

D.T2.2.2 NEEDS ASSESSMENT GRAZ

Graz

Version 1

09 2020





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1. Introduction

The aim of the regional needs assessment was to collect data supporting the implementation of regional I-Care Smart services. The I-Care smart service is developed by each region to support the research, design and development of smart solutions for the elderly in a co-creation setting. This service will be validated and tested during the implementation of the I-Care Smart project. The service should create value for all involved stakeholders and cover the costs of itself.

The goals of the regional needs assessment were

- collect business needs and based on that, develop draft business models for the regional I-Care Smart services;
- collect and distil patterns of customer needs that can be the basis of the SilverStar challenge.

2. Methodological approach

The basis for developing our research approach for the needs assessment were the data collected for the document D.T1.2.2 “REGIONAL ANALYSIS GRAZ” and the summary report D.T1.2.3 “SUMMARY REPORT - 1ST DRAFT OF THE TOOLBOX” as well as the D.T.1.3.3 “SUMMARY REPORT OF REGIONAL ANALYSES - 1ST DRAFT OF THE TOOLBOX FOR BUSINESS ENGAGEMENT. Based on the desk research, interviews and focus groups for the regional analyses we developed the following research questions and setting focus together with our Task4-members.

2.1. General Research questions and Target Groups

- Seniors: What are the four regional greatest needs for elderly people to live self-determined at home as long as possible?
- Business: What are the key factors (according to the Business Modell Canvas) for a „Smart Elderly Care Living Lab” in the region of Graz?

The target groups for the needs assessment were:

- Seniors 60+ who live at home with/without impairments and need of care
- Businesses offering products/services for the elderlies and/or their (professional) caregivers

2.2. Methods

For the needs assessment we used a mixed-method approach:

- May-June 2020: Literature research in PubMed and grey literature (previous project results)
- June 2020: analyzing data form quality of life survey City of Graz 2018 for seniors 60+ (quantitative research)
- July 2020: Co-Creation-Workshop with 5 seniors using the Value Proposition Canvas
- July/August 2020: Journal-entries from 5 seniors
- August 2020: Online survey with approximately 60 companies and evaluation of collected data from Co-Creation-Workshop with seniors and journal-entries from seniors
- September 2020: Design-Thinking-Workshop with Task4-Members using the Business Model Canvas as well as the Value Proposition Canvas

We worked with a mixed approach of qualitative and quantitative methods for collecting the business and senior’s needs. In the literature research, we wanted to use results from previous studies, quantitative data collection and projects describing the needs of elderly people living at home. The results from the literature research were used as a basis for a more focused co-creation approach with 5 seniors discussing the findings by using the Value Proposition Canvas. The goal of the co-creation workshop was to get a clearer picture on the needs of the elderlies. Additionally, we used journal entries describing their daily challenges in living self-determined at home from 5 seniors.

According the business needs we used the results from the literature research describing the silver economy in Austria and the region of Graz to put together an online survey to define the demand companies and start-ups have at a “Smart Elderly Care Living Lab” and what services they are interested in from such a lab.

All results were resumed in a Design Thinking Workshop with the Task4 in the end. The goals of the workshop were to define 4 use cases/personas describing specific needs of seniors for the Silverstar Challenge as well as to design a first draft of a Business Modell Canvas for a “Smart Elderly Care Living Lab”.

3. Facts and Figures

3.1. Seniors

In Austria approximately 28% of the total population are 60 years or older (data: 1.1.2019). The facts and figures are similar in Styria (27%) and Graz (22%). Developments within the older population show an increasing trend. Therefore 34% of the population in Austria will be 60 years or older (Styria: 36%) by the year of 2050. ¹

Figures from the Central Residential Register show that the target group of the I-CARE-SMART project includes around 70,000 people in the Graz area alone.

Tab. 1 Figures from the Central Residential Register (1.6.2020)

Age	People from the Central Residential Register	%
60-69	30.135	9,10%
70-79	24.502	7,40%
80-89	12.168	3,68%
90-99	2.870	0,87%
100-109	69	0,02%
Total	69.744	21,06%

Most of the elderly people in Austria remain living in their own homes even if they suffer from physical and/or cognitive impairment. ² Therefore, support for keeping this possible is needed.

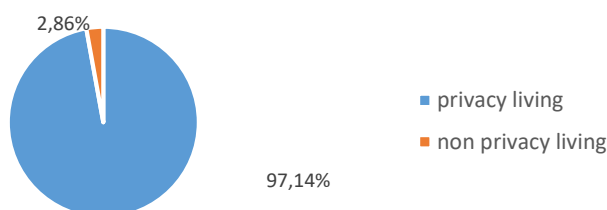


Fig. 1: Living status people 60+ in Austria

The latest quality of life survey conducted by the City of Graz in 2018 showed similar results in living status.

