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## End-user requirements

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## Executive Summary

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This deliverable presents the first inquiry of the end-user research process for the project RelaxedCare. The overall goal of the end-user research process is to guarantee the addressing of the true end-users during the whole course of the project. The end-user groups for this research study are split in two groups: elderly people living alone with first constraints regarding their health situation and their corresponding caregivers. The research process for the first end user requirements engineering phase is designed as a not standardized qualitative research study. The study design developed by NDU was a comparative study of seven methods of qualitative social research and design research methods. In the period between June and September 2013, the following methods were conducted with participants from Switzerland and Austria: assumption personas/personas, questionnaire, show and tell, focus group discussions, cultural probes, design workshop and contextual inquiry interviews. Each method involved 10 – 15 pairs of users (caregiver plus elderly person) for Austria and Switzerland. User-pairs were recruited by 50plus for Austria and by SRK for Switzerland.

Starting with an overall description of this deliverable (chapter 1) this document is structured in the sections research methodology (chapter 2), description of applied methods (chapter 3), execution of qualitative research methods (chapter 4), data analysis (chapter 5), discussion of results and conclusions (chapter 6) and interpretation of results (chapter 7).

Chapter 2 describes the research methodology of the study and offers an overview of the research methods utilized as well as the different phases and purposes of their appliance. Furthermore it presents information concerning the execution of the chosen methods, the data analysis and the interpretation procedure.

Chapter 3 comprises a detailed description of all seven methods applied in the first research engineering phase. Each method is first outlined on the basis of referenced literature and, in a second step, explains its specific appliance in the research study.

Chapter 4 specifies the execution of all seven research methods for the RelaxedCare first end-user research study. It presents detailed information concerning time, location and the responsible executing partner, as well as demographic data of the addressed target groups for each method and the documented single results listed for each executed method.

Chapter 5 provides an overview of the data analysis procedure of the research methods applied in the first study. Firstly it presents the results of the data preparation phase and secondly it shows the results of the evaluation procedure of all methods. In addition the chapter illustrates the meaning units originating from a coding process concerning emerging phenomena and significant statements for each user group via a phenomenological approach.

Chapter 6 discusses the results of the study and presents a list of positive and negative product criteria for the RelaxedCare system which are based on the findings of the analysis procedure from chapter 5. With regards to the findings of the study the conclusion for a combination of stationary (at home) and mobile (in use while outdoors) components for the Relaxed Care system are drawn.

Chapter 7 introduces the procedure and the output of a 4-days interpretation workshop at the NDU in October 2013 with seven students of the master programme for Innovation and Design Strategies. The workshop aimed at translating the findings of the study to possible RelaxedCare system concepts. Two concepts which emerged from this workshop finalise the description of this chapter.

The applied research methods determine to uncover relevant factors for assessing the user needs in an early stage of the project. The findings of the study shall inform technical workpackages and through this build a basis for the design and the implementation of the RelaxedCare system components later on.

# 1 About this Document

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## 1.1 Role of the deliverable

This deliverable will present the end-user research process, its execution and its data analysis. The applied research methods determine the factors relevant for assessing the user needs in the early stages of the project.

User requirements gathered through the qualitative value centered approach will reveal technology acceptance factors as well as emotional, haptic and aesthetic influences that are the basis for the design and the implementation of product modules.

The results of this deliverable will feed directly into all work packages to ensure the strong user centered focus of the project.

### 1.1.1 Description WP2

„The objective of this work package is to investigate user’s demand on aesthetics in product appearance and interaction preferences, which is a key factor for creating an emotional experience with a product or service, and to design use cases and scenarios to ensure that the system’s services and products address user needs and fit into user’s daily routines.“ (DoW RelaxedCare, p. 20)

### 1.1.2 Description Task 2.2

„A mix of design methods and ethnographic research methods like audio-/visual documents and materials, camera surveys with contextual interviews, perspective sorting studies, user workshops, cultural probes studies and personas will be used to identify user needs and expectations for the RelaxedCare project. Findings are used to generate scenarios (to identify the desired services, aesthetical hardware preferences, as well as what is not desirable). Beside the general system requirements, special sessions will be organized on the needs and developments for the pervasive user interfaces.“ (DoW RelaxedCare, p. 21-22)

## 1.2 Relationship to other Relaxed Care deliverables

In general the results of task 2.2 will feed into all work packages to ensure the strong user centered focus of the project.

The deliverable D2.2 is related directly to the following RelaxedCare deliverables:

<u>Deliv:</u>	<u>Relation</u>
D2.5 Use Cases and Scenarios	Based on the elaborated personas during the first research phase of the project, a certain number of specified use cases and scenarios are going to be defined for further development, esp. technological aspects.
D5.2 Concepts and Design	Those concepts which had been elaborated in the course of the interpretation workshop and additionally those concepts which emerged during the research period are discussed in this task. They provide an informative basis for further development, esp. haptic and aesthetical components.

## 2 Research Methodology

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### 2.1 Introduction to this chapter

This chapter offers an overview of the research methodology applied during the first user requirements engineering phase of the project.

### 2.2 Research Process

In general the whole study has been created as a qualitative research study. The research process for the end user requirements engineering is designed as a not standardized qualitative research study (see Flick, 2009, p. 76). The study design was a comparative study of seven methods of qualitative social research and design research methods. In the period between June and September 2013, the following methods were conducted with participants from Switzerland and Austria: Assumption Personas, Questionnaires, Show and Tell, Focus group interviews, Cultural Probes, Design workshop and Contextual inquiry interviews.

### 2.3 Study Design

During the first research period in the very beginning of the project, the following set of methods have been chosen for addressing different purposes. In order to arrange the chosen methods in a consequential process the methods of the study design have been split up in five phases.

#### 2.3.1 Study process phases and chosen methods

Phase 1: Assumption Personas - Personas

This method has been chosen to get a common understanding of both target groups (caregiver and elderly) among the team of project members of RelaxedCare. The aim therefore was to discover and scrutinize mental role patterns, models and attitudes in order to create a basis for further discussions. After the conduction of all methods during the research study the Assumption Personas were modified to create 'real' Personas referring to 'real' findings of the study.

Phase 2: Questionnaire and Show and Tell Method

These methods had been chosen to get structured impressions and insights into the everyday life of people of both target groups and their preferences in product criteria.

Phase 3: Focus group discussion and Cultural Probes

These methods had been chosen on the one hand side, to be able to discuss the findings from phase 2 directly with participants of both user groups and on the other hand to prepare a Cultural Probes package to gain insights and vital pieces of information relating to the project scope.

Phase 4: Design Workshop

The Design Workshop has been created in order to gain product criteria which are not only functional, but follow an emotional and haptic approach. Using the creative potential of the participants, this workshop had the aim to start a conversation about possibilities of product criteria.

### Phase 5: Contextual inquiry interview

Contextual inquiry interviews had been used to get structured and tightly focussed information on technological items in use of everyday life, addressing especially the technological devices and motivations of its usage in everyday routine of both user groups, as well as to get information about possible usage of technological devices for care situations.

### 2.3.2 Execution

All methods applied during the first research period have been executed in Austria and Switzerland, except “Show and Tell Method”, “Questionnaire” and “Design Workshop”, which took place in Austria only.

The entire study was designed by NDU, who executed furthermore “Assumption Personas”, “Show and Tell Method” and “Design Workshop”.

Austrian user-partner 50plus Centre executed the methods “Questionnaire”, “Focus group discussion”, “Cultural Probes” and “Contextual inquiry interview”.

Swiss partners SOUL and SRK executed “Focus group discussion”, “Cultural Probes” and “Contextual inquiry interview”.

This first research period lasted from June to September 2013. A total of 207 test persons of both user groups, composed of 155 females and 52 males, participated in the study.

## 2.4 Data preparation, analysis procedure and evaluation

This chapter is due to offer an overview of the data analysis procedure of the qualitative research methods applied in WP 2. For the analysis of the vast material collected during the qualitative study with seven methods first the evaluation methods AEIOU (A = Activities, E = Environments, I = Interactions, O = Objects, U = Users), Affinity Diagramming, Word Clouds and Cross Cultural Comparison had been applied. All evaluation methods have been operated by IHL in Switzerland.

After the material was thus prepared a phenomenological approach was chosen for the evaluation of all results originating from the methods applied by NDU. The analysis process started with a coding process, meaning the organization of the collected material to segmenting sentences and categories which means to analyse the material concerning phenomena and significant statements for each user group (caregiver and elderly) in order to create meaning units. (see Creswell, 2009, p. 186)

The coding process was conducted using the following questions (see Flick, p. 167-172):

- What? What is it about? Which phenomenon is addressed?
- Who? Which persons or users are involved? In which way do they interact?
- How? Which aspects of the phenomenon is addressed or not addressed?
- When? How long? Where? Time, course and location.
- Why? Which reasons are mentioned or offer the possibility to be opened up?
- What for? For what purpose or intention?
- With what? Means, tactics and strategies to reach the goal.

After the coding process into meaning units a matrix was created for each method to offer an overview of the overall results.

## **2.5 Interpretation Procedure**

The interpretation of findings was effectuated during a specific interpretation workshop with a group of students from the NDU master course for Innovation and Design Strategies in October 2013. Based on the created matrix of all seven methods applied, the students were working in groups to develop a set of scenarios which led them subsequently to the finalization of two product concepts.

## **2.6 Summary of the chapter**

The aim of chapter 2 is to describe the research methodology applied for the first user requirements engineering phase in WP2. Starting with an introduction to the research methods utilized and the different phases and purposes of their appliance the chapter introduces then the participating partners, offers information for the study periods and the locations of the research execution. It explains the data analysis procedure consisting of four evaluation methods whose results led to a coding process which resulted in a matrix for each method presenting meaning units gained through a phenomenological approach. Finally Chapter 2 points out the conclusive interpretation phase.

## 3 Description of applied methods

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### 3.1 Introduction to this chapter

This chapter will describe each of the seven methods which had been applied during the first research period from June to September 2013.

### 3.2 Assumption Personas - Personas

Personas are archetypal users and should help the members of a product development team to focus on *real* people (i.e. real users from the target group) during a (product) development process. Personas are used to identify goals and needs of users in a specific product and use context. (see Cooper, 1999)

Personas give *faceless* data material from quantitative and qualitative studies, data from market studies, field studies and focus groups an *archetypal* face. The use of data from market surveys and statistics often result in a personally structured priority list in the minds of each member of the development team. The aim of the Personas method is to prevent this by facilitating and reinforcing the focus on the project and the communication among the members of the development team on the generated personas.

Since the conventional personas method is very time consuming in its application and may last for several years to be completed (see Pruitt & Adlin, 2006), the orientation on the approaches of 'Assumption Personas' (see Adlin, 2011) and 'ad-hoc personas' (see Norman, 2011) leads to faster results. In general data collected from semi-structured interviews can additionally be used as a basis for the development of 'mash-up' characteristics of the personas which are going to be developed.

#### 3.2.1 Assumption Personas - Personas – Application

In order to evaluate the understanding and definition of the target groups (caregiver and elderly) among all partners involved in the project the occasion of the first consortiums meeting in June 2013 was used to hold an assumption personas workshop to identify different mental models. NDU as moderator of the workshop invited all partners to first write down their ideas and attitudes as well as information concerning the target groups in terms of age, technological affinity and preferred activities on sticky notes. These notes were used afterwards to uncover different points of view, to start a discussion and to finally define personas (female and male) of both target groups which should be addressed in the project. After the conduction of all methods during the research study the Assumption Personas were modified to create 'real' Personas referring to 'real' findings of the study.

### 3.3 Questionnaire

A questionnaire consists of several questions to which test persons have to answer individually and independently in a written way. It is a research method which requires a highly structured content and renounces any influence by an interviewer. (see Bortz & Döring, 2006, p.252)

### 3.3.1 Questionnaire – Application

The questionnaire was created based on the idea to collect information on preferred free time activities, preferred objects and preferred places at the homes of the target group of the elderly. The aim of the survey was, to get in an early stage of the research phase a first impression and ideas about fun-causing activities, favourite objects and the places at home where the persons of our target group prefer to stay.

The questionnaire was distributed on June, 17th, during the summer-event of 50plus in Grossgmain near Salzburg.

The following questions have been asked:

Question 1: What do you enjoy the most?

Question 2: What is your favourite object at home?

Question 3: Where do you prefer to linger at home?

The goal of this research method was to identify objects of everyday life which people carry with them when leaving home and their motivation to do so. Those findings may serve as an input for designers to create new solutions or enhance existing objects in use with the overall goal to create meaningful products for the RelaxedCare system.

### 3.4 Show and Tell Method

Based on Curedale (2012), who applies ‘Show and Tell’ as an Ice Breaker during design workshops, in case of the RelaxedCare research, this method is defined as an oral down-to-earth interview technique which can be executed in any location. Persons belonging to the target group are asked to present objects they carry with them in their bags. Only those objects are presented that people like to show voluntarily. Each object which is shown is described and marked by the interviewer. Background-stories and motivation for carrying certain objects are able to be discovered by asking more detailed questions.

The goal of this research method is to identify objects of everyday life which people carry with them when leaving home and their motivation to do so. Those findings may serve as an input for designers to create new solutions or enhance existing objects in use with the overall goal to create meaningful products for the RelaxedCare system.

#### 3.4.1 Show and Tell – Application

The Show and Tell Method was executed on June, 17<sup>th</sup>, during the summer-event of 50plus in Grossgmain near Salzburg. People were asked to present voluntarily the content of their bags, revealing the objects they carried with them. The participants were requested to put all objects they wanted to present on the table and to explain what and why they carry those objects with them.

### 3.5 Focus group Discussion

Focus group discussions are a qualitative method to gauge the opinions, feelings and attitudes from a group of carefully recruited participants. Focus group discussions, guided by a skilled moderator, can create a group dynamic that provide insight into themes, patterns and trends. In a

peer setting participants are more likely to share experiences, stories, memories, perceptions, wants and needs. (see Lamnek,2010, p. 372-420)

### 3.5.1 Focus Group Discussion – Application

The goal of the focus group discussion was to provide more insight regarding the following design-related inquiries:

- Find out what is not desirable about the current state
- Find out needs and desires about care situations
- Uncover the underlying emotions of participants
- Understanding constructs and mental models of group members
- Understanding interaction and communication with family members and friends
- Understanding care and health situations

Participants of the target group “**assisted persons**” (=elderly) discussed the following topics:

**Issue 1:** Communication in general

**Question 1:** How do you communicate with your family members/friends? Which kind of tools of communication do you use?

**Issue 2:** Communication of health problems

**Question 2:** How did you deal with a health issue in the past? Did you inform your family members/friends? How much information about your state of health do you want to provide to your family members/friends?

**Issue 3:** Past and present experiences during care

**Question 3:** Who takes care of you if you need help? Which kind of help is mainly used (visit, phone call, arrange appointments)?

**Issue 4:** Ideas and wishes, how care could be improved

**Question 4:** How should your family/friends deal with your health problems? What would give you a feeling of security in case of health problems? Do you have any idea in which way the situation could be relieved?

Participants of the target group “**caregiver**” discussed the following topics:

**Issue 1:** Communication in general

**Question 1:** How do you communicate with your family members/friends you take care of? Which kind of communication tools do you use currently?

**Issue 2:** Communication of health problems

**Question 2:** How did you react to a health issue of a family member/friend in the past? In this context which information was/is important to you? How did you wish to receive this information?

**Issue 3:** Past and present experiences during care

**Question 3:** How do you take care of family members/friends, when they need help (selective care or long-term care)? Which kind of help is it (visit, phone call, arrange appointments)? How does it change your everyday life experience, when family members/friends need help or support from you? Have you ever been in such a situation? If it happened again, would you act the same way? Or would you change anything? Where there any learning effects from this situation?

**Issue 4:** Ideas and wishes, how care could be improved

**Question 4:** How would you like to handle a health problem of family members/friends? What would improve your feeling of security, if your family members/friends have health problems?

### 3.6 Cultural Probes

Cultural Probes are provocative packages given to participants to get insights in their daily live, environments, thoughts and interactions by putting diverse questions and by asking the participants to perform certain tasks within a defined period.

Cultural Probes consist of any materials designed to inspire people to thoughtfully consider personal context and circumstances, and respond to the research team in unique ways facilitated by the provocations. Several artefacts such as disposable cameras, maps and daily journals build the components of the package for the participants, characterized by its casual and informal appearance and are created to inspire delight and respect, response and return.

Defined as an exploratory research method, cultural probes are intended to serve as an inspiration to identify key patterns and themes that might emerge from the group of participants and may be used as elements to inspire proposals for future product possibilities and design solutions. (see Martin & Hannington, 2012, p. 54-55)

#### 3.6.1 Cultural Probes – Application

The Cultural Probes package consisted of the following tasks:

1. Diary during a period of seven days: Notes of each day, such as activities, pleasures and burdens of daily living, ways, meetings, way of communication, preferences in communication, use of products, reasons for using products, functionality of products, thoughts and ideas.  
Pictures: daily picture of things which accompany test persons when leaving home and a description of the reasons why those things are being taken along.
2. Living space: Drawing of the floor plan of their flat or house
3. Favourite place at home: Picture and description of the aspects that make a place to a favourite one.
4. Favourite thing at home: Picture and description of the aspects that make a thing to a beloved one.
5. Hated thing at home: Picture and description of the aspects that make a thing to a hated one.

6. Talisman: Picture and description of the personal bond to a talisman (if owned) and the place where it is located.
7. Notes

### 3.7 Design Workshop

Design Workshops are characterized by their participatory approach. Projecting techniques such as collages, mapping or diagramming help to understand the world of users and to figure out implications for possible design solutions. (see Martin & Hannington, 2012, p.62-63)

#### 3.7.1 Design Workshop – Application

The purpose of the Design Workshop was to crystallize emotions, feelings, bonds and haptic preferences related to objects. Therefore the Design Workshop consisted of three sessions addressing:

- Subject – Object Relationship
- Picture-Word Cards/Collage
- Love/Hate Thing

##### Subject – Object Relationship

This method examines the individual relation between persons and certain objects. By the use of the method *Brainstorming* participants were asked to list product criteria according to the following five categories: Love-Tell-Use-Stage-Hate.

- Love:* Which criteria do you love about daily objects?
- Tell:* Which objects in your personal environment are precious for you because they tell a story (about you)?
- Use:* Which objects in your personal environment do you use in a special manner? Are there any objects you use in a different way as initially planned by the designer/producer?
- Stage:* Are there any objects you stage, not because of their function but because of their aesthetical appearance? Are aesthetics of an object important to you?
- Hate:* Which objects in your personal environment do you hate and why do you hate them?

For each aspect the participants had to note three terms upon coloured cards, each aspect had a different colour and so had the cards, corresponding to the respective aspect. After having found three terms for each aspect, the participants put their output on the correspondent sheet and explained their findings. The result was a five-part and five-coloured collection of product criteria answering the five questions/aspects.

##### Picture-Word Cards/Collage

Based on the method Picture Cards described by Martin & Hannington (2012), this task is constituted in building a collage from a provided collection of words and images and to argue the individual choice. Collages potentially illustrate peoples' understanding and perception of issues and help them verbalize complex or unimagined themes.

Participants received 20 different words related to the term „Joy“ and 20 different words concerning the term „Relax“. They furthermore received 20 different pictures concerning the term „Joy“ and 20 different pictures concerning the term „Relax“. For each case (e.g. „Joy“ and „Relax“) the participants had to choose 5 words and 5 pictures which expressed their personal affinity to „Joy“ and „Relax“ the most. Out of the chosen words and pictures each participant had to create two collages, one for “Joy” and one for “Relax”.

### Love/Hate Thing

Based on the method Love-Letter and Break-up Letter described by Martin & Hannington (2012), the third session consisted of the presentation of a beloved thing and a hated one. In the preparation for the Design Workshop the participants were requested to bring along a personal object from home which they like the most/like to use it/to which there is a particular relationship.

It was requested furthermore that the participants bring along an object from home which they dislike or do not like to use at all, for what reason ever. In case they were too big to be transported, participants could also bring along a picture to the workshop.

We took two pictures from each participant, one with his/her beloved thing and one with his/her hated thing and noted the background for those attitudes.

## 3.8 Contextual Inquiry Interview

The contextual inquiry interview is a method within the realm of open, semi-structured interviews. The interview concentrates on defined formulation of questions or problems which have to be analysed in a first step. Following the elaboration of certain aspects, several guideline questions are created, which are applied during the interview situation. This guideline should encourage test persons to comment on the defined questions and problems without constraints nor predefined alternative answers. (see Mayring, 2002, p. 67-109)

### 3.8.1 Contextual Inquiry Interview – Application

The application of the contextual inquiry interview should result in tightly focussed information on technological items in use of everyday life, addressing especially technological devices in terms of functionality, usability and motivations of its usage in everyday routine of both user groups. Another aspect was to get information about possible usage of technological devices for care situations.

After the execution of the first two interviews in Austria, the emerging need to add further questions appeared, therefore questions 9 – 19, which address the different user-groups in different ways, were subjoined to the guideline. Those questions have been drawn up by NDU in cooperation with SOUL and 50plus.

