HANDBOOK ON
CoCreation

TAKING
COOPERATION
FORWARD

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CONTENT

1 INTRODUCTION

1.1 Methodology

The Handbook on Co-Creation is based on the findings of the regional analysis and the first insights of the Task 4 Training. It gives an overview about what Co-Creation is and how it supports engaging Businesses and Seniors. Beside that the reader learns about methods and tools that can be used to initiate Co-Creation.

1.2 CoCreation

On the macro-level, Co-Creation is an innovation strategy where companies produce innovative assets in distributed knowledge networks (Durugbo & Pawar, 2014). This approach has become a widely adopted practice of innovation within firms (Kazadi, Lievens & Mahr, 2016). Co-Creation is a shift of thinking on how companies, project teams or student groups produce their creative assets and deliverables (Ind & Coates, 2013) to meet their business KPI-s (Saarijärvi, Kannan & Kuusela, 2013) or gain competitive advantage (Durugbo & Pawar, 2014).

On the micro-level Co-Creation is a process in which multiple stakeholders work together to design and implement assets that produce value for all stakeholders (Durugbo & Pawar, 2014). Even though Co-Creation covers a wide range of methodologies, some similarities are common among these processes. In the next sections I describe common characteristics of the participants and goals of Co-Creation processes.

Co-Creation means to involve the customer in the service design or creation. Co-Creation can range from the integration of customer ideas into the product development process, through the selection of ideas by customers, to customised design.

Participants

Co-Creation processes often involve target groups that will interact with the assets in the future. The active involvement of these stakeholders makes room to ascertain the pain points, needs and evaluation criteria of people who will use the asset (Durugbo & Pawar, 2014). Deciding on who to involve is one of the cornerstones of a Co-Creation project and is often well-planned (Durugbo & Pawar, 2014).

It is common that certain participants represent a target population or stakeholder group in the Co-Creation process, such as business decision-makers and elders (Karahasanović, 2009, Steen, Manschot & DE KONING, 2011). Participants of the Co-Creation process are often diverse in professional background (Ind & Coates, 2013), age (Karahasanović, 2009), occupation (Kazadi, Lievens & Mahr, 2016) or organizational responsibility (Saarijärvi, Kannan & Kuusela, 2013). Some of the participants take a value-creation role, as their main contribution to the process is sharing their knowledge and competence. Some of the participants take a value facilitation role, as they provide resources, assets and information to enable value creation (Grönroos, 2017).

Goals

The goal of Co-Creation processes is to create value for stakeholders represented by the participants of the team. Value is any actual or perceived benefit or worth such as tangible goods, processes, services or information (Durugbo & Pawar, 2014). Co-Creation practices are interactions that lead to value creation. Value is a subjective perception and emerges because of Co-Creation (Arnold, Knödler, 2017). Even though value creation is usually reciprocal, the value is usually created for the initiator of the Co-Creation process, which is usually a company or a firm (Saarijärvi, Kannan & Kuusela, 2013, Kazadi, Lievens & Mahr, 2016) and created by customers (Grönroos, 2017). For this reason, Co-Creation and co-production might be a useful differentiation, where co-production refers to the clear role division of value facilitators (usually the firm) and value creators (usually the participants) (GRÖNROOS, 2017). In this service dominant perspective, firms initiate and facilitate this process to personalize and develop the services they offer (Grönroos, 2017, Ind & Coates, 2013), improve the customer experience (Mukhtar, Ismail & Yahya, 2012, SERV) or functionality (Durugbo & Pawar, 2014) of a product, understand customer habits before design and development (Karahasanović, 2009) and invent solutions to stakeholders needs (Bogers, Afuah & Bastian, 2010).

During the process, value is produced by each stakeholder group sharing their unique knowledge and the interaction of these groups as some of the goals might be beyond the capabilities of any individual stakeholder (Durugbo & Pawar, 2014). Some Co-Creation models conceptualize Co-Creation in knowledge transfer terms,

where the main resource of the Co-Creation process is the knowledge and competence base of the group. Rowley (2007) notes that the transformation happens first by giving meaning to the data and then making it actionable (Rowley, 2007). In this framework, Co-Creation is the application of these transformation functions on the knowledge resources of a diverse group. Many Co-Creation initiatives involve stakeholders external to the company to enrich the knowledge capital of a firm (Kazadi, Lievens & Mahr, 2016). In the more asymmetrical service dominant model, Co-Creation is differentiated from co-production, where service providers only facilitate the process, and the value is generated by consumers (Grönroos, 2017).

The process itself also generates value for the participants by helping them understand and empathize with other stakeholders (Durugbo & Pawar, 2014), however they are often incentivized to participate (Kazadi, Lievens & Mahr, 2016).

1.3 Elderly People & Regionals Findings

The legislation is not quite clear with the definition "WHO IS SENIOR", commonly senior is a person receiving a (old age) pension or a person in the age when he/she can receive it. Currently it is the age 60+, nowadays however this age limit is higher (average age for to be retired is approx. 62 years, it will be higher in future) and consequently understanding the "who is senior" is changing. Labour market however takes this age limit much lower, currently 55+, as persons of this age meet problems with employment.

1.3.1 Seniors in the Czech Republic

Seniors in the Czech Republic are spending much more money for their basic needs: food, housing and health. Poverty can be a threat for 9.2 % of women and 8.3 % of men in the age 50-64; and for 12.4 % of women and 5.4 % of men in the age 65+. In general, lower income is affected people with longer time of receiving pension.

Seniors are very heterogeneous group numbering almost 2 million people. Heterogeneity is given by age, health, life expectancy, income, education, location of living (country vs cities), social relations, personal activities and life experience. And moreover important factors for 21st century are add-on: globalisation, migration, progress in technologies, digitization, …. There are big mental and perception differences among seniors for ages 55-60, 65-75 and 80+ and any communication with these groups should respect it.

There are few key aspects for a better quality of life: personal activity, civil engagement, volunteer activity, good social relations (family, community, village, parish). Important factor seems to be a family stableness which is not too high, the divorce rate over the last 10 years is between 44% and 50%.

The main coordinator for ageing policy is the Ministry of Labour and Social Affairs and basic strategy documents towards preparation for the population ageing were processed, unfortunately fulfilled / followed are rather formally. Pension reform is still missing though all politicians agree that it is unavoidable.

