



CO-CREATION HANDBOOK

The I-Care Smart Co-Creation Handbook

Version 1
03 2020



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1. Introduction

Beside the insights gained from TWG CO Creation (Co), it also includes insights and findings of TWG Business Engagement (BE) and TWG Senior Engagement (SE). Hence, the findings from those summaries have also been incorporated into this paper. It should also be noted that BE and SE cover specific aspects of co-creation that are not the focus of this handbook. Therefore, please refer to the corresponding summaries and toolboxes, which deal with those subjects in detail and also contain recommendations for design and action

1.1. Problem statement

The special needs of elderly people are a social and societal challenge. Innovative products and new services (the application of competences for the benefit of another party) can be utilized to meet these needs. New business potential is created for providers who find suitable solutions. However, the question arises of how these solutions can be identified, conceived, developed and marketed.

Providers can carry out innovation processes in a technology-driven or customer-oriented manner. However, both pathways quickly reach their limits, since finding suitable solutions is usually more successful if ideas, knowledge and skills that are outside the company's boundaries are integrated. This requires *the willingness and ability to co-create solutions with other parties*, especially with elderly people, with companies, with the public authorities and with researchers (see Figure 1). The I-CARE SMART project aims to support the co-creative innovation process in the domain (elderly care) with a comprehensive set of instruments and practical guidance.

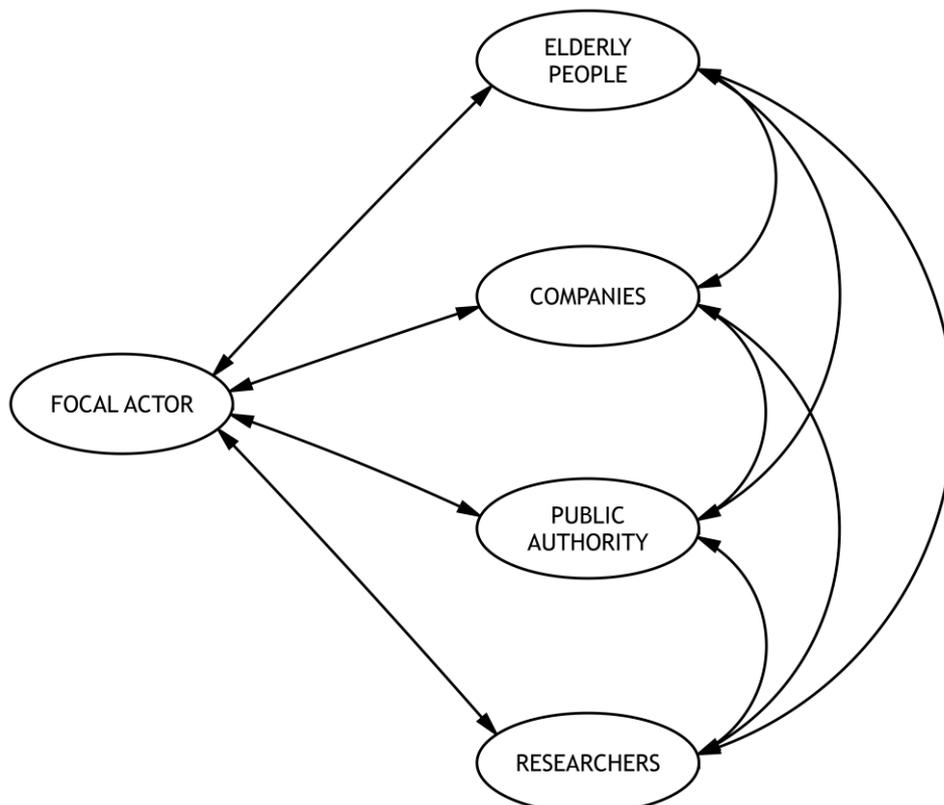


Figure 1: Co-creation main actors



1.2. Framework

Co-creation is a process in which several actors work together to design and implement solutions that create value for the parties involved. Deciding on who should be involved is a cornerstone of a co-creation project and must be planned, controlled and implemented. The active participation of customers (or users) during the development process creates space to determine pain points and needs. Other stakeholders (companies, public authorities, researchers) can also be involved in co-creation processes, allowing each stakeholder to contribute and share their unique knowledge through participation.

