews, elderly have felt that they do not know which one to pick from several shelters and the size of the shelter is an important factor to know
Include information in each apartment complex, ex. informative announcement board next to the door	D	The information should include where the shelters are located, what to bring, for how long you are supposed to be there,

Table 1: Guidelines for shelters

Meeting points	N/D	Explanation/Comment
Clearly state what we know, don't know and the process of how to handle the situation	N	At times of a crisis, people want to know what is happening, what is uncertain right now and what authorities are doing to handle the situation.
A <i>prioritised group</i> is needed were elderly can sit and relax	N	Having a prioritised group the elderly have seen as something positive and familiar, for example having a sitting area at the meeting point where personnel can come to them and help them out. However, the information they feel needs to be the same everyone else gets.
The same information should be shared both to the elderly and the other people	N	Elderly do not want to feel excluded regarding receiving information. The information should be the same for everyone, however it can be shared through different channels
Elderly would be worried about family and friends	D	A worriedness about family and friends exist for elderly. By including some sort of way to contact or know who is gathered at a meeting point and is safe would be a relief for many.
Having a queue system is needed to structure many people	D	In a war-related scenario, many people will be affected by the situation. By having a queuing system outside or inside the building it would manage many people gathering at once. It would be easier for people to also stay calm and identify which queue leads to what help.
Plan where the meeting points should be located in each municipality	N	There is a need for municipalities to plan for where the meeting point should be located. These places should be shared to the people and elderly, for them to prepare beforehand where to go to receive information and help.
Include written and oral information when there is a power outage; protesters, speakers, paper format etc.	N	During a crisis, where the power could be shut down, the information is dependent to be shared through non-digital channels. To reach as many people as possible, especially elderly who do not use digital channels as much as younger people, written and oral information should be included.
Identify where the meeting point for staying over should be placed.	N	According to respondents in the interviews, it would be good to know beforehand what the different meeting points offer. If one needs accommodations because of the circumstances or another needs more information, you should be able to recognize beforehand where to go, for example via a map.
Have a physical map for identifying where a meeting point exists	N	During a war-related crisis it could be difficult to provide people with digital information; a physical map showing the different locations, for example in the municipality, would help the elderly identify and find a meeting point .
Include information about what help exist at each meeting point	D	Elderly would want to know beforehand what kind of help they will receive at what meeting point.
Have personnel come to the elderly at the meeting point and ask them what help or information they	D	Having people being responsible for giving personal information to a smaller group / area of elderly would help them receive the same information as everyone else. Elderly could have hearing or visual issues and by including personal help from a responsible person at the meeting point they would feel more included.

would like to have		
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Table 2: Guidelines for meeting points

6.4 Personas

A method used to highlight the different problems, behaviours and areas of interest is the creation of personas. A persona is a fictively established character used to represent a behaviour and/or characteristics strengthening the understanding of the involved real life people. The intention of creating personas is to describe the problem areas or needs in a more abstract way (Österlin, 2016). Because the scenario will involve a property manager having a role in being responsible for shelters, one persona became a property manager. Moreover, two personas representing elderly were also made. A more detailed description of each persona can be found in Appendix 5.



Name: Michelle Berg
Age: 37 years
Job: Property Manager and worker, responsible for 3 buildings

more accessible.



Name: Olof Rune Gustavsson
Age: 82 years
Housing situation: One bedroom apartment in the centre of Gothenburg
 Lives alone

Persona 1

Michelle works as a property manager which requires her taking care of 3 buildings. Her work responsibilities are maintenance of shared areas, taking care of tenants problems such as replacing broken items, but also updating the information on the blackboard in the building entrances like emergency phone numbers or planned activities. Michelle aims towards a better neighbourhood, in particular for the elders in terms of crisis information and how she can support them as she has received numerous requests about detailed information for shelters in their living area. In 2018, Michelle received the MSB brochure, in which shelters and meeting points were mentioned yet only could be accessed through a computer. She is concerned that elderly will not be able to get hold of the correct maps which is why she wants to provide that information somehow for her tenants. She enjoys working in a fast-paced environment, is talkative, positive, curious and determined to make information for her older tenants

Persona 2

Olof Rune lives in a one roomer in a 7 floor apartment building in the center of Gothenburg. Even if there are 8 apartments on every floor and there is a variety of people living in his building he has not managed to come close to any neighbours. His friends and family visit occasionally but he does not use digital devices besides his TV, frequently. Olof Rune is determined to gather better knowledge in technology to be able to read the news and keep himself updated in case of an unforeseen scenario. He is concerned about not being properly prepared in case of a crisis as information mostly is provided digitally. However, he remembered that MSB has sent out a brochure regarding crisis information, which lead to him asking his daughter to look up the closest shelter - just in case. Nevertheless, that information was just a pointer making him feel unsure and worried. Even if Olof Rune has decreased vision and does not have

tech-knowledge, he is still positive-minded, active and keeps up with present happenings.



Name: Eva Jansson

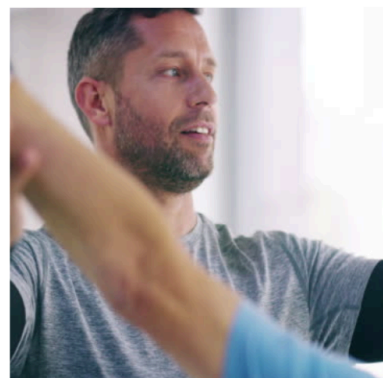
Age: 85 years

Housing situation: two bedroom apartment in the center of Gothenburg

Lives alone (with cat)

Persona 3

Eva has been living in a two bedroom senior apartment in the city center of Gothenburg since last year. She has made a lot of friends in her building which she likes to drink coffee with and chat. Besides her good neighbourhood contacts, her son comes by as much as he can to help Eva out. She has lost her central vision and is in pain when walking longer stretches due to a surgery. However, she keeps herself updated by listening to the news on the radio and watching TV. She has received MSB's brochure as well yet she is anxious about not making it in time to a shelter as well as she does not know where to look for the proper information. Further, she is concerned about the shelter's accessibility even if she makes it to a shelter. She tries to keep up with everything as she does not want to bother her son too much even if he has to support her when it comes to technology as Eva has trouble reading things on the internet and cannot handle a computer.



Name: David Simonsson

Age: 36 years

Job: Currently works as a physiotherapist for elderly and is involved in an FFO (Frivillig försvarsorganisation)

Persona 4

David works as a physiotherapist for the elderly and likes to help people which is why he got involved with the FFO Sweden's Voluntary defence Organization. His involvement entails mainly handing out information brochures in crisis situations. After an explosion in his neighbourhood, he recently has set up a meeting point at a school nearby where people could gather. His determination to help and support those in need stems both from his profession as a physiotherapist specialised in elders as well as his caring and loving personality. He has become more aware of elders needs and impairments such as auditory, visual and physical difficulties they experience. David is determined to create awareness for elders demands and is on the forefront of supporting them with whatever they need.

7. Ideation - concept design

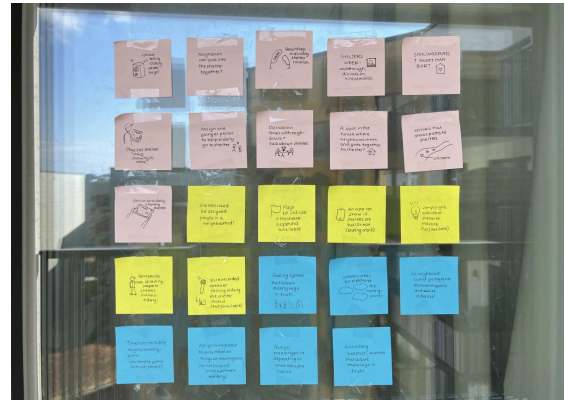
The Ideation phase will be presented in the following Chapter. The Chapter will be introduced with methods used during this phase; a brainstorming session, an developed interactive case study and an evaluation method called PNI. Different concepts generated from the methods will be both explained and shown with illustrations and sketches and later on evaluated.

7.1 Method

From the resulting areas of interest, guidelines and personas an ideation phase was initiated. The two methods for creating concepts were brainstorming and a case study. The Brainstorming method allowed one to ideate on concepts freely within a time limit. The case study was done in order to collect insights and ideas that were non biased, both from design student and non-designer, in total 4 people executed the case study. To evaluate the concept three PNI's were done.

7.2 Brainstorming

Brainstorming is a method used to generate ideas to solve design problems (Interaction Design Foundation , 2024a). The method was being used first, since it is effective for generating many ideas quickly. A time limit was set to 5 minutes on each brainstorming session and repeated 2 times. The ideas were written or drawn on post-it notes, which is beneficial since they can be sorted and organised on either a wall or table. To make the brainstorming structured it aims at three issues; how to find a shelter, when the shelter is full and how to organise a meeting point.



7.3 Interactive Case study

Another method used in the ideation phase was to involve other design students and non-designers in an developed case study. The case study aimed to collect insights and ideas at an early stage by including people who could contribute objectively with ideas about shelters and meeting points (see the case study in more detail in Appendix 6). The participants were non-biased and did not have any prior knowledge about the project's topic. The case study was shared among three other people; Two of them with a design background, the third participant had no experience in design and product development. It allowed the respondents to follow one of the created personas and a scenario, and was executed independently and individually from their homes.

The case study gave some background information to the participants such as information about the subject and instructions on how to navigate the case. The introduction informed them about what was expected of them to do and that the case study was divided into three different phases introduced by a persona, see Appendix 4. Since war-related scenarios can be a sensitive subject to many people, a highlight was added, clearly stating a reminder that both the persona and scenarios were fictive.

Case 1 - Where is the shelter?

The first case followed a war-related scenario where the persona, Eva (see section 6.4), had to find out where the closest shelter is, see more in Appendix 6.

*** It is a sunday morning, people have had time to prepare for a possible air raid now for two weeks. Eva has been informed about the war from the TV, radio and her newspaper. People are worried, however, have had some time to*

prepare. Suddenly, the power goes out and the air raid warning sounds turn on by Hesa fredrik. Her son has informed her where the closest shelter is located, however she has never been at the address or inside the shelter. Outside there is a lot of people running to different locations and because of the anxiety and fear she forget where the shelter is. She starts following a family that seems to be heading to a shelter. She feels like she should have prepared more, she would have wanted to go to the shelter to know how it looks like and for her to remember the location. **

The participant started to ideate on different solutions for how Eva could have been better informed about where the shelters are located. They are promoted to write or sketch on solutions for about 10 minutes.

Resulting concepts are shown in Figure 13 (Author's own drawings according to the participants description). The ideas differed from being more a physical object to digital or audio channel. Physical products were, for example, a map that could be put up in the apartment complex showcasing the shelters in the area only (1). Another is an alarm bracelet indicating that a crisis occurs when the alarm vibrates, it could also indicate the crisis with sounds or light (4). Because the existing shelter map only exists on the internet, ideas on how to improve the map were generated through the case study. One idea was that Eva could print out the shelter map from the existing map on the MSB website which only displays the shelters in her living area and provides directions there (6). Connected to this, a solution was the map could be stored in the MSB existing brochure "Om krisen eller kriget kommer" had been generated. Because the brochure has proven to be used and stored by elderly, the map could be stored close to it (7). Another idea was to plan for shelter visits where the shelters can be open up and people could receive information through a campaign. Visiting shelters is something that is done today by different housing companies, however this would allow everyone to take a look and have an understanding of where the closest is located and see the looks and availability. The shelter visits could also be supported with beach flags, indicating the location (9).