Participants 60-79 years old are as follows:

- 54% live in a partnership or marriage
- 38% live alone
- 7% in a family group
- 1% in a shared apartment or other way of life

Participants 80 year old or older:

- 38% live in a partnership or marriage
- 53% live alone
- 6% in a family group
- 3% in a shared apartment or other way of life

Over all 29.73% (6,115) of the participants were 60 to 79 years and 5.01% (1,031) 80 years and older. This makes a total of 7,146 participants over 60.

Considering the growth of the elderly population in Austria to 1/3 of the population in 2050 elderly people more and more get into the focus as an important consumer market for businesses. Especially in the sector of travelling, banking and public services should include the needs and wishes of elderly people in their products and services.

3.2. Business and Market

The average monthly expenditure of the Austrian population in 2014/15 was € 2,990. The arithmetic mean expenditure for health was 3.8% (€ 113.62 per month).

The percentage of health expenditure increases steadily with higher age. Therefore the average monthly expenditure of the generations from 50-80 years and older is 4.8% compared to 2.8% in younger generations (25-49 years).

¹ <http://wko.at/statistik/bundesland/Altersstruktur.pdf>

https://www.statistik.at/web_de/statistiken/menschen_und_gesellschaft/bevoelkerung/bevoelkerungsstruktur/bevoelkerung_nach_alter_geschlecht/index.html

http://www1.graz.at/Statistik/bev%C3%B6lkerung/Bev%C3%B6lkerungsprognose_2015_2034.pdf

² https://www.statistik.at/web_de/statistiken/menschen_und_gesellschaft/bevoelkerung/haushalte_familien_lebensformen/lebensformen/index.html

https://www.statistik.at/web_de/statistiken/menschen_und_gesellschaft/soziales/sozialleistungen_auf_landesebene/betreuungs_und_pflegedienste/061958.html

For sports, hobbies and leisure people aged 50-79 spend approximately 12%. This decreases sharply in high age (only 6% at the age of 80).

To sum up the people over the age of 65 in Europe spend approximately € 3,000 billion at the consumer market (European Commission, 2017). Therefore, it is important to focus on seniors as an important consumer group by creating a specific offer - as is also the case with the “silver economy” approach. Furthermore, the AAL (active and assisted living) Vision 2025 try to set those aspects in the focus of future research and development projects.³

4. Needs of elderly people

The main question that guided us in our research process was: What are the four greatest regional needs for elderly people to live self-determined at home as long as possible?

Results and experiences from previous projects and the data collected for the regional analysis in the I-CARE-SMART project give an impression on some needs of elderly people in general. Security, self-determination, social inclusion, feeling of being needed in society are some main aspects for a good life of elderly people (see fig. 2). They mention support needs in areas of mobility, entertainment and activities of daily living such as household activities (cooking, cleaning, ...), shopping, personal hygiene and getting dressed, health care services, taking medication or communication with others.⁴

Considering “RegionalAAL” project results aspects as autonomy and participation can be significantly affected by active and assisted living technologies. In the study autonomy and participation of the intervention group stayed at a stable level during the one-year trial whereas they significantly declined in the control group. The same study showed that more people in the control group transferred to live with support of their children or other. There was no significant change in the intervention group during the year. Overall the seniors ranked assisted living technologies such as intelligent lighting control, automatic stove switch-off and entertainment and games. They mentioned an increased sense of security due to the intelligent lighting and automatic stove switch-off in particular. The senior-friendly tablet was surely used at the beginning but with an increase in user experience more and more seniors wanted to use the tablet with the standard software like younger people do. The offered smart watch with fall detection and emergency call services was not used due to bad battery performance.⁵

To sum up seniors want to remain living in their own homes for as long as possible despite physical and cognitive decline. Therefore, individual services in case of need, affordable care services and emergency call systems are necessary to create a framework for living and care in old age in the domestic and family setting.



Fig. 2: What factors define a good life for elderly people in Styria? - results from a focus group discussion, 11/2019, Graz)

³AAL Vision 2025, 2018, www.aal-vision2025.eu.

⁴ Wiedenegger, 2019, Masterthesis

⁵ <https://regionaal.at/aktuelles/>

4.1. Needs of elderly people according literature

To get a clearer picture on the current state of science we conducted a systematic literature research in PubMed for the year 2019 and the first half of 2020 with the following key words.

Tab. 2: Search Log -Literature Search - Pub Med

Date	Database	Search	Number of findings	Filter	Key Words
5.6.2020	PubMed	((Independ*) AND (elderly*)) AND (at home)) AND (need*)	41	articals 2019/2020	Independ*, Elderly*, At home, Need*,
Relevant results			6		
12.6.2020	PubMed	((elderly*)) AND (at home)) AND (need*)	239	articals 2019/2020	Elderly*, At home, Need*
Relevant results			3		

The results of the literature research gave an overview on the most important needs and wishes of elderly people in keeping their independence.