1.3.2 Seniors in Poland

Poland belongs to countries with a significant share of the post-working age group in the population structure. In 2011, it was estimated at 17.5% of the whole Polish population. According to Eurostat agency estimates from 2008, in 2060, Poland will belong to Central European societies with the largest share of the population aged 65+ (over 36% of the population). According to these estimates, the number of people over 65 will be 11.3 million in Poland. These data suggest that special attention should be paid to developing solutions targeted at older people and their activation in society. When talking about the exact number of seniors, it is best to determine it based on the number of people receiving a pension. In 2017, the number of pensioners in Poland reached the level of 6.4 million people. A year earlier, there were 6.3 million of them, and in the previous years, it was 6.25 (2015) and 6.2 (2014). We can see that the number of seniors increases every year. Thus, it should be noted that each year seniors will constitute a more prominent and thus more important group of end recipients. Therefore, particular emphasis should be placed on developing solutions tailored to the needs of seniors. As well as drawing the attention of entrepreneurs and service providers to the need to adapt already existing solutions to the needs of an ageing society and to conduct talks with seniors to co-create the best quality solutions. The average amount of the old-age pension paid by ZUS in March 2017 was PLN 2,133. In the statistical portfolio of seniors, 76.6% of income is income from retirement or disability pensions. One-quarter of the total monthly expenditure in seniors' budgets is expenditure on food. The second-largest item is expenditure on furnishing and maintaining the apartment and paying for energy. Another significant expense of seniors are expenses for communication - transport and communication constitute 10% of monthly expenses. Only then are health expenses, including medicines and other pharmaceutical products, and visits to doctors, which together account for 9% of the monthly expenses of seniors. Considering that in the coming years, pensions will increase, and the number of seniors will also increase, this shows how vital clients on the market are seniors.

1.3.3 Seniors in Austria

Austrians' life expectancy is among the highest in Europe, at 83.2 years for women and 77.7 years for men. By 2030, it is expected to rise further to 86.2 and 81.4 years. Austrians are not quite on the top of the table for healthy life years, at 58 compared to the European average of 62 and the Swedish value of 74. This means that there is plenty of potential to help people remain healthy and happy for longer into old age.

Co-Creation is a way to ensure that the needs of seniors have been incorporated into the development of products and services. This will lead to the fact that the products and services are really needed.

The Best Practices in Co-Creation in the region Graz/ Styria offer different approaches to Co-Creation and involve different types of stakeholders. Some of them are more focused on collecting ideas and providing a network for Co-Creation, others are more in developing a specific product or service. There are examples of long-term projects, of shorter processes as well of different tools like design thinking or online tools for Co-Creation. Open Innovation and Living Labs have already been recognized as potent tools and have established themselves in some areas. At the federal level, these approaches are being driven forward especially by various funding programs, which are using these tools to support cooperation between business, research and the public sector. There is a need to catch up with the involvement of users in development processes.
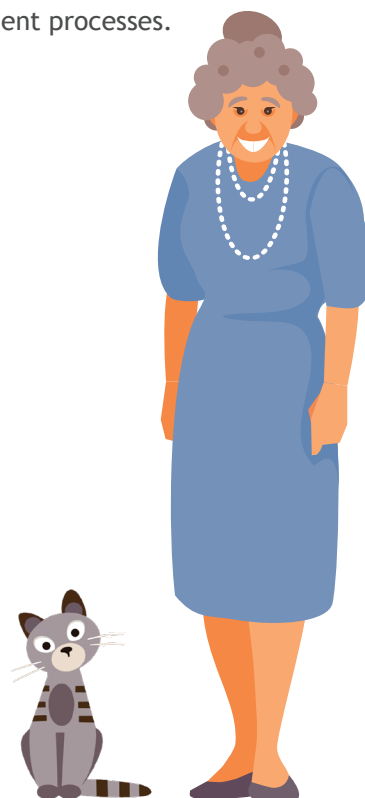
1.3.4 Seniors in Italy / Region Liguria

Liguria Region is a narrow strip of land between the sea, the Alps and the Apennines mountains in the north-west of Italy. Its particular morphology has two main effects: (i) a mild climate year-round and (ii) a high density of population on the coast, with a pick in Genova with 500 inhabitants per km².

The median age of Liguria population is 48.46, greater with respect the national median age that, at the same time, is the oldest of Europe according to Eurostat 2018 (see Figure 3). This means that in Liguria there is one of the higher median ages of Europe with an old-age index of 255. In this context accessibility and health care for older adults are keywords in the daily activities of local institution and population. The high density of population is not equally distributed in the territory, and for this reason there are difficulties for persons living in the internal areas, mainly to have the same opportunities and services of those living on the coastline.

Research of innovative solutions and the Co-Creation become year by year the must for the whole territory.

2 GENERAL CO-CREATION CONCEPTS

Based on the findings, the following section presents concepts and methods that are particularly suitable for co-creative innovation processes in the relevant domain. Adjustments are incorporated to ensure a high degree of fit between the special needs of the I-Care Smart target groups and the approaches under consideration.

Classical marketing techniques from the field of market research such as concept tests or test markets are not discussed in depth. However, it should be noted that these techniques can also be applied in a meaningful way depending on the project.

General Co-Creation Concepts are Design Thinking, World Café, Open Space, Service Blueprinting, Technology and Acceptance Test and Customer Insights. Each tool provides a framework to involve the customer into to Co-Creation process.

2. 1 Design Thinking

Design Thinking aims to bring together different experiences, opinions and perspectives on a problem in order to create innovations that focus on the user and solve his problems in the best possible way. To achieve this, Design Thinking uses approaches from the field of design, which is user-centred due to its very own perspective. Design Thinking makes it possible to overcome traditional and outdated models of thinking, learning and working. It is capable of solving complex problems in a collaborative and creative way. The approach to be applied is characterised by collaboration, partnership and cooperation. This determines the success of Design Thinking. An experienced moderator can also have a significant positive impact on success. It comprises the following elements (see also Figure 1):

- **People:**
  Innovation is best created in a heterogeneous, multidisciplinary team of roughly five stakeholders. This makes it possible to find ideas that transcend disciplinary boundaries. The team avoids competitive thinking and emphasizes their commonalities. This creates an open space from which innovative ideas can emerge. It can be useful to involve methodically trained coaches.

- **Place:**
  The ideas unfold in a suitable, preferably variable working environment. This includes sufficient space for whiteboards, presentation surfaces and movable furniture. Materials are also available for the prototypical design of ideas. The place can be adapted ad-hoc and without much effort to the requirements of the project. It is also desirable to choose an arrangement that allows for exchange with teams working in parallel.