Number	Questions	Participants
1	Which kind of technological devices do you own ?	Elderly, Caregiver
2	Where are the mentioned devices positioned in your home ?	Elderly, Caregiver
3	For what kind of reason do you use these devices?	Elderly, Caregiver

<b>3a</b>	What exactly works well and why?	Elderly, Caregiver
<b>3b</b>	What exactly does not work well and why?	Elderly, Caregiver
<b>4</b>	What do you like best concerning these devices ? Why ?	Elderly, Caregiver
<b>5</b>	What do you not like at all concerning these devices ? Why ?	Elderly, Caregiver
<b>6</b>	Does somebody else in your household/ surrounding uses these devices as well?	Elderly, Caregiver
<b>7</b>	With whom do you communicate via the devices you mentioned ?	Elderly, Caregiver
<b>8</b>	Are there any additional devices you would like to have or take with you, when you are leaving home? For which purpose would you like to use them and why?	Elderly, Caregiver
<b>9</b>	Please imagine you are leaving home. Can you imagine carrying devices with you which are sending and receiving messages/information ? What kind of message/information could that be? How could they be sent/received (acoustically/visually/haptic)?	Elderly, Caregiver

Table 2: Focus group questions elderly only

Number	Questions	Participants
<b>10</b>	Is there any item in your home which supports you in everyday life? E.g. canes, walker/rollator	Elderly
<b>11</b>	In which cases or situations do you need help?	Elderly
<b>11a</b>	Would you like to talk to your relatives in such cases?	Elderly
<b>12</b>	How important is it for you that your caregiver is informed of your state of health constantly without passing by? For what reason would you like/dislike this? Why?	Elderly
<b>13</b>	Have you ever been in situations where you had severe health problems and you couldn't react anymore? If yes, who or what helped you? What else could have helped?	Elderly
<b>14</b>	What makes you feel secure in everyday life? Are there any devices, signs or particular kinds of communication that you arranged with your relatives in case of emergency?	Elderly
<b>15 CH only</b>	Do you already use technical aids e.g. emergency call from Swiss Red Cross (wristband, necklace, mobile phone or NEMO/GPS capable emergency call)? Is its function sufficient? What is missing?	Elderly
<b>15 AT only</b>	Do you already use technical aids e.g. emergency call from Red Cross or Samariterbund (wristband, necklace, mobile phone or NEMO/GPS capable emergency call)? Is its function sufficient? What is missing?	Elderly

Table 3: Focus group questions caregiver only

Number	Question	Participant
<b>16</b>	How do you currently get notice if the person you take care of is not well?	Caregiver
<b>17</b>	Do you currently use a kind of report/alarm system to create your care situation more secure? (e.g. if curtains are not raised, a neighbour will alert you; a defined objective is moved regularly for neighbours realize that everything is alright)	Caregiver

18	How do you feel about your current care situation?	Caregiver
19	What could relieve your personal care situation ?	Caregiver

### 3.9 Summary of the chapter

Chapter 3 contains a detailed description of all seven methods applied in the first research engineering phase. Each method is first outlined on the basis of referenced literature and, in a second step, explains its specific appliance in the research study.

## 4 Execution of qualitative research methods

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### 4.1 Introduction to this chapter

Chapter 4 describes the execution of all seven research methods for the RelaxedCare study. It presents detailed information concerning time, location and the responsible executing partner, as well as demographic data of the addressed target group for each method.

### 4.2 Assumption Personas - Personas

The method of Assumption Personas was conducted in order to reach a common understanding of both target groups (caregiver and elderly) among the team of project partners. On the occasion of the first consortium meeting from 3<sup>rd</sup> to 4<sup>th</sup> June 2013 all attendant project team members were invited to take part in the Assumption Personas workshop with the aim to create for each target group a male and a female Persona. The goal was to initiate an intensive discussion and to conjunctly create material for reflection during the entire development process. After the conduction of all methods during the research study the Assumption Personas were modified to create 'real' Personas referring to 'real' findings of the study and are presented in chapter 5.3.1.

#### 4.2.1 Assumption Personas - Participants

Only attending project team members took part in the creation and discussion of Assumption Personas.

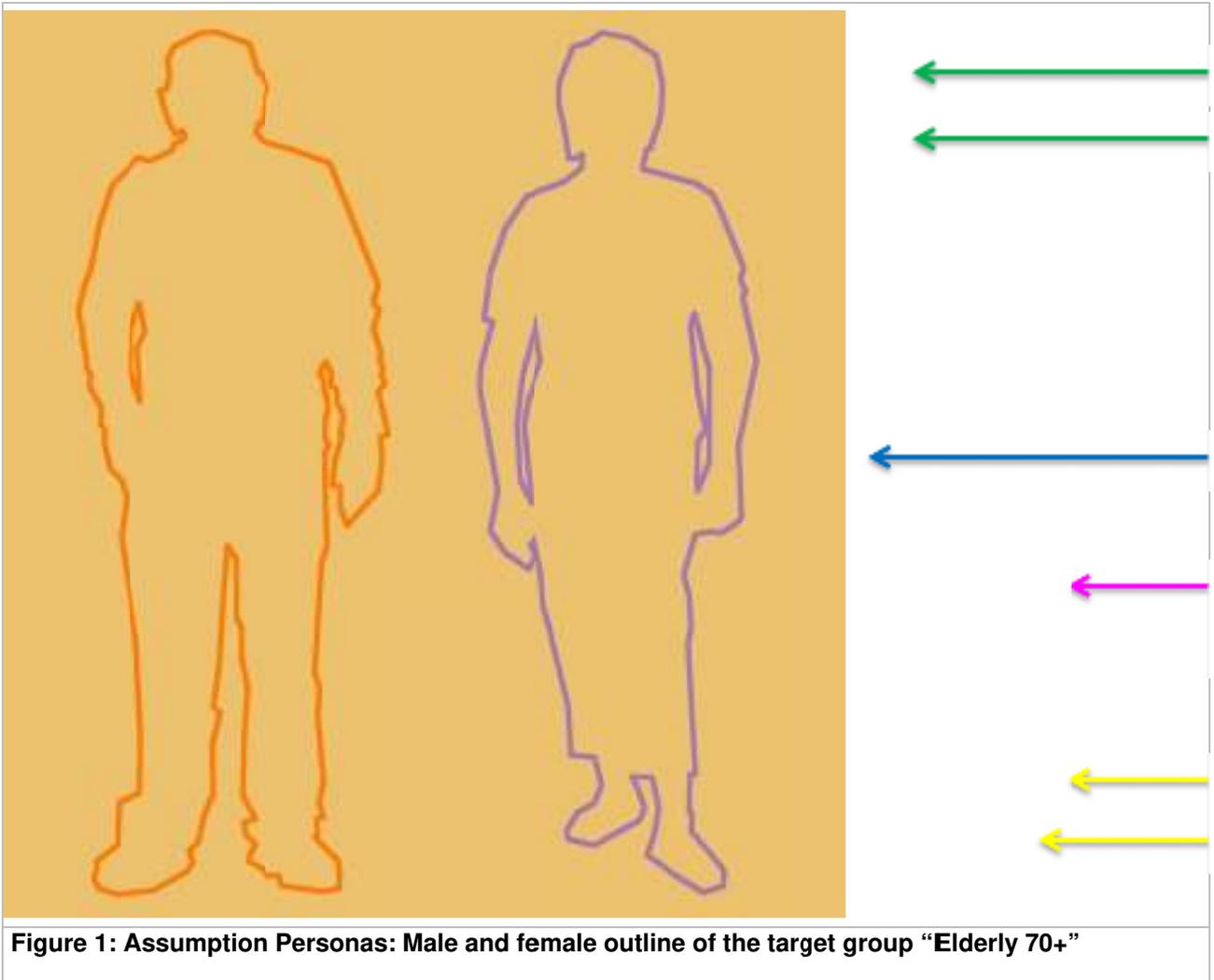
#### 4.2.2 Assumption Personas - Procedure

At the very beginning of the Assumption Personas Workshop, all project team members agreed on developing two pairs of end-users, each pair consisting of a female and a male Persona.

In the first step the conjunctly development of Assumption Personas consisted in the collection of terms answering a range of different coloured questions. For each end-user pair (i.e. one pair of elderly 70+ and one pair of caregiver) participants had to write down one key word for each topic on an appropriate coloured sticky note corresponding the following classification:

- **PERSONAL BACKGROUND**
  - Age
  - Gender
  - Family status
  - Living area (urban / rural)
- **OBJECTS THEY INTERACT WITH**
  - With which technological objects of everyday life do they like to interact with?
  - Why?
- **SOCIAL CONTACTS**
  - How large is their social network?
  - How do they get in contact with their family and friends (socializing patterns)?
- **HEALTH STATUS**
  - Do they need any daily medication?
  - Do they have any limitations?

Afterwards the material for each topic was sorted and in the course of a discussion keywords for the personas were selected commonly. Personas were given names as well.



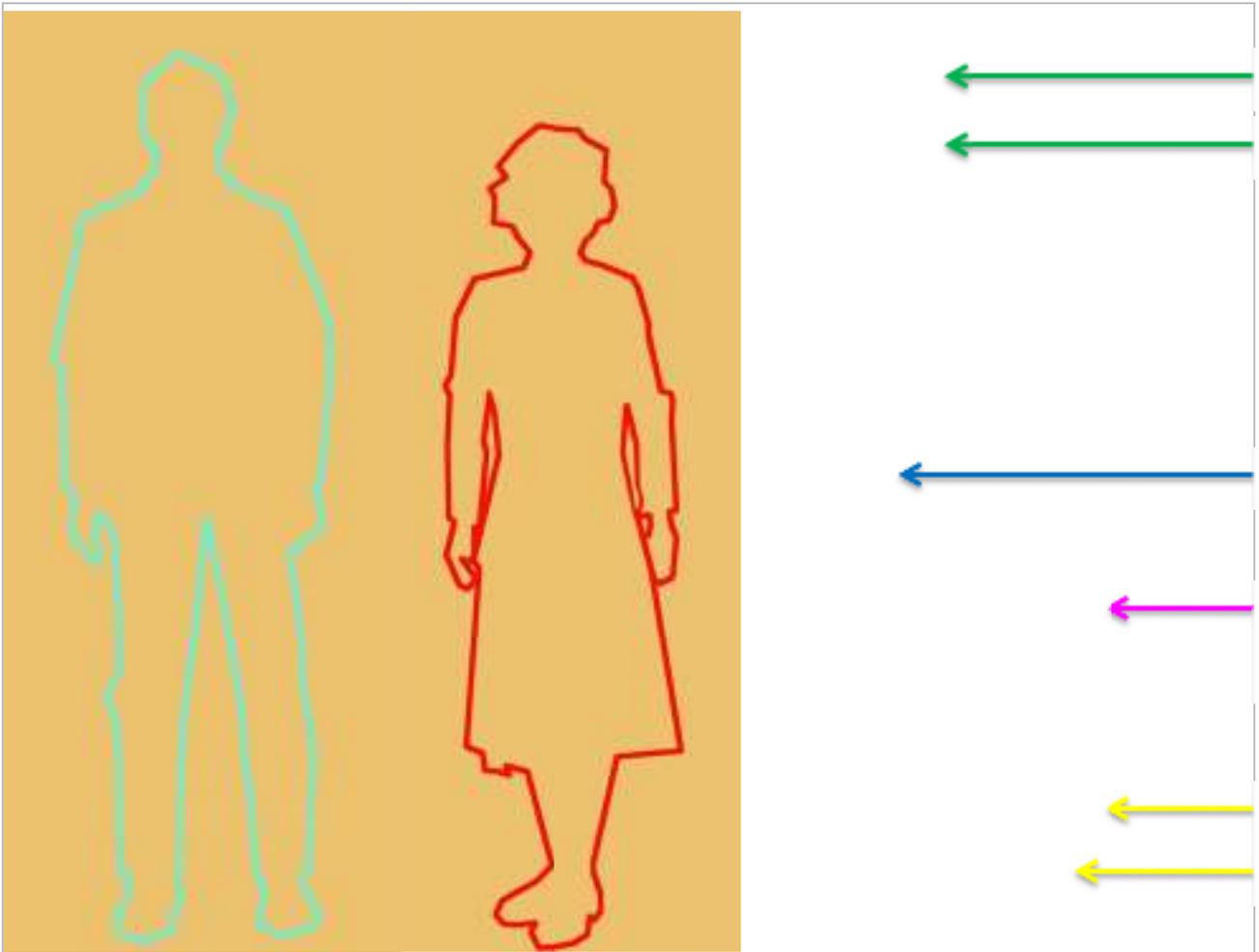


Figure 2: Assumption Personas: Male and female outline of the target group "Caregiver"



Figure 3: Assumption Personas: Collection and sorting of terms

### 4.2.3 Assumption Personas - Results

The former anonymous target group of which the project was talking about initially, after having passed a common creation process, as a result showed specific demographic data, had names and defined social interactions and the project team knew about their state of health, their use of technology and preferred objects.

#### 4.2.3.1 TARGET GROUP – ELDERLY 70+

##### Franz

Franz is 75 years old, married, lives with his wife and one cat in the countryside and has one son living abroad.

As Franz used ICT in business life, he has a certain ICT affinity and uses a tablet PC and a Smartphone.

He uses Skype and is in contact with his small family and his many friends.

Concerning his state of health, he is still fit and doesn't need any medication.

##### Hildegard

Hildegard is an 85 years old widow, she lives alone in a house in the city, has 2 kids and 5 grand childs and no pets.

She has no high-tech affinity, she just uses her landline phone. There is personal contact with her large family, her friends are passing away one after another.

Several times a day she needs her drugs.

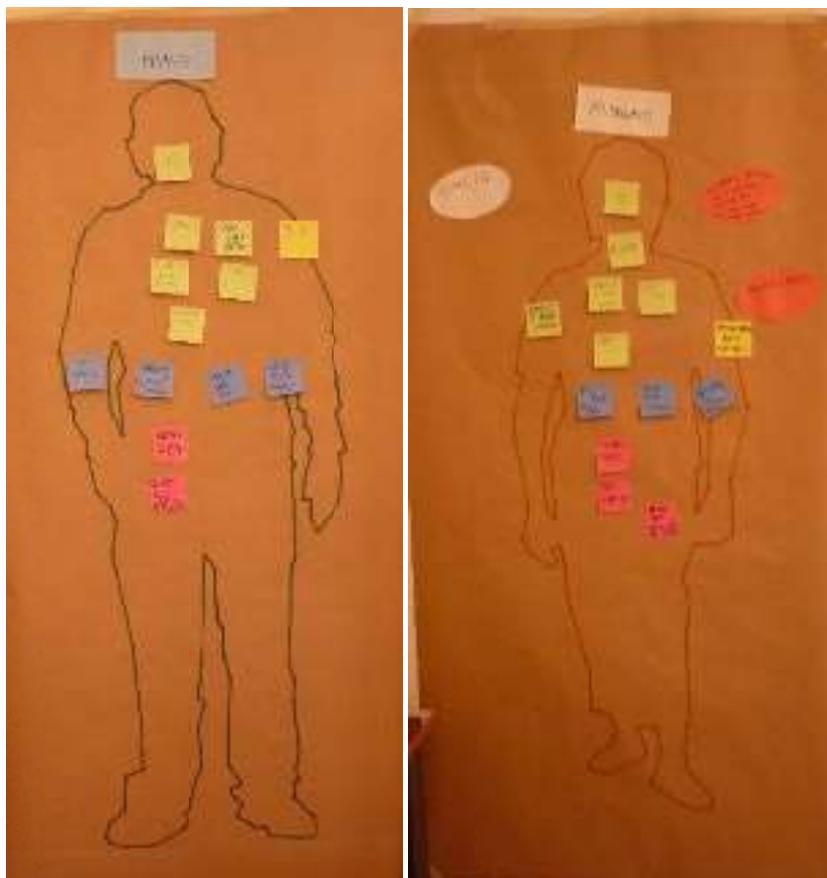


Figure 4: Assumption Personas Elderly 70+: Franz and Hildegard

#### 4.2.3.2 TARGET GROUP – CAREGIVER

##### **Juan**

Juan is a 30 years old single with 1 kid, he lives in a flat in the city. He is the grandson of Hildegard.

As a very high-tech type he is also well connected.

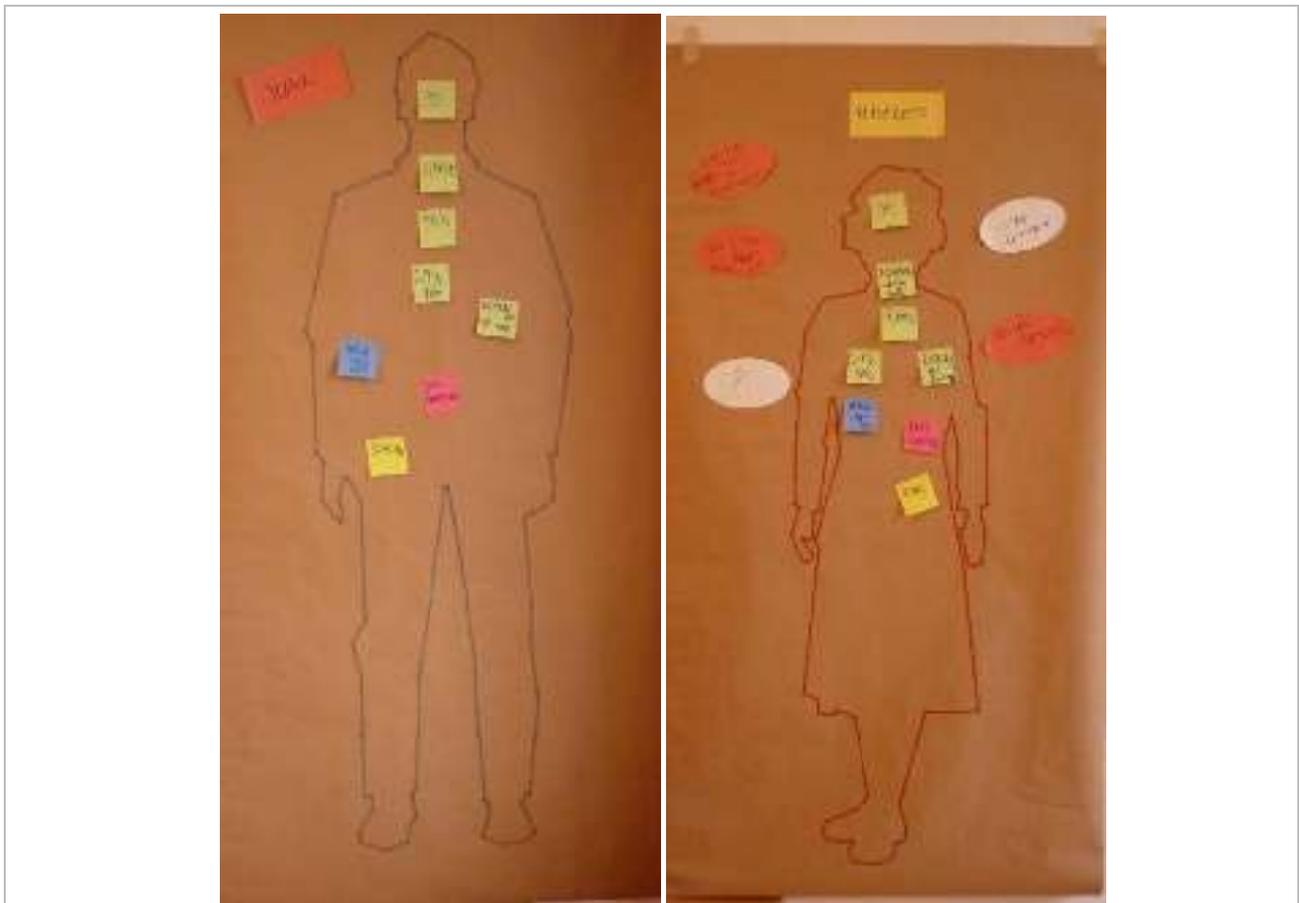
Juan is smoking.

##### **Elisabeth**

Elisabeth is a 50 year's old married woman who lives with her husband and her two kids in a house in the city. She is the daughter in law of Franz.

Elisabeth is a high-tech type and is well connected.

She has problems with her eyes.



**Figure 5: Assumption Personas Caregiver: Juan and Elisabeth**

Assumption Personas served as a fundamental basis for further discussions during the first consortiums-meeting in June.



**Figure 6: Discussion on possible options of the project**

### 4.3 Questionnaire

The method Questionnaires was executed on the occasion of the summer-event of 50plus and other associations in Großgmain near Salzburg on the 17<sup>th</sup> of June, 2013. The creation of the questionnaire was done by NDU in cooperation with 50plus, who distributed the questionnaire during the summer-event.

#### 4.3.1 Questionnaire - Participants/Demographic Data

134 participants from Austria, 96 females and 38 males, answered the questionnaire. The majority of the participants belonged to the target-group elderly as mainly elderly, already retired persons had been invited to this summer-event.

#### 4.3.2 Questionnaire - Procedure

When arriving at the summer-event, the guests were asked to participate in the research study for RelaxedCare and received a questionnaire. The short and simple questionnaire could be answered immediately at the information stand of 50plus in only a couple of minutes. The participants who filled in the questionnaire took automatically part in a tombola which offered them the chance to win some nice prizes.



Figure 7: Participants filling in the questionnaire

### 4.3.3 Questionnaire - Results

The three questions the participants had to answer showed the following results:

#### Question 1: What do you enjoy the most?

In general, most of the participants answered broadly similar, only a few persons replied in a different way. There was an evidence of two favourite activities, namely travelling and hiking, which were chosen by 16 out of 134 people. The other hobbies or leisure activities are divided into reading, working in the garden, driving by train or activities with the family especially with grandchildren. In conclusion it is clearly indicated that the majority enjoy outdoor activities.

#### Question 2: What is your favourite object?

Two main directions can be verified concerning this question, the kitchen, which was chosen by 16% of the participants, and the garden, which was chosen by 15% of the participants. Further answers ranged from flowers, beds and couches to books.

#### Question 3: Where do you prefer to linger at home?

Only 41 % of the participants prefer the garden, including also balcony, terrace or sun places on the balcony. 28 % of the persons state that the living room is the preferred place to stay at home. About 16% prefer to be in the kitchen, other favourite places at home are mentioned just once, such as the beer-cellar or the sewing machine.

## 4.4 Show and Tell

The Show and Tell method was executed on the occasion of the summer-event of 50plus and other associations in Großgmain near Salzburg on the 17<sup>th</sup> of June, 2013, by NDU.

### 4.4.1 Show and Tell - Participants/Demographic Data

All in all 7 persons from Austria took part in this research method, 5 female and 2 male. The majority aged 70+, 1 female and 1 male aged 60+, and one female participant was 30+ years old.