Value (in-use) is the result of interaction between the parties involved and emerges during or after co-creation. To take this into account, the handbook is based on the Unified Framework for Co-Creation (UFCC, see Figure 2), which in turn was derived from the Customer or Stakeholder Integration Framework using the findings of the empirical studies conducted (see summaries). UFCC assumes that multiple actors have tangible or intangible resources such as capital, knowledge or skills at their disposal, which they integrate to a jointly coordinated and executed creation process. This process is framed by a specific context (roughly the situation and environmental factors in which the co-creation process is executed). One or more actors take over the main steering and coordination tasks. As a result, new resources (tangible or intangible) for each actor are created that can be integrated into subsequent processes. These new resources include the innovation itself, new experiences, new expertise, and so on.

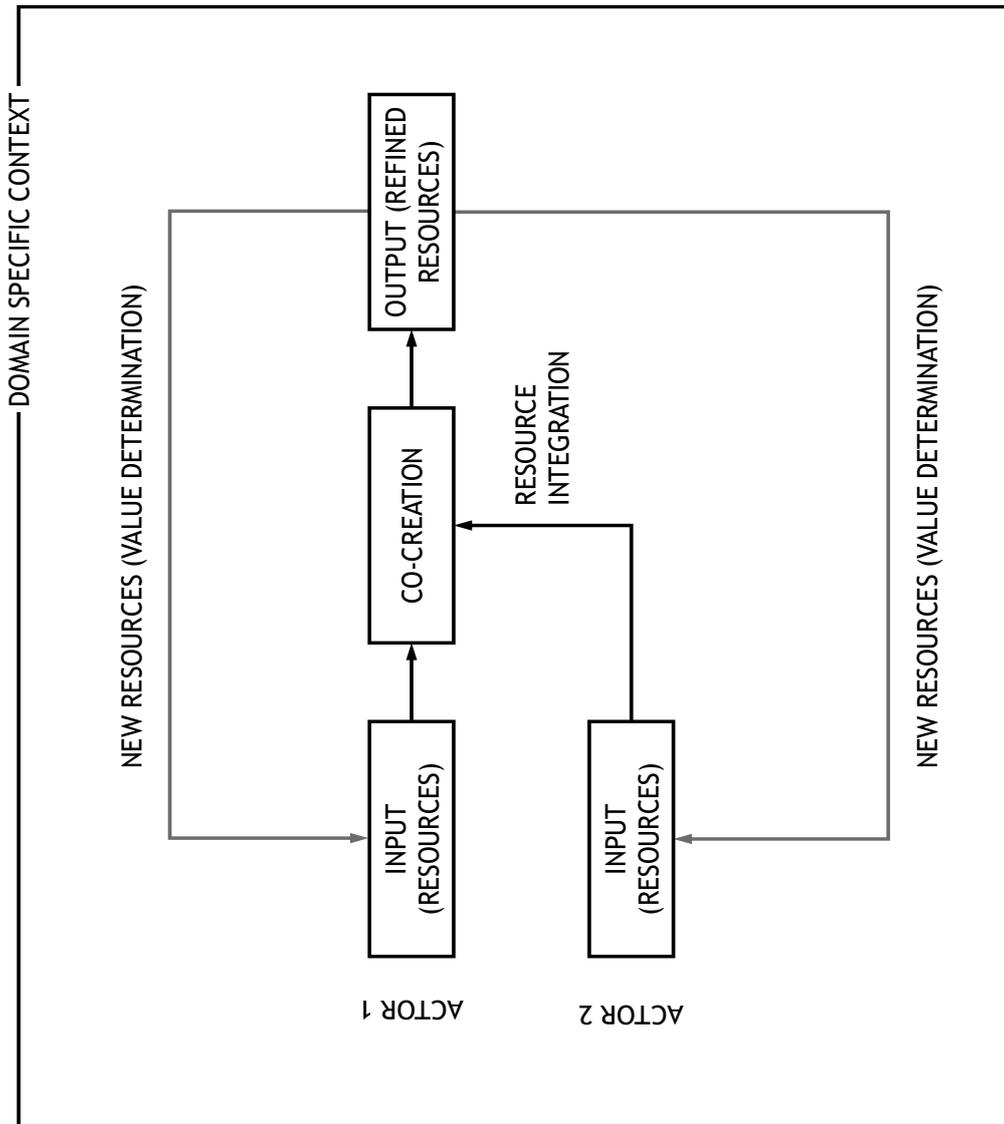


Figure 2: Unified framework for co-creation (UFCC)