Many older people wish to remain as independent as possible while remaining in their homes.^{6,7} The want to maintain autonomy and avoiding help of a caregiver at home. Therefore, they wish for devices for daily and healthy living and safety as well as the support to ask for help in case of emergency and danger in general.^{8,9} But also, the need of sociality and maintaining social relationships emerged clearly in the study of Daniele, Marcucci et. al.¹⁰ The same study showed that many elderly people have a feeling of inadequacy or incompetence in using technologies and need to receive some help in using them.

A study of Turjamaa, Pehkonen & Kangasniemi showed that elderly people feel the need of improving their physical safety and social communication as well as their sense of security, quality of daily life and providing them with information.¹¹ Therefore, a systematic review showed that in-home monitoring and smart technologies for older people's care can increase their independence and the health care services available to them as well as improve frail elderly people's health outcomes. For the target group of seniors living at home sensor-based systems and smart home systems for health care, as well as telemedicine applications and home service robots seem to be the most important.¹² Taking a closer look on dementia, the most frequent reported unmet needs by the people with dementia and their carers included activities of daily living, psychological distress and the need for company.¹³

4.2. Needs of elderly people from quality of life survey City of Graz

Furthermore, the results from the latest quality of life survey in the City of Graz in 2018 provided results we used in our Needs Assessment. We considered all results which were ranked with high importance and low satisfaction to be used in our Needs Assessment as possible areas for initiatives in the I-CARE-SMART project.

Accessible equipment of public facilities were an important issue for 76% of 60-79 year olds and 78% of over 80 year olds. When it comes to satisfaction, 12% of 60-79 and 15% of over 80-year-olds tend to be unsatisfied.

Barrier-free furnishing of apartments seemed to be an important topic for 77% of 60-79 year olds and 81% of over 80 year olds. When it comes to satisfaction, 28% of those aged 60-79 and 26% of those over 80 are rather unsatisfied.

Equipment of public places were an important topic for 76% of 60-79 year olds and 75% of over 80 year olds. When it comes to satisfaction, 26% of 60-79 and 23% of over 80-year-olds are rather unsatisfied.

Sense of security in their neighborhood is also shown as an important matter for 96% of 60-79 year olds and 95% of over 80 year olds. When it comes to satisfaction, 15% of those aged 60-79 and 11% of those over 80 are rather unsatisfied.

Furthermore, the safety for pedestrians is an important topic for 95% of 60-79 year olds and 91% of over 80 year olds. When it comes to satisfaction, 25% of 60-79 and 21% of over 80-year-olds tend to be unsatisfied.

⁶ Daniele, Marcucci et. al

⁷ Turjamaa, Pehkonen, Kangasniemi

⁸ Daniele, Marcucci et. al

⁹ Turjamaa, Pehkonen, Kangasniemi

¹⁰ Daniele, Marcucci et. al

¹¹ Turjamaa, Pehkonen, Kangasniemi

¹² Sapic & Sapic

¹³ Mazurek, Szcześniak, Urbańska, Dröes, Rymaszewska



4.3. Summarized needs of elderly people

We concluded to summarize the needs of elderly people in Graz in three main categories.¹⁴

1. Healthy life
2. Self-determined living
3. Social inclusion (neighborhood, friends, family, clubs and associations)

4.3.1. Needs according category “Healthy life”

- Strongest desire to stay healthy (reliable mind and body)
- Health not only as a pathogenetic perspective, but rather as a possibility to participate in social and family life
- Living healthy has a strong dependence on physical-mental abilities¹⁵
- Help in carry out everyday activities to life more fulfilled lives
- Improving physical safety and social communication¹⁶
- Self-determined care and support at home despite restrictions
- individual support services if necessary¹⁷
- Ability to ask for help in case of emergency and danger in general¹⁸

4.3.2. Needs according category “Self-determined living”

- Most older people want to live in their own homes for as long as possible. Therefore, they require devices for daily and healthy living and safety.¹⁹
- Desire for self-determination: to remain independent for a long time and not to have to rely on help (not to be in need of care); Maintain autonomy and avoiding help of a caregiver at home.^{20 21}
- Due to physical limitations, household activities become more difficult: support areas such as household, personal care and hygiene, taking medication, dressing, cooking, cleaning, are needed.
- Support in to keep mobility²²

4.3.3. Needs according category “Social inclusion”

- Need of sociality and communication also emerged clearly: Maintain their social relationships and become more proactive in daily living.^{23 24}
- Desire to actively shape free time: maintain social contacts, stay physically and mentally fit.
- Being needed, having a something to do and passing on knowledge to the next generation; Spending time with family and grandchildren.^{25 26}

Considering the pyramid of needs two of these three categories (Healthy life, Self-determined living) can be assigned to existential needs whereas Social Inclusion can be partly seen as a need of growth.²⁷

5. Co-Creation Workshop with Seniors

Based on the three categories Healthy life, Self-determined living and Social Inclusion extracted from the literature research a Co-Creation Workshop with seniors was conducted using the Value Proposition Model Canvas. The model focuses on the target group and illuminates the three areas of jobs, gains and pains. In the workshop we focused on fine-tuning these three categories and actively involve the target group (fig. 3, fig. 4).