### 4.4.2 Show and Tell - Procedure

The interviewer asked persons who were guests at the summer-event to present things they carried with them in their bags. Volunteers were indicated to present only those things they liked to show.

Each single piece was put on a table, described upon a sticky note and afterwards test persons explained background reasons and stories.

As this research method was held during a summer-event, the atmosphere was extremely relaxed, the setting comfortable and people in a good mood. When being interrogated, people were always in company, which fostered other people of the respective group to present the content of their bag as well.

### 4.4.3 Show and Tell - Results

The following pictures show the outcome of the Show and Tell method with seven participants.



Figure 8: Test Person 1, female, left; Test Person 2, male, right



Figure 9: Test Person 3, female, left; Test Person 4, female, right



**Figure 10: Test Person 5, female, left; Test Person 6, female, right**



**Figure 11: Test Person 7, male**

Each and every test person carried a wallet which is indicated to be a „must“ when leaving home. Handkerchiefs, keys and mobile phones were each frequently mentioned. In three of four cases, the keys were attached on a key ring together with the car key. In one case the test person carried one key only, this one again belonged to a key ring.

Glasses including their respective case were taken along by three probands. Two probands carried a pen and a note pad for taking notes with them and as well sweeties and a cosmetic bag were presented twice.

There were single countings for a deodorant, a comb, a patch, a spot pen and a mirror, all of these items could present the content of a cosmetic bag as well. Furthermore driving license, talisman, scarf and a shopping bag were mentioned once.

The following table presents an overview of the detailed results.

Table 4: Listing of objects test persons carried in their bags

Object	Counts	Comments
Wallet	7	
Handkerchiefs	4	
(Car)Keys	4	Once with a special pendant which tells a personal story and evokes specific connotation
Mobile Phone	4	One person doesn't present her mobile phone but tells the interviewer to have one with her
Glasses	3	
Pen	2	For inspiring thoughts and for memorizing
Note pad	2	
Sweeties	2	
Cosmetics and drugs in a cosmetic bag	2	
Deodorant	1	
Comb	1	
Patches	1	
Spot Pen	1	
Photo Camera	1	
Mirror	1	
Driving License	1	
Talisman	1	
Scarf	1	
Shopping bag	1	

Although mentioned only once, there has to be accentuated an important detail which was remarkable when talking about the talisman with a proband. Interviewers noticed a special emotional bond between the relevant test person and the talisman which initially was a present from the test person's aunt in former days. The test person in her now 70ies has been carrying along this present since she was a teenager and still never leaves home without it.

Another personal story was told by the test person who carried a specific key pendant attached to his car key. The picture on the pendant shows a specific train from his hometown and as he often went by train in former days, certain occurrences arouse in his mind when he is looking at it.



**Figure 12: Talisman and Key pendant**

## 4.5 Focus group discussion

Three focus group discussions have been executed. The first one was conducted by 50plus GmbH on the 11<sup>th</sup> of July, 2013 from 14.00 - 15.30 (1.5 hours) in the 50plus Centre in Salzburg (AT). The other two focus groups took place on the 18<sup>th</sup> of July, 2013 from 09.45 - 11.15 (1.5 hours) in Lucerne (CH) and were executed by Soutank AG with support of the Swiss Red Cross (Lucerne).

Altogether 10 elderlies and 11 caregivers were interviewed. The average age of the elderlies participating in the sessions was 77 years, the average age of the interviewed caregivers was 66 years. The average age of caregivers does not include three participants from Switzerland because of the lack of available data concerning age.

Due to the fact that during the summer period no participants for the focus group discussions with the elderlies could be recruited in Austria only the discussion with caregivers took place.

### 4.5.1 Focus group discussion - Participants/Demographic Data

Participant	Age	Gender	Family Status	Occupation	Care of	Care Situation	Country
A-C-1	61	female	married	retired	Mother	Mother lives a few miles away, contact only via telephone possible. Mother refuses any help.	AT
A-C-2	72	female	married	retired	Husband	Husband suffering from Parkinson's disease, lives in the same household. Has fallen during a routine examination at the hospital, there he stays currently after a short coma period, output unclear	AT
A-C-3	62	female	married	retired	Mother	Took care of her mother	AT

<b>A-C-4</b>	62	female	divorced	retired	Mother	Took care of her mother for several years	AT
<b>A-C-5</b>	67	female	divorced	Part time job	Mother	Took care of her mother for several years	AT
<b>A-C-6</b>	75	male	married	retired	Wife	Takes care of wife suffering from Parkinson´s disease. Fell down the stairs in spring, since then (after long time in hospital) 24hours care at home.	AT
<b>A-C-7</b>	67	female	divorced	retired	Mother	Took care of her mother and her mother in law	AT
<b>A-C-8</b>	63	female	married	retired	Mother	Took care of her mother	AT
<b>CH-C-1</b>		male	-	-	Neighbour	-	CH
<b>CH-C-2</b>		female	-	-	Partner	-	CH
<b>CH-C-3</b>		female	-	-	Departed mother	-	CH

Table 6: Demographic Data of Focus Group 3/Elderly from Switzerland

<u>Participant</u>	<u>Age</u>	<u>Gender</u>	<u>Health Problems</u>	<u>Care Situation</u>	<u>Country</u>
<b>CH-E-1</b>	76	female	-	Lives on her own in an apartment for elderly with emergency function	CH
<b>CH-E-2</b>	62	male	Had two acute emergencies, now health situation is stable	Lives with his wife	CH
<b>CH-E-3</b>	80	female	-	Lives on her own in her own apartment in a 7-flat building	CH
<b>CH-E-4</b>	85	female	-	Lives on her own	CH
<b>CH-E-5</b>	83	male	-	Lives 8 months per year with daughter in house and 4 months per year on his own in an apartment in CH	CH
<b>CH-E-6</b>	77	female	Was four months in hospital, now back home, lives without everyday help	Lives on her own in her own apartment in a 7-flat building, once a week a caregiver from Visiting Service Central Switzerland (“Besuchsdienst Innerschweiz“) visits	CH
<b>CH-E-7</b>	65	female	Had apoplectic stroke, now partly disabled, uses walking frame	Lives on her own in an apartment, has household help	CH
<b>CH-E-8</b>	67	male	Cancer of throat, tracheotomy, now electronic speech aid	Lives with life partner	CH
<b>CH-E-9</b>	93	female	Debility of sight (makula), light striation	Lives on her own in a house, daily care from family	CH
<b>CH-E-10</b>	77	female	-	Lives on her own in her own apartment in a 6-flat building	CH

### 4.5.2 Focus group discussion - Procedure

The goal of the focus group discussion was to provide more insight regarding the following design-related inquiries:

- Find out what is not desirable about the current state
- Find out needs and desires about care situations
- Uncover the underlying emotions of participants
- Understanding constructs and mental models of group members
- Understanding interaction and communication with family members and friends
- Understanding care and health situations

Therefore each focus group had the task to discuss questions concerning the following realms (for detailed questions see chapter 3.4.1):

**Issue 1:** Communication in general

**Issue 2:** Communication of health problems

**Issue 3:** Past and present experiences during care

**Issue 4:** Ideas and wishes, how care could be improved

Due to certain circumstances (time, high number of participants, age) unfortunately the focus groups didn't answer all questions entirely.



**Figure 13: Focus group discussion: Caregiver, Austria**



**Figure 14: Focus group discussion: Caregiver, Switzerland**



**Figure 15: Focus group discussion: Elderly, Switzerland**

### 4.5.3 Focus group discussion - Results

The results of the focus group discussion of the group of the caregiver show a combination of the results from Switzerland and Austria except for explicit indications. The results of the group of the elderly refer to the focus group discussion in Switzerland. To capture the overall theme a visual overview based on the results of all focus group discussions of both user groups has been created in form of a mind map. Some resulting major issues shall be described in the following.

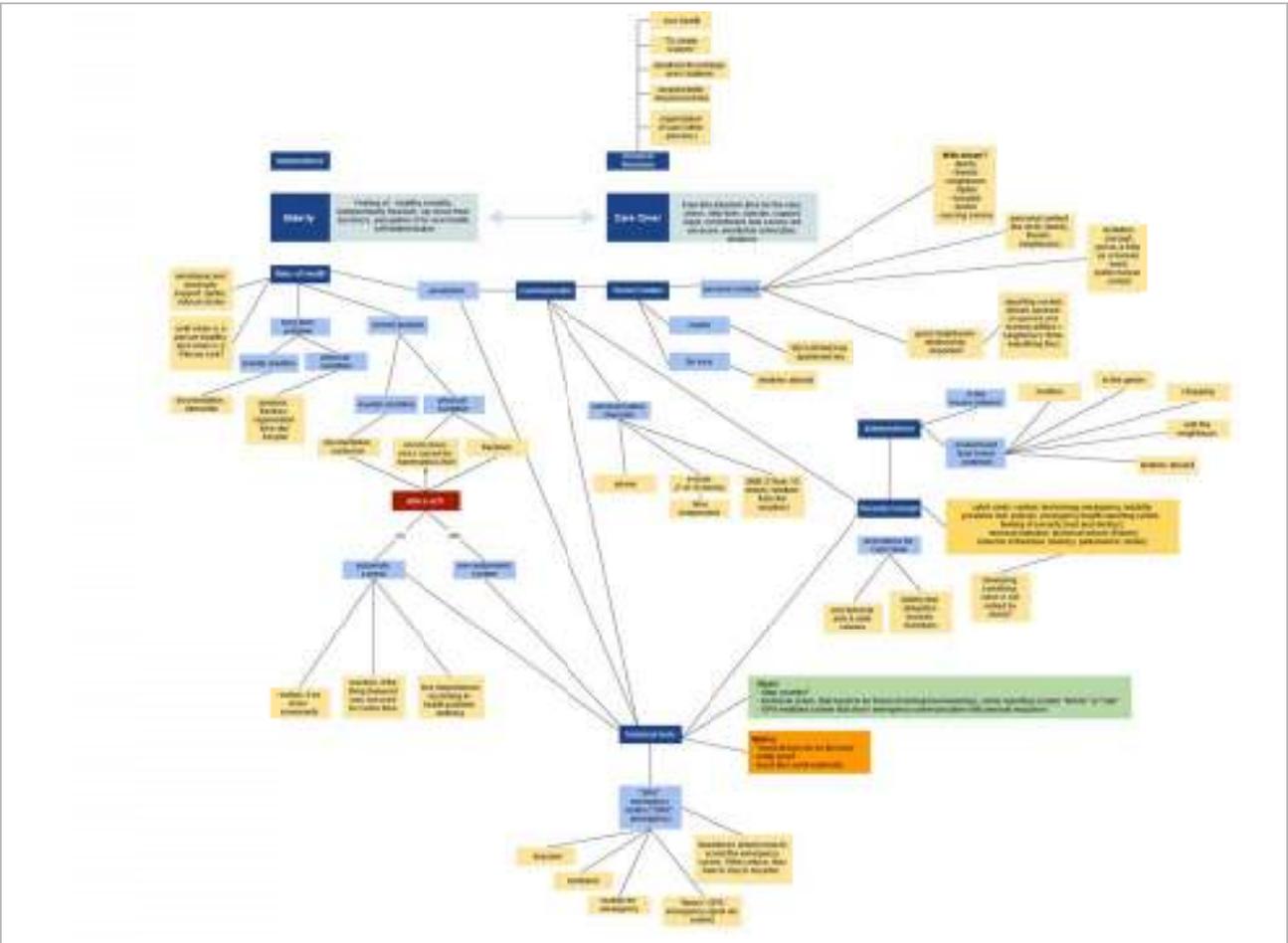


Figure 16: Focus group discussion: Mind map of Findings

#### 4.5.3.1 Results Communication channels

The following sub-chapter presents summaries of the focus group discussions for the group of the elderly and the group of the caregiver.

##### ELDERLY

In addition to personal contact (face to face) with family, friends, neighbours, Spitex and nursing service, which occupy the major part of their communication, the landline phone is the most common way for communicating. Receiving visits is very important for all elderly test persons. 7 out of 10 elderly actively write e-mails to friends and family members, the time independence doing so is greatly appreciated. Elderly do not want to disturb their relatives in everyday life. SMS functions are rather used from family members to inform the elderly, for example, that they arrived well on vacation. However, 3 of 10 elderly use actively SMS.

In case of health problems the elderly, who are fit enough, go to the doctor by themselves. However, they normally inform their family and friends about the appointment. Elderly participants in the focus group described three cases, in which it was not possible to inform other people about their state of health. Due to an apoplectic stroke and fainting based on haemoptysis, they weren't capable of acting and explaining anyone their bad health condition. The individuals were found at home one respectively three days after having had this incident. This is a very important point that should be considered.

## CAREGIVER

Similar to elderly, face to face is the most common type of communication in Switzerland. Apart from that, caregiver communicate mostly by phone or mobile-phone in case of emergencies or when questioning the current state of health. Caregiver get a feeling of security if they know everything is ok. The focus group didn't talk about written communication (as e-mail or SMS).

All participants commented, that they want to be informed about health problems immediately, for which they prefer the use of the landline phone or mobile phone.

An interviewee explained that she had asked her life partner to move to her house to be able to take care of him day and night.

In Austria all participants reported the phone as a main option of communication, unless they live in the same household with the elderly.

One caregiver would find a video with the equivalent system a good solution, if the elderly would participate. The elderly, however, are often against new technologies or fail to recognize the implications of their situation (underestimate the severity of the situation, overestimate their ability to act).

One participant remarked that her mother was deaf. The following solution was found: Caregiver typed text into the mobile phone, mother first read and then called back for confirmation by voice. Written communication (e-mail) or via Skype is no option for the test persons.

In case of small health problems participants in Austria can cope with the problem e.g. with the medicine chest. Otherwise, they would call the ambulance. Most stated that an incident goes hand in hand with a shock situation, the first one has a paralyzing effect. Later the caregiver knows the signs already and can react faster, e.g. the way and the speed a person talks can indicate a stroke. The elderly themselves do not notice those things.

Often the elderly do not want that their disease is made public. Also, accidents or other diseases are handled secretive; it is a sign of weakness (especially for men). Some do not recognize that their condition is getting weak.

In Austria networking is most important: Phone calls with relatives, neighbours, nursery etc.

One caregiver mentioned the runaway of her mother, she suffered from dementia. It was a stressful situation and friends recommended a chip implant with GPS radiolocation as already practiced in the United States. To take care 100% is not possible for the relatives. Some share the care with siblings, others get 2-3 times per week up to 24 hours help of professionals. The elderly do not call if something happens. The mobile phone does not help in case of an emergency, the elderly cannot call, if something happens. For caregiver it is important to be reassured (via a signal) that everything is fine, especially when they are not at home. Humaneness is important.

#### 4.5.3.2 Results Social Contact (and Care)

The following sub-chapter presents summaries of the focus group discussions for the group of the elderly and the group of the caregiver.

##### ELDERLY

The social contact is divided into two areas:

1. Contact with people in the area (e.g. neighbours)
2. Contact with people from a distance (e.g. children abroad)

This shows different types of contact needed and with this the selection of caregivers, which are involved in the care situation.

Personal contact must be emphasized again. All participants talked about the importance of a good neighbourhood relationship in old age. They feel more secure thereby. In one case a participant was saved twice by alerting the police through the vigilance of neighbours. The caregiver of another participant, who accompanied the elderly to the focus group discussion, told that the neighbours pay attention to whether the blinds are operated in the morning and in the evening. If this is not done, they contact the daughter by phone.

Most participants, who live independently, are visited currently from family, friends and care services. The frequency depends on the state of health.

Participants, who do not have many social contacts in their environment, receive visits from nursing services or home help. One person has passed his apartment key to the Securitas, who save him in emergencies.

##### CAREGIVER

In Austria participants take care of family members/friends rotationally with siblings, 24 hours care and home nurse. Also the neighbourhood is an issue. This is more about security than control for caregiver, control and observation they say is not possible. In all cases humaneness is the most important part for the caregiver.

Long-term care:

In Switzerland two interviewees care for their relatives by their own, day and night (high care intensity). That's why one person meant they live together. Spitex helps with the housework (one of the interviewed) and the doctor or specialist for medical questions. Another interviewee doesn't share the apartment with the assisted person, so she has to move between the two apartments. Their life has changed a lot since caring for another person. They have less time for themselves. They need a lot of time for caring (cooking, shopping, entertainment).

Selective care:

In Switzerland the third interviewee takes care for a neighbour just from time to time (by appointment) together with other neighbours. He doesn't care day and night. He reports that they arranged a reporting system using a star at the door. In the morning usually the neighbour he cares of hangs up a star and in the evening, she takes it away. So if no star is hanging during the day, the suspicion raises that something has happened and therefore someone has to go in and look after her.

The focus group didn't answer the question about the learnings and what they would change.

#### 4.5.3.3 Results Distance

The following sub-chapter presents summaries of the focus group discussions for the group of the caregiver.

##### ELDERLY

This issue was not part of the conversation in focus group with elderlies.

##### CAREGIVER

Long-term care:

Two of the interviewed had little distance to the assisted persons. But one of them sometimes takes a time-out (vacation) to recover and get some distance from caring. For all of the interviewed distance is very important.

Selective care:

One interviewee has enough distance as the care situation is shared among several persons.

#### 4.5.3.4 Results Independence

The following sub-chapter presents summaries of the focus group discussions for the group of the elderly.

##### ELDERLY

Older people, who live independently at home, of course also leave their homes for special purposes. This means, that the care situation extends to the house environment (e.g. letter box, garden, shopping, neighbourhood, leisure activities).

The fact that 9 of 10 participants in Switzerland use the "SRK" emergency (bracelet etc.) led to a discussion on this issue. Its functions are not sufficient to cover all needs of the elderly, as it "only" works completely inside their homes. There was a strong interest in GPS-enabled systems with emergency functions and communication ability (keyword: system "Nemo").

An interesting point was the fact, that during the discussion none of the participants argued to feel controlled by the discussed technical devices.

##### CAREGIVER

This issue was not part of the discussion in the focus groups in Austria and Switzerland.

#### 4.5.3.5 Results Security Concept

The following sub-chapter presents summaries of the focus group discussions for the group of the elderly and the group of the caregiver.

##### ELDERLY

In Switzerland the participants deemed technical aids (e.g. "SRK" Emergency) as a preventive measure. They perceive it as a "guardian angel" and feel protected. The nervousness is reduced. Two people admitted that they use technical aids only to reassure their beloved ones. They perceive this as a kind of obligation to their families.

##### CAREGIVER

In Switzerland only if a human instead of a technical system takes the responsibility and the control about care, the interviewees get a secure feeling. They don't trust technical help. If a technical system monitors the health situation of cared people, they want to be assured that a human takes the final responsibility. It would be a release if they shared the responsibility for care, but only with a human. For interviewees, the care is a duty and causes stress as well. As the interviewees explained, the only relief is sharing responsibility with other people.

#### 4.5.3.6 Results Status of health

The following sub-chapter presents summaries of the focus group discussions for the group of the elderly and the group of the caregiver.

##### ELDERLY

The status of health of older people can be divided into different categories:

Category	Health status	Mental aspect	Physical aspect
1	Prevention of a problem		
2	Longer-lasting problem	Mental state (disorientation, Alzheimer, dementia)	Physical state (paralysis, fractures, regeneration)
3	Acute problem/emergency	Mental state (disorientation, confusion)	Physical state (fractures, fainting due to hemorrhage)

For the development of a technical system, categories 2 and 3 have a special importance. If a person is capable of acting, a non-automated system would be sufficient. If not, only an automated system of assistance is conceivable. For example the system has to react if there is no movement of the assisted person. Another possibility is if a person does not utilize a predefined object in a defined time period.

Depending on category, different requirements result for a support within the care situation and possible assistance systems.

##### CAREGIVER

In Switzerland the intensity of care differs according to the state of health of the assisted person. It is important to look after one's own health (physically and mentally). The interviewees explained, the whole caring situation shouldn't make them sick (distance). Often, the assisted person doesn't want to accept help (self-determination).

In Austria all participants do not prefer to handle health problems, but they have to deal with it. They wish time for themselves to recover from the caring task and get help from professionals. However, this is difficult to reconcile with the elderly, if they do not want to be helped or not realize that their health condition is not good. Friendship and family are important to get support.

#### 4.5.3.7 Results Technical Device

The following sub-chapter presents summaries of the focus group discussions for the group of the elderly.

##### ELDERLY

As 9 of 10 participants in Switzerland use different items of the "SRK" emergency system this was heavily discussed, e.g. the different types and how it can be used: Bracelet, necklace, emergency phone and "Nemo".

The participants are satisfied with the „SRK-Notruf“. Nevertheless, the conversation pointed out that the functions are not sufficient. The external use of the system outside home is a very important factor (e.g. laundry, in nature). Furthermore interviewees mentioned the need of some kind of automated system which can save elderly if they are no longer able to react or communicate (e.g. apoplectic stroke, fainting due to haemorrhage). In addition, the system must be waterproof, because many accidents occur in showers.

Two people told, that they had the possibility to leave the hospital only under the condition to assign to the „SRK“ Emergency service.

##### CAREGIVER

This issue was not part of the conversation in focus groups with caregiver.

## 4.7 Cultural Probes

In Switzerland the cultural probes method took place from 11.07.2013 to 05.09.2013. 10 participants (5 elderly, 5 caregivers) participated in this method. In Austria 9 caregiver participated in the cultural probes in the period from 08.07.2013 to 25.07.2013.

All in all 5 elderly and 14 caregivers participated in the cultural probes study. The average age of elderly taking part in the cultural probes was 72 years, the average age of interviewed caregivers was 66 years.

### 4.7.1 Cultural Probes - Participants/Demographic Data

Due to the fact that during the summer period no elderly participants for the cultural probes study could be recruited, in Austria only caregivers participated in the survey.

In Switzerland, due to the same fact, there lacked the possibility to recruit exclusively family members, friends or neighbours. For that reason four professional caregivers of the relief service of the Swiss Red Cross (Lucerne) were requested to participate in the study. One participant was a relative.