1.3. Aims and scope of the Handbook

This handbook is based on the findings of the regional analyses on co-creation and the respective summary. The results of the preliminary study of the TWG co-creation were summarized and structured using the coding paradigm (see Figure 3). The coding paradigm is a proven and mature tool for qualitative content analysis and has the advantage that not only vaguely defined concepts and categories are named, but also the relationships between the phenomena are presented in a graphically meaningful way. This makes it possible to link the insights gained with the UFCC and to produce practically useful guidelines and recommendations for the co-creation of innovations for and with elderly people.

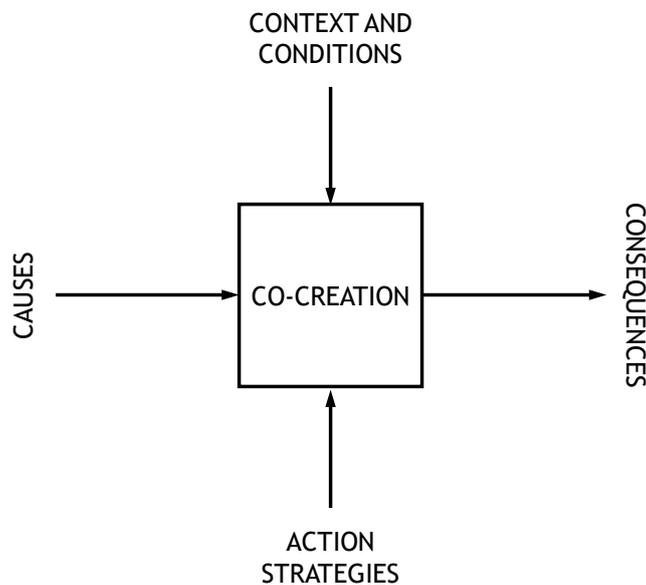


Figure 3: Coding paradigm

The main findings of the coding paradigm can be found in Figure 4 (note: this Figure summarizes the TWG CO findings, which are explained in detail in the summary and in short form in the Appendix).