¹⁴ Bertelmann Stiftung, Generali Altersstudie 2017

¹⁵ Bertelmann Stiftung, Generali Altersstudie 2017

¹⁶ Turjamaa, Pehkonen, Kangasniemi

¹⁷ Regionale Analysis Graz, I-CARE-SMART, 2019

¹⁸ Daniele, Marcucci et. al

¹⁹ Turjamaa, Pehkonen, Kangasniemi

²⁰ Daniele, Marcucci et. al.

²¹ Bertelmann Stifiun, Generali, 2017

²² Masterarbeit Wiedenegger

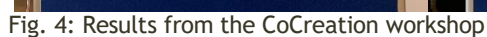
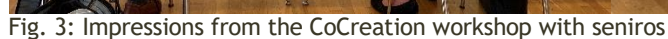
²³ Daniele, Marcucci et. al

²⁴ Turjamaa, Pehkonen, Kangasniemi

²⁵ Bertelmann Stifiun, Generali, 2017

²⁶ Regionale Analysis, I-CARE-SMART, 2019

²⁷ Maslow, 1943



1. Prevention
 - Legal provision, accessibility, health care
2. Being able to do household activities yourself
 - Physical tasks, cognitive tasks
3. Social and leisure activities
 - Volunteering and clubs, maintaining social contacts, exercise and sport (including intellectual exercise), further training and learning new things
4. Nutrition
 - Shopping, preparing groceries and eating

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5.1. The four main needs: Personas and their value proposition

On the 17th of September we conducted a Design Thinking workshop with our Task4 to conclude on the four main problems and needs of seniors in our region. We merged all results from the literature research and CoCreation workshops with seniors, formed four different personas and their value propositions.



Fig. 5: Impressions from the Design Thinking Workshop

In the following chapters you can find the four main needs in the region of Graz.

5.1.1. Need 1: Providing structure in daily life

If we want to help senior citizens to stay in their own homes with a good quality of life for as long as possible, we must...

...providing structure: To provide local tasks and tools that seniors can use to organize and structure their everyday life to give them joy."

We clearly recognized a need to create offers and tools that give structure in daily life but let elderly people choose what interests them.

A clear need emerged to create offers that support social integration of older people in their local communities, to create offers that bring people together and give them something to do. But not only it is important to create different offers but also create incentives and information to take up on offers, to motivating them.

Through participating in social events and meetings, people gain new information about other ways of support, making new contacts. But as already mentioned it is also important to motivating people to go out and get involved.

The seniors told us for them it is important that they stay mentally active and to remain physically active even in old age. It is an important need to preventing loneliness in old age and give them something to do.

Furthermore elderly people benefit from interacting with younger generations. Older people see value in exchanging ideas with younger generations. They think it keeps them young and prevents them from whining about physical suffering all the time. Due to exchange with children and young people it helps them to think positive.

5.1.1.1. Persona 1 and Value Proposition Canvas

Zita is 73 years old, lives in the city of Graz in a big flat in a Wilhelminian style buildings on the 3rd floor without an elevator. She has three children, four grandchildren and one dog. Her family lives not in Graz, therefore they do not see each other that often. Her husband died two years ago and since then she lives alone. She's still mourning her husband and often feels alone in her home. Zita has retired but had worked at as an assistant at the doctor's office of her husband. Therefore she is financially secure due to her pension and some money from her husband.

Zita has some health problems: She is suffering from a mild depression due to the death of her husband and often feels lonely and sad. Her husband was an important part of her life and cooking and taking care of matters for him gave her meaning in daily life. Now Zita often is bored and due to a lack of life enhancing activities is suffering from a mild cognitive decline.