Table 8: Cultural Probes Participants/Elderly

Participants	Age	Gender	Civil status	Occupation	Country
CH-E-1	76	Female	Married	Retired	CH
CH-E-2	73	Female	Married	Retired	CH
CH-E-3	73	Female	Widowed	Retired	CH
CH-E-4	68	Female	Single	Retired	CH
CH-E-5	72	Male	Widowed	Retired	CH

Table 9: Cultural Probes Participants/Caregiver

Participants	Age	Gender	Civil status	Occupation	Country
CH-C-1	60	Female	Married	Employed	CH
CH-C-2	68	Female	Divorced	Retired	CH
CH-C-3	38	Female	Married	Employed	CH
CH-C-4	59	Female	Divorced	Employed	CH
CH-C-5	49	Female	Divorced	Employed	CH
A-C-1	70	Female	Divorced	Retired	AT
A-C-2	67	Female	Single	Employed	AT
A-C-3	64	Male	Married	Retired	AT
A-C-4	84	Female	Married	Retired	AT
A-C-5	72	Female	Married	Retired	AT
A-C-6	67	Female	Married	Retired	AT
A-C-7	77	Female	Married	Retired	AT
A-C-8	75	Female	Married	Retired	AT
A-C-9	73	Female	Married	Retired	AT

### 4.7.2 Cultural Probes - Procedure

Each participant received a diary in form of a composed booklet, together with either a disposable camera or a memory card for the use of a digital camera. The content of the diaries was divided into pre-defined themes (daily routine, habits, favourite place, favourite item, disliked item, talisman). The probands were instructed by project partners 50plus and Soul to take defined theme related pictures and edit their diaries during one week in an individual manner, following the required items described in the booklet. The diaries were elaborated by NDU. The probes package is included in the appendix of this document.

After one week 50plus in Austria and Soul in Switzerland recollected the completed booklets and developed the pictures made during the days of the study by participants.



Figure 17: Cultural Probes Package - Cover

### 4.7.3 Cultural Probes – Results

The entire data material which had been collected in the cultural probes diaries was sorted and clustered into the following aspects: activities of daily living (including routine activities, leisure time activities, work and organisational behaviour. The results refer to a combination of the groups of the caregiver from Switzerland and Austria and the group of elderly from Switzerland.

#### 4.7.3.1 Results activities and issues of daily living

ELDERLY

### Routine Activities

The most common routine activities are eating (30 %), doing the household (20 %) and sleeping (12 %).

### Leisure time activities

During their leisure time the interviewees are mainly engaged in watching TV (23 %), working with the PC (22 %) or going on an excursion (19 %).

### Work and organisational activities

Work and organisational activities are not an issue for all participants. Just one elderly still was occupied with a lot of professional work. Other activities which match this category are the preparation of journeys or excursions, the visit of authorities or other administrative tasks.

### Social Integration

Visits from family members or visiting family members themselves present the most important kind of direct communication (67 %), also telephone calls to family members are reported frequently (9 %). Visiting friends and neighbours or receiving visits from these persons goes head to head with telephone calls.

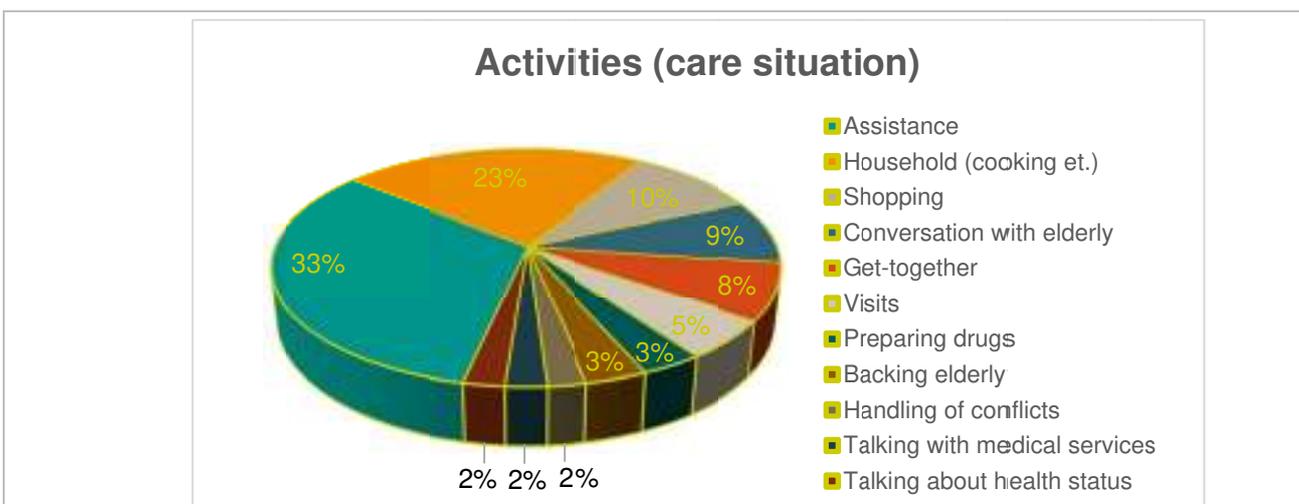
### Health

Sports activities (e.g. Qi Gong, swimming) are integrated by the major part of the elderly test persons in their daily life (51 %). Prevention (37 %) is an issue for them, while medical care (12 %) represents a minor factor.

## CAREGIVER

### Activities related to care situations

The top 3 activities related to the care of older people consist of the assistance in various situations (33%), support in the household (23%) and do the shopping (10%).



**Figure 18: Activities of caregivers related to care situations**  
(N: 14 interviewees, 100% = 92 mentions)

### Routine activities

The top 3 routine activities of caregivers are consuming comestible goods (31%), doing their household (16%) and cooking (13%).

### **Free time**

Caregivers spend 24% of their leisure time on mobility, watching TV (20%), going on an excursion (19%), relaxation (13%) and reading books or newspapers (12%).

### **Work and organisational activities**

Main themes in this category are professional activities (38%), administrative issues (28%) and organisational issues related to the own family (21%).

### **Social Integration**

The interviewed caregivers are socially integrated by a colourful mix of different types of communication. Visits from family members (35%) and from friends (26%) are the most important ways in respect of social integration. Phone calls to friends (12%) and talking with family members (11%) play an important part as well.

### **Health**

In the health area sports and fitness (83%) are clearly in the foreground. In addition to medical care (13%), the factor stress was mentioned by 4 % of the interviewees.

## **4.7.3.2 Results Living environment**

- **Living at home**

### **ELDERLY**

In the following the floor plans of the homes of the elderly test persons are illustrated exemplarily.

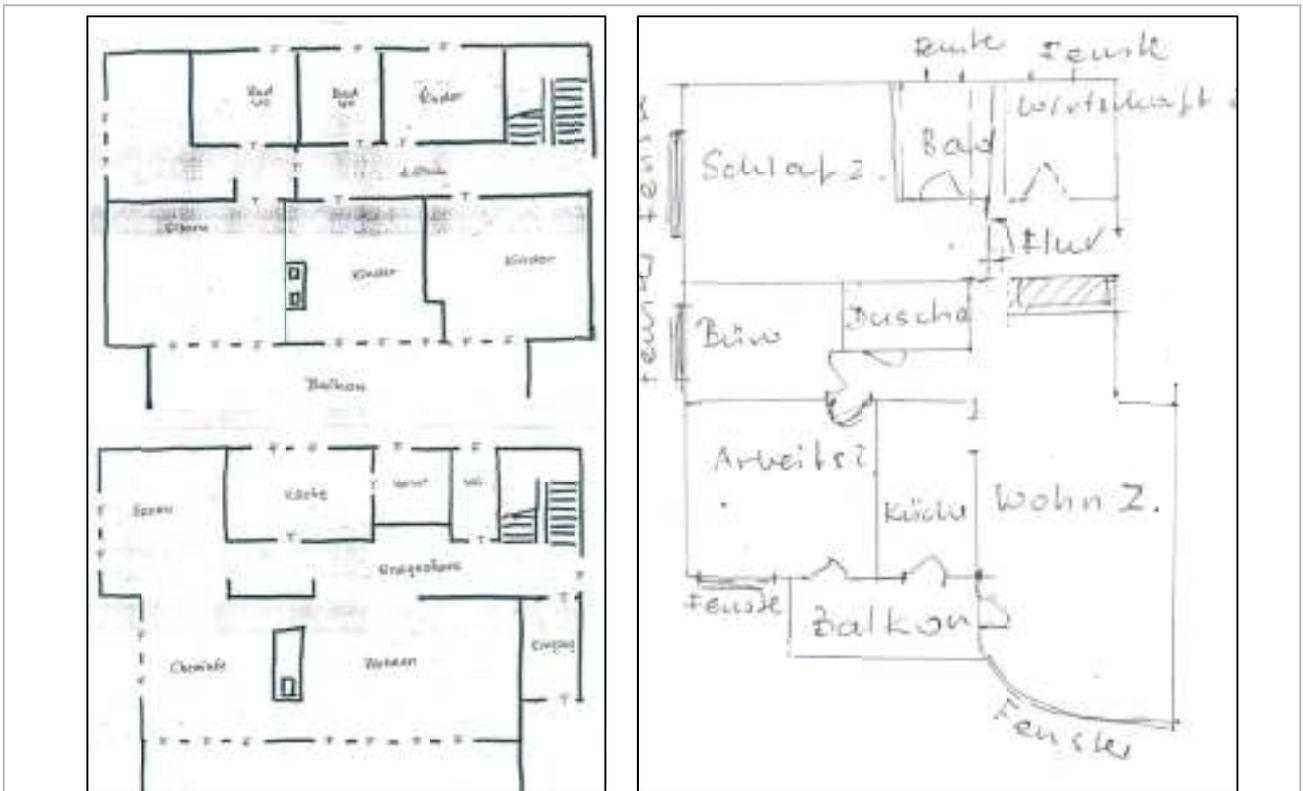


Figure 19: Floor plan 1 and 2 of living situation of elderly test persons



Figure 20: Floor plan 3 and 4 of living situation of elderly test persons

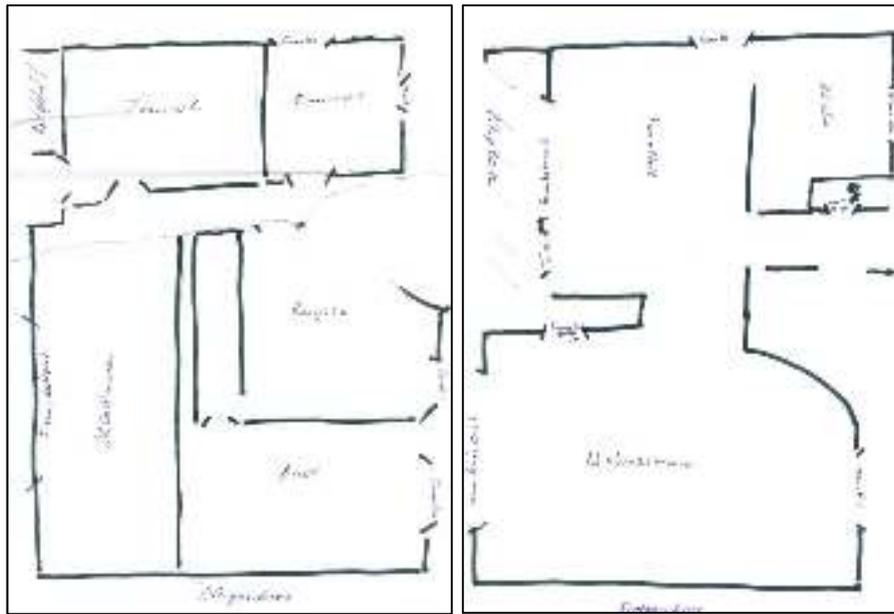


Figure 21: Floor plan 5 of living situation of elderly test persons

CAREGIVER

The following results refer exclusively to participants from Switzerland.

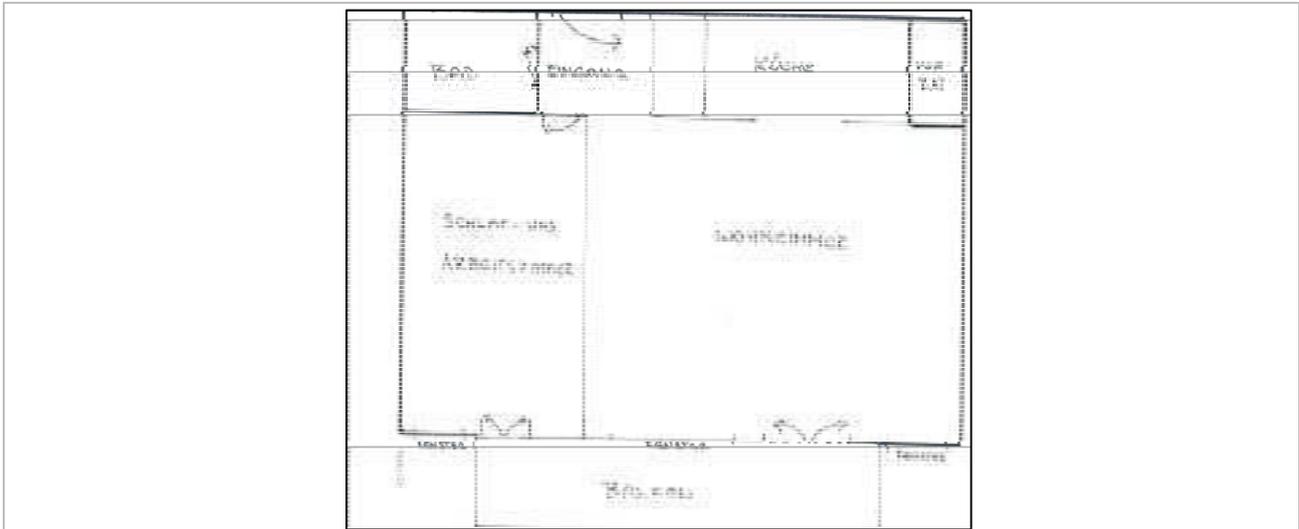


Figure 22: Floor plan 1 of living situation of caregiver



Figure 23: Floor plan 2 of living situation of caregiver

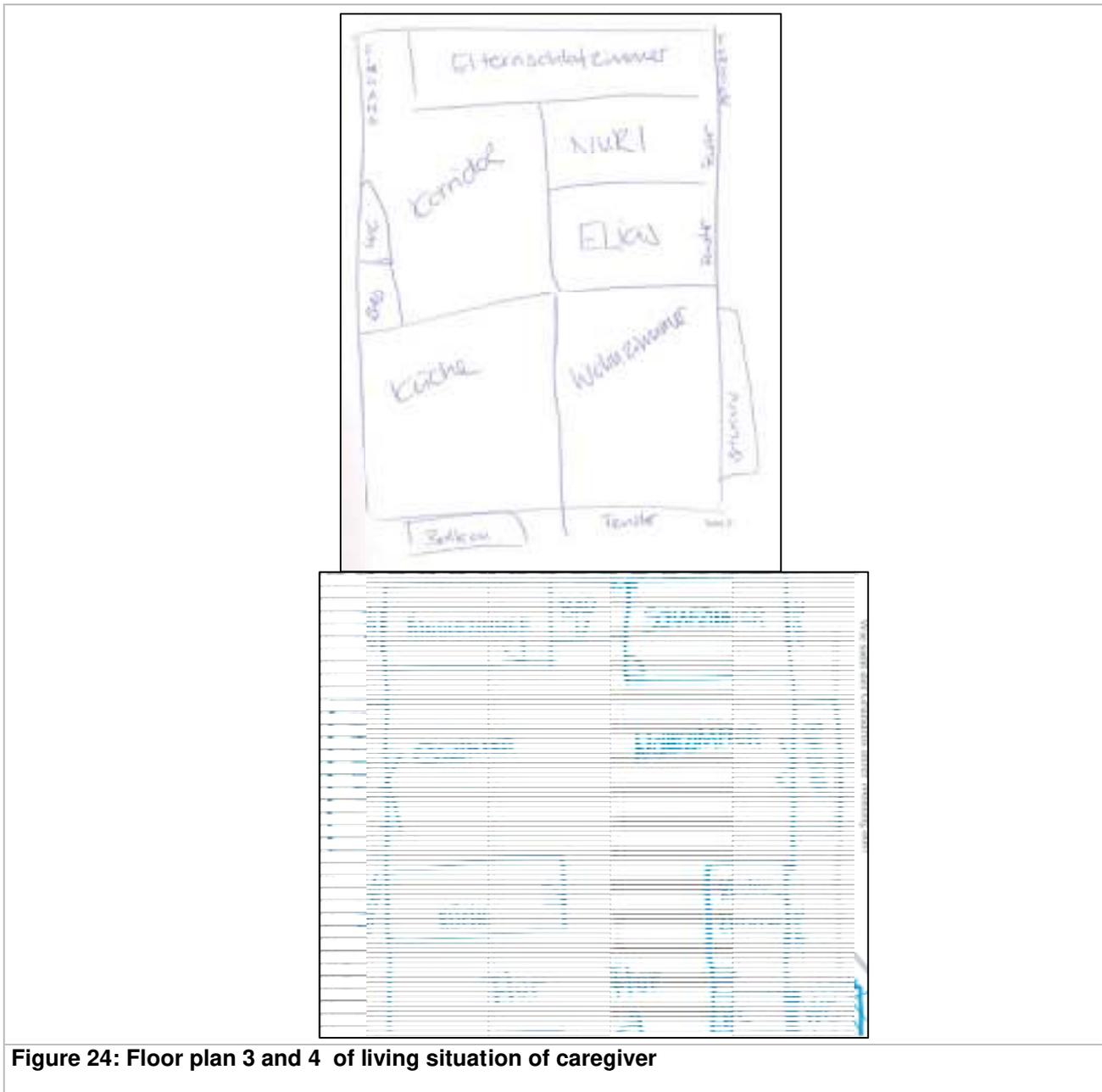


Figure 24: Floor plan 3 and 4 of living situation of caregiver

- Favourite place

ELDERLY

The top 3 of favourite places are the living room (34 %), the home office/office (22 %) and the garden (22 %). Multiple responses per participant (N: 5) were allowed.

Table 10: Favourite place of elderly test persons

Place	Frequency	Reason and Usage
Living room	3/5	Enjoy the peace and quietness to read a book (1/5), to relax (1/5)

Garden	2/5	Enjoy the peace and quietness to read a book (1/5), enjoy the view of nature (1/5)
Home office/ office	2/5	Most of the time in home office, feels good while doing personal stuff, make phone calls, listening to the radio, relaxing etc. (1/5)
Chair (garden/terrace)	1/5	Quietness to read a book, to meditate, to look into the green, to talk with friends, listening to birds and watch clouds (1/5).
Balcony	1/5	-

## CAREGIVER

The most favourite places stated by the caregivers are the living room (47 %) and the garden (35 %). Multiple responses per participant (N: 14) were allowed.

Table 11: Favourite place of caregiver

Place	Frequency	Reason and Usage
Living room	9/14	Favourite place in winter and summer (1/14), is like a „kingdom“, usually it’s a feeling like being on holidays because of beautiful views on the lake, marina and mountains (1/5), much peace and light to read, meditate, watching TV, cats and the cat tree (1/14)
Garden	6/14	If there is good weather (1/14)
Balcony	1/14	Favourite place in summer
Office	1/14	-
Next to stove	1/14	-
None	1/14	Participant does not have a favourite place, the complete flat is comfortable

### 4.7.3.3 Items

- **Items, which are carried along**

These are items, which are taken along when leaving the apartment, flat or house. Those things were packed in the handbag or bag, before the test persons left home during the documentation period.

## ELDERLY

The top 3 of the items, which were mostly taken with are mobile phone, wallet and key/bunch of keys respectively shopping bag. There was a wide range of other objects specified, each named but once or twice by participants, which are completely listed in the table below.

Table 12: Items carried along by elderlies when leaving home

Place	Frequency	Reason and Usage
Mobile phone	5/5	Connection (1/5), number of taxi service („Tixi“) (1/5), call to automobile roadway repair service (1/5), contacts (1/5), emergency (1/5)

Wallet	4/5	Shopping (1/5)
Key, bunch of keys	3/5	Latchkey (2/5), car key (2/5), key to another apartment for feeding the cats
Shopping bag	3/5	Shopping (1/5)
Pen	2/5	On the go (1/5)
Note pad	2/5	Aid to memory (1/5)
Umbrella	2/5	In bad weather conditions (1/5)
Handkerchiefs	2/5	On the go, as necessary (2/5)
Lipstick	2/5	On the go, as necessary (1/5)
Sun glasses	2/5	Nordic walking (1/5), for excursions in the village (1/5)
Handbag	2/5	Dinner (1/5), if driving by car (1/5)
Address book	1/5	Addresses, contacts (1/5)
Calendar	1/5	Appointments (1/5)
Sweets	1/5	If driving by car (1/5)
Identify card	1/5	Identification (1/5)
Shopping list	1/5	Shopping (1/5)
Diving licence	1/5	If driving by car (1/5)
Camera	1/5	To take pictures on a hike (1/5)
Garage opener	1/5	To open the garage (1/5)
Beauty bag	1/5	-
Credit card	1/5	Shopping (1/5)
Cold box	1/5	For food (1/5)
Emergency kit	1/5	On the go, as necessary (1/5)
Sun protection	1/5	Hiking (1/5)
Documents	1/5	Telephone provider Sunrise (1/5)
Swimming utensil	1/5	Swimming in lake (1/5)
Case	1/5	Stoma pouch replacement in emergency (1/5)



**Figure 25: Example of the content of an elderly test persons bag**

### CAREGIVER

The results of the caregivers bear a resemblance to those of the elderly. Mobile phone, wallet and key/bunch of keys are mostly taken along by the test persons. There was a wide range of other objects specified, each named but once or twice by participants, which are completely listed in the table below.