- **Process:**
  The Design Thinking innovation process is based on six phases that are arranged iteratively. The problems of potential users are in full focus, as the team applies analytical and creative-intuitive thinking patterns throughout the process. Errors are explicitly allowed or even desired, since co-creative thinking can also go beyond the limits of what is feasible to explore new frontiers. Depending on their complexity, the sub-processes are time-consuming and can be structured as follows:

  - **Understand:**
    Rather than going straight to the apparent solution, an understanding of the problem must first be derived to discover the issues and challenges involved. The problem definition can be kept open, which stimulates discussions and brainstorms.

  - **Explore:**
    Here the focus is on gaining an understanding of the problem from the user's perspective and developing empathy for user needs. For this purpose, users can be interviewed or involved in the innovation process.

  - **Synthesis:**
    The aim of this step is to transform the findings from the exploration into knowledge about the users (or customers). For this purpose, impressions can be discussed, or methods of empirical research can be applied. From this, a persona is to be created, i.e., a prototype of the ideal user of the innovative solution that makes the needs and problems tangible.

☐ **Idea:**
Different forms of brainstorming and other creative techniques can be used to develop concrete ideas and solutions that are suitable for solving the problems of the persona.

☐ **Prototype:**
A first version of the innovation can now be built with all kinds of materials (cardboard, Lego, plasticine, and so on) for illustration. Ideally, the prototype includes the core functions of the innovative solution.

☐ **Test:**
The prototype is tested in workshops or similar arrangements (as elderly people may not be interested in evaluating the prototype in a concrete session). Improvements are identified and introduced into the process. Depending on the result, the project jumps into one of the previous phases or the Design Thinking is completed.

Figure 1:
Elements of Design Thinking
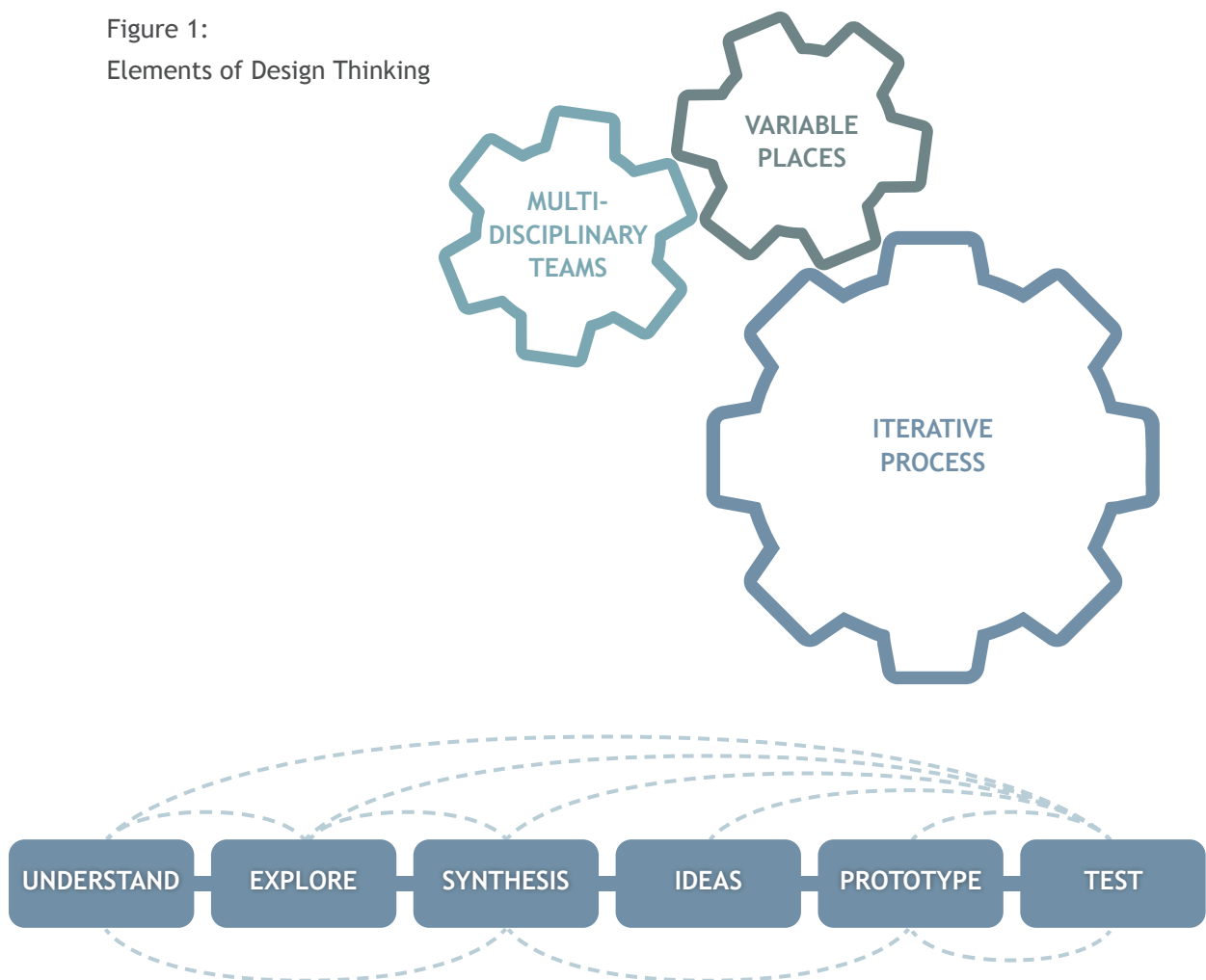
2.2 World-Café

With World-Café, the actors involved in the innovation process can be brought into conversation with each other to discuss problems and questions in small groups. The discussion rounds should resemble everyday conversations in a street café as much as possible. A prerequisite for successful outcomes is an open and friendly atmosphere at the café tables. The right questions are a critical success factor of a World-Café. They should be formulated in a simple and understandable way, but at the same time be exciting and make the participants curious to get into conversation. A deepening of the discussion is made possible by changing and mixing the actors. Finally, there will be a joint final round where the actors present their results. Hence, World-Café can be broken down into different phases:

- The first step is a welcome. The hosts (discussion group leaders) explain the process.

- In the second step, parallel discussion rounds of 15-20 minutes are held at different tables of the café. Important aspects are outlined by the participants. This step is repeated several times, with the hosts staying at their table and the remaining actors being mixed, i.e., exchanging seats with actors at other tables.

- In the third step, the findings are presented with the help of closing speeches.

2.3 Open Space

If many actors participate in the innovation process (more than 20), then the Open Space method is suitable. A characteristic feature is the openness of content based on a common main topic. Participants communicate topics (e.g. frailties due to age) they have chosen themselves to the plenum and initiate their own working groups. This requires an adequate infrastructure, since a wide variety of ideas, concepts, and results can be created in a short time.