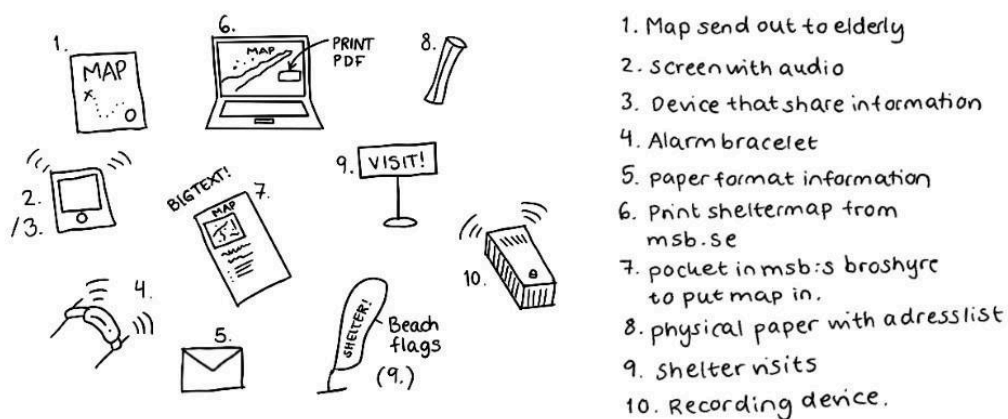


Figure 13. Case 1 - Generated ideas from design- and non-designers.

Case 2 - When a shelter is full?

In the second ideation scenario, Eva is trying to find a shelter. This time she struggles with them being full and she needs to find another one (See Appendix 6).

*** By following a family, she manages to find a door leading to a shelter about four blocks away from her apartment. They notice that there is a line to the shelter and they don't know whether they will be able to fit or find another shelter. With the anxiety and stress that starts to come up again, and that she can't walk for too long she feels very scared. Eva thinks there should be a way for elderly to better be able to receive information about the shelters and what you should do if one is full. ***

The participants have to start thinking about possible solutions for managing the amount of people that can be taken into shelters and inform others that shelters are full. They had 5 minutes to ideate on concepts.

Different ideas for managing a scenario when a shelter is full has been generated from the case study as well (Figure 14, author's own drawings according to the participants description). These were both physical and digital products. One was to only let people in the area enter the shelter, by predeciding what addresses are connected to what shelter. In that way, people will be sure of what shelter they are assigned to, which can increase the feeling of certainty (11). Another idea was sending live updates in an app on the phone that shows whenever a shelter is full (12). This would demand people to manage and count how many people that are entering the shelter and that people have smartphone and that the power is on (12). Light outside of the building door was another idea. From a far distance, the light could indicate if it is full or if places are left in the shelter (16). Another useful tool mentioned were coloured flags or beach flags that could indicate if there is room left or if it is full (18).



Figure 14. Case 2 - Generated ideas from design- and non-designers.

Case 3 - How to organize and prioritize vulnerable groups at a meeting point?

The third and last ideation step covered how to organize meeting points and prioritize the elderly at such a place, see more in Appendix 6.

*** It is friday, two days after the first air raid turned on and people hide in shelters. There has been a power outage again and Eva needs to find a place where she can charge her phone. She has heard of a so called meeting point, however, she has not received information of where one is. She asked a neighbour who explained that there should be one at a church close to the apartment complex. When she arrived there were a lot of people waiting outside wanting to receive more information, collect food and water and more. People furthest in front are able to listen to the information presented orally of staff at the meeting point. With Eva's decreased eyesight and her bad legs she can't read written information or stand for long. ***

The participants were now to ideate on solutions for how to prioritize and organize a meeting point for elderly to get the same information as everyone else. They had 5 minutes to write or sketch on ideas.

The third step, see Figure 15 (Author's own drawings according to the participants), generated ideas on how to prioritize and organize a meeting point for elderly. Some of them involving people who could be volunteering at the meeting point or a responsible person where the elderly live that could help them with receiving information about the location of the meeting points and guide them there (22), (23), (29). People in a crisis scenario are an asset. During the corona pandemic for instance, it became crucial with people helping people. Younger adults helped elderly with grocery shopping and other errands, which is why many may feel the urge to help people in need during a war-related crisis.

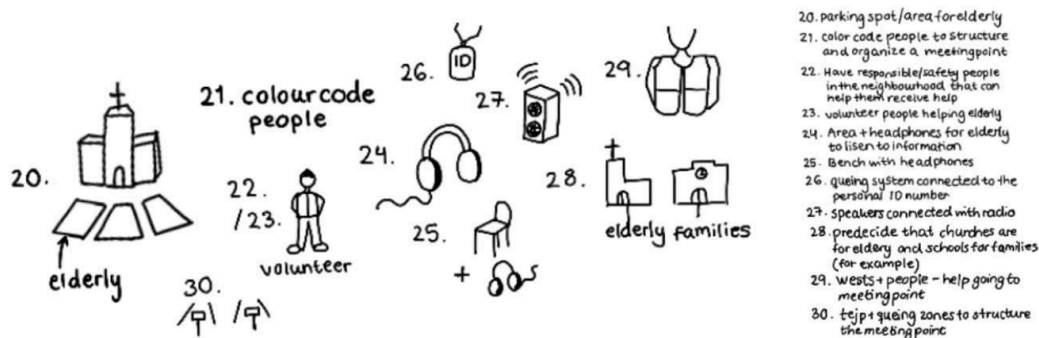


Figure 15. Case 1 - Generated ideas from design- and non-designers, the illustrations is done by the author of the paper.

Eliminated ideas

From the ideas that are shown in Figure 13, 14 and 15, there were some ideas who were eliminated as they demanded more development and a lot of resources. These were, for example, a technology device/screen that elderly can obtain to identify shelters locations, an own radio frequency channel updating people on which shelters are full (which demands people to manage how many people that are in the shelter). Cameras outside of the shelters that will count the amount of people going into the shelters for other to know they are full would cost a lot of money and it would be risky to put them up since they could be destroyed.

Ideas regarding the meeting points were eliminated too. An example was using headphones for elderly at each meeting point which was an interesting idea since they would listen to the information in a quick and calm environment, only listening to the communicator's voice. However, distributing headphones to each elder that joins the meeting point would demand a lot of resources. The information would be limited to what is recorded, which can lead to some information being excluded in this communication. Another idea was to predecide own meeting points for the elderly in, for example, churches while non-elderly would go to other locations. Even though the idea would offer elderly adapted crisis communication channels, it would not be ethically correct to divide people into different locations. In case an elder was closer to another location besides the church an vice versa a family was closer to a church while seeking a meeting point, it would not be fair to thenm direct them to another meeting point due to not being elderly/non-elderly.



7.4 Evaluation

The ideas that were kept after the elimination were evaluated by using the PNI-method. A PNI is an evaluation method where ideas are listed and evaluated by stating Positive (P), Negative (N) and Interesting (I) factors about each idea (Österlin, 2016). The aim was to get an overview and a collective picture of the ideas, for both finding shelter, indicating if the shelter is full and organizing a meeting point.

7.4.1 PNI

The ideas were divided into three cases; how to find a shelter, when the shelter is full and how to prioritize elderly at a meeting point? Therefore, three PNI tables were created accordingly, including the ideas from the author's own brainstorming session and the case study executed by design- and non-design students.

PNI - How to find shelter

PNI - How to find shelter?	<i>Positive (P)</i>	<i>Negative (N)</i>	<i>Interesting (I)</i>
Map in the apartment door 	Easily accessible and only presents the shelter nearby Questions can be asked between neighbours	Who will be responsible for having them up?	A strengthened neighbourhood community where people help each other
Alarm bracelet 	Close by and can alert other people quick	You have to have it on all the time (during a crisis) and who is responsible for helping you?	Could the bracelet also tell you where to go?
Information campaign one week - visit shelter	Have you seen it once, likely to remember where it is. Can be good to then also ask	Maybe there will not be time for them to come and visit	How will they be included in this activity - how to inform them?






	<p>questions and see shelter</p>		
<p>Help list like corona shopping</p> 	<p>Proved itself to work during the COVID-19 pandemic; people feel better by helping others</p>	<p>Perhaps the neighbourhood is small and no one will or can help the elderly</p>	<p>In a crisis, people's behaviours can change - therefore the solution needs to be developed further</p>
<p>Print out map from MSB shelter map</p> 	<p>Accessible to have it printed in a paper format More readable and clear and no internet is necessary</p>	<p>Can be easily thrown away or forgotten about Maybe all the information does not fit on one paper</p>	<p>Could one be able to print out the information they need - customized map perhaps</p>
<p>Combine a map with new "Om krisen eller kriget kommer"</p> 	<p>Close by the brochure and accessible when needed</p>	<p>To big map, need perhaps to be smaller and only cover the shelter close by</p>	<p>Can the map still only view the shelters in your area and not the entire Sweden? How can it be combined with the brochure (extra page)?</p>
<p>Audio recorder that tells you how to go to the closest shelter - elderly could record themselves giving instructions</p> 	<p>No need for assisting people You dont have to read or understand information on paper</p>	<p>Difficulty to use in a very stressful scenario</p>	<p>Maybe it could be use before the war-related crisis</p>

Table 3: PNI on the shelter ideas

Physical shelter map

Three ideas including a physical shelter map have been evaluated. The first one is offering each apartment complex a physical shelter map pinned on the information announcement board in the apartment complex. In this way, it would be easy accessible and clearly present the shelters in the area. It would allow the neighbours to communicate and ask questions between each other about the map. However, the idea would require one to put

the map up and keep the map updated and available all the time. What needs to be further developed and looked into is who and how the map is going to be placed there and what the map should look like and include.

An idea to print and share the map is by letting people print out a pdf sheet from the existing msb shelter map, only showcasing the shelter in their area. In this way, no extra resources are put on the concept beside someone printing the sheet; it could be a family member, friend or the property manager. The sheet could be put up on the house information board or distributed to all household - not only the elderly by authorities. There needs to be further development however on what extra information that needs to be included; what to bring, for how long one is to stay there, important phone numbers, air raid alarm indications etc.

Elderly have use of the brochure "*Om krisen eller kriget kommer*", the interviewed elderly explained that they read the physical brochure saving it at home and that by having it as a physical paper it is available at all time. Another idea was then to connect a physical map of the shelters in ones area to a newly developed brochure published 2024. The brochure could include a pocket where you could store the map and have both the information and map in one place.

Alarm bracelet

Offering an alarm bracelet was another crisis communication idea. The idea aimed to alarm elderly when a crisis occurs. It would be a close and accurate idea that clearly indicates the emergency, however resources to develop them and further questions about who will collect the elderly and help them, also what kind of information the bracelet will give is not defined yet.

Shelter visits

Shelter visits are offered today by some housing facilities. However, the idea would enable elderly to get an idea of how they look, they can ask questions to the property manager directly and understand how well the accessibility is for going into the shelter. Shelter visits could have numerous benefits, nonetheless, it demands human resources. Shelter visits would require the elderly to know where they are located before visiting them, perhaps via a physical map. The idea is a good supplement to a concept, that reinforces the understanding and knowledge of the shelters to the long-term memory, remembering where to go. Yet due to people moving around, the visits should be predetermined and repeated each year at least.

Helplist

Another idea was having a helist in the apartment complex, similar to what people offered during the pandemic. This list could offer elderly help by volunteering people with help during war-related crisis such as transporting them to shelter, collecting food or water or share information with them. It has been proven that people will help others, especially a vulnerable group during crisis. Nevertheless, this is something that would require volunteers yet during crisis of war there is no guarantee that people would step in.

Audio record explaining the route to closest shelter

Having an audio recorder giving elderly the instruction would not require any assistance of people or an effort in understanding written text. The idea was that elderly could record themselves explaining the route, in that way they make sure they explain it how they understand the directions. This would still demand someone to explain

where the closest shelter is and what happens if the shelter is full and you have only recorder instruction to one shelter.