Table 13: Items carried along by caregiver when leaving home

Place	Frequency	Reason and Usage
House key, key, bunch of keys	12/14	Car key (2/14), latchkey (2/14), latchkey of apartment of elderly (1/14), key for school (1/14)
Wallet, purse	11/14	Shopping (3/14), without money you can't buy anything (1/14)
Mobile phone	9/14	Availability (2/14), emergency (1/14), information for relatives (1/14)
Sun glasses	8/14	Against solar irradiation (1/14)
Bag	5/14	-
Pencil	4/14	-
Shopping list	4/14	-
Food	3/14	Water bottle (2/14), refreshment in the night (1/14), fresh berry and salad for patient (1/14), smoothie (1/14), coke zero (1/14), bag of vegetables (1/14), almonds/pineapple-pieces/mango pieces (1/14), bottle for feeding a baby (1/14), bio vegetable for patient (1/14), home-made food (1/14), apple (1/14)
Lighter	3/14	-
Flower	2/14	To delight patient (1/14), gift for brothers' birthday (1/14)
Writing utensils	2/14	To notice important things (1/14)
Sudoku	2/14	Before sleeping (1/14), to exercise memory (1/14)

Handkerchiefs	2/14	For nose and hands (1/14)
Note pad	2/14	Memory support (1/14)
Medicine	2/14	-
Candle for cemetery	2/14	-
Car papers and car key	2/14	-
Sweets	2/14	-
Calendar	1/14	appointments
Books	1/14	Books about opera and diverse other books for patient
Terry towel	1/14	As rest for sleeping (participant sleeps in apartment of patient (night work))
Gift coupon	1/14	Birthday of brother
Hand lotion	1/14	Stand by time in traffic
Slippers	1/14	Care assistance for patient
Coat	1/14	If it is cold in the night (night work)
Catalogue	1/14	Ordering a trampoline
Chewing gum	1/14	Flavour of „Orbit“
Reading glasses	1/14	Reading (far-sightedness)
Lipstick	1/14	Value of your look
Books	1/14	Reading material for patient
Nightwear	1/14	Night work
Neck pillow	1/14	For night work/patient (patient suffering from Parkinson's' disease)
Emergency kit	1/14	Arnica globuli, plaster, drugs for headache and back pains
Soother	1/14	-
Shoes	1/14	Silent slipper / night work, shoes for gardening
Sun hat	1/14	For children
Toys	1/14	For own children, for children in school (1/14)
Hair brush	1/14	-



Figure 26: Example of the content of a caregivers bag

- Favourite items

ELDERLY

The favourite items the test persons love the most, differ from person to person. Multiple responses per participant (N: 5) were allowed.

Table 14: Favourite things of elderly

Item	Frequency	Reasons/thoughts
Books	1/5	Library of non-fiction books and other good literature for reading
Car	1/5	For mobility, transport, individual travels
keyboard / accordion	1/5	"Making music with both instruments is my favourite pastime. When I sit down and play, I forget all the worries and fears that constantly accompany me with advancing age".
Oil painting	1/5	„Image transports peace and beauty“
Brush / colouring	1/5	Painting room with all colours, brush, material
Porcelain items	1/5	For keeping, as a memory of the mother



**Figure 27: Favourite thing of an elderly: Oil painting**

### CAREGIVER

The own family, the radio and books were mentioned each by two interviewees. Other favourite things differ from person to person. Multiple responses per participant (N: 14) were allowed.

Table 15: Favourite things of caregiver

<u>Item/matter</u>	<u>Fre- quency</u>	<u>Reasons/thoughts</u>
Family	2/14	„My family all the world to me“ (1/14)
Radio	2/14	„I nearly always hear the broadcast transmitter „Musikwelle“. The beautiful inspiring music is broadcasted there and I can sing and dance to it“ (1/14)
Books	2/14	-
Bottle of wine	1/14	„We often enjoy one bottle of wine“
iPad	1/14	„I like to use my iPad so I can see what is going on and dream of the day“
Coffee machine	1/14	-
Laptop	1/14	„I like to use my laptop so I can see what is going on and dream of the day“
Turtles	1/14	„we can offer them a good home“
Couch	1/14	„I use it for watching TV, reading, meditation and relaxing“
TV	1/14	-
Apartment	1/14	„It's important for me to have it nice, well-tended and properly“
PC	1/14	-
Kitchen	1/14	-
Paintings	1/14	-
Pictures from journeys	1/14	-

Special doll collection with traditional costumes	1/14	-
Bike	1/14	-
Mobile home	1/14	-
Secretary	1/14	-
Stove	1/14	-
Special duster from Swiffer	1/14	-
Photo collection	1/14	-
Home Trainer	1/14	-



**Figure 28: Favourite thing of a caregiver: Radio**

• **Disliked Items**

ELDERLY

Objects or things which test persons do not like differ from person to person. (N: 5)

Table 16: Disliked things of elderly

<u>Item/matter</u>	<u>Frequency</u>	<u>Reasons/thoughts</u>
Pack of bills	1/5	Debit the budget
Dust wiper	1/5	Wipe dust (due to health reasons)
Respiratory protective device	1/5	„Because of sleep apnoea and other breathing problems since 2 years I need a respirator for about 6 hours at night and I'm still not accustomed with it. While using it, it impacts my oxygen saturation and during the day it becomes much better. But wearing the mask is disturbing and it partly disturbs my sleep. I am always happy when I can turn it off after 6 hours“
Household	1/5	"I find it hard to occupy myself with the household. I can cook very poorly and I do it reluctantly. To do the daily shopping is an abomination."



**Figure 29: Disliked thing of an elderly: Dust wiper**

### CAREGIVER

In Switzerland there is large agreement among participants about housework. 5 of 5 participants in Switzerland dislike housework. In Austria 3 of 9 participants dislike especially the vacuum cleaner. (N: 14)

Table 17: Disliked things of caregiver

<u>Item/matter</u>	<u>Frequency</u>	<u>Reasons/thoughts</u>
Housework	5/14	Cleaning windows, to do the hovering (it's loud, health reasons) (2/14), ironing (2/14), daily washing up, clearance (1/14)
Vacuum cleaner	3/14	-
Ironer	1/14	-
Duster	1/14	-
Cooking	1/14	-
Lawn mower	1/14	-
Cellar	1/14	-



**Figure 30: Disliked thing of a caregiver: Housework**

- **Talisman**

**ELDERLY**

Talismans differ from person to person. (N: 5)

Table 18: Talisman of elderly

Items/matter	Frequency	Reasons/thoughts
Soft toy	1/5	„Gift from youngest daughter, should protect against accidents“
Buddha	1/5	„Symbol for positive charisma“
Chinese turtle	1/5	„Symbol for persistence“



**Figure 31: Talisman of elderly - examples**

CAREGIVER

Talismans differ from person to person. (N: 14)

Table 19: Talisman of caregiver

Items/matter	Frequency	Reasons/thoughts
Letters of grandchildren	1/14	„I collect the first letters and love letters from my grandchildren“
Angels	1/14	„My angels are inside and outside the home. Every day I meditate with them“
Stone clinger	1/14	„Protection against negative external influences“
Coin of Richness	1/14	„Always in my wallet, got it from a friend. The belief, that you will always have money, corresponds to this coin“
„Madonna“ wooden figure	1/14	-
Picture of husband	1/14	-



Figure 32: Talisman of caregiver - examples

4.7.3.4 Thoughts and feelings

Only one caregiver replied to the requested aspect to note thoughts and feelings referring to care situations. This participant, whose husband was in hospital during the documentation period, noted grief, sorrow, tears of joy, tears of grief and deep thoughts about this painful situation.

## 4.8 Design Workshop

The Design Workshop took place on the 25<sup>th</sup> of July, from 9.00 until 11.30am at the 50+Center in Salzburg and was designed and executed by NDU.

Due to the fact that during the summer period no elderly participants could be recruited only caregivers attended the design workshop.

This method was executed in Austria only.

### 4.8.1 Design Workshop - Participants/Demographic Data

Table 20: Participants Design Workshop

ID	Date of Birth	Gender	Family Status	Occupation
A-C-1	25.06.1941	female	married	retired
A-C-2	03.10.1939	female	married	retired
A-C-3	26.06.1938	male	married	retired
A-C-4	06.06.1943	female	divorced	retired
A-C-5	21.04.1949	female	divorced	retired
A-C-6	02.10.1939	male	married	retired
A-C-7	26.06.1951	female	divorced	retired
A-C-8	11.04.1942	female	divorced	retired
A-C-9	19.09.1942	female		retired

### 4.8.2 Design Workshop - Procedure

The Design Workshop consisted of three sessions addressing:

- Subject – Object Relationship
- Picture-Word Cards/Collage
- Love/Hate Thing

#### Subject – Object Relationship

In the first step the participants were invited to think about objects situated in their own home or personal environment and to brainstorm with reference to the following questions in order to obtain product criteria emerged from individual Subject-Object Relationships.

*Love:* Which criteria do you love about daily objects?

*Tell:* Which objects in your personal environment are precious for you because they tell a story (about you)

*Use:* Which objects in your personal environment do you use in a special manner? Are there any objects you use in a different way as initially planned by the designer/producer?

*Stage:* Are there any objects you stage, not because of their function but because of their aesthetic appearance? Which meaning has this aesthetic for you?

*Hate:* Which objects in your personal environment do you hate and why do you hate them?

Each aspect was outlined in a specified colour and corresponding to the defined colours the participants had three cards of each colour at their disposal. After having explained each aspect and after a short individual brainstorming the test persons noted at least three terms upon the respective coloured cards. Repeating this procedure five times, the participants put their output on the correspondent sheet and explained their findings. The result was a five-part and five-coloured collection of product criteria referring to the five discussed aspects.



**Figure 33: Explanation of the first task**



**Figure 34: Noting arguments for each aspect**

### Picture-Word Cards/Collage

The participants received 20 different words and 20 different pictures concerning the term „Joy“, as well as 20 different words and 20 different pictures concerning the term „Relax“. For each term (i.g. „Joy“ and „Relax“) attendees had to choose 5 words and 5 pictures out of the given offer of pictures and words, namely those which achieved their personal affinity or their idea of „Joy“ and „Relax“ the most.

With his or her personal choice of pictures and words, each participant had to create subsequently two collages (one for „Joy“ and one for „Relax“).



Figure 35: Choice of 5 terms for each “Relax” and “Joy”



**Figure 36: Choice of appropriate pictures**



**Figure 37: Creating of Collages**

### Love/Hate Thing

The third session consisted of the presentation of a beloved thing and a hated one. In the run-up to the Design Workshop the participants were requested to bring along a personal object from home which they like the most/like to use it/to which there is a particular relationship. Furthermore participants were requested to bring along an object from home which they dislike or do not like to use at all, for what reason ever. Instead of bringing real objects with them which might have been too bulky or too heavy to be transported, attendees had the possibility to present photos from their chosen objects.

### 4.8.3 Design Workshop - Results

The results of the three sessions of the design workshop are indicated each as an extra point. Finally there is a summary of all results of the Austrian participants.

#### 4.8.3.1 Results Subject – Object Relationship

The results of the subject-object relationship of each participant are depicted below. The visual result of the entire arguments is a five-part and five-coloured collection of product criteria referring to the five questions/aspects.

Table 21: Subject-Object Relationship Participant 1

Category	Valuation
Love	Digital camera – Transistor radio – Pillow (cats lie upon it and the design invites her to daydreams)
Tell	Window; Hiking boots – could tell a lot of stories; Hiking rucksack – she collects things on the way
Use	Coffee pot for keeping kitchen equipment; Pen as a ruler; Sewing – she sewed a skirt made of curtain drapery
Stage	Stones for energizing water are decorative elements now; Babuschka is used as deco element in the sleeping room on the cupboard where some photos are placed; Dish towel is used as a doily now
Hate	Clothes which don't fit well, those are taken to the public utility collection; Bottle opener is not useful and is used as deco element now; Veggie knife is too sharp and will be discarded.

Table 22: Subject-Object Relationship Participant 2

Category	Valuation
Love	Drawings because she loves art and draws by herself; a comfortable armchair; Coffee Service for spending a nice time; TV is very important
Tell	Farmhouse room tells stories as she was involved in its development; Luster made of Murano glass reminds her of her stays in Italy
Use	Old truck as deco element; Slabs are used as mats or places to put other things on it; Baskets are used as cachepots; Kitchen machine: the participant uses just one single function
Stage	Ceramic Tableware is staged in the Farmhouse Room; Bottles as deco elements; Chair as a rack for Flowers; Flour mill as deco element in the kitchen
Hate	Used Plastic-Tupperware and things made of plastic, because it's getting shabby; Shoes and clothes which are too tight; old-fashioned vases; she puts everything she dislikes in an extra room and her husband litters it secretly

Table 23: Subject-Object Relationship Participant 3

Category	Valuation
Love	Loves to do housework; Dairies from countries where she was living; Excavation finds she recovered at the risk of her life; Pictures from journeys; Plants
Tell	Zither from her mother, which she got at the age of 14, now she is 70; Grave goods from Mexico

Use	She painted a drawing with a blue bench, which she sold afterwards
Stage	Is very important, she stages kitchen equipment as deco elements
Hate	„Life is so beautiful, there is no need to hate anything“;

Table 24: Subject-Object Relationship Participant 4

Category	Valuation
Love	Her bed because of excellent mattress, offers recovery and good view, is the centre where she likes to reflect; Wooden spoon from Crete because of its good handling; Bookcase because books are telling the story of her life; Terrace to enjoy fresh air
Tell	Dining table, which her husband built during his study, it accompanied them from flat to flat; Drawing of Christo with a strong connection to her profession as an architect; Books, they tell stories of life; Programme of Salzburger Festspiele because she likes to be informed about it
Use	Brush used in the kitchen normally was used for colouring hair and then for drawing; Cake slide made of steel for gardening; Pot from China is a penholder on the desk now
Stage	Glass collection decorated on a table; Broom from China as a deco element
Hate	Hand gloves for cleaning because of sweating; Jalousie-cleaner because of its bad functionality; Bio vacuum cleaner bag because it smells awful; too small stowage

Table 25: Subject-Object Relationship Participant 5

Category	Valuation
Love	Tableware; Armchair, which is very comfortable; Notebook – good handling, enables contacts, daily use of 2 hours
Tell	Biedermeier desk from grand aunt tells stories of her family; Tapestry inspires dreaming and is like listening to fairy tales; House and its development
Use	Cake box for screws; Outer packing from Whisky-bottle is used for spaghettis
Stage	Kenwood; Chimney made of clay as a contrast to the commode; Garden-highbed
Hate	Cable of the lawn-mower; Vases as presents; Clothes made of synthetic fibre

Table 26: Subject-Object Relationship Participant 6

Category	Valuation
Love	Memories of his time as a development aid worker
Tell	Engagement journey to Paris: Ring and picture of Notre Dame tell this positive story; Picture of his parents as he grew up as an orphan; Pictures and stones from Peru; Wooden horse from Sweden
Use	Writing table is a drawing table now; Universal pliers is used as a bottle-opener; Cellar is a museum for old handcrafts; Pocket knife for cutting bread is always in his car
Stage	Pictures and stones from Peru in the living room and in the cellar; Pictures from his family as this is very important for him; Oldtimer-models because he was the first in his school class to get one
Hate	Backsaw doesn't function; Lawn-mower doesn't function well; Lights in the cupboard; Love-Hate Relationship to Books

Table 27: Subject-Object Relationship Participant 7

Category	Valuation
Love	Filter coffee maker for a good start in the day; Eating table because eating is Joy; Working table to do his things
Tell	„Blätterstock“ from his mother tells about his childhood; Violin, an heirloom from his uncle, which tells stories about his childhood when he started to play the fiddle; furniture from the time he spent at the Ringstrasse
Use	Knife as letter-opener; Chair as a ladder; Wall with flower-pots
Stage	Starck lemon squeezer; Glass commode from the „Nice Room“ from his families’ farm, today the Augarten porcelain from his wife is stored there; Bulb-object, a sculpture made of glass
Hate	Bike lock whose number he forgot and therefore had to cut it; Wettex (sponge) because it smells awful; old shirt whose collar is too tight

Table 28: Subject-Object Relationship Participant 8

Category	Valuation
Love	Dishwasher; new writing desk; Pictures from sons when they were young and their picture as adults side by side
Tell	Dartboard never shot before reminds her of the day she got it; Souvenir from Barcelona; Picture from her Mother-in-law with her son who fled alone during the war; Birdhouse, a present from her daughter-in-law
Use	Dust brush to eliminate spider webs; Knife as screwdriver; Globe as lamp
Stage	Blue vases; pots in the kitchen hanging there as deco elements
Hate	Wine- and beer glasses which are too big for the dishwasher; Potato masher; Fly Flap – she hates this activity

Table 29: Subject-Object Relationship Participant 9

Category	Valuation
Love	PC, she books houses, works on photos and uses dictionaries online (has hardcover dictionaries only in her car); old weight; Music-collection of Bach, because Bach grounds her; huge oriental tapestry of 3x5 metres, she is doing gymnastics upon it
Tell	Scallop, reminds her of the Road to Santiago; Picture from the promotion of her Son; Ring from her mother, which her mother was wearing her whole life
Use	Soup bowls for the germination of seeds; Toilet- cleaner as cleaner for pipes; Jam jars for putting buttons inside
Stage	Tin as decoration; Murano Glass Bowl as deco; Tablecloth made of silk used as tapestry
Hate	Coffee maker is too loud; TV doesn’t function; digital waste (discarded items of technology) from her sons which she has to store; Ironing board for Sleeves



Figure 38: 5 aspects – 5 colours

**4.8.3.2 Results Picture-Word Cards/Collage**

For the terms „Joy“ and „Relax“ the participants chose 5 words and 5 pictures which express their personal affinity to „Joy“ and „Relax“ the most.

**“Joy” – Words**

7 Participants chose the Word “eating”, followed by “to receive a smile” (6) and “to be in pleasant society” (5). 4 participants have joy when “executing my hobbies” and “meet friends” was chosen three times.

**“Joy” – Pictures**

Baby stroller, artist’s studio, theatre, special food shop and wine have been chosen 4 to 3 times by the participants.

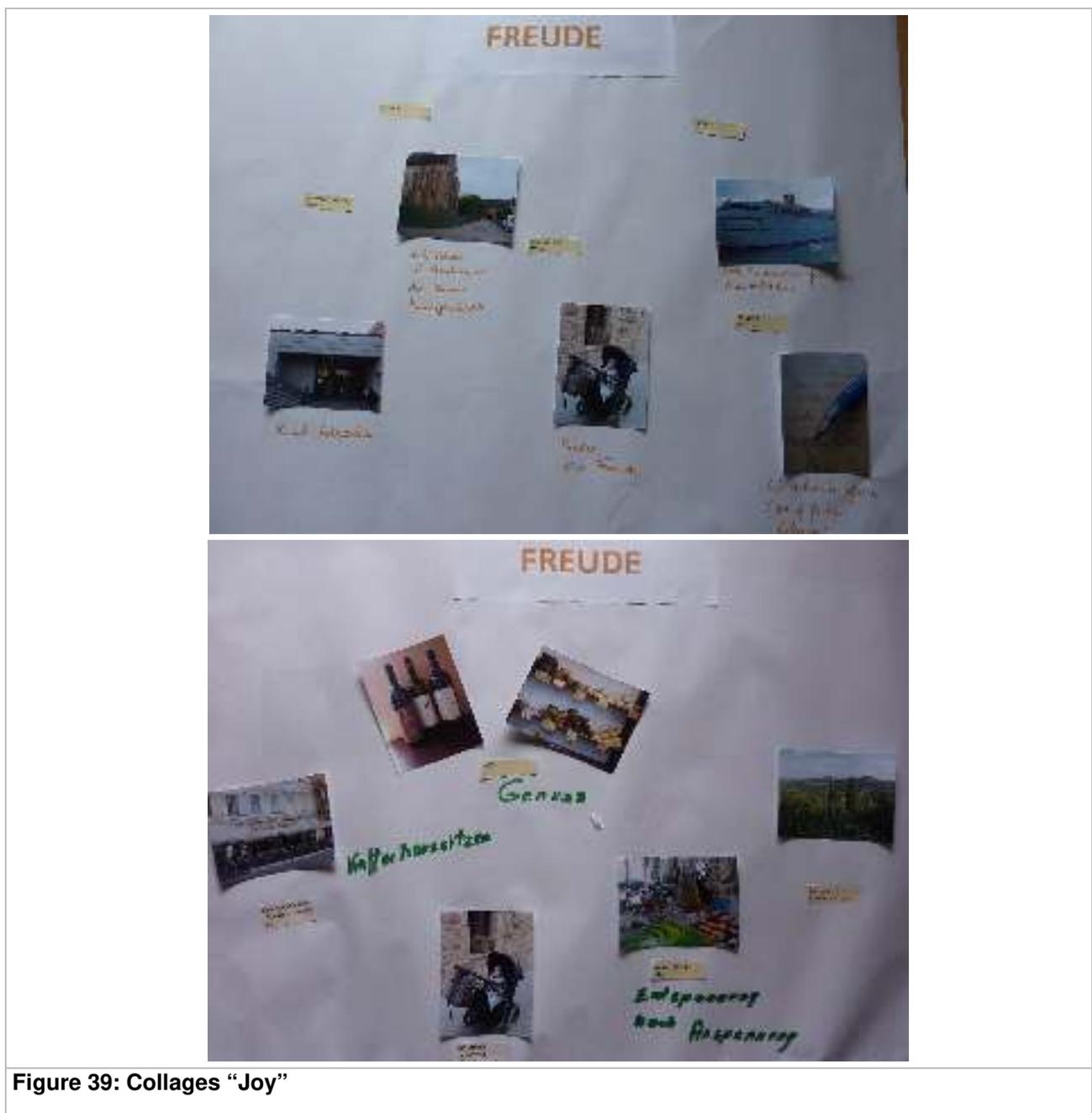
**“Relax” – Words**

The following terms were chosen six times each: “to have time”, “listen to music”, and “experience nature”. Five times the term “take a walk in the forest” was chosen, as well as “drawing”. “Read a book” had four nominations, followed by “to be able to fall asleep” with three.