The aim is to break down a complex topic into sub-topics in a short period of time with many people and to work on them in an innovative and solution-oriented way. Open Space therefore always has a superordinate topic that has at least one of these characteristics:

- The topic concerns and touches the participants. The solution should be available as quickly as possible.

- The topic is vague. Opens space for new ideas and creative solutions are needed.

- The topic is complex and there are many different ideas and approaches to solutions, but they cannot be implemented by one actor.

- The topic is of great importance for the actors (see section 1) involved.

2.4 Service Blueprint

Service Blueprint is a method for visualizing integrative processes, i.e., processes that are characterized by the integration of resources of several actors. This allows customers and other stakeholders to be included in the process map and their view of the process.

Blueprinting is useful when there are touchpoints that require a multi-perspective view. Touchpoints between stakeholders can be outlined. This is suitable for modelling the

- co-creative innovation process itself, but also for

- innovative solutions with a service character,

to shed light on the customer's perspective, touchpoints with the provider and experience management.

A Service Blueprint understood in this way complements approaches such as Design Thinking, but also classic management process models, with the process view of the stakeholders involved. Service Blueprints outline the concrete process of a service from different perspectives. Problematic interfaces, points of friction and conflicts can be identified, remodelled and resolved.

2.5 Customer Insights

Customer Insights (also known as Consumer Insights) aim to know the customer as well as you know yourself. This makes it possible to recognise and understand the problems, needs and wishes of the target group and to respond to them in an appropriate manner, i.e. to respond individually to pure individual needs. Often there are already large amounts of data about customers that can be used for this purpose. Based on the buying behaviour, experiences, convictions and values of the customers, one gains precise insight. It should be noted that customer insights go beyond simple studies and market research. Once patterns are identified in the data, they can be used to derive forecasts.

In methodologically advanced use cases, Consumer Insights is based on ethnological research and penetrates the "natural habitat" of the customer as unobtrusively as possible. This can be achieved, for example, through participatory observation in retirement or nursing homes. Interpretative procedures allow a precise idea of the problems and wishes of the target group to be obtained and considered in the innovation process. Consumer Insights can therefore be combined with Design Thinking or complement it sensibly.

A less stringent variant can be implemented by means of a focus group or in-depth group interview. This is a form of group discussion that is used in qualitative social research as well as in special parts of market research. It is a moderated discussion between several participants, which is usually based on a guideline (what is to be achieved?) and thus represents a form of semi-standardised interview. This method is based on the principles of communication, openness, familiarity, unfamiliarity and reflexivity. Its use is particularly meaningful in the early stages of creating ideas and concepts, as well as identifying requirements.

2.6 Technology and User Acceptance Tests

Acceptance, understood as the intention of potential users to adopt an innovative offer, is a necessary condition for market success. Technology and User Acceptance Tests can be used to evaluate this. Both approaches pursue quite similar goals and are sometimes regarded as synonymous. However, we understand Technology Acceptance Tests as an evaluation of basic features of a solution using statistical tests that can also be applied in early phases of the innovation project. They provide rich information even when no prototype type is available. User Acceptance Tests, on the other hand, are procedures that are applied when a technically nearly mature solution is available and can be tried out by potential users.

Technology Acceptance Tests are widely used in computer science, but also in other disciplines. The Technology Acceptance Model developed by Davis and available in several variants is considered a classic. The basic idea behind almost all Technology Acceptance Tests is that certain factors determine the user's intention to use the technology and this in turn determines the actual use. The Technology Acceptance Model mentioned above explains this by means of the factors perceived usefulness and perceived usability. These factors are not exhaustive and cannot be applied meaningfully to every technology. Depending on the specific innovation, it is therefore useful to include factors such as interpersonal influence, experience, computer anxiety, trust, perceived risk, convenience, reactance, knowledge, triability or awareness. The Theory of Reasoned Action provides a basic framework that distinguishes domain-specific reasons (characteristics of the innovation, target group attributes and environmental aspects) for/against the innovation and understands them as causes of innovation acceptance.
The implementation and evaluation of Technology Acceptance Tests require a lot of experience, knowledge and skills - also and especially in the field of statistics. It is therefore recommended to integrate external expertise into the innovation project. Regardless of this, the procedure is as follows:

1. Identification of domain-specific reasons for and against acceptance. For this purpose, the idea (or a prototype) has to be presented to the target group and the reasons for and against the solution have to be identified. Based on these findings, the core reasons are to be extracted, for example with the help of a qualitative content analysis.

2. Creation of a measurement model and transfer into a questionnaire. Here it usually meaningful to consult external experts, as this step is accompanied by great challenges and wrong or bad measurement models lead to wrong or bad results.

3. Interviewing the target group. Basically, attention should be paid to representativeness. However, convenience samples can also produce important findings under favourable circumstances.

4. Analysis and evaluation of the collected data. A suitable statistical method should be used for this purpose. Structural Equation Models are a preferable choice. Under certain circumstances, simpler statistical methods such as Partial Least Squares can be utilized. Since the evaluation is essential for a meaningful interpretation of the results, external expertise should be incorporated if it is not available in the project team.

5. Interpretation of the results and derivation of ideas for modifying the innovative solution. The goal here is to find a solution that increases the acceptance of the innovative solution.

User Acceptance Tests are tests that assess whether a solution works for the user. They are a preferred way to test features from the user's perspective and are essential for user satisfaction. The following questions are at the centre:

- Does the user find his way around the application easily and quickly?

- Which features are not intuitive enough?

- Does the solution help to solve the user's problems?

- Which improvements are possible?

User Acceptance Tests include users who can use the innovative solution in a meaningful way. This is the case if the solution can provide a relevant problem-solving contribution for the user. It is recommended to involve as many users as possible in order to include and receive as many perspectives, suggestions and ideas as possible.

A User Acceptance Test can be carried out in four basic steps:

1. Define criteria from which it can be deduced whether the solution functions as it should from the user's perspective.

2. Create a User Acceptance Test scenario. This is a collection of concrete scenarios and expected results. The latter refers to the expected problem solution from the user's perspective.

3. The scenarios have to be executed by the users. This is followed by an evaluation from the user's perspective (does the solution do what it is supposed to do?). Eliminate rlevant deficiencies.

4. After completion of the tests, a final acceptance round should be performed with the users. Here the main question is whether the major weaknesses have been eliminated and whether the innovative solution meets the expectations.