PNI - When the shelter is full

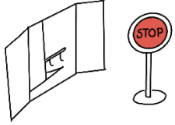


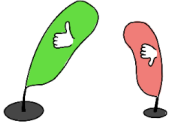

PNI - When the shelter is full?	<i>Positive (P)</i>	<i>Negative (N)</i>	<i>Interesting (I)</i>
<p>Only let people in area go in</p> 	<p>People will be certain that they have a specific shelter to go to Planning beforehand can lessen the anxiety that could occur during such a crisis</p>	<p>Not enough shelters for everyone? Perhaps people move and reorganization becomes complicated and demanding How to hinder someone from not entering?</p>	<p>How can that be organized? Would people be okay with that?</p>
<p>Elderly and children be priorities first</p> 	<p>Accessible, close by, good with live updates</p>	<p>Is this something people would take time to do? Perhaps the electric is out?</p>	<p>Could you use this to identify were your family is and if they are safe?</p>
<p>App indicating the amount of people in different colours</p> 	<p>Accessible and close by and also good with live updates</p>	<p>Someone always has to be available and wont work during power outage</p>	<p>An app that dosent demand wifi? Could perhaps help msb with organizing and planning for amount of people in each shelter</p>
<p>Colored flags outside indicating amount of people or if it is full</p> 	<p>More clear than just shelter sign Can be seen from a far distance</p>	<p>Can disappear by having people throwing them away and they also have to be spotted, people will have to go outside and look</p>	<p>Can these flags be outside anyways? Just as an extra indicator that the shelter is there, some map or equal is still necessary</p>
<p>Light/alarm that shown if there is room? (like traffic light)</p> 	<p>Clearly indicate if there is room or not Helps elderly to quickly identify if you need to go to another shelter</p>	<p>Can break or be destroyed or equal Needs to be installed Can be difficult to se from a distance</p>	<p>The idea of showcasing if there is room or not is interesting, and also red and green as colors clearly states the status</p>

Table 4. PNI on ideas foe when the shelters are fully occupied

Limit shelters to vulnerable groups or geography

To make sure that elderly would be able to reach a shelter that is not full, ideas about limiting them to specific vulnerable groups or your geographic areas has been developed. By limiting the shelters to their specific area would ensure them that they have a place to go, however hinders like how one is supposed to decline someone from not going in to a shelters is difficult to tackle. The same way would be to let elderly and children be priorities first, it would be hard to separate families and hinder other to go into a shelter. Also, how would it be organized? It would take resources such as people and time to implement such an idea.

App

Having an app to display shelters and whether they are full or not would be an closely accessible solution that clearly indicate the availability. It is easy to bring with you and updates could be managed by the property manager or relevant person opening the shelters. However, from the user studies, insight in the use of digital channels have been proven to be limited. Smartphones and computers, besides them not being available because of an possible power outage, are not used to much by elderly and implementing such an idea would demand extensive practice for them.


Coloured flags

Today there is nothing indicating whether or not the shelters are full outside of the shelter. An idea for showing if there is still room in the shelter or not, is to have coloured flags outside of the shelters. These flags could be red (when it is full) or green (when it is still space). In this way, elderly could identify from a distance if they should find another shelter and the flag would also clearly indicate that a shelter exist. These flags could also be usbale for shelter visits so that elderly and everyone else could identify them. What person that is reasonable for managing them is questionable, perhaps the property manager could store them and put them out.

Light / Alarm

Similar to coloured flags, having a light alarm outside the shelter would indicate whether the shelter is full or not. The light could be similar to a traffic light with red, yellow and green light, which people are familiar with. They must be installed at each shelter and made sure they work. Also, if it is dark outside, having lights would perhaps not be the best idea during an air raid.

PNI - Meeting points

PNI - Meeting points	<i>Positive (P)</i>	<i>Negative (N)</i>	<i>Interesting (I)</i>
Areas for elderly only 	They can relate to each other and has the ability to have a calm environment and have someone to talk to	The possibility is that they does not receive the same information as everyone else, which is undesired. Other people might think that they receive "better" treatment than them	How could this be organized, prioritized group bracelets, a pass card, timeslots or equal?
Colour code people; need	The personnel can easily	The colour coding can get lost	Where and when will they

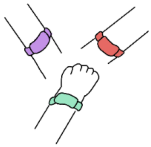




 <p>and age</p>	<p>recognize what help they need The elderly dosent have to seek help - help come to them</p>	<p>What happens if the elderly want more them help with one thing? People could trade the bracelets or passes</p>	<p>receive the coloured code bracelets or passes? (before entering the building or earlier than that)</p>
<p>Safety/responsible people in apartment complex - responsible for giving information and the help elderly needs</p> 	<p>People can get food and water and information for the elderly The elderly do not need to transport themselves to a meeting point</p>	<p>Receiving information from a second source might not be reliable source and could be twisted The volunteering person might not (in a time of war) be able or want to help because of different reasons</p>	<p>Could information about where the meeting point are located be put up in the apartment building sp that it is accessible for everyone?</p>
<p>People with vest that guide you to meeting point</p> 	<p>Easy to go with someone that knows were something is located Could assist elderly that have difficulty in walking, perhaps collect them by car</p>	<p>Can be difficult to find that many people to follow them to the closest meeting point and how would you "book" someone to go with? Could be misused and elderly could be tricked to go with someone having wrong intentions</p>	<p>People in west clearly indicted that they are responsible people (either for sharing information or equal), can be compare to Västtrafiks personell sharing ifnromation on bus stops</p>
<p>Queue zones with tape</p> 	<p>Allow there to be a better structure and people can stand in the que they want depending on what help they need Distance footprints have shown to be successful during corona</p>	<p>Zones with tape can be more or less difficult depending on what kind of building the meeting point is located, is the que outside or inside Take much time to prepare Eldery have to stand in several ques if they want more help then one thing</p>	<p>Is it possible to organize the meeting point so that people dsent have to stand ofr to logn ot receive help?</p>
<p>Queue numbers connected to your person ID number - priorities elderly and people with disabilities - bracelet</p>  <p>like liseberg</p>	<p>Allows elderly to be priorities The meeting point will notbe that crowded</p>	<p>You will be needing to identify yourself and have a proof with you</p>	<p>Where will they receive the bracelets? How do they receive information on where the meeting point is located and what time they should be there?</p>

Table 5. PNI for the ideas surrounding meeting points

Area for elderly and queue zones

By implementing an area for elderly would, according to them, make them feel more calm and safe. A respondent felt like they would have wanted somewhere to sit and relax and have people to talk to. By having an area specifically for elderly would also ensure that they receive the help they need since personnel can come to them and talk and share what they need help with. The area could be organized inside the meeting point and perhaps be implemented together with the other idea of having queue zones. Elderly would then be able to more quickly receive information and help. Queue zones would be more effective, managing a lot of people at the same time, they could be coloured coded and tape up on the floor or outside ground with clear signs indicating where to queue.

Volunteering people

Similar to the helplist, finding a shelter could be aided by having a volunteer in every apartment complex or area that can help the elderly receive the help and information offered at the meeting point. In that way, the elderly do not even have to transport themselves to a meeting point. Getting help from someone else than the authorities could be less trustworthy and during war-related crisis there is no guarantee that the volunteer is able to help elderly. A volunteer could be found through a letter on the apartment's information board or be managed via authorities. The volunteer could sign a contract which makes it mandatory for them to help. People guiding elderly to a meeting points were a suggestion too to make them feel safe and reassured. Today, some municipalities have identified where they would set up meeting points in such a crisis, however, there are not many municipalities offering a meeting point map. Having people in yellow vests would indicate that they are there to help and to guide them to a meeting point. This would of course demand people from different FFO's while trying to find all the elderly in need. Moreover, having people wearing vests close and at the meeting point indicates that they are there to help and can be trusted.

Queuing with personal security number (ID)

During a war-related scenario, a meeting point could be crowded by people looking for family, searching more information or food and water. A system where people would be called to receive help would be a way to organize these meeting points. A solution generated is to let people stand in a queue using their personal identification number. People over a certain age could be prioritize and receive help first. This would demand them to have proof of their birth date; drivers licence or equal.

Chosen concepts for shelters and meeting points

After the evaluation of the concepts developed from the brainstorming and the case study, three concept for both shelters and meetingpoints was chosen. For the shelters a physical map was chosen for elderly to receive information about the shelters location and also general information about them. As a supplement to the physical map, shelter visits and beachflags was chosen to be added for elderly to better understand their location. For meetingpoints, physical evidence is also chosen to be the main concept proposal and supplemented with a queue system used to structure the meetingpoint entrance and also an "area for elderly" is chosen to be used for elderly to receive important information and help at the meetingpoint.

8. Resulting concept proposals

This Chapter will explain the final concept proposal for how elderly will receive information about shelters and also how meeting points can be organised to prioritise elderly and how to inform elderly about them. The concept will be explained in this chapter and also explained through a story telling in Appendix 8.

8.1 Method

The concept proposal will be presented in different way. In this chapter, an explanation of the concept will be presented, both how elderly will receive information on how to find a shelter and how the meeting points can be adapted towards the targeted group. The concepts will be supplemented with storytelling, where the developed personas will use the concepts for a better understanding of the emotional aspects and feelings around the concepts (Products of Design, 2024). Storytelling in design involves visual elements to create a narrative for the audience and aims to make the audience understand the concepts and create an emotional connection with the involved personas.

To explain the concepts more in depth with included developed personas, one storytelling has been developed for shelter and one for meeting point. In the storytelling for shelters, Michelle the property manager will receive information about the physical shelter map, Eva Jansson (85) will receive the map and Olof Rune (82) will be invited for a shelter visit. See Appendix 7 for the storytelling regarding the shelter concepts. For the storytelling regarding the concepts involving meeting points, David (36), the volunteer and physiotherapist will help welcome and help elderly at the meeting point. Both Eva and Olof Rune will be apart of the storytelling, see more in Appendix 8.

An evaluation was done on the shelter concepts in order to collect feedback and insights on what two of the interview respondents felt about the concept. These were done by sending them a digital version of the map, where the elderly could evaluate the content, look and potential and areas of improvement. These insights are valuable for future development of the proposed solution.

8.2 Concept proposal - shelters

The concepts regarding shelters involve three different concepts; a physical shelter map, shelter visits and beach flags indicating the existence and amount of people in the shelter will be explained. See Appendix 7 for further explanation by storytelling.

Physical shelter map

A physical map (Figure 16) will be available for elderly to understand where the shelters in their neighbourhood are located. The physical shelter map can be printed out by a property manager, authorities or friend or family by

- (1) Go into the msb shelter map
- (2) Search on your address
- (3) Click download PDF

A physical map will then showcase the shelters around that address, about 4-5 different ones depending on where the elderly live. The grey area on the map, see Figure 16, is the information that will be changed depending on around what address one wants to identify shelters.

The map will be able to be printed out to all tenants in the building by a property manager, the property manager could also pin the physical map on the common information board/ digital screen located in the entry of the building. In that way, if the map will be lost, there will always be one in the building that neighbours could share their thoughts and questions about. Besides that, family members as we have seen are responsible for some of

elderly's errands and support them with the computer. The solution allows them to help and print out a physical map for their elderly mom or dad. Not everyone can receive a physical map from family and friends, therefore another solution is to make it mandatory for property managers to print a map (both to the door and also to pin it on the entry door as shown in Figure 17). Because the library have been a place where elderly have felt they can receive information, they staff there could help them as well as to print out a physical map.

The physical shelter map will not only show the shelters around their addresses. It will further show other necessary information that automatically is included when downloading the map as a PDF. The map will include a checklist listing the materials and beverages that will be a good idea to bring to a shelter. The checklist will include checklist boxes that the elderly can fill in at home when preparing a bag to bring with them. The checklist will include; water in tank or bottle, food, hygiene articles, toilet paper, medicine, first aid kit, warm clothes, personal identification (ID) and a flashlight. The checklist is presented on MSB website.

Besides that the physical shelter map will include the preparedness air raid alarm until the danger has subsided, so that the elderly can get an understanding for when they should take shelter. It is clearly visualized with a process and time frame together with a symbolic speaker next to it.

The map will also include some general information that elderly have questions about. For example; that you are not assigned any shelter, you go to the closest shelter you can find. It will also inform you about the time estimated one is supposed to stay in the shelter. Besides, the map showing the shelters visually, a list with the different addresses together with the amount of people that can fit in the shelter will be listed. This will increase the understanding of how big the shelter is and the elderly can also understand at what exact location the shelter is located.

Because the MSB brochure "*Om krisen eller kriget kommer*" have been a useful source by elderly the new brochure that is to be finished in 2024 should also include a way to store the physical shelter map. In that way, the map will be stored together with crisis preparedness information which strengthens the elderly's ability to remember where they have put it. Because the information about shelters have been unclear and shared through different channels, having the physical information in one place allows them to find and bring the information with them if they need.