**“Relax” – Pictures**

Bed of roses, nature and wine yards, nature with wide view, music, theatre, village in the countryside and jogging shoes have been chosen 4 to 3 times.

Finalizing this session there were created collages with the chosen words and pictures, completed with additional written explanations and motives explaining the personal meaning behind the chosen pictures.



**Figure 39: Collages “Joy”**



Figure 40: Collages “Relax”

#### 4.8.3.3 Results Love/Hate Thing

We took two pictures from each participant, one with his/her beloved thing and one with his/her hated thing and noted the background for it.



**Figure 41: Love/Hate Thing Participant 1**



**Figure 42: Love/Hate Thing Participant 2**



**Figure 43: Love/Hate Thing Participant 3**



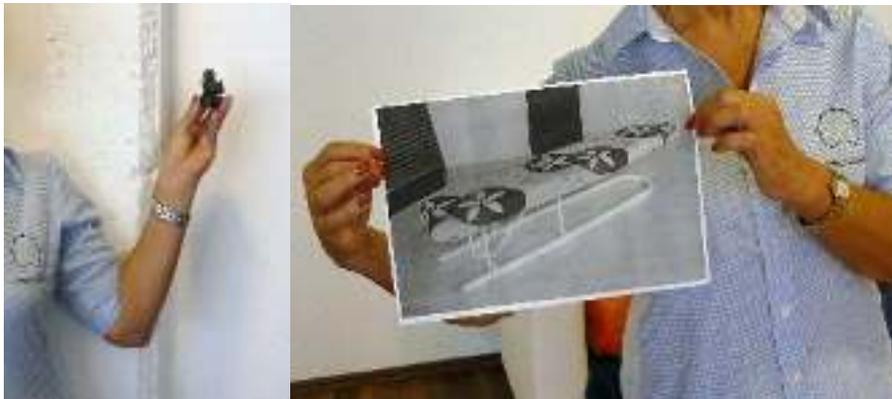
**Figure 44: Love/Hate Thing Participant 4**



**Figure 45: Love/Hate Thing Participant 5**



**Figure 46: Love/Hate Thing Participant 6**



**Figure 47: Love/Hate Thing Participant 7**



**Figure 48: Love/Hate Thing Participant 8**

Participant 8 presented just her personal beloved thing and excluded any hated thing, as she argued not to hate anything.

Participant 9 did not prepare any beloved or hated thing for the workshop.

Table 30: Loved and hated things

Participant	Gender	Loved Thing	Notes	Hated Thing	Notes
A-C-1	m	Thermometer from Peru	Souvenir from stay in Peru	Remote control	
A-C-2	w	Music CD		Cleaning-gloves	
A-C-3	w	White chocolate	Preferred sweet	Tooth brush	Toothache
A-C-4	w	Embroidered pillow	Is like travelling, sinks into the landscape	Knife for cutting tomatoes	Cut herself already
A-C-5	w	Self-drawn picture		Vase	ugly
A-C-6	w	Coffee mug	Ceramics and colour	Alarm clock	
A-C-7	w	Weight from Burma in form of an animal	Personally smuggled souvenir	Ironing desk for sleeves	Bulky, unnecessary
A-C-8	w	Drawing book with signs of the Maya-culture	Souvenir from stay in Peru	none	Doesn't hate anything

#### 4.8.3.4 Design Workshop - Summary Results

Participants love things which are connected to their personal life and thus these objects build a strong relationship. Those things are related to certain periods of their life, journeys or experiences. Mostly the mentioned things accompany the participants during a lifetime. Often things are intentionally staged, either their history or their aesthetical appearance are the main motives for doing this.

#### Souvenirs, Talisman, Heirlooms

Souvenirs are often equivalent to talisman and therefore taken along as personal companion. Souvenirs have special personal meanings, because they are always related to experiences the participants had when travelling.

Further things that often accompany persons are heirlooms. Those heirlooms tell a personal story and often serve as a memory anchor.

#### Nature, Music, Children, Food and Wine, Time, Creativity, Companionship

What strengthens joy and relaxation?

The pictures chosen by the participants point out indications to topics with a strong meaning for them. Those topics, meaning joy and relaxation for the participants, are nature, music, children, enjoying food and wine, having time, performing creativity and being together with other people.

## Staging of Things

Participants attach importance to the aesthetical appearance of things and like to stage objects as decorative elements.

## Functionality, Smell, Cognitive Performance

What participants do not like at all are things which do not function well and things that smell awful. Products are remarked positively if they are easy to use and their usage does not request any fastidious cognitive performance.

## 4.9 Contextual Inquiry Interview

In Switzerland 5 interviews took place from 31.07.2013 to 4.9.2013 (1.0 to 1.5 hours), each interview was executed with a pair of one elderly and the correspondent caregiver (e.g. E1 with C1) in the private household of the older person. The interviews were conducted by Sultank AG.

In Austria 50plus GmbH conducted interviews with 7 elderlies on 31.07.2013 at SeneCura Social-Center. During 29.07.2013 and 02.08.2013 interviews with 5 caregivers at the 50plus Centre, Salzburg (AT) were performed.

### 4.9.1 Contextual Inquiry Interview - Participants/Demographic Data

All in all 12 elderlies and 10 caregivers were interviewed. The average age of the elderlies is 85 years, the age of the interviewed caregiver 62 years.

Table 31: Participants Contextual inquiry interviews/Elderly

Participant	Age	Gender	Civil Status	Occupation	Country
CH-E-1	96	Female	Widowed	Retired	CH
CH-E-2	89	Female	Widowed	Retired	CH
CH-E-3	75	Female	Married	Retired	CH
CH-E-4	83	Male	Widowed	Retired	CH
CH-E-5	76	Female	Divorced	Retired	CH
A-E-1	83	Female	Widowed	Retired	AT
A-E-2	90	Female	Widowed	Retired	AT
A-E-3	87	Female	Widowed	Retired	AT
A-E-4	90	Female	Married	Retired	AT
A-E-5	91	Female	Widowed	Retired	AT
A-E-6	91	Female	Divorced	Retired	AT
A-E-7	74	Female	Widowed	Retired	AT

Table 32: Participants Contextual inquiry interviews/Caregiver

Participant	Age	Gender	Civil Status	Occupation	Country
CH-C-1	69	Female	Widowed	Retired	CH
CH-C-2	65	Female	Married	Retired	CH
CH-C-3	68	Male	Married	Retired	CH
CH-C-4	52	Female	Married	Employed	CH
CH-C-5	45	Female	Divorced	Employed	CH
A-C-1	59	Female	Married	Retired	AT
A-C-2	63	Female	Married	Retired	AT
A-C-3	70	Female	Divorced	Retired	AT
A-C-4	55	Female	Single	Employed	AT
A-C-5	71	Male	Divorced	Retired	AT

### 4.9.2 Contextual Inquiry Interview - Procedure

The interviews in general followed specified questions presented in chapter 3.8.1. The main themes of the interview focussed on the use of technological devices and the individual care situation.

In Switzerland the participating user-pairs were visited in the home of the elderly. On this occasion Soutank took pictures from the discussed technological devices.

In Austria the elderly participants and the interviewed caregiver had no relation to each other. The elderly test persons were visited in their home, which in this case was a social centre, while the caregivers were interviewed in the 50plus centre.

### 4.9.3 Contextual Inquiry Interview - Results

#### 4.9.3.1 Dealing with technological devices

Topics such as functionality, usability, use, motives in regard to acquisitions and desires take centre stage in the first part of the interview.

#### ELDERLY

Table 33: Types of devices and its usage by elderly

Device	Fre- quency	Use	Location	Pros	Cons
Mobile phone for elderly/ brand : Emporia	3/12	<ul style="list-style-type: none"> <li>▪ To make phone calls (1/12)</li> <li>▪ To save important numbers. In case of an emergency (e.g.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Living room (1/12)</li> <li>▪ If outside always</li> </ul>	<ul style="list-style-type: none"> <li>▪ Opportunity to save important contacts and phone numbers (in case of</li> </ul>	<ul style="list-style-type: none"> <li>▪ No expertise due to rarely use( 2/12)</li> <li>▪ Handling is complicated (2/12)</li> <li>▪ Device is heavy</li> </ul>

		<ul style="list-style-type: none"> <li>family, doctor) (2/12)</li> <li>Not in use (1/12)</li> </ul>	with me (1/12)	<ul style="list-style-type: none"> <li>emergency)</li> <li>Simple to use, big buttons (1/12)</li> <li>Simple to read SMS (1/12)</li> </ul>	(1/12)	<ul style="list-style-type: none"> <li>Writing SMS is complicated (1/12)</li> </ul>
Mobile phone/ brand: Nokia (1/12)	4/12	<ul style="list-style-type: none"> <li>Write and receive messages</li> <li>Phone</li> <li>Save important numbers, in case of emergency (e.g. family, doctor)</li> </ul>	<ul style="list-style-type: none"> <li>Kitchen</li> <li>Handbag</li> </ul>	<ul style="list-style-type: none"> <li>accessible</li> </ul>		<ul style="list-style-type: none"> <li>Handling is complicated</li> <li>Comprehensibility of functions</li> </ul>
Landline telephone (cable)	10/12	<ul style="list-style-type: none"> <li>To make phone calls (3/12)</li> <li>To phone as an agreed sign system (1/12)</li> </ul>	<ul style="list-style-type: none"> <li>Living room (8/12)</li> <li>Bedroom (8/12)</li> <li>Corridor (1/12)</li> </ul>	<ul style="list-style-type: none"> <li>Saved phone numbers (1/12)</li> <li>Communication</li> <li>Contact with others</li> <li>Accessible</li> </ul>		<ul style="list-style-type: none"> <li>To phone in combination with hearing aid device is challenging due to acoustic feedback (1/12)</li> </ul>
Landline telephone (mobile device)	3/12	<ul style="list-style-type: none"> <li>To make phone calls (3/12)</li> <li>To phone as an agreed sign system (1/12)</li> </ul>	<ul style="list-style-type: none"> <li>Corridor (1/12)</li> <li>Living room (3/12)</li> </ul>	<ul style="list-style-type: none"> <li>Saved phone no. (2/12)</li> <li>Hands-free telephone (1/12)</li> </ul>		<ul style="list-style-type: none"> <li>Writing SMS difficult due to tiny push-buttons (1/12)</li> </ul>
Landline telephone (fixed base station with mobile part)	2/12	<ul style="list-style-type: none"> <li>To make phone calls (2/12)</li> </ul>	<ul style="list-style-type: none"> <li>Office and bedroom (1/12)</li> <li>Office (1/12)</li> </ul>	<ul style="list-style-type: none"> <li>Saved phone no. (2/12)</li> <li>Hands-free speaking system (1/12)</li> <li>Conversation quality is better than with the mobile part (1/12)</li> </ul>		<ul style="list-style-type: none"> <li>Writing SMS difficult due to tiny push buttons (1/12)</li> <li>Red blinking on the answering machine (1/12)</li> </ul>
Answering machine	1/12	<ul style="list-style-type: none"> <li>To listen to calls</li> </ul>	<ul style="list-style-type: none"> <li>Corridor</li> </ul>			
PC (fixed)	2/12	<ul style="list-style-type: none"> <li>Print out documents (1/12)</li> <li>Write and read e-mails (1/12)</li> </ul>	<ul style="list-style-type: none"> <li>Office (2/12)</li> </ul>			<ul style="list-style-type: none"> <li>Handling complicated (1/12)</li> <li>Comprehensibility of functions (1/12)</li> <li>Handling with technical problems (1/12)</li> </ul>
iPad / brand: Apple	1/12	<ul style="list-style-type: none"> <li>Read e-mails</li> <li>Write e-mails</li> <li>Play games</li> <li>Read news</li> </ul>	<ul style="list-style-type: none"> <li>Living room</li> <li>Terrace</li> </ul>	<ul style="list-style-type: none"> <li>Simple to use</li> <li>Usefulness</li> <li>Size</li> </ul>		<ul style="list-style-type: none"> <li>Sometimes wi-fi problems</li> </ul>
Multi-functional device (printer, copier, scanner)	2/12	<ul style="list-style-type: none"> <li>Copy (2/12)</li> <li>Print (1/12)</li> </ul>	<ul style="list-style-type: none"> <li>Office and bedroom</li> </ul>	<ul style="list-style-type: none"> <li>Simple to use (1/12)</li> </ul>		

			(1/12) ▪ Office (1/12)		
TV / brand: Panasonic, Sony, Loewe	12/12	<ul style="list-style-type: none"> <li>▪ Watching TV (12/12)</li> <li>▪ All the time (5/12)</li> <li>▪ In the evening (7/12)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Living room (4/12)</li> <li>▪ Living- and sleeping room (1/12)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Simple to use (1/12)</li> <li>▪ Subtitle useful, because of quickly speaking on TV (1/12)</li> <li>▪ Big screen (1/12)</li> <li>▪ Watching news (7/12)</li> <li>▪ Information (7/12)</li> <li>▪ Daily soaps (7/12)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Sometimes very fast speaking on TV (1/12)</li> <li>▪ Technical problems with the programmes (1/12)</li> </ul>
Headset for TV / brand: Sennheiser	2/12	<ul style="list-style-type: none"> <li>▪ Watching TV and using headsets for a better acoustic quality (2/12)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Living room (2/12)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Simple to use (1/12)</li> <li>▪ No technical problems (2/12)</li> <li>▪ Very good acoustic quality (1/12)</li> <li>▪ Works without cables (1/12)</li> <li>▪ Easy to adapt sound volume (1/12)</li> </ul>	
Digital-receiver	1/12	<ul style="list-style-type: none"> <li>▪ To receive TV programmes</li> </ul>	<ul style="list-style-type: none"> <li>▪ Living room</li> </ul>	<ul style="list-style-type: none"> <li>▪ Simple to use</li> </ul>	
DVD player	1/12	<ul style="list-style-type: none"> <li>▪ Watch travel-DVDs 4 times a year</li> </ul>	<ul style="list-style-type: none"> <li>▪ Living room</li> </ul>		
Digital recorder	1/12	<ul style="list-style-type: none"> <li>▪ For selective recording</li> </ul>	<ul style="list-style-type: none"> <li>▪ Living room</li> </ul>		
DVD-/CD player with record / brand: Samsung	1/12	<ul style="list-style-type: none"> <li>▪ Record TV programmes</li> </ul>	<ul style="list-style-type: none"> <li>▪ Living room</li> </ul>		
Radio	11/12	<ul style="list-style-type: none"> <li>▪ Listening to music (3/12)</li> <li>▪ Listening radio, all day (6/12)</li> <li>▪ Listening to information programmes (3/12)</li> <li>▪ Listening to news (2/12)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Kitchen (2/12)</li> <li>▪ Living room 3/12</li> <li>▪ Take it from room to room (1/12)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Easy to turn on and off (1/12)</li> <li>▪ Utilisation with sufficient buttons is simple (1/12)</li> <li>▪ News (6/12)</li> <li>▪ Information (6/12)</li> <li>▪ Music (6/12)</li> </ul>	<ul style="list-style-type: none"> <li>▪ rarely use due to ear problems(1/12)</li> </ul>

			<ul style="list-style-type: none"> <li>▪ Living- and sleeping room</li> </ul>		
CD-player	3/12	<ul style="list-style-type: none"> <li>▪ Listening to music (3/12)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Living room (3/12)</li> </ul>		<ul style="list-style-type: none"> <li>▪ rarely use due to ear problems (1/12)</li> </ul>
Hearing aid device	1/12	<ul style="list-style-type: none"> <li>▪ To hear better</li> </ul>	<ul style="list-style-type: none"> <li>▪ Corridor</li> <li>▪ Kitchen</li> </ul>		
Remote control for hearing aid device	1/12	<ul style="list-style-type: none"> <li>▪ To adapt volume in the church</li> </ul>	<ul style="list-style-type: none"> <li>▪ Corridor</li> <li>▪ Kitchen</li> <li>▪ Office</li> </ul>		
SRK-emergency-device incl. bracelet	3/12	<ul style="list-style-type: none"> <li>▪ Emergency function whenever health problems (3/12)</li> <li>▪ To execute a test alarm (3/12)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Corridor (1/12)</li> <li>▪ Wrist (2/12)</li> <li>▪ Living room (2/12)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Simple to use, just press the button (2/12)</li> <li>▪ Impeccable function (1/12)</li> <li>▪ Tranquilisation and a feeling of security in everyday life (1/12)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Not appropriate for external use (radius from base 20 metres) (1/12)</li> <li>▪ Feeling of control (1/12)</li> <li>▪ Alarm failure (1/12)</li> </ul>
Digital photograph frame	1/12	<ul style="list-style-type: none"> <li>▪ Watch family pictures with visitors</li> </ul>	<ul style="list-style-type: none"> <li>▪ Living room</li> </ul>		<ul style="list-style-type: none"> <li>▪ No computer knowledge, needs son's help</li> </ul>
Digital wireless alarm clock	4/12	<ul style="list-style-type: none"> <li>▪ Visible time (4/12)</li> <li>▪ To use it as a lamp (1/12)</li> <li>▪ Alarm clock function (1/12)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Bedroom (1/12)</li> <li>▪ Corridor (1/12)</li> <li>▪ Office and bedroom (1/12)</li> </ul>		<ul style="list-style-type: none"> <li>▪ Fear to alter something (1/12)</li> </ul>
Radio alarm clock	2/12	<ul style="list-style-type: none"> <li>▪ Reading time</li> <li>▪ Alarm clock function</li> </ul>	<ul style="list-style-type: none"> <li>▪ Bedroom</li> </ul>		
Electrical toothbrush	3/12	<ul style="list-style-type: none"> <li>▪ Daily hygiene(3 /12)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Bathroom (3/12)</li> </ul>		
Remote control for venetian blind	1/12	<ul style="list-style-type: none"> <li>▪ Open and close venetian blind automatically</li> </ul>	<ul style="list-style-type: none"> <li>▪ Living room</li> </ul>		

Other technological devices were responded by the participants but not focussed during the further procedure as those devices are of little importance to the RelaxedCare project.

Typical household devices such as a mixer, vegetable chopper, timer, water boiler, coffee machine and microwave were mentioned once or several times. Furthermore other devices such as a refrigerator, cooking stove, oven, dishwasher and grill are represented. Participants use as well a washing machine, laundry dryer, electric iron, sewing machine and Hoover. In bedrooms electrical beds are occurring and in offices calculators, electrical typewriters and paper shredders.



**Figure 49: Most commonly used devices by elderlies: Landline phone, radio, TV, mobile phone**

CAREGIVER

Table 34: Types of devices and its usage by caregiver

Device	Fre-quency	Use	Location	Pros	Cons
Smartphone / brand: Apple (4/10) Samsung (4/10)	8/10	<ul style="list-style-type: none"> <li>▪ To make phone calls (3/10)</li> <li>▪ Weather forecast (1/10)</li> <li>▪ Search telephone numbers (1/10)</li> <li>▪ To photograph (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>▪ 90% with me (1/10)</li> <li>▪ If husband has device with him, I don't need mine (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Favourite device (1/10)</li> <li>▪ Voice box (1/10)</li> <li>▪ Easy to use (1/10)</li> <li>▪ Self-explaining (1/10)</li> <li>▪ Touch-screen/</li> </ul>	<ul style="list-style-type: none"> <li>▪ Many calls, disturbance (1/10)</li> <li>▪ Forget to continue writing e-mails (1/10)</li> </ul>

		<ul style="list-style-type: none"> <li>▪ SMS (2/10)</li> <li>▪ E-mails (2/10)</li> <li>▪ To read books (1/10)</li> <li>▪ Internet (1/10)</li> <li>▪ Apps (eg. WhatsApp) (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Always with me (1/10)</li> <li>▪ Kitchen (1/10)</li> <li>▪ Hand bag (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Keypad works correctly (1/10)</li> <li>▪ Big display (1/10)</li> <li>▪ Integrated digital camera (1/10)</li> </ul>	
Mobile phone / brand: Nokia, other	4/10	<ul style="list-style-type: none"> <li>▪ Write and receive SMS (3/10)</li> <li>▪ Phone during holidays (1/10)</li> <li>▪ To phone (1/10)</li> <li>▪ Receive calls (1/10)</li> <li>▪ Take pictures (2/10)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Flat, not always with me (1/10)</li> <li>▪ Flat, always with me (1/10)</li> <li>▪ Body/Clothes (male) (1/10)</li> <li>▪ Handbag (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Easy to receive information (1/10)</li> <li>▪ Get in contact on the way (1/10)</li> <li>▪ Possibility of fast reaction (1/10)</li> <li>▪ Accessibility (1/10)</li> <li>▪ Independence (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>▪ SMS, handling is complicated (1/10)</li> <li>▪ Costs (1/10)</li> </ul>
Landline telephone	2/10	<ul style="list-style-type: none"> <li>▪ To make phone calls (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Living room (2/10)</li> </ul>		
PC (fixed) / brand: Acer, Apple	4/10	<ul style="list-style-type: none"> <li>▪ Every 2nd day (1/10)</li> <li>▪ Kids learn to use MS Word (1/10)</li> <li>▪ Burn CD's (1/10)</li> <li>▪ Internet (Google, e-mail, online banking) (3/10)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Office (extern) (1/10)</li> <li>▪ Office (1/10)</li> <li>▪ Living room (1/10)</li> </ul>		<ul style="list-style-type: none"> <li>▪ Dust collector (1/10)</li> <li>▪ Needs a lot of space (1/10)</li> </ul>
Laptop / brand: Access, Apple, Samsung, other	4/10	<ul style="list-style-type: none"> <li>▪ Internet (4/10)</li> <li>▪ Edit e-mails (5/10)</li> <li>▪ E-banking (1/10)</li> <li>▪ Download photos (1/10)</li> <li>▪ Skype (1/10)</li> <li>▪ Correspondence (1/10)</li> <li>▪ Synchronization with other devices (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Office (1/10)</li> <li>▪ Flat (2/10)</li> <li>▪ Own room (1/10)</li> <li>▪ Mobile use in flat (1/10)</li> <li>▪ Depends (2/10)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Capacity and therefore safe using (1/10)</li> <li>▪ Flexibility, as device is mobile (2/10)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Manual (1/10)</li> </ul>
Tablet / brand: Samsung	1/10	<ul style="list-style-type: none"> <li>▪ Play games (1/10)</li> <li>▪ Write e-mails (1/10)</li> <li>▪ Skype (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Everywhere in flat (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Useful while travelling (1/10)</li> <li>▪ Light (1/10)</li> <li>▪ Flexibility, as device is mobile (1/10)</li> </ul>	
E-Book / brand: Kindle Paperwhite	1/10	<ul style="list-style-type: none"> <li>▪ To read books (home and while travelling)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Bedroom</li> </ul>	<ul style="list-style-type: none"> <li>▪ Standby-mode (light turns off automatically)</li> <li>▪ Everything</li> </ul>	
Multi-functional device (printer, copier, scanner) or one of these devices	4/10	<ul style="list-style-type: none"> <li>▪ Print (3/10)</li> <li>▪ Scan (2/10)</li> <li>▪ Copy (2/10)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Office (2/10)</li> <li>▪ External office (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Easy to use (1/10)</li> <li>▪ Good size (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Expensive toner (1/10)</li> <li>▪ Constant calibrating</li> </ul>