Jobs:

- Doing household activities
- take care of the pet (vet, food, go for a walk, ...)
- Regular medical check-ups
- Physical activities - participating in a gymnastics group



- pay attention to appearance (going to the hairdresser, pedicure, ...)
- singing in a choir - once a week
- regular meetings with her friends (coffee parties)
- going shopping and running errands: she loves to go to the farmers market - the shopping experience
- Look after grandchildren - see them often

Pains:

- Suffering from loneliness
- She has no driving license - afraid of being limited in mobility
- Fear to no longer being able to visit hairdresser, pedicure,
- Fear of no longer being able to shop by herself
- lack of meaning in life - lack of everyday structure
- suffers because she is not seeing her grandchildren and family very often
- mild cognitive decline (forgetting appointments)

Gains:

- Feeling of being still needed in society
- have something to do in daily life (e.g. taking care of her dog, walking the dog, ...)
- stay mobile through regular exercises;
- being able to go shopping by herself (shopping experience,)
- Social interaction and exchange with friends and family (someone is listens to me and my worries)
- getting recognition from friends
- enjoying music by participating in the choir;
- Exchange with other generations is enriching (learning something new, stay open to new things, keeps her young)
- Seeing her family and grandchildren more often

Design Statements:

“As Zita, I would like my friends and family to spend more time with me and to contact me more often so that I don't feel so lonely.”

“I as 73-year-old, living alone, widowed pensioner wish to remain independent and mobile so that I can do my own shopping.”

“As Zita, I want to get more involved so I feel needed.”

5.1.2. Need 2: Support in barrier-free living

If we want to help senior citizens to stay in their own homes with a good quality of life for as long as possible, we must ...

...offer support in barrier-free living: create consultation for providing information and support in barrier-free living for senior citizens, both outreach and digitally

Seniors need to consider different situations for a living situation in old age and plan them early enough. Many older people repress this topic until it is too late and a fall has already happened. In this case moving into a nursing home is often the only option left.

We identified a need to raise awareness within the target group of elderly people to think about accessibility in old age of their own homes. It is important to develop the elderly's competences about what are the existing possibilities of support in old age, e.g. different kind of housing, technical support systems and so on. Therefore outreach and digital offers are needed.

5.1.2.1. Persona 2 and Value Proposition Canvas

Karl-Heinz is 65 years old and lives together with his wife and two cats in the sub-urban area of Graz in a big house with garden. He has a one son and 3 grandchildren, who are living also in Graz. He is very proud of his house which he built himself. He is responsible for craft activities in the household and taking care of the garden. His wife is doing all the other household activities like cooking, cleaning, doing the laundry. Therefore he depends on his wife.

Before retiring one year ago Karl-Heinz worked as a municipal official at the City of Graz.

Karl-Heinz is active in sports and is playing tennis regularly. He is also doing a lot of hiking and did some climbing in the past but he had to stop due to a shoulder injury. Karl-Heinz stayed young at heart.



Jobs:

- Doing craft activities in household;
- Driving to tennis court and playing tennis once a week;
- doing sports (hiking)
- regular therapy for shoulder injury;
- going shopping by car;
- taking care for cats (vet, food, ...)
- find your way around the big house (climb stairs)
- taking care of the garden (mowing the lawn, cutting trees, ...)

Pains:

- Fear of old age (not being able to be physical active, losing mobility)
- Fear of no longer being able to drive his car (no mobility without a car)
- Fear of being dependent on others;
- Fear of not being able to get along in own home any more (climbing stairs, taking care of garden and his cats, ...)
- Fear of having to give up the house and garden;
- Fear of moving to the nursing home
- Fear that wife will get sick and/or die;
- Being dependent from wife: he can't cook, wash, ...

Gains:

- staying physically active and fit as long as possible;
- to live in his house until old age (taking care of garden and house)
- finding possible cheap and easy ways to making adjustments in the house (barrier-free remodeling of the house)
- finding smart and inexpensive ways to adapt house so he can stay in it even with physical restrictions
- maintain house for the next generation;

Design Statements:

“As Karl-Heinz, I would like to find support when needed so that I can take care of my house and garden.”

“I as a sporty-active, young at heart 65-year-old pensioner wish to find a clever solution to adapt my house so that I can stay in it until I die.”

5.1.3. Need 3: Local offers supporting an intergenerational coming together

If we want to help senior citizens to stay in their own homes with a good quality of life for as long as possible, we must ...

... support local offers that support an intergenerational exchange and provide possibilities to participate in different local communities for seniors

- Seniors need to have possibilities to interact, participate and offers where they can find local groups to interact.
- Seniors want to be recognized and have the feeling of “I am still participating in society”.
- Seniors want to participate and stay in touch with generations.
- Being socially active will enhance health and well being.

We identified a need of being socially active within the target group of elderly people. It is important to provide the elderly different appealing possibilities to interact and participate in their local communities. To get in touch with different generations and people fosters the feeling of being updated and to know what is going on in the world. Seniors have time and want to spend it in a meaningful way.