SKYDDSRUM - FLATÅS



Skyddsrum - adresser i ditt området:

- Här är du!
- ▲ Nymilsgatan 23 - 275 platser
 - ▲ Nymilsgatan 33 - 193 platser
 - ▲ Svängrumsgatan 50 - 138 platser
 - ▲ Svängrumsgatan 44 - 138 platser
 - ▲ Svängrumsgatan 34 - 134 platser
 - ▲ Svängrumsgatan 28-30 - 138 platser
 - ▲ Svängrumsgatan 18 - 138 platser
 - ▲ Sjömilsgatan 18 - 122 platser
 - ▲ Nymilsgatan 13 - 138 platser
 - ▲ Nymilsgatan 27 - 140 platser

Checklista med saker att ta med till ett skyddsrum:

- Vatten och mat
- Hygienartiklar
- Toalettpapper
- Medicin och Första hjälpen
- Värma kläder
- Personhandling (ID, körkort etc.)
- Ficklampa

Notes:

Viktiga telefonnummer

- 112 - Nödsituation som kräver ambulans, brandkår eller polis
- 113 13 - För att lämna eller få information
- 114 14 - Polisärenden
- 1177 - Sjukvårdsrådgivning

Information:

- Ta dig till närmaste skyddsrum, du är inte tilldelad ett!
- På skyddsrumskartan på nätet kan du hitta mer information
- Ta dig till närmaste skyddsrum om du hör flyglarmet, se ovan!
- Ett skyddsrum ska skydda dig vid eventuellt krig och det är fastighetsägaren som ansvarar för att öppna dessa åt befolkningen

Figure 16. The proposed new map



Figure 17. Ahammer, M (2024, n.d.) A representation of the map at entrance

Shelter visits

A complementary concept to the physical shelter map are shelter visits. Shelter visits are organized internally by different housing facilities today. Having shelter visits will increase the understanding for elderly where to find them, how the accessibility is for them (in terms of stairs, thresholds, etc.) and how they look like. By visiting the shelter once it will allow many elderly to better remember where it is located and when a war-related crisis occurs transport themselves faster due to feeling more prepared after the visit.

The shelter visits could be planned to be executed each year at least and last for a week. The property manager or worker that is also responsible for opening the shelter during such crisis is the person that will be responsible for opening them and answering peoples' questions. Similar to the existing *crisis preparedness week* (Swedish, Beredskapveckan) that MSB is arranging to strengthen the resilience for the citizens, the shelter visits could be during that week.

Each housing company could set time slots for when they will be at the shelter to guide them and answering questions or pick them up at the entrance. By arranging time slots for neighbours to go together and look at shelters around the area, it would give the elderly comfort and company by going in a smaller group. The group could meet up at the entrance of the building and a property manager could arrange shelter visits walk around.

The time slot should be send out as an email or as letter in the mailbox for the elderly to make sure they get the information about their specific time. If one misses the time slot for looking at the shelter, the shelter will still be open and beach flags will be put up outside of each entrance to a shelter. They will enable elderly to go for themselves as well and get an understanding for where they are placed and how the shelters look. Extra personnel will be needed to watch over each shelter and also for everyone to ask questions about the shelter. They could be people already participating from FFO or FRG. försvarsorganisationer (FFO) or Frivilliga försvarsgrupper (FRG).

Indicating where shelters are located with beach flags

The only indication of shelters existence is the digital shelter map on msb.se and shelter signs, see Figure 7 (Auhtor's taken photographs in section 3.5.1). To strengthen the existence of the shelters, beach flags could form a distance indicate that a shelter exists. The beach flags could be used in both the shelter visits, where elderly could identify where they are located by seeing them outside of the entrance holding the shelter and also during an air raid attack.

One of the questions elderly have mentioned being worried about was what happens if the shelter get full. These beach flags are then to be in two different color; green for being available still and red for being full. This helps elderly to quickly identify if they should go to another one shelter.

The beach flags during shelter visits should enhance the understanding of its existence, therefore the beach flags are to be in the same colour as the existing shelter sign, see Figure 18. By having beach flags outside of the building it would give the elderly the opportunity to overview how many of them that exist around the area and better

remember where they are located. These beach flags are red and green, same colorurs as the shelter sign and also includes a shelter sign and information that authorities such as msb has been involved in the development of shelter week. Which will strengthen their trust since authorities such as msb is involved in the activity.



Figure 18. Beachflags; white flag to inticate shelter visit week; green and red during airraid alarm to indicate if the shelter is full or not.

Evaluation - shelters

According to one respondent the map in general is very useful since information is gathered in one place. The respondent stated;

“It is very good that the information is gathered, such an overview is great since you only need to know the shelters in your area”

The checklist both respondents felt was a very good part to include. However, one aspects of improvements is to know what things are the most important to bring and to know for how long one will stay at the shelter. That will automatically give an indication of what is important to bring. One respondent felt that medicin, water and food is the most important things to bring, however, they would also like to know what else can be important to bring. Because the map is aimed to inform elderly of where the shelters are and the most important information and there wil be no room for more, the map should refer to a website where more information is shared (as a suggestion; MSB).

The same respodnetn felt that notes can be perhaps replaced with a reference to websites or similar information channel where you can find more information regarding the shelters. Through the user studies, elderly have

mentioned the importance of getting to see the shelters in real life for a better understanding of what exists at the shelters and how it looks like. Therefore, they felt like, even though the concept proposal suggests shelter visits, more information about shelter that extra information is important. Another respondent mentioned that it would be good to also include information about for how long approximately one is to stay in a shelter. By knowing the timespan, an approximation for what is important to bring can be done. The same respondent said:

“You will perhaps manage without a blanket or pillow, however medicines, water, food and personal ID seems more important”

Another thing that was noticed was about the “Hesa Fredrik” visual presentation on the upper right corner, it clearly states that you are supposed to do during an air raid alarm and that is to go to a shelter. However, the VMA signal also needs an explanation of what to do, so that no one misinterprets the signal.

8.3 Concept proposal - meeting points

For the meeting points both design concepts that allow elderly to find and be prioritized have been developed. The concept first involves a brochure with meeting point map that aims to inform everyone about shelters and where they are planned to be located. Then a queuing system at each meeting point has been developed together with an area for elderly to sit and receive the help they need. See appendix 8 for further explanation by storytelling.

Meeting point - information + map

Information about meeting points and where they are planned to be located is to be shared among people. Therefore, this concept proposal involves a brochure with included map that is to be shared both digitally (preferable in the municipalities website) and also as a physical brochure to elderly homes. In the brochure, the map of the shelters will be similar to the physical shelter map. It will include a map with pins of places that are planned for setting up meeting point. To also indicate exactly where they are, a list of the addresses next to it will also be included. Because many municipalities are big, it is important to also include an overview illustration of in what areas provide municipalities.

Not all information will be able to fit in a brochure, therefore the brochure will be offered to the municipalities website for receiving more information. Also, because there is a lot of written information, a QR-code is also provided so that elderly with decreased eye sight or other difficulties in reading can listen to the information.

As described, some municipalities have planned out for where meeting points should be located and given out for people to be aware of their existence if a war-related crisis would occur. The information also includes what the different meeting points offer the citizens since it is important for elderly to know that beforehand. The brochure also includes information about how they plan on prioritizing the elderly as a vulnerable group so that they know the purpose and layout when arriving.

Queuing system and personnels in vests

During war, there will exist a lot of people at these meeting points trying to get help and information. By including a queuing system aiming towards making it more efficient for elderly to receive help, it will reduce the crowds and create a more calm environment. At the meeting point a queuing system will allow those who need to separate themselves from the gathered crowd and sit and have a calm environment. The queuing system will guide elderly towards a sitting area where they can relax (described below).

The queuing system should take place outside or inside before entering the meeting point. The queue is clearly visualized by tape in the floor and signs with written text. The queuing system should not intentionally separate or make it mandatory to separate people. Elderly with issues of standing, walking or other cognitive or physical disabilities will be able to get quicker help by using the queue. It should also be clearly stated in front of the queue the purpose with the area for elderly and that they will receive the same information there as well.

Besides the queuing system, there needs to exist responsible people welcoming elderly to the meeting point and guiding them to the area for elderly. This will help the elderly to know where to go and feel secure and certain that they will receive help. The people outside of the meeting point will stand in vest (preferably in a bright yellow/orange or red color). These people can also be asked questions if any occur.

Area for elderly

Inside of the meeting point there should exist an area for elderly to sit and receive help and information. It is important that the information about the crisis include; what they know, what they don't know and how they are handling the situation. Of course they should also be able to answer questions elderly might have and the information given to them should be the same as everyone else receives. First the information can be shared by responsible people at the meeting point through audio so that everyone can be informed and receive the same information, see Figure 19. After that, the elderly area will help them receive personal information, face-to-face if they want to ask a question or be more informed of a relevant topic. Personnel responsible for the area for elderly can inform them about the crisis and answer questions they might have. The elderly can also talk with others in the area for elderly, which can be reassuring and calming.

The area should also include information about other people (if they have reached a meeting point and are safe) since they worry about family and friends. This can be done by having an information board with text or pictures of people that have been identified by the meeting point.

Beside the information being shared between a smaller group of people in an area by responsible personnel, the information should also be provided in text format so that elderly can bring the information with them and look and remember themselves of the information they received at the meeting point.

Summary of what will be important in the area for elderly

- Include information of what they know, what they don't know and how they handle the situation
- Have seats for elderly to rest in

- Share the information in a smaller group first and then face-to-face
- The information should also be available to bring with them home

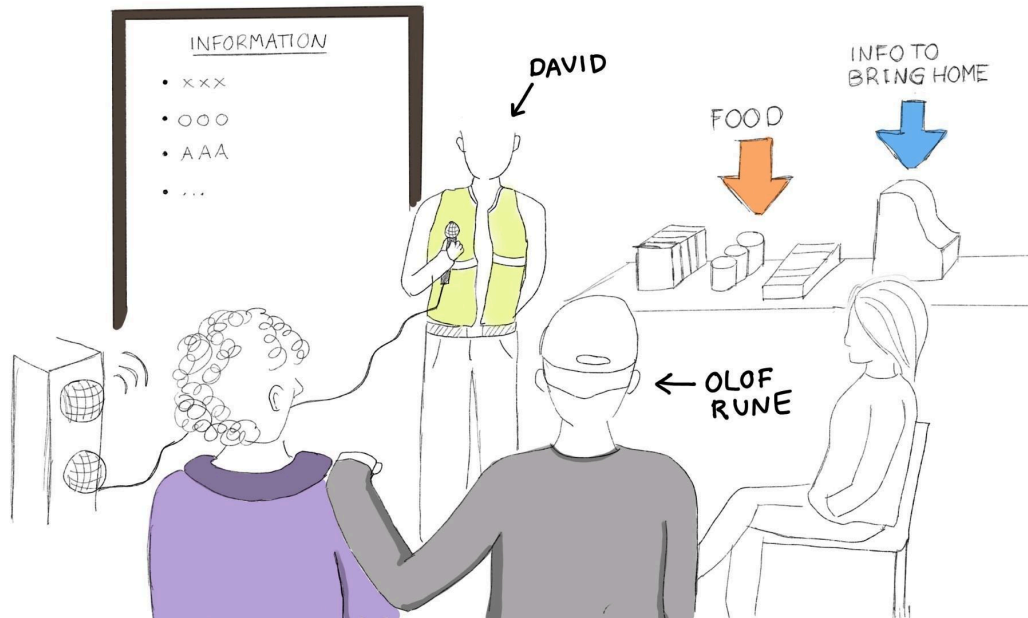


Figure 19. Illustration of “Area for elderly”.

9. Discussion

This chapter will include a final discussion about the project. The discussion is divided in four parts; Concepts and guidelines, methods and lastly sustainable goals and ethical considerations.

9.1 Concepts and guidelines

In the following paragraphs a discussion of about shelter and meeting points will be held. The first session touches the topic of shelters, while the second sessions touches on meeting points.