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3 CO-CREATION AS A MASSIVE CHANCE FOR ELDERLY CARE

It is fundamental to note that life expectancy increases due to better medical care and other context factors. The number of elderly people is also increasing. The importance of innovations for this target group is therefore an increasingly dominant success factor for numerous business models such as for Smart Elderly Care. Co-Creation is a process that involves joint activities of a provider with other stakeholders and aims to generate value for the parties involved and for other beneficiaries. Co-Creation with elderly people narrows the focus to providers and potential elderly customers. The importance of innovations for this target group is therefore an increasingly dominant success factor for numerous business models.

There are some peculiarities to be noted that are related to the target group:

- Elderly people are often less enthusiastic about technology than younger people. They suffer from age-related diseases and deteriorating senses. The usability of innovations must take this into account.

- Elderly people have more experience than younger people. There is less likelihood of replacing behaviours that have been learned and found to be useful with new behaviours. Ways and methods must be found to overcome resistance to innovation.

- Older people are less familiar with Co-Creation processes than younger people who regularly use social media channels and cooperate via the Internet. Ways and methods must be found to overcome resistance to innovation.

- Co-Creation with elderly people was identified as focal construct (phenomenon of interest). Based on prior knowledge and on the basis of the interviews it is to be noted:

- Co-Creation is a process that involves joint activities of a provider with other stakeholders and aims to generate value for the parties involved and for other beneficiaries. Co-Creation with elderly people narrows the focus to providers and potential elderly customers.

- Co-Creation is not identical with the term value (co)creation. Co-Creation refers to joint action, interaction and communication. Value creation refers to the benefit that emerges through Co-Creation.

There are numerous terms used to describe similar phenomena from different theoretical and practical perspectives. Examples include: co-production, open innovation, collaborative production and consumption, prosumer or co-worker.

In order to increase the readiness for Co-Creation, several strategies seem to be suitable:

- **Application of persuasion techniques:** To initiate Co-Creation with older people, classical influencing techniques are suitable. In particular:

- **Reciprocity** (showing mutual favours),

- **Consistency** (Co-Creation initially on a small scale and gradually expanding),

- **Liking** (building up sympathy, for example by showing common goals),

- **Authority** (presenting expertise),

- **Social proof** (showing that other older people are also involved) and

- **Scarcity** (Co-Creation as an exclusive process).

- **Incentives** (financial and non-financial)**:**
Financial and non-final grants support the readiness for Co-Creation. The latter aspect can, for example, be achieved by acknowledging the performance of the person concerned.

- **Relations:** The development and expansion of personal relationships can be used as a strategy for initiating and implementing Co-Creation.

- **Collaboration Networks:** Support through professional networks for collaboration increases the willingness and ability to participate in Co-Creation.

- **Compulsion:** In certain situations, it is impossible to develop an innovation and position it on the market if customers do not participate. This is the case, for example, if the innovation is specifically tailored to a particular life situation and can only be functional if the customer cooperates by providing information or other resources.

4 NEEDS AND WISHES OF ELDERLY TO UNDERSTAND HOW TO CO- CREATE

The wishes and needs of elderly people needed to be identified in order to set up a cocreational environment. There are general needs like social interactions, agility, fun and laughter but there are two main needs, that seem to be more important than all the others: Family bonding, support and independence as well as self-determination.

Family bonding and support and independence
are important factors for a good life. In general, social activities and interactions as well as places where social interactions are organized or take place are of great importance. For elderly people living in rural areas this means that they have access to transport. As for the living of a good and active life the sense of useful-ness and finding a "new" role in the society is also an important aspect for people in the post-productive age. In this context it is important that older people have social tasks and goals and that they receive social recognition and get the feeling that they are needed and that their experiences count. Having hobbies and to enjoy new experiences is essential for some to live a good life.

Self-determination
has been mentioned as an important factor for well-being, regardless the need for support and assistance. This includes all areas of everyday life for people still living at home, without being tutored by relatives, and refers to deciding on their own which services are needed e.g. nursing homes or mobile care. According inpatient care, this means being able to decide the time of eating or the daily routine according to one's own preferences. For mobile service providers, this means that more consideration is given to the wishes of those affected and not primarily to the needs of the relatives.

Best Practice
A Best Practice in the European healthcare system for the implementation of inte-grated care with patient orientation can be found in the southern Swedish town of Jönköping County. More than 20 years ago, the so-called Esther Network was founded there, which systematically connects communities, hospitals, primary A

Best Practice in the European healthcare system for the implementation of integrated care with patient orientation can be found in the southern Swedish town of Jönköping County. More than 20 years ago, the so-called Esther Network was founded there, which systematically connects communities, hospitals, primary care facilities and also some private providers in the health and social sector for the benefit of patients. To identify real patient needs and derive tailor-made services, the founders of the Esther Network invented symbolic person to represent any person or person with complex needs, a so-called "Esther".
System coaches, the so-called Esther coaches, form the core of the Esther network. These volunteers with a health professional background, working for the various interconnected care providers, promote the holistic development of the healthcare system, across organizational boundaries. Constantly they pose the question "What is best for Esther?" and align their actions with it and thus with vision. This allows them to change the health system step by step in detail.

The main requirements and barriers to challenge are:

- Health system/ Same high-standard for all people and no 3 class system

- No awareness of the possibility to close the lack of contact with the word and lack of communication through digital tools

- Urban-rural divide

- non-appropriate infrastructure leading to low accessibility

- **Insufficient adaption of the products and the need of Senior friendly designs**

- Internet as an unsafe environment

- a low level of appreciation and social recognition

- coordinating sustainable & reliable service in local communities

- reduce the fear of failure by providing digital trainings & digital service spots

- Low involvement of the elderly in the process is missing so far.

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5 SUCCESS AND DRIVEN FACTORS TO ENGAGE CO-CREATION BETWEEN FIRMS AND ELDERLY PEOPLE

Any communication from the business side should respect the findings above: the last almost 20 years in senior's life is spent with healthy problems of some kind (e.g., sighted, hearing, motoric, cognitive). There are known ways how to over-come the communication barriers caused by healthy problems – these are so called tools of assistive technologies (AT).

The question a lot of firms propose are:
How to connect with elderly people within the process of product innovation and development.

A lack of knowledge on Co-Creation or a lack of trusted relationship can be reasons for that. Several success and driven factors as well the consideration of best practices increase Co-Creation between firms and elderly people should be considered:

The **main requirements** and barriers to challenge that have been identified are

- The lack of specific knowledge on Co-Creation.

- The lack of specific funds supporting innovation and Co-Creation.

- The lack of trusted relationship.

- The lack of public support for Co-Creation.

The **Success Factors** to initiate Co-Creation and open innovation are

- Networking to connect and create trusted relationships.

- Goal Orientation with clear objectives of the tool and clear rules for the involvement.