5.1.3.1. Persona 3 and Value Proposition Canvas

Eleanore is 77 years old and is living in a flat in Graz. Eleanore is a former mathematic and geography teacher and a very open minded and interested woman. She has one daughter and her beloved husband died recently. After the death of her husband she was very sad and isolated herself in her grief. After some time, she decided to have a look at the good sides of life again.

She is very into learning new things and get to know different perspectives. Her daughter is living in Vienna and is a very busy scientist and mother of two sons. They hardly ever visit Eleanore in Graz. In earlier times she visited them more often, but now she does not like to travel to Vienna due to her back pain. Eleanore has a smartphone and is getting more and more comfortable with it. She attended trainings classes to learn how to use it. She also participates in group travels, that are organized by the local newspaper for several years now. Unfortunately, this years' tour to Israel was cancelled due to the COVID 19 restrictions. Eleanore is always looking for possibilities to get in contact with her neighbors, new people and her surrounding communities and socially interact with them.

Jobs

- Looking for groups to be part of and learn new things
- Looking for right courses to learn what she needs (online banking, online shopping, how to create a photo book online etc.)
- Looking for new tasks, where she can contribute in a meaningful way
- Likes to go on group travels
- Likes to do cultural activities like going in the museum or in the opera but also to attend talks about history and modern challenges
- Using WhatsApp to stay in touch with her family
- Using her smartphone to be up to date with modern life
- Is doing all of the household activities by herself

Pains

- Wishes to know the people of her surrounding better (neighbors)
- Wishes to be part of a group in her local communities
- Wants to contribute to a better world
- Wants to be part of a social network
- Has back troubles that limits her possibilities to travel and visit her daughter and grandsons
- As former teacher she misses places where she gets in touch with children and young people

Gains

- Being in contact with other people
- Spending time with other people, getting to know new opinions and perspectives
- Having joy
- Making a social contribution: "I contribute and I am important"
- Contributing to a better world
- preventing loneliness and boredom
- Getting information and learn new things from her social network

Design Statements:

"As a 77-year-old open-minded woman, I would like to contribute to a better society, so that I can help shape it and have the feeling of being a valuable part."

"As a 77-year-old pensioner, I would like to have more contact with young and old so that I don't feel lonely."

5.1.5. Need: Offers that enable mobility.

If we want to help senior citizens to stay in their own homes with a good quality of life for as long as possible, we must ...

... support offers that motivates seniors staying physical and mental active and maintain their mobility

We identified a huge challenge in restricted mobility of seniors: If elderly people are less mobile a negative cycle associated with poorer physical and mental health arises. If we want to work against this negative cycle, we have to enable mobility by providing motivating offers for seniors in order being physically and mentally active.



We also identified that the health system in Austria works well as long as people are mobile. As soon as their mobility is restricted (e.g. due to physical or cognitive decline), people can no longer easily access care and health-promoting offers.

If seniors have limited mobility it is important to enable and motivate them to do their activities (health checks, therapy, sports, etc).

5.1.5.1. Persona 4 and Value Proposition Canvas

Kurt is a 82 years widowed man living in Graz in a house. He has a son that is a busy social worker and one grandchild. Kurt is chronically ill. He suffers from diabetes, high blood pressure and has back pain as well as problems with his hip. Due to his hip problems he is using a stick as a walking aid. Kurt really loves his cat Maria. He takes care of her and buys the best food for her every week. He also loves to work in his garden. Kurt was a former employee for monument protection and likes historical artefacts. Therefore he likes to listen to radio shows about historical treatises. Kurt is not very good in small talk but he likes to talk to people who share the same interests. His son and granddaughter are visiting him twice a month which he always appreciates. He is doing all his task alone and does not like to ask people for help. He does not like handing things over to other people and losing control.

Jobs

- does his household activities all by himself
- takes care of his cat
- visits the cemetery of his deceased wife daily and takes care of the grave
- does all the shopping himself
- is mobile due to using public transport
- takes medication daily due to his chronic illnesses (forgets to take his medication regularly)
- knows he should do exercises to prevent back pain and hip problems, but often forgets to do them and doesn't like to do them all by himself either
- has a senior-friendly cell phone but does not use it because he does not like to deal with it and nobody has explained the use to him

Pains

- finds daily household activities exhausting
- lifts a lot (e.g. cat food, stuff for the garden and grave) which is tedious for him
- forgets to buy fresh ingredients for cooking and eats snacks too often
- wants to live at home until his death but realizes that it is getting harder and harder
- has worries about who will look after his cat when he is no longer there
- wants to stay at home independently and without assistance
- is afraid of falling, therefore he avoids not necessary physical activities
- is afraid that his son will transfer him to the nursing home

Gains

- would enjoy going for a walk more often
- wants to be more physically active
- wants to have a better feeling of security regarding falls and living longer at home alone
- wants to meet other people with similar interests
- wants to have fun and joy
- wants more variety in his daily routine
- less pain (back pain, hip problems, ...)
- wants to shop food for his cat by himself
- wants to work in the garden and do the things the way he wants

Design Statements:

“As an 82-year-old man I wish that my back pain would get better and that I could walk safely, so that I can buy cat food and do gardening on my own”

“As Kurtl, an 82-year-old sprightly pensioner, I wish that I never fall, so that I can stay at home until I die.”