Shelters

Regarding the concept proposal for shelters, the idea enables elderly to be included in receiving information about the shelters location and more general information. Today, information about where the shelters are located is through a digital shelter map. Some elderly have managed to find shelter via family and friends or by searching the internet where shelters in their area are located. However, the idea of where a shelter is and not in practice can become difficult during a time of such crisis. With the concept proposals, elderly receive a physical shelter map that can be put up on the fridge to remind them about the locations and also who a air-raid alarm sound, what to bring and more general information. The solution allows the elderly to receive information about shelters gathered in one paper and does not require much effort in printing it out.

However, much is needed to be further developed. Not everything can be stated on one piece of paper in terms of information surrounding the shelters.. Therefore information about what website elderly can visit to find more information should also be included. Besides that, the addresses linked with the circled illustrations on the paper should be further developed for elderly to identify and separate the different shelters from each other. For example, a shelter on Sjömilsgatan 18 could be the same color or element as the pin on the map. Besides that, the map should also include alternative way of take part of the solution for those with decrease eye sight. A QR-code leading to an recording alternative could be a way. The concept proposal of shelter visits is also a way for those who will have difficulties in reading the paper.

Also the solution demands resources such as property managers or workers to print these maps and put them on the informationboard in each apartment entrance. To fulfill this, it could be an mandatory assignment for them to do and that has been decided by authorities similar to the mandatory task to prepare the shelters with essential tools and gadgets. However, other people will be a resource aswell. For elderly that move or have not been able to receive a sheltermap from their manager could be informed that they exist and family or friends could print them out for them. Another way is to make it mandatory for libraries to help elderly with printing one out. Libraries have been seen as a common place to navigate and find information. Goulding (2005) states in the paper *“How do public libraries function as meeting places”* (2010) that a public library can have a strong potential as a meeting point. He states although a user may not actually talk to anybody during their visits to the library, the feeling of community can still be strong, encouraging a sense of belonging and solidarity (Aabø et. al, 2010). And therefore a resource to make use of.

About the shelter visits, they are a good complement to the physical shelter map and necessary since elderly are curious about how the shelters look. These shelter visits need to be managed during the proposed week so that people can not go into them unsupervised. Planning and setting timeslot is necessary to manage so that everyone gets the opportunity to look into the shelters. These groups need to be smaller in order for the visits to not be too crowded. The shelter visits are then supplemented with beach flags in order for people to be able to walk around

and identify different entrances to shelters easily. The beach flag needs to be stored in a safe place, as a suggestion in the shelter.

Meeting points

The concept proposes the municipalities create a brochure for citizens to be informed about meeting points and get an understanding of where they are located. It proposes ideas for structuring and help elderly to receive and understand information given to them at a meeting point. A queuing system and an area for elderly have been developed. The concept allows elderly to be helped and informed in a calm environment and to receive the same help as everyone else, however with alternative information channels such as face-to-face discussion, paper format and audio/speaker.

However, the brochure needs further development. What can be identified is that municipalities have planned for meeting points differently depending on how necessary they feel they should be planned for and also what resources they have. Flen municipality, we have seen has prepared for meeting points thoroughly. With a brochure citizens of Flen are being informed about the meeting point locations and what they offer at each meeting point. It is important for each municipality to at least plan for locations in their area so that citizens know where to go if a war-related crisis occurs. Information about what they offer and what a meeting point is needs to be included too. According to the user studies, some respondents did not know what a meeting point was. Because the meeting point will offer a safe place to receive help during a war-related crisis or any crisis, what needs to be further looked into is how elderly can be informed about their existence and what they are.

Currently, many elderly feel like a burden to society. According to the article *Older people feels a burden to society* by Ageuk (2013) most of the people over the age of 65 years expressed a fear that they are viewed as a burden by the society. It is therefore important to remember and further develop solutions that do not stereotype elderly, more to make them feel included. During a war-related crisis, it is also important to think about in what way elderly can be seen as a resource rather than a group of people that need extra help.

9.2 Method

Early in the project different methods were used to collect information about crisis information, shelters and meeting points in Sweden. A broad literature study including online research was executed to understand different resources that are provided to people to understand and prepare for different crisis types. However, to better understand how the shelter can look, observations were made. The observations were made in different areas of Gothenburg which gave the opportunity to also talk to property managers and workers that guided me through the shelters. It would have been interesting and insightful to execute a separate interview with the property managers to fully understand what their thoughts are on the shelters and much they are willing to share information about them, since they are a huge resource for sharing information to the elderly in neighbourhoods.

Interviews with two municipalities were held to better comprehend in what way they have planned for meeting points. Understanding and comparing municipalities meeting points, thoughts and plans, more interviews with municipalities should have been held. Some were more prepared than others, and with the concept proposals presented, it would have been interesting to know what their thoughts are on the concepts.

In the user testing and evaluation phase, a more indepth user tests could have increased the understanding for how well the map can be interpreted and used. The map could for example be handed out to a neighbourhood community and together with neighbours or by themselves they could try to find the different shelters by maybe arranging a training session. Insights and thoughts have been investigated, however to fully map out how well the map indicates where the shelters are, how well elderly process and act on the information on the map, further testing needs to be done.

By executing a web survey and interviews with elderly, insights in how well they are prepared in case of a war-related scenario, what information channels are commonly to use when crisis occurs and how much knowledge they have regarding shelters and meeting points. The web survey provided qualitative perspectives showcasing that almost half of the respondents did not know where their closest shelter is and that almost everyone felt that it was important for them to know. They also use communication channels such as TV, radio and newspaper to obtain information about a crisis. The method was very useful for these kind of understandings and to also recruit people for the interview. Including more participatory methods during both the user study phase and also the ideation phase would have been a good way to collect interesting insights. To let the elderly use mediating tools, for example the concept proposals and discuss the topic regarding war-related scenarios would perhaps broaden their perspective and ideation flow on the subject. Co-creation is a methodology (Interaction Design Foundation, 2024b) that is used for collaborating with stakeholder to generate ideas. Participants with different roles can offer diverse ideas. In this project, a co-creation method could be done for example during the ideation phase, including a property manager, and elderly person and someone working for a FFO or FRG groups and together come up with ideas what would suit their different needs.

The combination of first brainstorming and then let designers and non-designer also take part in a case study where the outcome was different ideas, was very valuable. To first excite brainstorming sessions generated ideas that were non-biased and broad, without limitations. The case study was divided into three different scenarios while following along with one of the personas, and gave the designer and the non-designer an opportunity to understand the needs and situation in a good way and explore different solutions from each scenario.

When asking about their experience doing the case study one respondent said that one receives a good understanding of the persona and the scenarios explained. Because the subject matter is very intangible and not something many people can relate to, it became a bit difficult according to the respondent, which is understandable. It is difficult to brainstorm in regard to a subject that one has no experience with.

“It is a very intangible subject for many since not many have experience in the subject. Also our living situation [in Sweden] is safe; We are safe and sound or at least many people think so.”

- Design respondent from case study

In general, the methods used for collecting data have been fruitful. It would be good to complement and focus more on the user testing as mentioned, for example by executing a co-creation session involving all the stakeholders. Because the subject is something that not many have experience with, it also becomes difficult to

brainstorm on ideas, however by including scenarios and personas, it gave the respondents the opportunity to get a better feeling, and elicit emotions regarding the topic to help ideation.

Also, early in the project the approach of Universal design was mentioned as a way of developing the concepts. The final concept shows that the design of a physical shelter map can be received and understood by everyone. The concept allows everyone to get access to crisis information about shelters in one way and the idea also refers people that want more information to MSB:s website. The shelter visits together with the beach flags also allows everyone that is unsure of where the shelters are located and also to ask questions about them will also benefit from the solution. The approach was reflected throughout the project because the need for easily accessible information about shelters and meeting points is necessary to share among citizens and by making sure the design proposals enable elderly to understand the information, many others can too.

9.3 Sustainable goals and ethical considerations

The sustainable goals that were aimed to be reached stemmed from the global goal 10 - reduced inequalities; 10.3 and 10.2. One of the sustainable goals that was aimed to be reached is 10.3. After the project it is considered to be reached by having developed a more inclusive crisis information for the elderly. Because the shelter map allows everyone to receive easy, accessible information about their whereabouts it contributes to a solution that is designed for all. It also aims to end discrimination by including elderly in a communication channel that feels familiar to them. As mentioned, elderly during Corona felt that they did not receive the same information as younger adults because they didn't use social media or the internet to receive information.

Because the concept proposal is limited to people living in the centre of a city that have shelters available nearby, it excludes people living in areas outside of the city. However, since it is known that the cities are the most affected areas in a war-related scenario, it can be seen as a first priority to help those citizens first. According to the article *Därför är det bäst att bo på landet när krisen kommer* (Jareteg, 2019), people are more prepared for bigger crises such as war. This is due to them being used to larger power outages, usually doing bigger grocery shopping since they have a longer distance to stores, while having access to nature as well which grants access to water. That does not mean that people living outside of the city should be excluded in developing solutions that prepare them for war-related scenarios, however people that live in the countryside can in general be seen as better prepared and less targeted, than people living in the city.

The concept proposal for meeting points allows elderly to be prepared in terms of where they are located and receive information (as a brochure) about meeting points in their municipality. The solution also promotes elderly (and other vulnerable groups) to be separated from the rest of the people. This can be discussed if it is ethically correct to allow elderly to be prioritised in that scenario and limit them to being placed in a specific area at the meeting point. However, the concept proposal is optional. The idea is not to force or limit them to the other areas of the meeting point, yet if so desired, allow them to be separated to a calmer environment where you can sit down and receive information (such as face-to face, audio and physical format). It is therefore important to include information telling everyone the purpose of the "area for elderly"; what it does, that it is not mandatory and that elderly will receive the same information that others receive. As a suggestion, the information should be placed for everyone to read about at the entrance of the meeting point.

10. Conclusion

The conclusion Chapter will include final thoughts and future recommendations regarding the concepts proposals and also the including methods used.

The project aimed to investigate how to improve information and communication channels so they can be tailored towards elderly in a war-related scenario. Further, exploring and developing a conceptual design proposal for shelters and meeting points targeting the specific needs for elderly and understanding how crisis communication is being shared in Sweden today. The project set limits to only study elderly that lives in the center of Gothenburg city and has closeby neighbours.

Through the theoretical study of literature, the study found that crisis information is being shared through TV, Radio, IPA text messages, the outdoor signal "Hesa Fredrik" and on different websites such as MSB.se, Krisinformation.se and municipalities websites. Much of the information about shelter can be found on MSB:s website, however what can be identified is that elderly have difficulties in identifying shelters close by their home and feels like it is important to know. A good neighbourhood community have been identified to help elderly receive help and information and should be used. Elderly have also pointed out the need for knowing more about shelters, for example what to bring and how they look. They want the information to be gathered in one place, as a suggestions in a physical format. With the concept proposal of a physical shelter map and the evaluation done with two elderly, some improvements could be identified. For example that the map should refer one to a website (as a suggestion MSB) where more information can be found about shelters. There should also exist a timeline for how long one is to stay in a shelter, with that information an approximation of what is most important to bring can be done. Implementing shelter visits during a week once a year have elderly been very positive to since the interest of how they look exist and how the accessibility to the shelter is.

Meetingpoints can be identified to be planned for differently in different municipalities. What is important is that municipalities identifies where meetingpoints should be set up in advance for such crises so that elderly knows where to go. Information about meetingpoints can also be identified to have not reached elderly, many of them doesn't know what they are. A brochure with included map over where the meetingpoints are planned to be set out are necessary. It can also be identified that elderly sees the opportunity to be included in a priorities group at the meetingpoint as something beneficial and positive. Setting up special ques and areas for elderly is therefore proposed as a suggestions for them to sit and be surrounded by a calm environment with people the same age.

Using an exploratory approach have been necessary in order to understand the targeted group, scenarios and feelings surrounded by the difficult subject. The concept proposal, persona and guidelines will provide guidance for authorities regarding crisis information and communication. This project can also be used to reference and inspiration for further adapting information about shelters and meetingpoints towards elderly and how meetingpoints can prioritize the group.