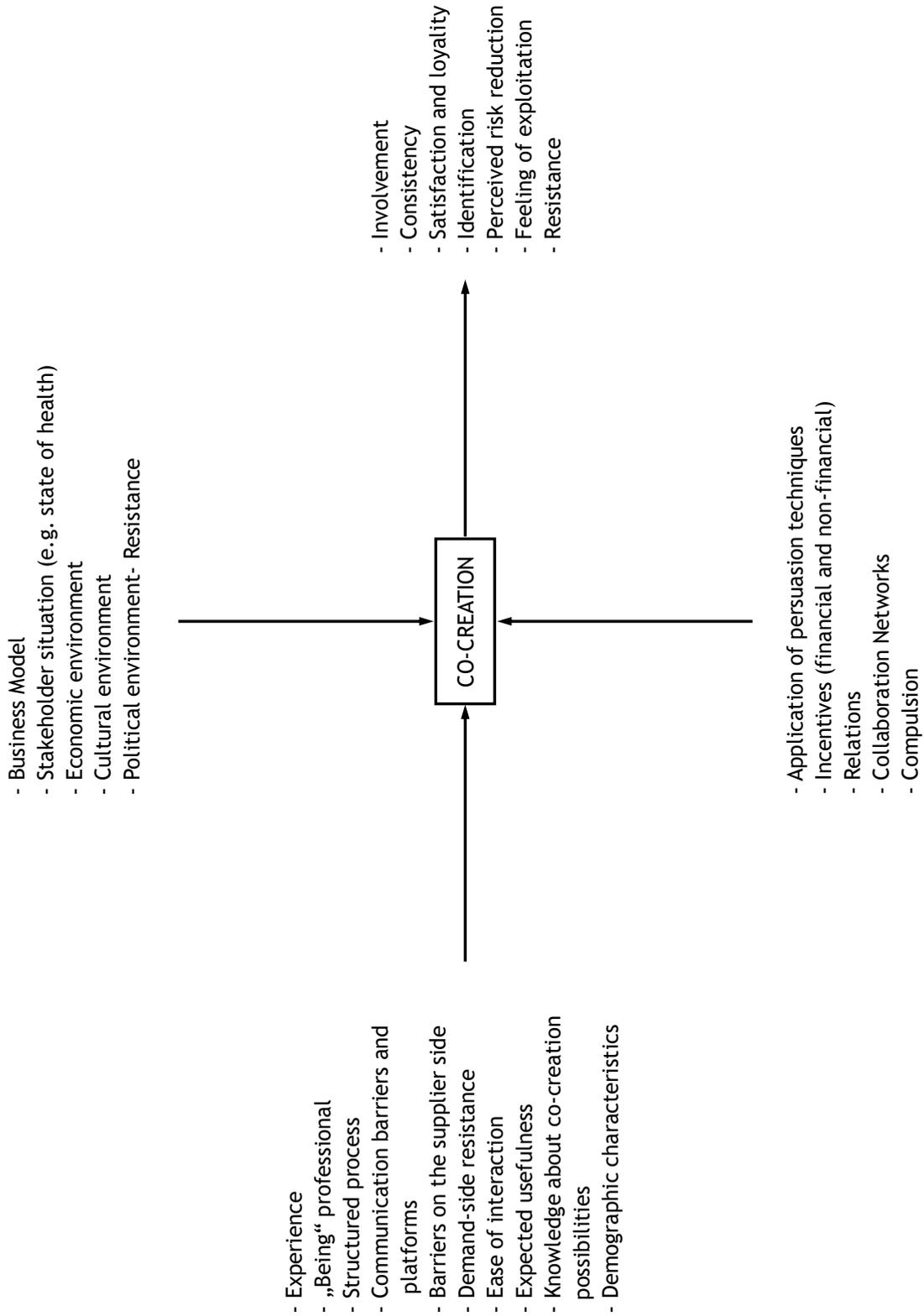


Figure 4: Main findings



The handbook is organized as follows: Best-in-class co-creation guidelines for the area of interest are outlined (section 2 and 3). These guidelines are derived from the above-mentioned materials and are interpreted and made usable with the help of the UFCC. The guidelines will serve as a basis to produce training materials and to support the further course of the project. The handbook also contains conclusions (section 4) and a discussion of the findings produced (section 5).



2. The co-creation process

In order to get a comprehensive picture, co-creation must be viewed from several perspectives and not as a single mechanistic process. In addition, the actor at the centre of interest (focal actor) and the context surrounding the project must be considered. In the following,

- × a management related perspective,
- × a cause-and-effect related perspective and
- × an actor and context related perspective will be examined.

The above-mentioned findings from the qualitative content analyses serve as a basis. Recommendations are derived and incorporated.

2.1. The management perspective

The management-related view can be divided into four sub-processes (see also Figure 5), which form a management cycle:

- × **Plan co-creation:** An innovation project is not possible without an idea, without motivation and without resources. The idea can be vague. Nevertheless, an initial or rough idea is necessary to frame the co-creation project. It must be determined which resources and which co-creation partners are needed. Goals, strategies and instruments must be defined.

This results in practical recommendations for action:

- Formulate the initial idea. It can be vague, but it should be as consistent and coherent as possible. The idea can be based on market research, customer insights, word of mouth or simply a flash of inspiration. Get an overview of the context in which your idea is embedded. Evaluate whether there are already other products or services that solve the problem your idea is trying to solve.
 - Consider how the business model behind the innovation can work for you and for potential partners. Define the resources needed to implement the idea. Consider what resources you can contribute and what resources can or must be contributed by external partners.
 - Think about which actors can make a useful contribution in order to realize the idea. These are the partners who have suitable resources and are presumably willing to participate in a co-creation project. Formulate the benefits that the project partners will have through co-creation. This can be a better solution of concrete problems, but also recognition, incentives, participation in success or simply more experience.
 - Do not limit your search to the target group (users). Consider the contribution of other actors (cooperation partners from industry, public authorities, researcher). Consider for which partner you need which arguments to convince them to participate in the project. Also consider the reasons why certain partners may not want to participate and what you can do to counter this. For example, elderly people may be less technology-oriented and less familiar with co-creation and open innovation projects. However, they have enormous experience and expertise.
 - Determine how the cooperation with the partners should proceed. This results in requirements for the structures and systems to be created or revised.
- × **Do co-creation:** In order to work successfully with actors who do not belong to your own institution, it is necessary to prepare yourself for co-creation. Suitable structures and systems must be created. A culture of openness and mutual respect must be established. Suitable co-creation partners must