6. Business Needs

We used the results from the literature research to put together an online survey to define the demand companies and start-ups have at a “Smart Elderly Care Living Lab” and what services they are interested in from such a lab. About 60 companies in the region Graz participated in the survey in July and August 2020. The survey was promoted by Taks4-members in the business and university sector through social media, newsletter and other networks.

The results show:

- 44% of the participants work in the Business to Business sector and 36% in the Business to Customer sector.
- 44% are large companies with more than 250 employees, 30% are small companies with less than 50 employees.
- Most of the companies in the region who participated in the survey offer consumer and leisure services and products (32%), services in education (26%) or assistive technologies (21%) for elderly people.
- The companies mentioned the following aspects as the main reasons why the silver economy is still a rather small market in Austria:
 - o Little attention to the target group of senior citizens in society (37%)
 - o Insecurity of companies in working with the target group of senior citizens (27%)
 - o Companies have not recognized the purchasing power of senior citizens yet (22%)
- 30% of the participants have already used CoCreation as a method in developing services or products. On the other hand the companies rated their experience with CoCreation with people 60+ rather low. As reasons they mentioned a lack of time and money.
- The companies could imagine to use the following services in a “Smart Elderly Care Living Lab”:
 - o Networking (68%)
 - o Implementation and support of CoCreation processes (55%)
 - o Support in conducting interviews, surveys, focus group discussions, ... (55%)
 - o Defining the target group (45%)
- They would like to use the feedback of endusers in every step of the product-/service development process (needs assessment, ideation, testing and evaluation, prototyping).
- 55% of the participants could imagine to pay for services of a “Smart Elderly Care Living Lab”. 58% of those would like to pay for such services on demand. 27% could imagine to financially participate as a owner in a Living Lab.

6.1. Sustainable Business model Canvas

▣ Customer segments

The main customers of the I-CARE-SMART Living Lab for smart elderly care we want to create value for are businesses who want to develop smart products or services for elderly people, their relatives or people who work with elderly people. More specifically we offer our services to start-ups and students that just developed an idea for a new product and service and want to offer them the possibility to co-create their ideas with the target group of elderly people. But we also offer the living lab service to SMEs and even large companies which need support in cocreation.

To reach those start-ups and companies we will need strong partnerships to promote our services. Those partnerships are described later on in the document in the bullet point “Key Partners”.

Furthermore we look at elderly people as another important customer group which we want to include in development processes from the start. Therefore it is important to build a trusted network of seniors who want to participate. To include them in development processes is a good possibility to give them a voice and create value for this group of people.

Another important customer segment are research institutions which can also use the services of the living lab for their ongoing research. But we also look at universities and other research institutions as important partners and experts which offer their expertise in cocreation methods and innovation processes.

In addition different public authorities are also important customers to use the services of a living lab for elderly people. In our point of view they also should use cocreation methods to develop and adapt their products or services for senior citizens.

▣ Value proposition

An important goal of the I-CARE-SMART Living Lab for smart elderly care is to offer a platform in Graz to work on social innovation for and with elderly people. The Living Lab should bring together all important stakeholders of the quadruple helix to support this goal.

To create such an innovation hub in Graz also allows politicians publicity and market the living lab and innovation processes as a part to strengthen the region.

Value for Businesses and Public Authorities:

The main value of the I-CARE-SMART Living Lab for smart elderly care is to offer companies and various stakeholders access to cocreation as a method and to make a collaborative thinking a more common tangible experience for start-ups, SMEs and larger companies as well as for public authorities and research institutions.



Using the support of a living lab should help businesses to develop customer-oriented solutions more quickly and easily. The living lab service will offer business to continuous access to the target group and help them to quickly assess the current needs of the target group. Therefore they will get a better understanding about the target group of senior citizens in general. Furthermore further development potential can be identified.

Through cocreating within the living lab we want to create higher innovation performance due to larger networks and united resources. The start-ups, SMEs and large enterprises, public authorities and research institutions get the opportunity to be part of a network, which can be accessed when needed and allow long-term joint development. We are convinced that such a living lab will strengthen the region as a business location and create Styrian success stories.

The results from the online survey (chapter 6.) also give an idea on possible values of a living lab for businesses in our region.