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Appendices

- Appendix 1 - Observation guide
- Appendix 2 - Interviewguide - meeting points
- Appendix 3- Web survey questions
- Appendix 4- Interview guides - elderly
- Appendix 5 - The different personas
- Appendix 6- Case study
- Appendix 7- Storytelling for shelters
- Appendix 8- Storytelling for meeting points

Observation guide

Shelters in Gothenburg

Information:

The observations aim is to get an understanding of the looks of the shelter, the shelters availability and to also get answered regarding the shelters from property managers or workers. Specific factors that were observed were the placements of the shelters signs, thresholds, stairs, how big the shelters are, how they look like etc. Because of privacy policies the shelters that was observed will not include any information about address or property company.

Questions for property manager:

- Who is responsible for opening the shelters and manage them?
- What type of information they have been provided by MSB
- Have shelters been an upcoming subject tenant ask about lately? Who are they that asks about them?

Look into:

- accessibility (stairs, thresholds et.c)
- How do they look like?
- How many people can fit in a shelter?
- What do they store there?
- What materials have been prepared for?
- Is the rooms used for something else?

Pictures taken at the observations:





Interview guide

Meetingpoints with multiplicities

Information:

Interviews with multiplicities were conducted via telephone and took about 30 minutes. The questions are asked in **Swedish** since both respondents and interviewee had this as their native language and could easily express thoughts and opinions. The questions are in Swedish.

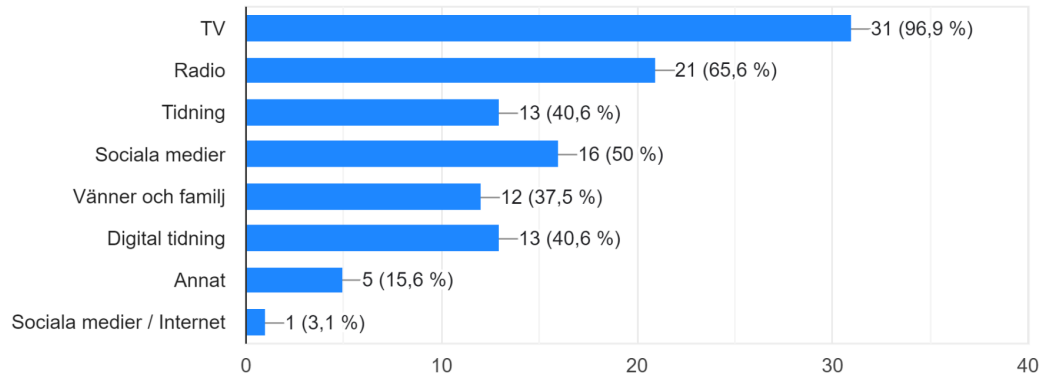
Questions:

- Vad är en trygghetspunkt enligt er? Och när behövs dessa?
- Hur ser era trygghetspunkter ut? (Vad har ni valt att inkludera på dessa platser?)
- Vart ska trygghetspunkterna vara placerade (skola, bilbibliotek, idrottshall etc.)?
- Om vi tänker ett scenario där trygghetspunkter är nödvändigt pga krig, vad är viktigt att inkludera på en trygghetspunkt vid ett sådant scenario och när i såna fall kan trygghetspunkterna tänkas behövas?
- Hur, var och när får man information om vart närmaste trygghetspunkt finns? Om strömmen går och man inte kan använda internet, finns det i dagsläget en lösning på hur man hittar trygghetspunkterna vid en kris eller krigssituation?
- På vilka sätt kommer trygghetspunkterna vara anpassade för den mer utsatta gruppen människor(såsom äldre, sjuka etc.)? (ex. kommer dessa få ingå i en "prioriterad grupp" och få tillgång till information eller liknande före andra?)
- Vem ansvarar för trygghetspunkterna och kommer vara på plats vid en krissituation?
- Vilken information ska finnas tillgänglig på plats (i trygghetspunkter)? Hur får besökarna ta del av informationen (tv, radio, affischer, etc.)?
- Om ni fått respons/feedback på era trygghetspunkter från samhället, vad har ni fått då? Har ni behövt ha trygghetspunkter tillgängliga i någon tidigare krsituation?

Appendix 3

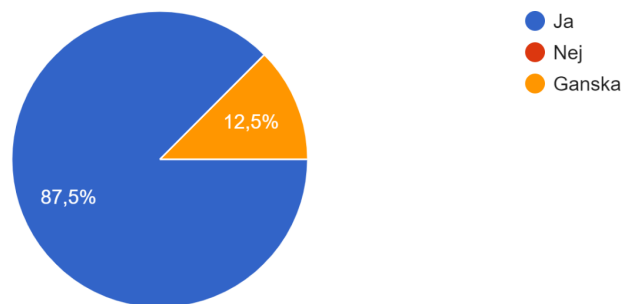
Vilka informationskanaler använde du dig av för att ta del av information om Covid-19?

32 svar



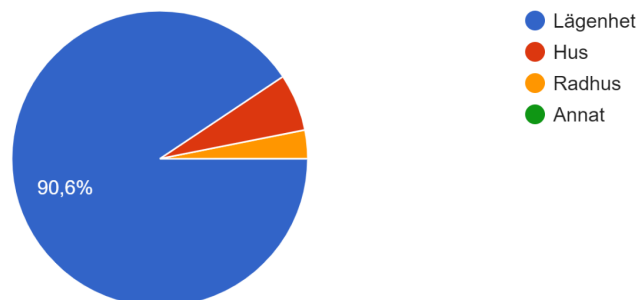
Om du vaccinera dig mot Covid-19, var det enkelt att boka och hitta ett vaccinationställe?

32 svar



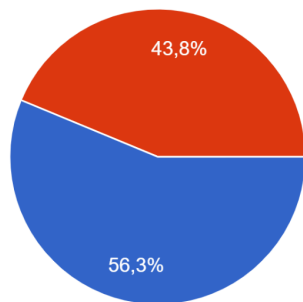
Hur ser din boende situation ut?

32 svar



Bor du ensam eller med någon/några andra?

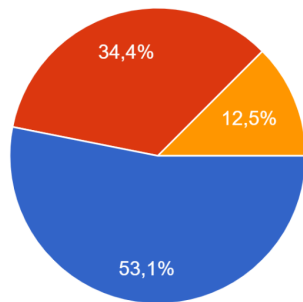
32 svar



- Ensam
- Med en eller flera andra

Vet du vart ditt närmaste skyddsrum finns?

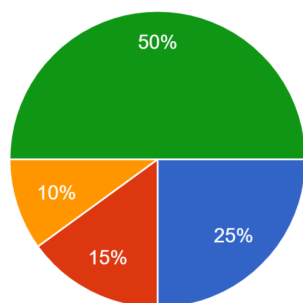
32 svar



- Ja
- Nej
- Kanske

Om du svarade ja på förra frågan, vart fick du informationen om vart skyddsrummet finns?

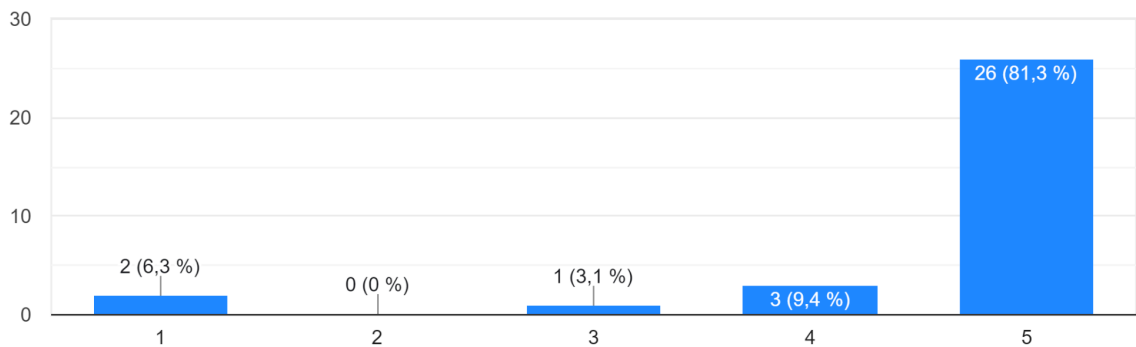
20 svar



- MSB skyddsrumkarta på nätet
- Vänner eller familj
- Vet ej
- Annat

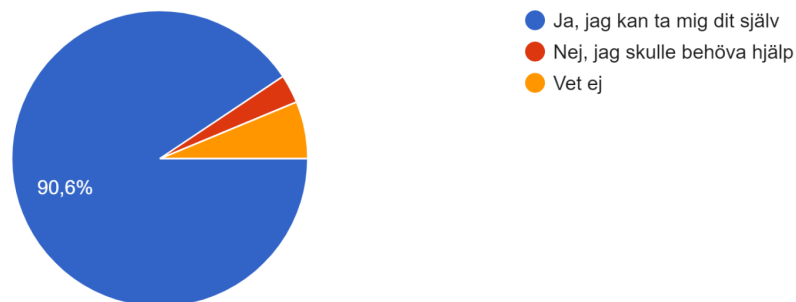
Känns det viktigt för dig att veta i förhand vart du ska hitta ett skyddsrum i närheten av din bostad?

32 svar



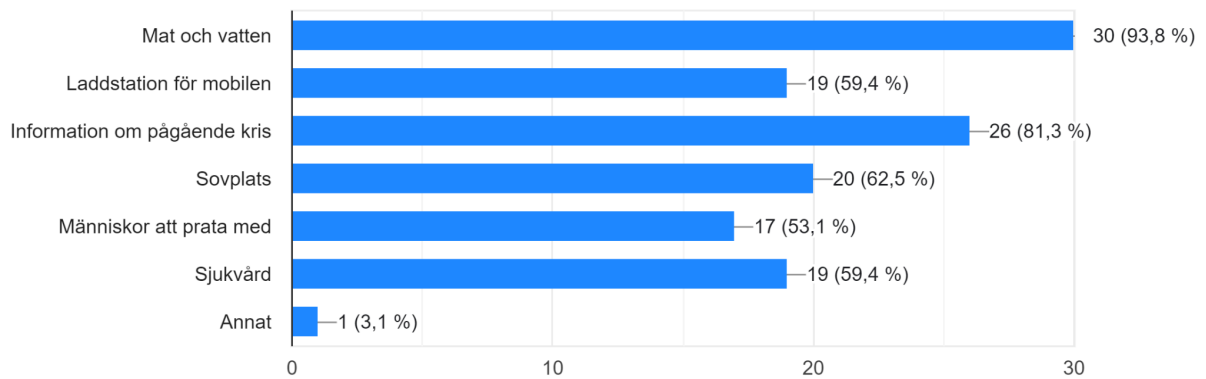
Tror du att du hade kunnat ta dig till ett närliggande skyddsrum på egen hand eller hade du behövt ta hjälp av någon annan (granne, familj, vän eller liknande)?

32 svar



En trygghetspunkt är en mötesplats där man kan få tillgång till mer information om en pågående kris, men också mat, vatten, värme och mer. Vad ha...ryssa i dom grejerna som känns viktigast för dig.

32 svar



Interview guide

crisis information, shelters, and meeting points with elderly above 70 years

Information:

The interview is done on teams or **Zoom, as a physical meeting or telephone interview**. The interviews aim to first get an insight into how prepared they are for a war-related crisis; for example, how well they are prepared, can receive and understand the information given from different sources, and how they would have wanted the information about shelters and meeting points. The interview will take about **30-40 minutes**. First, more general questions about crisis preparedness and crisis information during coronavirus are asked. Going into the interviews, specific questions about shelters were asked. Here, the aim is to investigate possible thoughts the elderly have in the given information about shelters, what difficulties might occur, and possible improvements. When asking about meeting points, the aim is mainly to understand what types of needs they would have and how the meeting points could help them. Where they are located and what types of information channels to use to publish this information are also of interest to know. To add, the questions are asked in **Swedish** since both respondent and interview had this as their mother tongue language and would more easily express thought and opinions.

Intro questions:

- hur krisberedd är du; vet du vart skyddsrummet är, har du mat hemma, vatten, medicin, etc.
- Vad hade varit svårigheterna för dig när det kommer till höjd beredskap om du måste ta dig från hemmet?
- Vad känner du att du hade klarat bra i en sådan situation?
- Känns det som att du kan hitta information om saker du undrar? vad för saker undrar du? Vilka informationkällor använder u dig av?
- Är du van vid att använda sociala medier?
- Hur tog du till dig information vid corona?