- Financial Capital to have the possibility to match investors or to have support overcoming bureaucracy issues.

- Sharing Ideas & Problems to have a trusted situation regulated with clear rules.

There are three driven factors for Co-Creation: The Idea, The Need and the Opportunity. The idea for a new product/service or a new application of an existing product/service can be a driven for a firm[1].

The need is a cluster of driven factors such as, just to mention the main:

- the market need for a specific product/service[2],

- the customer need for a specific product or service,

- the need of a firm to increase its position on the market,

- the need of a firm to innovate.

The opportunity driven factor intent to identify different example of collaboration built to follow an opportunity of financing, an opportunity of networking, an opportunity of marketing and so on.

Based on the success factors, the driven factors and the description of some use cases the Business Engagement working group gave some examples on how Co-Creation could be initiated through the silver star platform (e.g., Matching)

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1 This concept is a little bit different from the idea-driven model in economy that aims in to evaluate the value of ideas as the engine of long-run growth [Jones, 1995; Coe and Helpman, 1995].

2 Market-driven product or market-driven strategy is a term used to identify a corporate strategy to follow the market trends and required to understand the market and the customers.

> **Matching**
>
> This model usually refers to business matching as an event or activity in which businesses find other firms to do business with.
> There are examples of f2f speed meeting supported by chamber of commerce or regional entities that aims to support sme in promoting their solution to big companies.
> For the purpose of business engagement in Co-Creation the matching is partially overlapped with this context. The Matching model for business engagement is an instrument for supporting the co-development of concrete projects that foster new solutions within specific topic
> (an example is available here https://www.match-er.com/).

Recommendations for the business development

- Map the actual senior's needs before any development decision: What you think it is good for seniors maybe is not the reality, make market research among the target group as a starting point (and make it in an accessible way).

- Developed products must be accessible (with accessible control), do not underestimate audibility, contrast and legibility of control description, easy control itself, ergonomics – and that all adapted for senior age.

- Look for governmental programmes to co-finance your idea service especially in the field of Social activity, Social participation, Digital inclusion, Preparation for old age.

- The most effective way how to help seniors in their everyday life is to design products based on electronics: Include university, industry research into your development.

Questions for interviews should cover following areas

- What are market sectors represented in the BPs (and characteristics: level local-regional-national, innovation level,

- Communication between involved stakeholders,

- Co-Creation process if any and its representatives,

- Dissemination of BPs.

6 CO-CREATION AT INTERREG I-CARE SMART

The Interreg I-CARE SMART Project has an intense Co-Creational approach, that engages the so-called Quadruple Helix to co-create with each other. Local and regional governments involved in the I-CARE-SMART project are committed to act as facilitators of innovation. They aim to offer an open space for Co-Creation. For that they will exploit existing channels through which elderly citizens are currently reached (e.g., the care system, senior communities, social networks).

Together with regional partners, there will be new quadruple helix innovation ecosystems that will create huge potentials for promoting innovation through a better understanding of user needs.

Within the project pilot projects had been selected by a transnational and national call to acquire ideas and start-ups for smart services for elderly

Those businesses were asked, if and how they cocreate with their target group.

- 85 Percent use methods, to get in contact with their target group seniors
  - ☐ Focus groups,
  - ☐ User workshops,
  - ☐ Roundtables,
  - ☐ Interviews,
  - ☐ Ad-Hoc meetings with the target groups.

- 57 Percent of the businesses use Co-Creation methods to conceptualize offers in a co-creative setting e.g.

  - ☐ Dreaming Workshops,
  - ☐ Dreaming Postcards,
  - ☐ Design with psychiatrists, psychologists and graphics (web)designers.

- 85 Percent us Co-Creational methods to test their products/ services
  - Real-Life-Testing with think-out-loud,
  - Real-Life-Testing with self-documentation and interview,
  - User Testing with think-out-loud.

7 CO-CREATION WITH ELDERLY PARTICIPANTS

It should be remembered that social support is one of the most important determinants of social integration that eliminates the risks of social exclusion. However, its implementation requires basing actions on the common sound principles, i.e., subsidiarity and social solidarity. Well-organized and coordinated cooperation can result in many relevant and useful actions that will not only contribute to eliminating the senior part of the local community's problems but will be appropriate prophylaxis, weakening the further consequences of the aging process, and in the dimension of the whole community.

Therefore, when attempting to analyze the contribution of seniors, and thus the senior title co-production, it should be demonstrated that, according to the information contained in the reports, in all case studies, the active participation of the elderly helped to achieve the assumed purposes. Adults care without considering the healthcare system is regulated at the national and regional level.

Another important fact is, that group types are for most people, the primary motivating factor for the concept and maintenance to join these activities. In turn, individual co-production occurred in the vast majority of social services. Besides, it is also a unique opportunity to use its senior potential, knowledge, skills, and life experience, often an underestimated source of social values. In the case of seniors, we are also dealing with collective type co-production, occurring regardless of the type of services provided. In some of the analyzed initiatives, the elderly were not only the primary beneficiaries (recipients) of services rendered, but they were also entrusted with essential functions in the implementation of individual services. In Poland, the number of initiatives aimed at reaching older people is increasing every year. However, most often, they are based on meeting the needs of seniors in social programs and state initiatives. Direct cooperation and joint creation of solutions addressed directly to seniors are still relatively limited.

The target group of seniors is very diverse. There are no specific co-creative methods that are specific to the target group. They also have different meeting rules. The focus here is that the participants feel very comfortable, that they know who the other participants are and that they understand what the goal is and how the process is. Personal social interaction and a clear structure are very important for the target group.

A Co-Creation process can be divided in the following different phases:

- Explore

- Co-create

- Test

Each phase is defined by a different goal. In the first phase Explore it is mostly about getting to know and understanding the target group. Characteristic here is that you define the relevant topic (like mobility etc) and plan different methods to gain an insight in end user needs.

In the second phase Co-create it is all about getting more focused ideas from end-users concerning a specific product or service.

In the last phase Test you already have a product and plan different testing sessions with end-users.
Some methods that can be used in all phases (senior advisory board, focus groups) can be described in a general part.

A detailed description of the mentioned tools is given in the Toolbox for Senior Engagement.

7.1 Explore

Everyone is an expert in their daily life. In the context of observations, everyday situations are created that the seniors are supposed to cope with. Here it is all about an open approach to receive insights in the target groups everyday life, what they experience, what they like/dislike, where they struggle, what their needs are.
Typical methods in this phase are interviews and an observative method like shadowing.