Value for seniors:

Beside create value for businesses the I-CARE-SMART Living Lab for smart elderly care will furthermore enable the active participation of senior citizens in creating, developing and testing new products and services. We want to give them a stronger voice in the process by including their direct feedback and bring them together with businesses. As we already described in chapter 5.1. seniors have the need to actively participate in society even in older age, they want to have something to do and have the feeling their opinion still matters in society. Involving them in cocreation processes in a living lab allows such a thing and can provide a community where people belong to.

Often services and products lack the involvement and needs of elderly people. We want to raise awareness within businesses, research institutions and public authorities to actively involve seniors right from the start and therefore create tailor-made products and services.

▣ Channels

First of all it is important to raising awareness on the living lab services and cocreation in general. We want to achieve this during the I-CARE-SMART project and the regional pilot actions.

According to the different costumers we need to promote the living lab service individually to the different costumers. Business need different channels than seniors or public authorities. We need to define those individual approach of communication more precisely during our project.

For the businesses and public authorities network events and information through electronic media may be appropriate channels. Seniors may prefer social events, information events and personal contact through meetings and written invitations.

Other important channels may be public exhibitions and fairs to reach businesses, associations, health care organizations as well as seniors. But also existing partners of the living lab can spread information on the living lab services. Furthermore we hope to gain partnerships with local media to use them as information channels.

▣ Customer Relationships

We want to establish professional relationships with businesses, public authorities and research institutions in a entrepreneurial framework.

Over all we distinguish between one-time relationships and long-term relationships. For businesses, public authorities, research institutions which use the living lab service only once the customer relationship will be limited for the time of the assignment. Businesses, public authorities or research institutions which participate more actively in the living lab service over a longer periode of time or even become members the relationship will be more long-term.

Another form of long-term customer relationship needs to be established with the senior panel itself. They need to be involved and informed about the ongoing work of the living lab and project progresses. Furthermore it is important to give them possibility to use their participation in the living lab as a chance to build new relationships with others others and find a welcoming community.

▣ Revenue Streams

The I-CARE-SMART Living Lab for smart elderly care should become a non-profit collaborative association of the quadruple helix partners in graz funded through differen revenue streams.

- Research Funding and other fundings (business development) available
- Revenues through long-term alliances of businesspartners, public authorities, research institutions and sponsors (memberships)
- Possible Revenues through small contribution (membership fee) of companies
- One-time revenues from clients using the living lab services (public authorities, businesses, reasearch insitutions) for a defined task and time
- Subsidies from public authorities (federal governments, City of Graz) should help in the early stages of the living lab.

▣ Key Resources

To make the I-CARE-SMART Living Lab for smart elderly care possible it needs experts for research methods and cocreation methods as well as experts for innovation processes. Furthermore, it needs a diverse pool of elderly people, that wishes to contribute in the different co-creation activities. To keep all different partners and especially the end-users together



and have an organized network the I-Care-Smart service needs a panel manager. He or she needs an office and all equipment that he/she can fulfil the tasks. The service also needs a clear model of financing and have defined prices for all offers.

□ **Key Activities**

The key activities address cocreating better solutions for the elderly and putting senior citizens in the center of development processes in Graz even stronger.

The service shall build and maintain a network with different stakeholders and experts of the Quadruple Helix (business, public, community, academia).

Within the living lab service people have the possibility to get connected with research, businesses, public authorities and end-users.

The living lab has a clear catalogue of offers (research activities, defining target group, conducting co-creation sessions, real-life tests etc.) and promote the added value of cocreating within PR. The key activities will include establishment and management of the customer relationships and living lab network. For end-user we will also need events and offers to build a community and to keep them motivated.

□ **Key Partnerships**

The key partners of our living lab are the different local actors of the Quadruple Helix:

Public authorities:

- City of Graz (various offices);
- State Councillors for Economy and Health.
- Health care facilities and organizations (as end users or providing access to the target group)

Research

- Universities and universities of applied science in the region (research)

Business

- Businesses that are offering products or service for people 60+ or for people that are working with people 60+
- various clusters in Styria to reach companies;
- Consultants in the field of innovation;

Community

- Seniors
- Caring relatives
- Senior clubs and Organization that are working with seniors

Furthermore it need partners from media to do PR activities like media partners from local newspaper and radio stations.

□ **Cost Structure**

Overall the I-CARE-SMART Living Lab for smart elderly care will focus on social innovation and providing social value.

The cost structure of the service shall consider some fixed costs as the salaries of the panel management, equipment and costs for renting rooms. The service itself needs to contract experts for the different co-creation activities and to consider related costs for equipment, catering.

To provide incentives to the target group it needs a kind of thank you for participation. To build a community within the end-user it needs to organize some events, sending newsletter and consider these kinds of costs.

To make PR and promote the added value of co-creation and living labs it may need money for advertising as well as money to organize promotion events.