About shelters

- vet du vart ditt närmaste skyddsrum ligger?
Om JA; vart har du kollat upp det? Har något gett dig informationen?
Om NEJ; känns det inte viktigt att veta, något som inte du ve hur man kollar upp?
- Om du har använt kartan; vad tycker du om den och hur hade du velat att den skulle förbättras (om du vill det)?
- Om du vet vart skyddsrummet är;
Hur enkelt skulle du säga att det är att ta sig dit? (Avstånd, trösklar, trappor?) Vet du hur det ser ut?
Hur tror du stället ser ut? Vad är dina förväntningar på ett skyddsrum? Vad hade du velat skulle finnas i ett skyddsrum? Vad för typ av information skulle du vilja att det finns där?

- Om du inte vet vart skyddsrummet är;
Hur hade du velat få information om vart dom finns? Vet du vart man kan hitta skyddsrum? (msb karta). Vad tycker du om en sån karta? Känner du att det är viktigt för dig att veta vart det finns skyddsrum idag?
- Om strömmen går och du inte kan kolla upp vart skyddsrummen är; Vem hade du frågat om hjälp? Vad tror du hade varit en bättre lösning för att hitta skyddsrum?

About meeting points

- Kolla om dom vet vad en trygghetspunkt är.
Om ja; vad tycker du om dessa? Hade du besökt en sådan?
- Vad hade du troligtvis behövt hjälp med där?
Om nej; förklara. Vad tycker du om dessa? Tror du dom hade varit bra? Mindre bra?
- Om du inte visste vart dom är placerade och det finns ingen information om vart dom är, vad hade du letat först?
- På vilket sätt hade du velat få information om vart dom finns?

Ending questions

- Vad trodde du hade varit en ideal lösning för att ge ut information om skyddsrum och trygghetsplatser för dig?
- En ide är att försöka uppmuntra till en grannverksamhet där man kan tillsammans ta del av vart skyddsrum finns i närheten. Har ni en grannverksamhet idag? Vad är din relation till dina grannar? Vad tror du om en sådan lösning?

Appendix 5



Persona 1

Name: Michelle Berg

Age: 37 years

Job: Property Manager and worker,
responsible for 3 buildings

About Michelle Berg ...

Michelle is a fast-paced, positive, and social property manager responsible for three buildings in her area. She lives with her husband and 11-year-old daughter not far from her work. Michelle has always been happy to work close to people and is very talkative, curious, and always comes up with new ideas. She always says hi to the tenants. Most of them are friendly, but some won't even say hello. Michelle has been a property manager for over 15 years now and enjoys her work very much. In her role as a property manager, she both has the responsibility for the buildings (working more administrative), she also does things like garden maintenance, replacements of equipments and takes care of any problems the renter has in the apartments. In each building there is an information board where Michelle is responsible for putting up new information, important telephone numbers and planned activities that is happening. Because the area doesn't have a Facebook group or homepage, she feels like it is important to inform the renters about things, especially since there are a lot of elderly living in the area.

Goals ...

Michelle wishes that there could be a better neighbourhood community in her area. Many people in her area are friendly and helpful, however since there are many elderly in the area, she wishes for a system where people can help each other out with things. During Corona, she saw the struggles elderly went through with shopping difficulties and loneliness. For a possible future crisis, she wants the neighbours to come together more, help each other, have more meetings and prepare people better.

To inform tenants about the shelters in the area, Michelle wishes that she could print out some information elderly that is adapted especially towards elderly that can't look in the digital map. She wants to make sure everyone knows where it is located, what to perhaps bring with them and that everyone can take themselves to the shelter since she feels responsible.

In a war-related scenario ...

In 2018, Michelle received information from MSB regarding the shelters she is responsible for opening. MSB gave directions to equip them and make sure they followed the directions for approval. This was something Michelle felt was very important, and they took an immediate care of it with the help of a colleague who works in another area. Even though the shelters are equipped and approved, she feels like there is not enough information for the tenants about where their closest shelters are located. Also, she felt like she didn't know for sure where her closest shelter was located, to be honest. At least once a week, she gets questions about whether they have shelters or where their closest shelters are located. It is mainly the elderly who ask these questions, and she recommends that they look into the MSB shelter map on their website. However, she understands that many elderly might not have a computer or a smartphone to look these things up. What she usually does when they inform her about that is to tell them the address and hope that they can find the shelter themselves.

- + Fastpaste
- + quick fixer
- + always want to gather people and plan for activities
- + have good knowledge of digital medias
- + wants to help people
- + Available 24/7



Persona 2

Name: Olof Rune Gustavsson

Age: 82 years

Housing situation: One bedroom apartment in the centre of Gothenburg

Lives alone

About Olof Rune ...

Olof Rune is a fun, friendly and smart 82 year old man. He enjoys watching the news on the TV and play chess with his friends, besides that he likes antic decor and have a huge collection of them.

Olof Rune lives in the center of Gothenburg in a one bedroom apartment that he has lived in for 50 years. The building is big, it has 7 floors and 8 apartments on each floor. Olof Rune has seen people come and go, families, elderly and young adult. Unfortunately, he hasn't come close to any of his neighbours. However he has friends and family visiting him. Because Olof Rune is very interested and feel it is very important to keep updated with news, he have the TV on every day. He is not very familiar with the digital media platform like social media or news on the internet, and read the newspaper instead.

He feel that it is important to help those who doesn't have enough money or assistant they need, therefore he contributes with some money each month to the homelessness shelter each month.

Goals ...

Olof Rune wishes to be more included when it comes to crisis information, he feels like he is a bit left out with news that can easily be shared through social media. He also feel a bit left out in the apartment complex since the house has a facebook group he doesn't have access to it. Instead his daughter is part of the facebook group and tries to keep him updated with the most important things. During Corona he had his daughter that lives a bit far away and she could pick up groceries for him, however he feels like he would have wanted at least someone in the house to talk to and perhaps ask for help if he needed it.

In a war-related scenario ...

In a war-related scenario, Olof Rune feels kind of unprepared. He has been updated and informed about the importance of crisis preparedness at home, however much information about what the shelters are located and what to bring and also more information about meetingpoints are mostly on the website to look up. He remembers receiving the brochure "Om krisen eller kriget kommer" from MSB, which he thought was a very effective way for him to be informed about crisis preparedness, receive checklists and telephone numbers. However, he hasn't been able to look up the shelters since he doesn't have a computer or smartphone himself. Because Olof Rune also begins to have signs of dementia, he sometimes forgets where he has put things and look things up. He has asked his daughter to look upon the closest shelter and she could find an address close by Olof Rune, he knows approximately where it but not exactly.

He is worried about his family and friends when thinking about a possible war-related scenario. He is hopeful that he will receive the help he needs like picking up groceries, inform him about closest shelters and more. However, he wants to be prepared beforehand so that he won't feel so anxious and unprepared.

- + Still goes to the gym sometimes and is very active
- + Up to date with news
- + Family and friends surrounding him
- + patient and helpful
- decreased eyesight
- no digital media habit



Persona 3

Name: Eva Jansson

Age: 85 years

Housing situation: two bedroom apartment in the center of Gothenburg

Lives alone (with cat)

About Eva Jansson ...

Eva Jansson is a loving mother and grandmother who enjoys grabbing a coffee with her close neighbor, Margaretha. She has a son who lives with his family in a house outside of Gothenburg; he comes and visits as much as possible. Eva has problems with walking for too long because of a knee surgery and therefore it becomes difficult to visit friends and family.

Last year, Eva got a hold of a senior apartment in a new construction building. The area is filled with families, young adults, and also the elderly that she has been friends with. They usually outside in the common area to drink some coffee together.

Social media and using a computer is not something she is familiar with, therefore her son help her out with administrative work. Instead of receiving news from the internet, Eva listens to the radio and watches the TV a lot.

Goals ...

Eva hopes that she can be more dependent and not bother her son to much since she knows he has a family of his own to take care of. She wishes there could be a way for her to look up things about crisis and were the closest shelters are by herself. Because she has very close family and friends she also wishes for her to know if they are safe in a crisis scenario, that is what is most important to her.

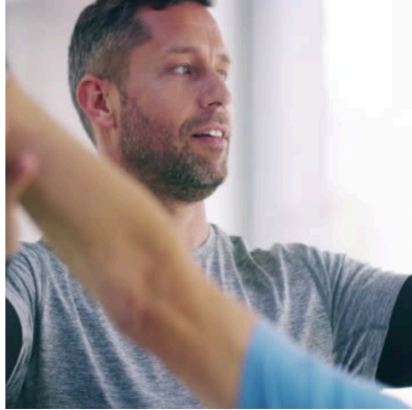
Her eyesight is beginning to slowly decrease, therefore she wishes a way for her to be able to receive information that is not online, but paper format that is readable and clear enough for her.

In a war-related scenario ...

Eva has some knowledge of crisis preparedness, she has got information both from the news on the TV, radio and the broshyr "Om krisen eller kriget kommer" to gather some supplies like a radio, some food and a flashlight. However, she feel anxious about getting the help she needs if a war-related crisis would come. Because she lives in a new construction building it has no shelters and she has asked her son to look up where the closets shelter is, according to him (when looking at the MSB shelter map) there should be one in the building next to her. Eva feel a bit relieved knowing where it is, however she doesn't know anything about it, how long should one be in there, are there toilets, what should she bring? And how does one know when you should take cover in a shelter?

Because Eva isn't that used to google things on the internet, she wishes more information to be in paper format. She has a spot in her apartment where she collect important information, in that way she won't forget where she has put it.

- + Watches the news frequently
- + Can go herself to places not too far away
- + Her son helps her with administrative stuff
- Loss of central vision (Age related macular degeneration; AMD)
- Can not walk for too long, has had a knee surgery not too long ago



Persona 4

Name: David Simonsson

Age: 36 years

Job: Currently works as a physiotherapist for elderly, however is involved in an FFO (Frivillig försvarsorganisation)

About David Simonsson ...

David Simonsson is an active and caregiving physiotherapist that is involved in different helping organisations. He has worked as a physiotherapist for 15 years and works specifically with elderly people. On his sparetime he likes to be involved in the FRG group that works with crisis information and himself is responsible for giving out information during different crises and being present at meetingpoints in his municipality.

During an explosion happening in his municipality recently he volunteered to provide people with information by setting up a meetingpoint in a school close by the happening. Many people gathered and wonder what had happened.

David as a person is very caring and funny and loves to work with people. He has studied many languages that have helped in his work as a communicator. Because his everyday work revolves around elderly, he has knowledge of how to speak to those who have a hearing disability, vision loss or mobility difficulty.

Goals ...

David Simonsson has been working with elderly for a long time, he understands the difficulty the elderly would encounter if a crisis such as war would occur. Information provided to them could be limited and because of decreased mobility it would be difficult for them to transport themselves for a long time. Cognitive disability would also not allow them to remember information provided to them.

David's goal as a volunteer at the FRG (frivilliga resursgruppen) is to help as many people as possible. He wants everyone to collect the same information, understand it and have the possibility to act on it. He understands that elderly is one of the most vulnerable groups and therefore he wishes they will be priorities and cared for.

In a war-related scenario ...

David feels like his work as an FRG has helped him to be prepared if a war would occur. Because he is very determined to help people in emergencies he feels confident and prepared. Of course he wishes that no crisis would ever exist, however if they do he wants to be as prepared as possible.

Because he has good knowledge of elderly difficulties and he is very social and helpful, he will be able to manage many people at the meetingpoint.