A concrete investigation plan can be leaded by the questions:

- *"What happened?"*,

- *"How did the participant feel?"*

- *"What can be done to convert negative feelings that have arisen into positive ones?"*

The aim of the exploration stage is to reveal the unmet needs of the elderlies by using Co-Creation techniques. This needs assessment can be done with a narrow or a wide approach.

Useful methods to explore are:

- Interviews

- Shadowing

- Senior Advisory Board

- Round Tables with Seniors

- Focus Groups

Senior Advisory Board

An advisory board is a body that can be implemented to engage end-users in different stages of the development process of a service or product. The advisory board provides non-binding strategic advice to the people in charge of the development process (management, developer etc.). The informal nature of an advisory board gives great flexibility in structure and management. The advisory board does not have authority to vote on corporate matters or bear legal fiduciary responsibilities. Many new or small businesses choose to have advisory boards to benefit from the knowledge of others, without the expense or formality of the board of directors. A senior advisory board can be used by public service providers, companies, projects etc. to establish a framework that makes sure to integrate the experience of elderly people.

Goal

The goal of a senior advisory board is to obtain the expertise of seniors, relatives and organizations representing senior. Therefore, it is useful to provide a suitable space and to create framework conditions that systematically incorporate their opinion into the processes of an organization/ project.

Participants:

The organizing party can be the company, service provider, project team (students) that work on a solution regarding elderly care. Depending on the kind of product/ service the advisory board should include seniors and if appropriate for the process also relatives and experts from organizations representing seniors. The maximum number of members is 8 people.

How to build an Advisory Board:

- Identify your needs: Identify what the organization, company, project team needs to achieve with an advisory board. The more specific, the better — a measurable strategic outcome is ideal. The goal is mainly about getting to know the perspective of the elderlies.

- Draft job descriptions: The company needs to draft written profiles of ideal candidates. Once the profiles are written, then an advisory board job description can be drafted for setting up the group and informing candidates on roles and expectations. Prospective board members should not have a pre-existing relationship with the company or its management team.

- Draft an agreement: When candidates agree to join as advisors, it is recommended to sign a job description or an agreement. While advisory boards can be informal, the use of formal documents supports the results and how they are dealt with them.

- Set key performance indicators. It is important to work towards milestones. Don't be shy in executing evaluations—good advisors want goals and to be held accountable.

- The organization, company, project team should provide a gift to say thank you—whether by paying for meals, travels, an honorarium, or even offering equity at some juncture[3].

3 https://www.toptal.com/finance/financial-consultants/advisory-board

> **Example**
>
> Within the concept of social services community planning (aiming at planning the local network of social services by asking about the real needs and searching for available resources so that the services can react to local conditions and fulfil individual needs) several city districts authorities in Prague operate senior working groups composed of experts on the issues of elderly care. Several regional authority bodies organize consulting organs composed of senior citizens. The Senior advisory board was also established in Slovakia in 2014 as a permanent advisory body of the government for solving problems for seniors.

7.2 Co-Create

If you have an insight on the target groups everyday life and how they feel regarding a special topic (like technology, mobility, etc.), you can go on with a narrower approach.

Now it is all about the details: How should the product/service look like?
What functionalities should it have? In this phase you can organize a setting where the target group finds a good atmosphere to bring in their dreams and ideas.
Useful methods top cocreate with elderly are Dreaming Workshops or Dreaming Postcards/Questionnaire.

> **Dreaming Postcards/ Questionnaire**
>
> This kind of workshop invites the target group to share their ideas about "the xy product/service of my dreams" with postcards or a questionnaire they can send back to you.
>
> If an early prototype already is developed, evaluation of the prototype and how it can be improved?
>
> ■ Demo session: show the prototype and his features. Ask in depth feedback on every aspect of the prototype.
>
> ■ Walkthrough and thinking aloud exercise

7.3 Test

Once the minimum viable product (MVP) is ready, qualitative testing is carried out in the next stage. The focus here is on qualitative testing in the areas of acceptance of the product in everyday life, usability and satisfaction. For this purpose, a human factor study (questions about the use of the prototype, observation during use) can be carried out. An important aspect for the success is having fun.

Useful approaches are

Real life testing with think-out-loud

Within this method users are trying out the product/ service in a real-life context, by organizing test settings. Ask the users to try out the product and can watch how they feel using it and take notes on what they chat about. Ask them to explain their thoughts about the product/service while they are using it.

or

Real-life-testing with self-documentation and interview

7.4 Organizing Co-Creation with the Living Lab Approach

Living Labs are open innovation ecosystems based on a systematic user Co-Creation approach that integrates research and innovation activities in communities, placing citizens in the centre of innovation. This user-centred approach allows reaching sustainable answers in smart elderly care. The Living Lab approach is not focused on single products, but on a research topic. Its aim is the evaluation of ideas, scenarios, concepts and related technological artefacts in real life use cases.

Living Labs are Open Innovation Eco-Systems that systematically initiate Co-Creation and place research and innovative methods in the communities so that the customer is at the centre of innovation. The Care Innovation Space is characterised by the fact that through the integration of the Quadruple Helix, interdisciplinary approaches emerge that enable Co-Creation and innovation across disciplines. The Quadruple Helix integrates government, business, clients and academia. The focus is on involving the end customer in the process of service creation.

This creates innovation with and through the end user. In the area of Smart Elderly Care, the focus of Living Labs, as in the example of Happy Aging and LiCaLab (Living Care Lab), is on care technology with a focus on medtech, mobile health or e-health and on exchange models in the care context (e.g., between companies and car institutions).

> **!** Living Labs follow the approach:
> *Explore - Co-create - Test - Evaluate (business model advice)*

Research is initiated and carried out in cooperation with universities. The results or questions are then discussed in the panel. Panels and communities are formed to involve the target group of end users in the service creation process. The panels consist of seniors, formal and informal care institutions but also seniors with illnesses. Furthermore, nursing homes, clinics and home care workers are also integrated into the panel. In addition to the regional network, there is also access to the European and international market. After the panel has worked out ideas, they are tested and then checked for their implementation.
For example, the Pathfinder for people with Parkinson's disease was developed. (https://walkwithpath.com/)

> **!** Living Labs use an Eco-System consisting of the Quadruple Helix involving science, business, politics and end users.

For more information for LiCaLab see: https://www.licalab.be/en

8 ENGAGING BUSINESSES IN CO-CREATION

8.1 Networks

It is necessary to continually educate the public and indicate that older people can be excellent consultants in the arsenal of entrepreneurs to create solutions targeted at themselves. There is a lack of tools showing how to reach seniors and teach entrepreneurs analysed how to start this sometimes-difficult cooperation. Regional hubs in life science following the regional smart specialization strategy. Tailor-made products or services require the participation of users in the innovation process, which gives them the opportunity to contribute experiences and ideas and to change products themselves. This gives companies a market advantage because people are more willing to pay for a product or service that meets their personal needs (cf. Schuurmann et al 2015). And for seniors, Co-Creation is an opportunity to get recognition for their experiences and their extensive knowledge and to find spaces for creative thinking in the group.