			<ul style="list-style-type: none"> <li>Own room of husband (1/10)</li> </ul>		(1/10)
Digital camera	6/10	<ul style="list-style-type: none"> <li>To photograph (holiday, spare time) (1/10)</li> <li>Only on vacation and family events (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>Office (1/10)</li> <li>Flat (1/10)</li> <li>Living room (1/10)</li> <li>Own room of husband (1/10)</li> <li>Depends (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>No wiggly pictures (1/10)</li> <li>Possible to watch photos on TV later (1/10)</li> <li>Great pictures (1/10)</li> <li>Applicability (1/10)</li> <li>Vacation memories (1/10)</li> </ul>	Manual (1/10)
Video camera	4/10	<ul style="list-style-type: none"> <li>To record videos (1/10)</li> <li>To record family events (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>Office (1/10)</li> </ul>		
TV (analogue and digital)	9/10	<ul style="list-style-type: none"> <li>Watch TV( 9/10)</li> <li>Watch news (2/10)</li> <li>Watch BBC (1/10)</li> <li>Watch movies (1/10)</li> <li>Watch documentation (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>Living room (6/10)</li> </ul>	<ul style="list-style-type: none"> <li>Digital picture quality (1/10)</li> <li>Access to internet (to watch programmes) (1/10)</li> <li>Always be informed and entertained (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>Comments to „old“ analogue TV (1/10)</li> <li>Manual (1/10)</li> </ul>
DVD-player	3/10	<ul style="list-style-type: none"> <li>Watch DVDs (1/10)</li> <li>Not often (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>Living room (3/10)</li> </ul>		
Digital recorder	2/10	<ul style="list-style-type: none"> <li>To record programmes (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>Living room (2/10)</li> </ul>		
Radio	8/10	<ul style="list-style-type: none"> <li>Listen radio (1/10)</li> <li>News( 1/10)</li> <li>Music (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>Kitchen (2/10)</li> <li>Living room (2/10)</li> <li>Bathroom (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>Very good sound quality (1/10)</li> <li>List of senders (1/10)</li> <li>Design (1/10)</li> <li>Entertainment (1/10)</li> </ul>	
CD-player	4/10	<ul style="list-style-type: none"> <li>Listen to CDs (music, stories) (1/10)</li> <li>Not often (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>Living room (3/10)</li> <li>Room for kids (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>Consistency (1/10)</li> <li>Remote control (1/10)</li> </ul>	
MP3-player	1/10	<ul style="list-style-type: none"> <li>Listen MP3</li> </ul>	<ul style="list-style-type: none"> <li>Kids-Room</li> </ul>		
Cross-linked sound system / Bang & Olufsen (all devices connected with Wi-Fi)	2/10	<ul style="list-style-type: none"> <li>Listen radio (2/10)</li> <li>CD (2/10)</li> <li>MP3 (2/10)</li> <li>Alarm clock function (1/10)</li> </ul>	<ul style="list-style-type: none"> <li>Base device in husbands own room, loudspeaker in whole flat (1/10)</li> <li>Living room</li> </ul>	<ul style="list-style-type: none"> <li>Very flexible because music, radio, TV are combined in one system and can be regulated as one device (1/10)</li> <li>Product can be</li> </ul>	

			(1/10)	extended and therefore is very long-lasting (1/10)	
Digital picture frame	1/10	<ul style="list-style-type: none"> <li>▪ To watch pictures (once a year)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Living room</li> </ul>	<ul style="list-style-type: none"> <li>▪ Remote control for all functions (1/10)</li> </ul>	
Digital alarm clock	2/10	<ul style="list-style-type: none"> <li>▪ Alarm clock function (2/10)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Bedroom (2/10)</li> </ul>		
Radio (as alarm clock)	1/10	<ul style="list-style-type: none"> <li>▪ Alarm clock function</li> </ul>	<ul style="list-style-type: none"> <li>▪ Bedroom</li> </ul>		
Electrical toothbrush	1/10	<ul style="list-style-type: none"> <li>▪ Daily hygiene</li> </ul>	<ul style="list-style-type: none"> <li>▪ Bathroom</li> </ul>		

In Austria some devices like video player are not in use for cognitive reasons (manual is too difficult to understand). In some cases the digital camera is not used by the caregiver if another family member knows how to use it, e.g. the daughter is uploading the photographs on the PC. Almost all interviewed caregivers indicated that they use the device as long as the functionality is guaranteed. If this is not the case anymore, the device will be replaced. The female participants stated that a male family member installed the devices.

Other technological devices were responded by the participants but not focussed during the further procedure as those devices are of little importance to the RelaxedCare project.

Typical household devices such as a mixer, vegetable chopper, timer, water boiler, coffee machine and microwave were mentioned once or several times. Furthermore other devices such as refrigerator, cooking stove, oven, dishwasher and grill are represented in the inventory of the caregivers' household. Participants use washing machines, laundry dryer, electric iron, sewing-machine and vacuum-cleaner, in bathrooms often hair blowers can be found. For exercising their daily fitness caregiver use mechanical devices such as home trainers. In bedrooms electrical beds are occurring, in office paper shredder. In flats venetian blinds are used as well.



**Figure 50: Most commonly used devices by caregiver: TV, radio, smartphone, digital camera**

### Communication partners

#### ELDERLY

In Switzerland the most important communication partners are family members, friends and partially external services like doctors, hospitals and nursing services.

Particularly elderly persons who have family members abroad (e.g. daughter, son), use increasingly e-mail as a medium for communication.

If another person lives in the household together with the elderly the available technological devices are used by both persons (e.g. husband, who takes care of his wife).

In Austria the communication partners are friends (4/7), children (4/7), grandchildren (2/7), other relatives (3/7) and the husband (1/7).

## CAREGIVER

For caregivers in Switzerland the most important communication partners are as well family members and friends. External services such as doctors, hospitals and nursing services were not mentioned explicitly.

Additionally to e-mail caregivers use other communication media like facebook, skype and what's app to get in touch and stay in contact with family members abroad (e.g. daughter, son, sister, brother).

If another person lives in the same household the available technological devices will be used by all of them (e.g. husband, children). The field interviewer observed that family members often have their own computer, laptop or tablet and increasingly a smartphone.

For Austrian caregivers as communication partners relatives come first (except one without family), than friends, neighbours and offices. If other family members live together in the same household, they use the devices as well.

## Wish for additional devices

### ELDERLY

The elderly people mentioned just a few technological devices, which they wish in addition to their existing devices, namely:

- Speaking wrist watch (useful if you have a debility of sight)
- Hearing aid devices, which match with individual ear channel
- Smartphones, which allow to photograph
- A kind of tong, which helps to move objects (useful in case of hip and leg problems)
- PC (one participant would like to use it, but is not used to it)

### CAREGIVER

Caregiver mentioned just a few technological devices, which they wish in addition to their existing devices, namely:

- Smartphone for extensive communication when being on the way
- Navigation system when being on the way
- Notebook (none of the respondents required a tablet, this device was mostly unknown in Austria)
- State-of-the-art devices for household affairs

## Special devices for transmission of messages

### ELDERLY

Elderly in Switzerland were not asked question 9 (...can you imagine carrying devices which are sending and receiving messages with you when leaving home...) due to the high level of required mental abstraction.

In Austria 2 of 5 participants thought about a mobile phone and SMS, the other participants negated this question.

### CAREGIVER

In Switzerland one interviewee had the idea to use a smartphone (e.g. iPhone) for phone conferences with other family members. The basic concept behind this statement was the creation of a „family-network“.

In Austria only 3 of 5 participants were asked question 9, as after having executed the first two interviews, the questions had been modified and adapted. The three respondents can imagine having a special device for sending/receiving messages. All participants thought about the mobile phone SMS function which is able to transmit messages both acoustically and visually.

### 4.9.3.2 Care Situation

#### ELDERLY

#### Devices for a feeling of security and support

Participants were asked for items at home which provide a feeling of security in everyday life.

Device	Reason
Landline telephone (bedroom, living room for „delicate“ work)	To ask for help whenever health problems occur.
Mobile phone for elderly people	To safe emergency numbers and important telephone numbers. In urgent cases to impart information and to ask for help.
Walking frame	To avoid difficulties while walking (use of walking sticks just in situations when interviewee is picked up or brought back home). 5 of 7 participants in Austria.
Grab handle	Support in case of symptoms of old age.
SRK emergency call	To ask for help in an emergency. Securitas has a key to the apartment to be able to enter in case of an emergency.
Chains (front door)	3 of 12 participants feel protected.
Wheel chair	2 of 12 participants feel more secure.

Table 36: Help in certain situations

Situation	Details
Normal health status	Taking comestible to 3rd floor (visit from daughter 3 times a week)
	Cleaning of laundry (assisted by daughter)
	Online-banking and booking new taxi-bonus (assisted by son)
	Cleaning apartment and sorting medicaments once a week by a household assistant
	Daily help in the bathroom, help if something is out of reach
Health problems	Long term: assisted by nursing service to treat wounds
	During chemotherapy: assisted by husband (daily)
	After accident: assisted by daughter (2 times a day)
	After accident: assisted by pedestrian after a fall at the bus station

**Information and communication with caregiver**

The interviewees have different opinions, of how and to what extent their caregivers should be informed about their individual health status. 5 of 12 interviewees emphasize that self-dependence is very important for them and that they are happy, if caregivers don't know everything about their life. This occurs for different reasons. On the one hand they appreciate their independence and their self-determined way of life and don't like the idea to cease it. On the other hand they don't want to burden their caregivers.

6 of 12 interviewees state that it is important for them to inform their caregivers about their current situation. One interviewee indicates that he feels lucky when he notices that the caregiver wants to help and participate in his life.

It is interesting that all interviewees want to contact their caregivers as soon as a health problem comes up. To inform caregivers they prefer to phone them.

Summing up the main arguments, elderly:

- feel connected, affiliated and contented, if caregiver shows solicitousness,
- contact caregiver by telephone when a (health) problem comes up, and
- don't want to become a burden for their caregivers , autonomous living and self-determination are important for them.

### Capacity to act

Elderly participants were asked if they ever had been in a situation when they couldn't act anymore and from whom they got help at last.

Situation	Details
Chemotherapy	Decline of health status. Assisted and supported by husband in daily life.
Fall (on the back) in the kitchen	There was no possibility to get up by herself. The person contacted daughter via mobile phone. Her daughter contacted the police who passed by to help the elderly person.
After a hip operation	Support by a nursing service and enlargement of bath tub in bath room.
Fall at the bus station (broken nose)	Help from a pedestrian who called a doctor. In the hospital they looked after the fracture. The elderly person went home by taxi, the caregiver was not informed. For the elderly person the hospital did not react correctly in this situation.
Falling/disease history	6 of 12 participants have a long falling/disease history.

### Safety in everyday life

Devices, relationships or defined actions which transmit a feeling of security in everyday life are:

- daily calls from caregiver,
- leaving home only with an attendance,
- living in a house with five parties,
- good working neighbourhood network,
- integration of elderly person in family life (visits, walks, lunch, work),
- 24 hours care and
- Wheel chair.

### Use of technological additives

5 of 12 interviewees use the Red Cross emergency device (Austria, Switzerland) as an aid, which makes them feel secure.

4 of 12 elderly use the base-station inclusive bracelet. One attendee disposes of a base-station inclusive bracelet and NEMO („mobile with GPS-emergency“).

One interviewee mentioned that the external use of emergency calls is very important (e.g. moving in house, going upstairs/downstairs).

2 of the elderly use a mobile phone as technological additives.



**Figure 51: Red Cross base station with bracelet**

### Feelings in care situations

4 of 5 interviewees feel comfortable concerning their care situation. Only one interviewee mentioned that she feels not taken seriously by her family.

### CAREGIVER

#### Information and communication with elderly

This aspect examines the way caregiver receive information about health problems of the elderly person.

Table 38: Information and communication with elderly

Who informs	Medium of communication
Mother (elderly) or family member (siblings)	Landline phone
Wife (elderly)	Observation by husband in common apartment
Mother (elderly)	Contact by phone with agreed signs: ringing more than 3 times in case of health problems, ringing 3 times if everything is all right)
Mother (elderly)	Personal visits by caregiver (several times/week), when in vacation replaced by sister and contact by phone
Sister	Contact by phone, when mother doesn't pick up the phone, she informs her sister who passes by the elderly person
Nobody	Normally the daughter doesn't know anything about the health situation (more by chance, if they speak together by phone or visits)
Father (elderly)	Contact by phone (if nobody picks up the phone, daughter passes by)
Father (elderly)	Personal visits by caregiver (once/week)
Grandchildren/husband	Daily call (2/3 in Austria)
Daughter	Phone call (1/3 in Austria)

### Use of Sign systems

Caregivers were interrogated if they use a kind of report or alarm system in order to get security in the care situation.

Sign system	Detail
Daily call	In the morning at 8 o'clock daughter gets a call. Arranged sign: <ul style="list-style-type: none"> <li>▪ Ringing 3 times: everything is all right</li> <li>▪ More than 3 times: a health problem came up</li> </ul>
Phone call	Caregiver contacts regularly his/her mother by phone
Visits (personal)	Regularly visits 3 times a week
Strong embedding in family life	Regular meetings with family members, participation in work (daily back-work in office), common lunch
Help/support in the neighbourhood	<ul style="list-style-type: none"> <li>▪ Elderly reads the newspaper and puts it to the neighbour's front door (if this doesn't happen, neighbour asks if everything is ok)</li> <li>▪ Elderly loves to bake/cook and distributes cookies in the neighbourhood</li> </ul>
Emergency call from SRK (Swiss Red Cross)	System acquired explicitly as a sign system

### Feelings in care situation

Caregivers were asked about their feelings concerning the current care situation.

Feelings	Responses
Contentment	<ul style="list-style-type: none"> <li>▪ Perfect. Mother thinks sometimes that she is a burden, but that's not true.</li> <li>▪ Currently OK, but mother often falls down (4-5 times a year)</li> <li>▪ No problems in current situation. Extended help is not necessary yet.</li> </ul>
Solicitudes	<ul style="list-style-type: none"> <li>▪ Caregiver worries about the entrance to the apartment. What if something happens and nobody has the key to the apartment?</li> <li>▪ Entrance door is open during the day. Caregiver feels worried about thieves.</li> </ul>
Exhausting	<ul style="list-style-type: none"> <li>▪ Caregivers situation is exhausting</li> </ul>
Sad	<ul style="list-style-type: none"> <li>▪ Caregiver is sad about situation, but the situation isn't stressful</li> </ul>
Comfortable	<ul style="list-style-type: none"> <li>▪ Caregiver feels good in the situation</li> </ul>

### Ideas for reliefs in care situations

In consideration of relieving the care situation, caregivers were requested to brainstorm for wishes and ideas to improve their everyday life experience.

Table 41: Ideas for relieving care situations

Relief	Reason
Cleaner	Cleaning once a week (2 hrs) Ideas for the future, as elderly has faith in his cleaner: <ul style="list-style-type: none"> <li>▪ Person can be responsible for the shopping</li> <li>▪ Caregiver has initiated the participation in a SRK-course in order that she can handle health problems</li> </ul>
Pro Senectute	Entertainment program (by volunteers).
Services	Intense use of taxi for seniors.
Services	Intense use of buses for seniors (stopping at the front door)
Spitex	During chemotherapy: regularly support by nursing service.
Service „eat on wheels“	Delivery of senior-fair food (e.g. retirement home)
Emergency-call SRK	Caregiver is relaxed, if professionals can help the elderly person (e.g. Securitas) in an urgent situation
Common room	Not used at the moment. Could be used for „play-afternoons“ and regularly meetings
Neighbourhood	A good neighbourhood relation is essential and a strong relief (e.g. sharing tasks and responsibility for certain themes like cleaning). There is as well the possibility to contact each other in urgent cases.
Mobile phone	Developing of a kind of mobile phone that includes everything: telephone, SMS, camera, emergency button.
More time	More time would help to create a more comfortable situation for caregiver and elderly
Professional help	Professional help eases the situation for caregiver and elderly

## 4.10 Summary of the chapter

Chapter 4 specifies the execution of all seven research methods for the RelaxedCare study. It presents detailed information concerning the demographic data of the participants of each user group, time and location of the execution of the method, the procedure of the execution and the results for each method applied.

## 5 Data Analysis

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This chapter is due to offer an overview of the data analysis procedure of the qualitative research methods applied in WP 2. For the analysis of the vast material collected during the qualitative study with seven methods first the data was filtered via the Word Clouds method and grouped into topics via the Affinity Diagramming method by IHL (the results are presented in the appendix of the document).

### 5.1 Cross Cultural Comparison

The initially intended and in the DOW described appliance of the method Cross Cultural Comparison turned out as unbecoming choice due to the mostly similar study results in Austria and Switzerland. An explicit and single data analysis and its comparison for each country therefore seemed to be unreasonable within the project as no gain in information could be expected.

### 5.2 Data preparation process

For the analysis of the vast material collected during the qualitative study with seven methods first the data was filtered via the Word Clouds method and grouped into topics via the Affinity Diagramming method (the results are presented in the appendix of the document).

### 5.3 Data analysis procedure

The analysis process by NDU started with a coding process of the results of the methods presented in the previous chapters, meaning the organization of the collected material to segmenting sentences and categories which means to analyse the material concerning phenomena and significant statements for each user group (caregiver and elderly) in order to create meaning units. (see Creswell, 2009, p. 186)

The coding process was conducted using the following questions (see Flick, 2009, p. 167-172):

- What? What is it about? Which phenomenon is addressed?
- Who? Which persons or players are involved? In which way do they interact?
- How? Which aspects of the phenomena are addressed or not addressed?
- When? How long? Where? Time, course and location.
- Why? Which reasons are mentioned or are to be opened up?
- What for? For what purpose or intention?
- With what? Means, tactics and strategies to reach the goal.

After the coding process into meaning units a matrix was created for each method to offer an overview of the results.


**Figure 52: Matrix**

## 5.4 Data evaluation summary

### 5.4.1 Personas

The aim of the Personas method is to keep the focus of the project on real end users. As described under point 2.2.1, 3.2 and 3.2.1 the method of Assumption Personas was conducted in order to reach a common understanding of both target groups (caregiver and elderly) among the team of project partners. On the occasion of the first consortium meeting in June 2013 all project team members were invited to take part in an Assumption Personas workshop with the aim to create for each target group a male and a female Persona. The goal was to initiate an intensive discussion and to create material for reflection during the entire development process. Under point 4.2 we described the results of the Assumption Personas workshop.

After the conduction of all methods during the research study the created Assumption Personas from the first consortium meeting in June 2013 were compared with the findings for each user group and several severe changes had to be made. One of the major findings revealed by the methods was that the average of age for the target group of the caregiver had to be changed to an average age of 50+. The average age for the group of the elderly had to change to 80+. Concerning activities of daily living and preferred objects of everyday life various similarities among the group of the caregiver and the group of the elderly could be identified. With regard to these findings the Assumption Personas created during the workshop in June were modified to Personas based on the findings of the study. The process of capturing the different points of view concerning the target groups of the project among the team of project partners by means of the Assumption Personas method and finally the presentation of facts originating from the findings of the study supported the goal of questioning individual mental models of the team members, enabling fruitful discussions and focusing on real end users of the project.