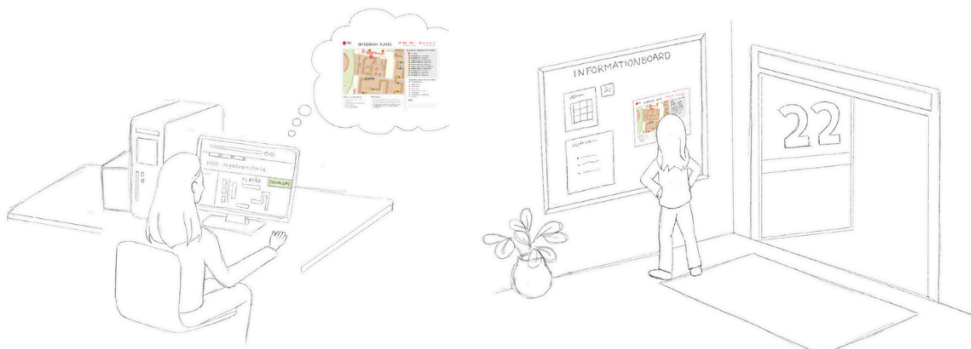
Because David also has a family of his own he has prepared for crisis such as war for a long time. Food and water have been stored in their storage rooms and he has talked with his family a lot about how to act during a war-related crisis and made them understand the importance of his role.

- + Active and strong + Great communication skills
- + Caring and loves to work with people
- + Understand the hinder elderly can encounter
- + good at socializing and communication

Storytelling - Shelters

Michelle (property manager) prints the physical shelter map

It is Monday morning; 8:00 pm a clock and Michelle has arrived at her office starting her day by looking at her email. As a property manager and worker, she starts her day off with administrative work and ending the day with gardening, apartment fixes, and more. Looking in the email she has received an email from MSB, where they explain that a new solution for sharing information about shelters has been developed. After having many questions about shelters in her working area from tenants, MSB explains this solution will gather all information and include a shelter map that can be shared to people's homes and pinned up at the building entrance. Michelle feels excited and relieved that the new solution will help all tenants especially the elderly to locate shelters and the information about them. Reading the explanation Michelles goes into the MSB shelter map online and identifies the new print/download shelter map. She first writes the address she wants to share the map at. She writes; Syhållsgatan 22, a screen showcasing 5 shelters around that area pops up. Then she only has to press print pdf and the service will create a horizontal layout on an A4 that is generated by the website, with a map, titled: SKYDDSRUM - FLATÅS (which is the name of the area synhållsgatan 22 is located) and included information on the right side of the paper. The information includes; the addresses of the nearby shelters, what to bring to the shelter, general information, and how the air raid alarm from Hesa Fredrik sounds. Important phone numbers and links to information channels will also be provided. Michelle feels amazed at how fast this solution takes to fix. Since she is responsible for 5 different addresses/buildings she prints one for each building to set up in the entrances. Printing a map for each building has been explained by MSB it is mandatory, however since she has collected and received many questions regarding the shelters, she chooses to print one for each apartment as well, which does not take much time since she only has to know the address and how many apartments that exist in that building. Because her apartment also has mailboxes located at the entrance, sharing them into each box does not take more than 1 minute and she is gladly doing it for her tenants.

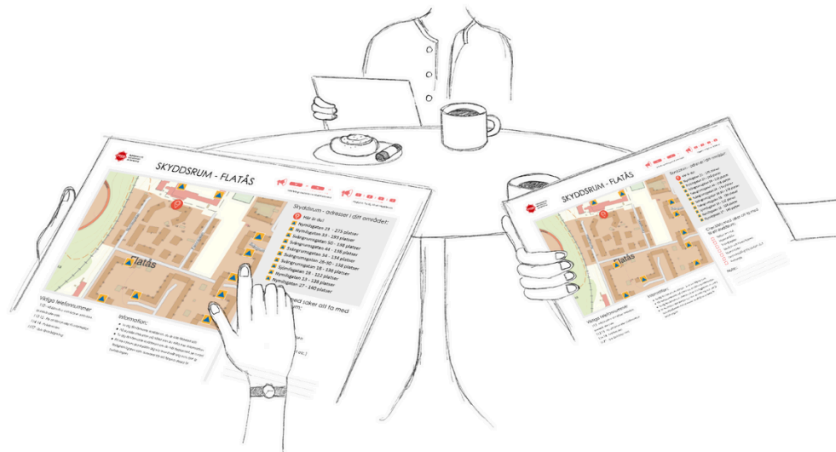


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Eva (Elderly) receives the shelter map

In another area, Eva has been sitting in the sun for the entire afternoon with some neighbors. When she feels like she has had enough of the sun and wants to go inside and eat some dinner, she identifies that there is a map printed up on the entrance door. It says SHELTERS - XXX with a map of the shelters and some information. She quickly examines it and checks her mailbox as well and there the same map lays. After dinner she goes out to play some games with her friends she asked them if they have received the map. Yes all of them explain and they start discussing the map. The elderly reassure each other and point out in the area where they exist. Eva feels like the map has helped her identify exactly where they are and that it provides the questions she has asked herself for a time; what the addresses are, what to bring to the shelter, if you are assigned a shelter, and more. Now she feels less worried and more confident that she will be able to go to a shelter quickly if that is necessary. Also, her neighborhood friends have discussed which of them they would go to, which makes Eva feel safer knowing that they know where to go and that she can join them as well.

By also knowing what to bring to the shelter, she receives help from her son to buy the necessary gadgets that is needed to bring to a shelter.



...

Shelter visits with Olof Rune (Elderly)

It is a Thursday afternoon, Rune has received a mail from his property manager both in letter and email telling him about the upcoming shelter visit next week. The information tells him to meet up with his property manager and neighbours at 17:30 on Monday next week (when the shelter visit week has started). Rune feels excited and relieved that he gets the opportunity to see a few shelters in his living area and to be able to see them with his neighbours. It will allow him to talk to some of his neighbours and see more of who they are.

When the shelter week starts and it is time for Olof Rune to take the elevator to the entrance, he is welcomed by neighbours and the property manager. They start off by walking towards the building next to theirs. Outside a beachflag has been put up to indicate that there is a shelter in the building. This can be seen from a far distance, which Olof Rune thinks is very good. He thinks for himself that he will walk around the area as well during the week, and the beach flags will help him remember where they are located.

Arriving at the shelter, the property manager shows what it looks like and answers questions that people might have. Olof Rune feels more certain now of how the availability looks like going into the shelter, it is only one floor down. Looking into three other shelters he felt like the shelter closest to him had the best opportunity for him to go there quickly, access the shelter with only one floor down and the looks and size of the shelter felt open and safe.

The shelter week has allowed Olof Rune to explore where the shelter is located, which was a very big uncertainty before, but now he knows where the shelter closest to him is located and he knows about a few more if the shelter would be full. He has also been able to ask the property manager about the shelter and spent some time getting to know some neighbours. One of the neighbours living on his floor is about the same age as Rune and also likes playing chess, which Olof Rune felt happy about and will plan some chess games with. The shelter map he received a few weeks ago was also very helpful for him and he has put it up on the fridge which will be available for him and needed if he forgets where they are located.



Storytelling - Meeting points

Eva (Elderly) receives a meeting point brochure

A couple of days after Eva has received the shelter map, they receive more information. This time a brochure is in her mailbox. On the front page, it says TRYGGHETSPUNKTER I GÖTEBORGS KOMMUN (meeting points in the municipality of Gothenburg). Eva has no previous knowledge of what meeting points are, however, is curious to read about them. Because Eva has decreased eyesight and loss of her central vision, reading is especially difficult for her. She receives help from her son. Her son finds the QR code that can be scanned and the option to obtain the information orally is given. They listen to the information together and Eva feels comfort in knowing the existence of the meeting points how the municipality has planned for prioritizing her age group and also what the meeting point will offer. Close to her home, a school is planned to be a meeting point, which feels assuring for her since she also has struggles with walking to long.

Having a physical brochure with information about the meeting points handed out Eva thinks is great. She already has a map where she saves important information, she will keep this one in the map she thinks for herself.



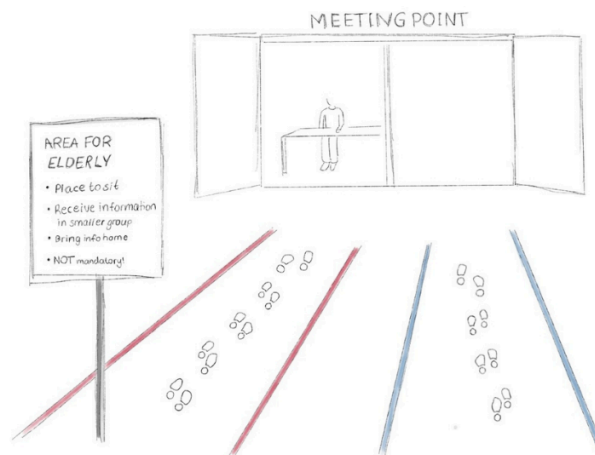
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Olof Rune (Elderly) goes to a meeting point

It has now been a couple of weeks since the government has declared Sweden being at war. It has been power outages on and off, people have difficulties in receiving water and there are food ransoming. Olof Rune has almost no food left at home and needs to go to the closest meeting point. A few months before they declared war, he received a brochure with information regarding the meeting points, it has been very useful for him since he now knows where to go and what places offer what information or other help.

At the meeting point, which is only 1 km away, and located in a big school that Olof passed by when he went out for walks, he is met by a bunch of people and also people in neon yellow vest. He decides to walk to one person in the vest since the vest indicates that they work or volunteer at the meeting point. The person in the vest explains the purpose of the queue for the elderly while also mentioning that there is no obligation to choose that queue. Olof Rune feels like the queue will allow him to quicker receive help and let him sit in a calm environment together with other elderly that he can chat. Since the responsible person also mentioned that information will be the same in the area for the elderly as well, Olof Rune does not hesitate at all to stand in the "elderly queue".

After only a few minutes of standing in the queue, Olof receives help to a chair to sit on. It is a small group of elderly in an area where people have found comfort in starting small talks with each other. Even though the circumstances are terrifying and people feel anxious and afraid, Olof feels that he has come to a safe place to gather more food and information.



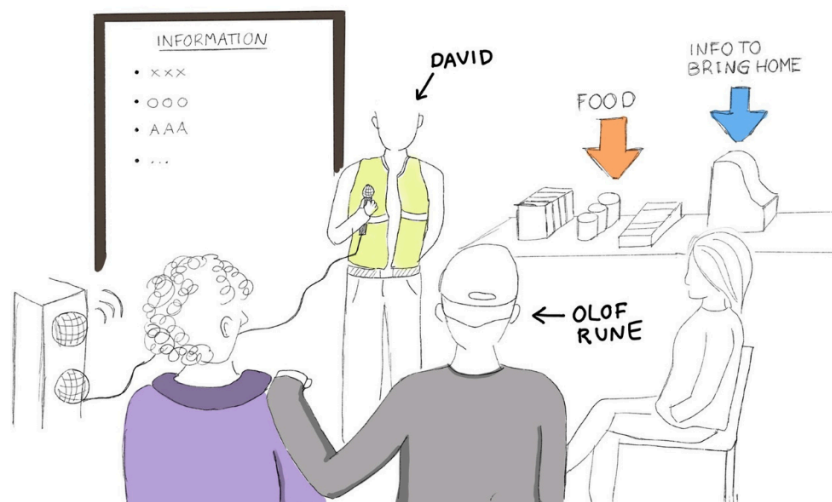
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David (Physiotherapist) helps Olof Rune (Elderly) at the meeting point

David has been working at a meeting point as a volunteer through his FRG group know for two weeks. In the school he works at, people come to collect food, water information, and other help, for example with charging phones. He is specially assigned to take care of the elderly who come to the meeting point to receive help since he has knowledge and experience from his work as a physiotherapist.

Olof Rune Gustavsson is welcomed by David to the area for the elderly, David greets him and asks him what he needs help with. Olof explains that he needs some food and updated information on guidelines and news. David says that he will be informing the smaller groups by a microphone and that he is welcome to take a seat and receive coffee. Olof is happy to sit for a while and listen to the information everyone else receives. After the session, David hands out the information Olof seeks and a flyer that has updated information and news he has just talked about, that the authorities want to share. Olof thinks it is a great idea, then he will remember the information since he can remind himself of it at home.

On the way home, Olof feels satisfied and happy he received the help he needed while being in a calm environment with other elderly people. He even got the opportunity to talk with a neighbor he recognized and they decided to meet up next time to go together to the meeting point since both felt they needed some company during this difficult time.



...