Examples
Poland: Poznań's *"Tytka Seniora"*.

Thanks to which entrepreneurs have the opportunity to reach seniors and consult their ideas and solutions with them. Seniors receiving reliable information, friendly service, and high-quality products are loyal consumers. Therefore, it is essential to create tools that will encourage cooperation with seniors and support existing initiatives.

Region Liguria

PLSV includes all main public and private entities in the field of life science. It support Co-Creation with the aim to stimulate demand for innovation and technology transfer, and creating a network that supports and increases the effectiveness of the companies involved. In 2018 it counts 90 members between public and private.

AUSER Liguria

It is an association of older adults that supports the active ageing. It represents the biggest network of older adults in Liguria with 270000 members and 54 locations throughout the region. it is involved in promotion activities, supporting services, transportation and so on thanks to a well-organized network of volunteer. It is involved by region, municipalities and business network in Co-Creation of innovative solution for older people.

8.2 INCUBATORS

To support innovative start-ups from the idea to the product, and mainly in the networking incubators can be initiated to engage business and provide support in how to co-create with elderly:

- **Regional start-up incubators,** are two structures coordinated by Liguria region through Filse spa and are member of the EBN (European business Network). They provide services from logistics, co-working area, specialised consultancy and support in the development of networking.

- **Digital tree incubator an incubator** for innovative start-ups in the ICT area. It this incubator was born (for example): -/Estro that create a product to stimulate/compensate neurological development; -Teseo that developed a plug&play systems allowing for an unobtrusive monitoring of a person's well-being (mainly older adults), without interfering with his/her habits, and automatically alerting relatives or assistance centres in case of need;- Pillohealth that provides solution to monitor healthcare at home, in particular the robot support older adults in respect the prescription and the diet.

- **The TUKE** incubator is a key component of the ecosystem of business acceleration, technology transfer and innovation to TUKE. The incubator provides an incubation environment to ensure the acceleration process for the establishment and development of small and medium-sized "Hi-Tech" companies, respectively. Start-ups and spin-offs of companies mainly based on relevant results of research and development carried out within research and innovation activities within TUKE, which eventually went through the pre-incubation process at the TUKE Start-up Centre, primarily in the following areas: Information and Communication Technologies , electrical engineering, automation and control systems, mechatronics and robotics, civil engineering, environmental engineering.

Bibliography

Arnold, C., & Knödler, H. (2017). HWTK Discussion Paper Series.

Bogers, M., Afuah, A., & Bastian, B. (2010). Users as innovators: A review, critique, and future research directions. Journal of management, 36(4), 857-875.

Czech Statistical Office: Czech Demographic Handbook - 2019 (publication to download https://www.czso.cz/csu/czso/czech-demographic-handbook-2019)

Czech Statistical Office: Animated Life Pyramids (https://www.czso.cz/staticke/animgraf/projekce_1950_2101/)

Czech Statistical Office: Demographic Annual Report - 2019 (publication to download https://www.czso.cz/csu/czso/demograficka-rocenka-ceske-republiky-2019)

Czech Statistical Office: Seniors and their expenses - 2019 (publication to download https://www.czso.cz/csu/czso/seniori-v-cr-v-datech)

Durugbo, C., & Pawar, K. (2014). A unified model of the Co-Creation process. Expert Systems with Applications, 41(9), 4373-4387.

European Commission – Eurostat, data for Poland. Source: https://ec.europa.eu/eurostat/documents/10186/10994376/PL-EN.pdf

EC – Eurostat, data for the Czech Republic (https://ec.europa.eu/info/statistics_en/) Grönroos, C. (2008). Service logic revisited: who creates value? And who co-creates?. European business review, 20(4), 298-314.

Ind, N., & Coates, N. (2013). The meanings of Co-Creation. European Business Review, 25(1), 86-95.

Jaakkola, E., Helkkula, A., & Aarikka-Stenroos, L. (2015). Service experience Co-Creation: conceptualization, implications, and future research directions. Journal of Service Management, 26(2), 182-205.

Karahasanović, A., Brandtzæg, P. B., Heim, J., Lüders, M., Vermeir, L., Pierson, J., ... & Jans, G. (2009). Co-Creation and user-generated content–elderly people's user requirements. Computers in Human Behavior, 25(3), 655-678.

Kazadi, K., Lievens, A., & Mahr, D. (2016). Stakeholder Co-Creation during the innovation process: Identifying capabilities for knowledge creation among multiple stakeholders. Journal of Business Research, 69(2), 525-540.

MPSV ČR (Ministry of Labour and Social Affairs): Strategie přípravy na stárnutí společnosti 2019-2025 (publication to download https://amsp.cz/wp-content/uploads/2019/08/Strategie-přípravy-na-stárnutí-společnosti-2019-2025-ma_ALBSB-ADJYUA2.pdf)

Mukhtar, M., Ismail, M. N., & Yahya, Y. (2012). A hierarchical classification of Co-Creation models and techniques to aid in product or service design. Computers in Industry, 63(4), 289-297.

Raport InfoSenior. Source: https://zbp.pl/public/repozytorium/wydarzenia/images/styczen_2018/ZBP_InfoSenior_18.01_f.pdf

Rowley, J. (2007). The wisdom hierarchy: representations of the DIKW hierarchy. Journal of information science, 33(2), 163-180.

Saarijärvi, H., Kannan, P. K., & Kuusela, H. (2013). Value Co-Creation: theoretical approaches and practical implications. European Business Review, 25(1), 6-19.

Statista: Average age of the population (paid download https://www.statista.com/statistics/369760/average-age-of-the-population-in-czech-republic/)

Steen, M., Manschot, M., & De Koning, N. (2011). Benefits of co-design in service design projects. International Journal of Design, 5(2).
Tomczyk, Łukasz: „O wykluczeniu cyfrowym seniorów w zinformatyzowanym świecie"

Zajíčková, D.; J.Vlach, S.Severová: Struktura spotřeby domácností zaměstnanců a důchodců v letech 2004-2008, sociálně-ekonomické souvislosti na začátku 21. století; VÚPSV Praha 2010

Zd.Pernes: Osobní spotřeba důchodců v letech 2004 až 2013; Rada seniorů ČR, Praha 2014