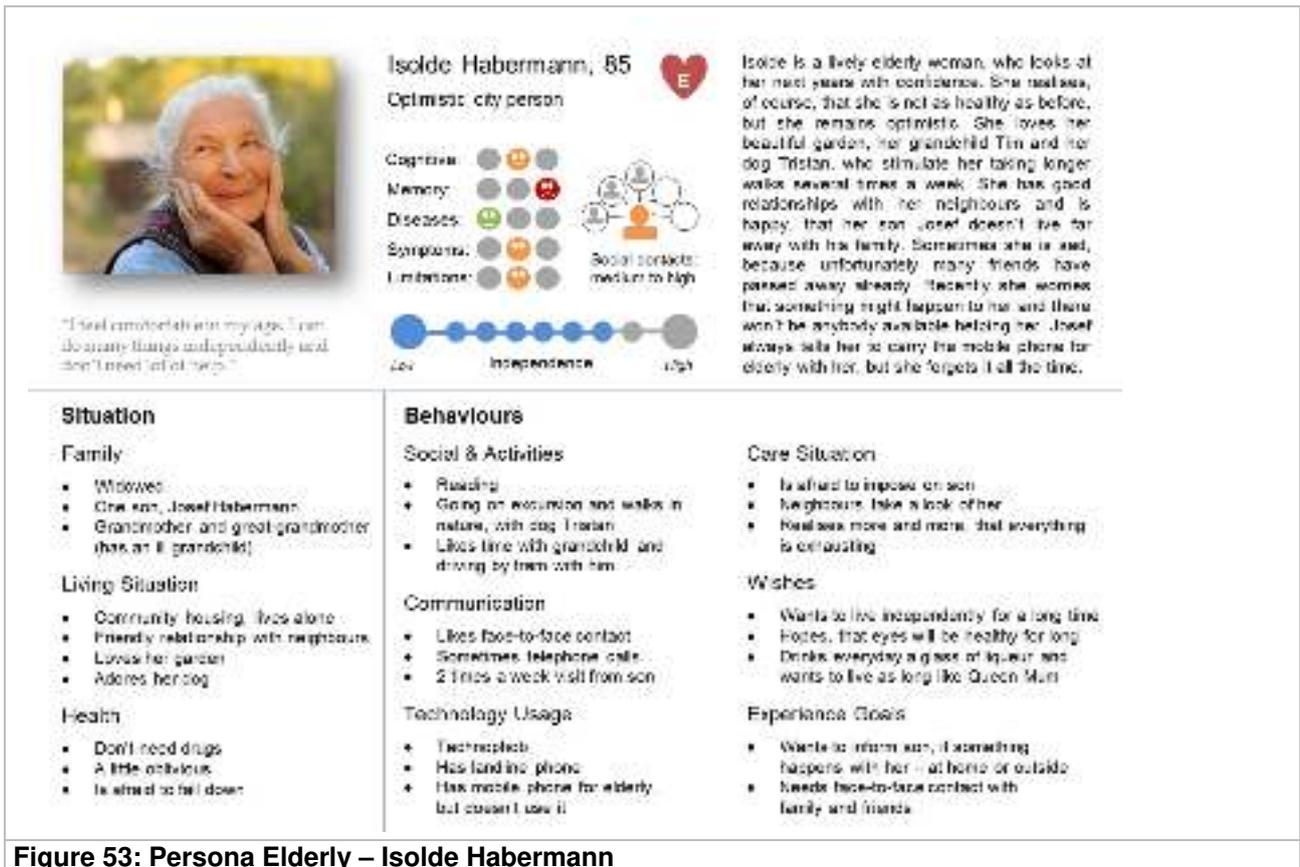


Figure 53: Persona Elderly – Isolde Habermann

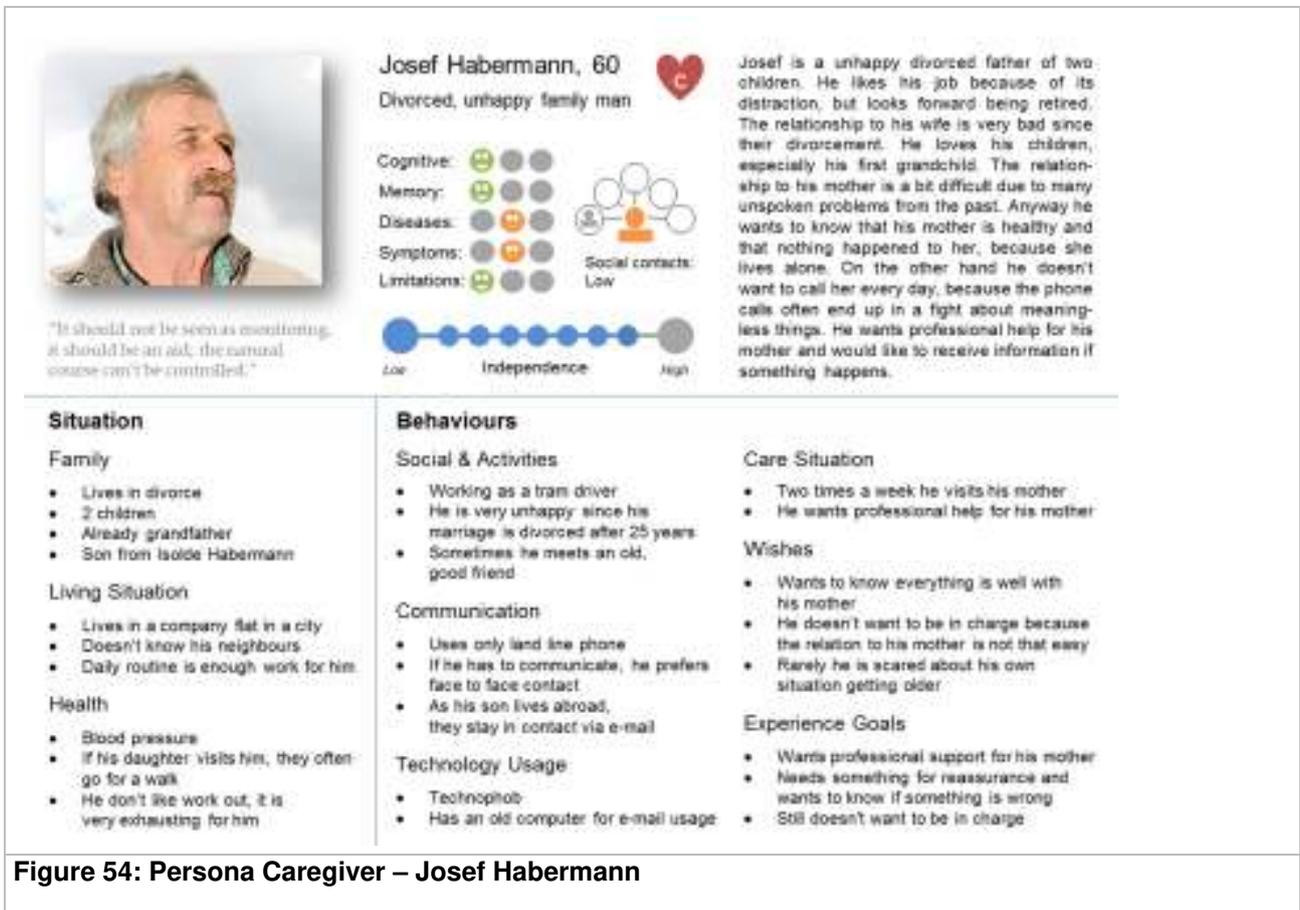


Figure 54: Persona Caregiver – Josef Habermann

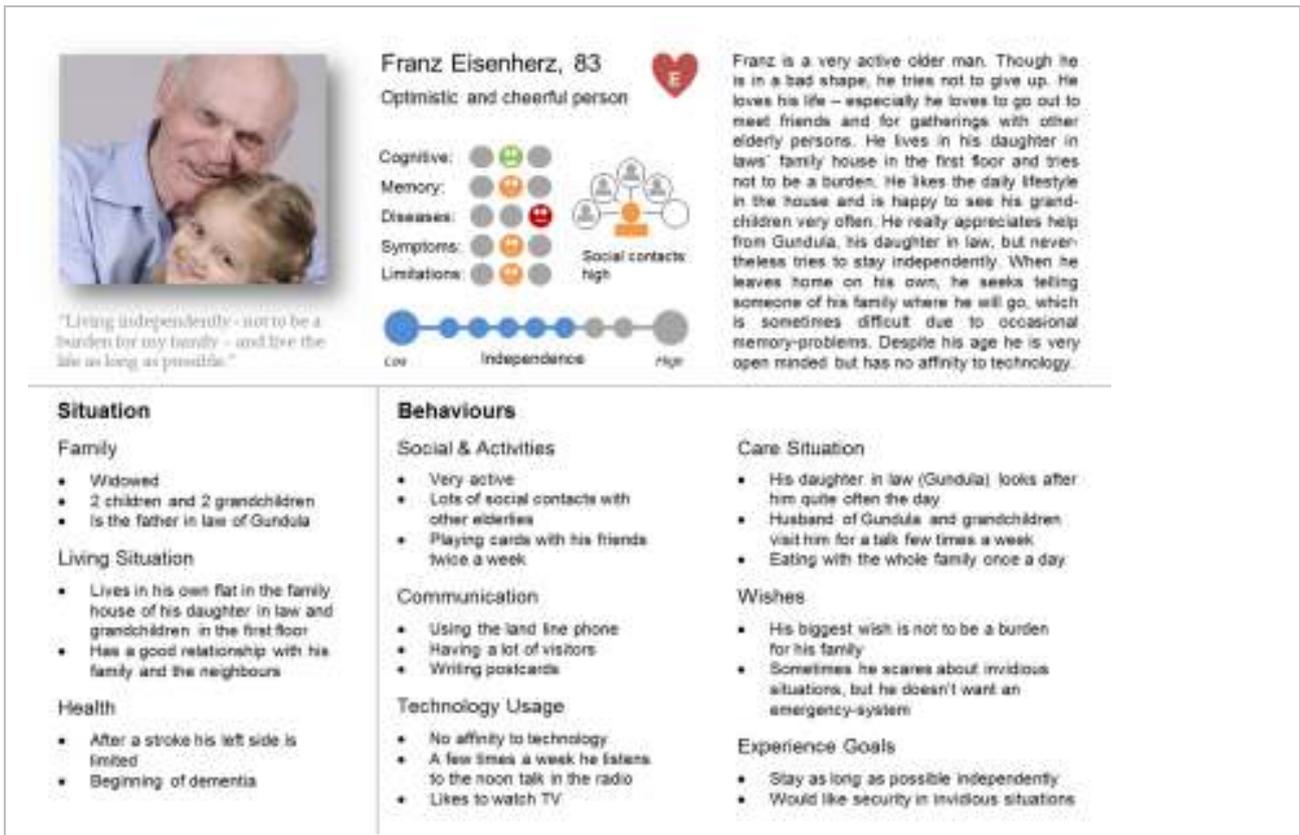


Figure 55: Persona Elderly – Franz Eisenherz

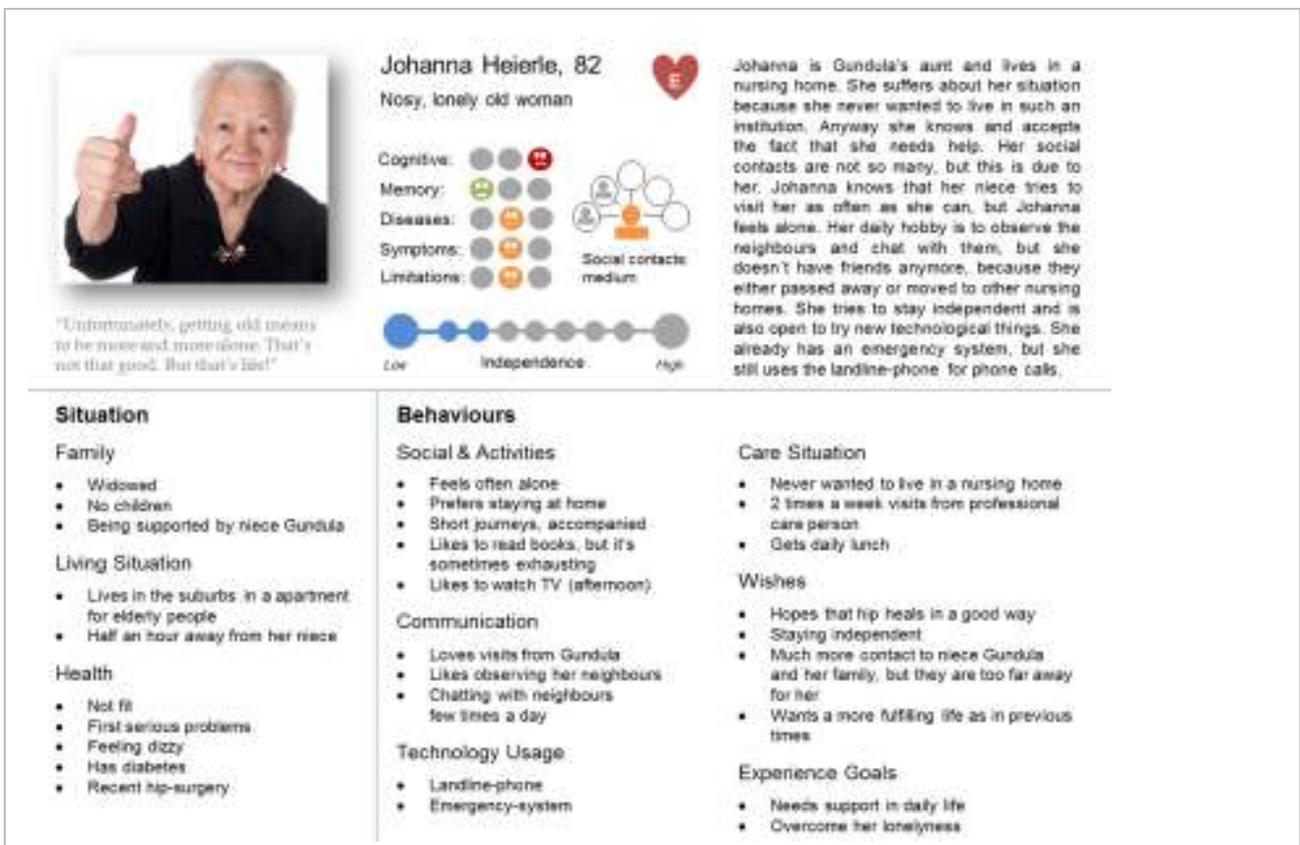


Figure 56: Persona Elderly – Johanna Heierle



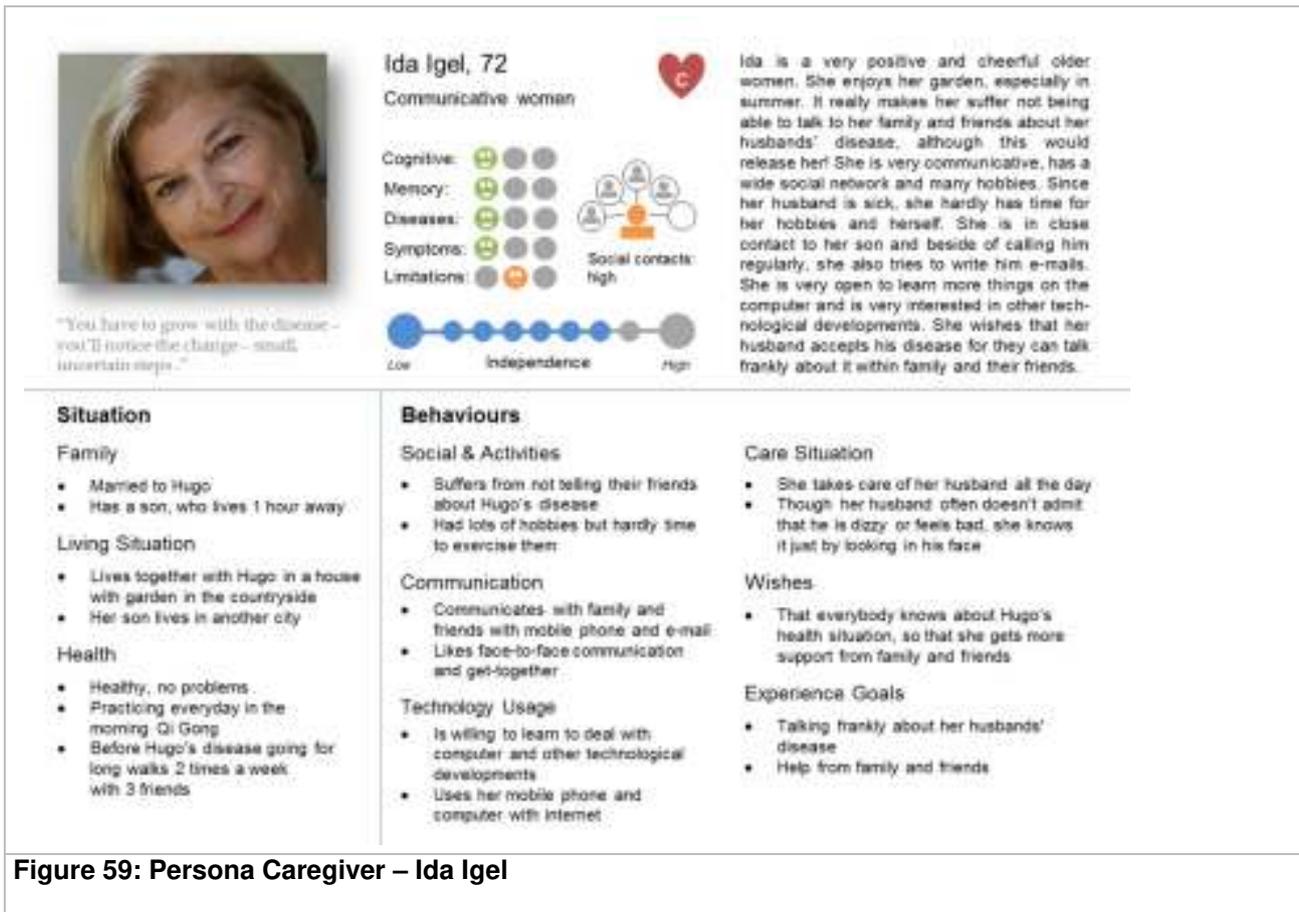


Figure 59: Persona Caregiver – Ida Igel

### 5.4.2 Questionnaire

The results of the questionnaire study with the group of the elderly show a collection of preferred activities, places and people. The group of the elderly like travelling, hiking, gardening, reading, their kitchen, sun places, their living room and their grandchildren.

QUESTIONNAIRE – Elderly	travelling	hiking	gardening
	reading		grandchildren
	kitchen	sun place	living room

Figure 60: Questionnaire – overview results

### 5.4.3 Show and Tell Method

The Show and Tell Method was conducted with participants of both user groups. The following matrix shows the summary of objects caregiver and elderly have in their pockets or bags when they leave their homes. Both user groups carry a wallet, a handkerchief, their keys, a mobile phone, cosmetics (for female users), pens, a talisman and (if needed) glasses with them.

SHOW AND TELL – Caregiver + Elderly	wallet	handkerchief	keys/car keys
	cosmetics		mobile phone
	pen	talisman	glasses

Figure 61: Show and Tell Method – overview results

### 5.4.4 Focus Group Discussion

The next matrix shows a summary of different points of view how the user group of the caregiver see the group of the elderly and vice versa. Caregivers say about elderly that they dislike new technology, that they underestimate their health status and that they don't call them when something happens. The elderly say on the other side that they don't want to disturb their caregiver. They think that technical devices are possibly helpful and they say that they wouldn't feel controlled by them. This group enjoys already the independence offered by communication tools.

FOCUS GROUP	 <b>CAREGIVER SAY ABOUT ELDERLY</b> dislike new technology	<b>CAREGIVER SAY ABOUT ELDERLY</b> underestimate critical health status	<b>CAREGIVER SAY ABOUT ELDERLY</b> want to hide diseases
	<b>CAREGIVER SAY ABOUT ELDERLY</b> don't call in case of emergency		<b>ELDERLY SAY</b> don't want to disturb
	<b>ELDERLY SAY</b> technical devices are possibly helpful	<b>ELDERLY SAY</b> wouldn't feel controlled by technical devices	<b>ELDERLY SAY</b> enjoy time independence offered by communication tools

**Figure 62: Focus Group – overview results attitudes**

The next matrix shows a summary of things the group of the caregiver wishes for. This group wishes: for time for themselves, for help from professionals, to know that everything is ok, to have networks available as a kind of emotional back up to exchange information and experiences, to be informed immediately about critical health situations, to get a distance from their caring routine, to share the burden of caring with others and they wish for a bit of light-heartedness in their lives.

FOCUS GROUP	 CAREGIVER WISH FOR THEMSELVES time for themselves	 CAREGIVER WISH FOR THEMSELVES help from professionals	 CAREGIVER WISH FOR THEMSELVES wish to know that everything is ok
	 CAREGIVER WISH FOR THEMSELVES networks	 CAREGIVER WISH FOR THEMSELVES share the burden of caring with others	 CAREGIVER WISH FOR THEMSELVES be informed about health problems immediately
	 CAREGIVER WISH FOR THEMSELVES get distance from caring	 CAREGIVER WISH FOR THEMSELVES share the burden of caring with others	 CAREGIVER WISH FOR THEMSELVES light-heartedness
	 CAREGIVER WISH FOR THEMSELVES get distance from caring		
	 CAREGIVER WISH FOR THEMSELVES get distance from caring		

Figure 63: Focus Group – overview results wishes of caregiver

### 5.4.5 Cultural Probes

The following matrix shows the findings of the cultural probes study. The analysis of the material collected revealed an interesting output. The findings of both user groups concerning objects used in everyday life routine were again similar. Both groups like their landline phone, to watch TV, photos, a fire place, their home office, a talisman and in general products which generate a positive user experience. The vacuum cleaner displayed in the matrix stands for objects they dislike as well as the activity of cleaning itself.

CULTURAL PROBES - Caregiver + Elderly	 landline phone	 watching TV	 vacuum cleaner (-)
	 photos	<b>CULTURAL PROBES</b>	 fire place
	 talisman	 products which generate a positive xp	 office
	 landline phone		

Figure 64: Cultural Probes – overview results

### 5.4.6 Design Workshop

The matrix of the results of the Design Workshop conducted with the group of the caregiver offers an overview of preferred objects like a talisman, souvenirs and heirlooms. Preferred activities among the group of caregiver are the luxury of having time, receiving a smile, eating in company, being outdoors and playing/listening to music.



Figure 65: Design Workshop – overview results

### 5.4.7 Contextual Inquiry

User Group: CAREGIVER

The user group of the caregiver expects the RelaxedCare system to offer optimal functionality. They would like to receive acoustic notifications for actions generated by the elderly (leaving the flat/house, coming home, etc.). Furthermore the RelaxedCare system should in any case provide a secure connection to different family members as well as to health service centres. This user group imagines the RelaxedCare system to consist of a mobile and a stationary component.

User Group: ELDERLY

The user group of the elderly is not very thrilled by the idea to manage new technical devices. A conclusion to this fact could be to enrich an already known device with new functionalities. The elderly also imagine that the RelaxedCare system would best consist of an easy to operate mobile and stationary device and also wish for a secure connection to their family and a health service centre. With respect to information gathered during the interviews in general the conclusion could be drawn that the RelaxedCare system should include entertainment functions to establish a positive emotional bond with the system.