be acquired, rules for cooperation must be defined and an atmosphere of trust must be created. Opportunistic behaviour must be prevented, and attention must be paid to a mutually balanced creation of resources and value. In this phase, the focus is on trying out or testing and practical optimisation of the co-creation. It must be tested whether the right resources are available at the right time, at the right place, in the right quantity and in the right quality. It should be tested whether the co-creation activities work with the partners and whether the desired results are feasible.

This also results in concrete recommendations for action:

- Contact suitable cooperation partners via suitable channels. Present your idea and explain the benefits for those involved. Take their feedback into account and work it into your idea. Find a common basis for co-creation. This is best achieved when common interests exist, found or created.
 - Make clear that the project is based on trust and mutual respect and aims at mutual creation of value (of whatever kind). Keep opportunism out of place.
 - Define with your partners the rules under which co-creation takes place and determine together who can contribute which resources (tangible or intangible).
 - Do not start the whole project immediately or only if there are compelling reasons. Create an atmosphere of community and partnership with shared goals. Test your own co-creation skills and the co-creation skills of your partners. Establish congruence. Co-creation requires flexibility and teamwork.
- × Check co-creation: The process implemented on a small scale and its results are carefully monitored. Partners can adjust their goals. Partners can be exchanged.

That means:

- Check whether you and the project partners are pursuing a common goal.
 - Check whether your idea can be further developed into a feasible solution with the help of the project partners.
 - Check whether the project partners can and want to contribute the necessary resources. If, for example, it turns out that a certain partner does not have a certain expertise, look for suitable solutions. If in doubt, project partners must be exchanged.
 - Check whether the cooperation works or whether there are barriers to cooperation.
 - If necessary, make changes and adjustments. The project will only be successful if all participants are convinced of its success and no insurmountable obstacles are apparent.
- × Act and co-create: As soon as the co-creation team has been established and the collaboration is working, the actual innovation project can be carried out. The focal partner is responsible for steering the project without negatively influencing the creativity and motivation of the partners. Regular evaluations of the project progress and adjustment of undesirable developments are necessary. The project should be kept dynamic in order to be able to react to diverging interests and sensitivities.

From a practical point of view this means:

- Monitor the project but remain flexible and follow the recommendations and findings of the partners.
- Make the project flexible, but make sure that the objectives are not out of focus.
- Regularly check the contributions of the partners and motivate them. Show the progress of the project and highlight the contributions of the partners.
- Check regularly whether the necessary resources (tangible or intangible) are available. If not, expand the co-creation partner circle. Coordinate with the involved actors.

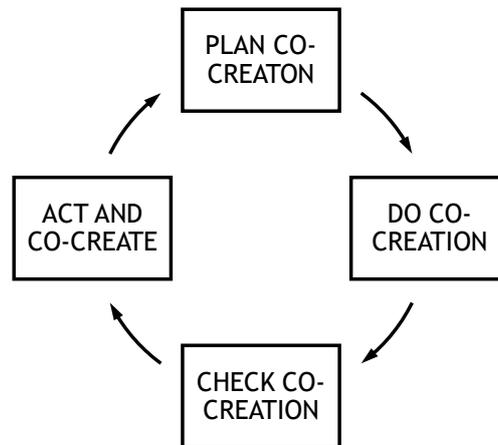


Figure 5: Management-related sub-processes

2.2. The cause-and effect perspective

It is helpful to shed light on the causes and effects of co-creation. If you understand the causes, you are able to initiate co-creation and to carry it out successfully. Whoever understands the effects is able to convince other actors to co-create and to market the innovation. The empirical studies carried out indicate that the following aspects make a significant contribution to the success of a co-creation project:

- × Experience: All partners have more or less experience with co-creation in general and with co-creation with specific partners. Basically, it can be stated that little experience goes hand in hand with more acquisition and coordination effort and thus can have a negative impact on co-creation success. The same applies to negative experiences with co-creation. Hence, look for partners who have had positive experiences with co-creation and would like to bring these into a new project. If this is not possible, consider the expected higher expenses, be it financial or time related.
- × "Being" professional: Professionally perceived co-creation has a positive impact on the success of the project. This does not mean that you should over-control the project. Establish a personal relationship with the partners based on common ground, which nevertheless meets professional criteria.
- × Structured process: Show your partners that the project is well structured and will be successful. Communicate the joint achievement of partial steps.
- × Communication barriers and platforms: Remember that partners work better together if they use systems and platforms they like. A common language milieu increases the probability of success of the project. Do not communicate abstractly if your partners are more practical and want to get down to work.
- × Barriers on your side (focal actor): Make sure that there are no barriers that prevent or hinder cooperation. Be open to criticism from your partners. If necessary and sensible, adjust goals and strategies, but do not lose the scope.
- × Partner-sided resistance: If you introduce processes during the innovation project or if your idea is accompanied by changes in the partners' everyday life, they may offer resistance because they do not want these changes. This has a negative effect on co-creation. Communicate the advantages and usefulness of the innovation to the partners. Emphasize what the partners would lose if the processes were not changed.



- × **Ease of interaction:** Make sure that the interaction with the partners is as easy as possible. Use communication channels that are accessible and accepted by everyone.
- × **Expected usefulness:** Explain the usefulness of co-creation for each partner. Put yourself in the partner's position and ask yourself what you would expect.
- × **Knowledge about co-creation possibilities:** co-creation can only take place if the partners know that they can participate in such a project. Use communication channels that are usually used by the partners to exclude contact and present their project.
- × **Demographic characteristics:** Demographic characteristics influence the willingness to participate in a specific co-creation project. Try to establish the best possible fit between the project and the partners.

Successful co-creation is accompanied by a number of consequences which are considerable because they are relevant in the acquisition of partners and for the marketing of the innovation. They also have an impact on subsequent co-creation projects, as the consequences change the resources (tangibles or intangibles) of all partners involved (see the UFCC framework):

- × **Involvement:** Actors who have participated in a co-creation project will identify more with the innovation because their own ideas and expenditures have been incorporated. Encourage your partners to do positive word-of-mouth advertising or communicate positively about the innovation through other channels. This is best achieved by recognizing the contribution of the partners concerned and making it visible to other parties.
- × **Consistency:** Partners who have worked on an innovation will rate it more positively because their own resources have flowed into it. Those who have invested time and effort show that they identify with the innovation.
- × **Satisfaction and loyalty:** Older people receive solutions that were not developed for them, but with them. The same applies to other stakeholders. This leads to more satisfaction and higher loyalty.
- × **Identification:** Partners who have participated in co-creation identify more with the result and will judge it more positively. They can also use this to use word-of-mouth advertising and other communication channels.
- × **Perceived risk reduction:** Partners who participated in co-creation will find the use of the innovation less risky because they are familiar with it.
- × **Feeling of exploitation:** Partners may feel exploited if they feel that they have only served as co-workers. In this case, it is to be expected that the effects outlined above will not occur or will occur to a lesser extent. Prevent this by refraining from opportunistic behavior and demanding it from your partners.
- × **Resistance:** Bad experiences with the co-creation project can trigger a new co-creation project. Avoid bad experiences. Communicate regularly and openly with your partners. Ask for advice or stress the expertise of the partner.

2.3. The actor and context perspective

Both the management perspective and the cause-and-effect perspective are relevant for all participants, but do not shed light on the characteristics of the partners (companies, elderly people, public authorities, researchers) and the environmental factors that frame the project. Both are relevant if the focal actor (i.e. the actor who initiates, coordinates and manages the project) wants to find suitable partners to make the project a success for the parties involved. An extended discussion can be found in the toolboxes on BE (business, companies) and SE (elderly people).



The studies carried out reveal that the characteristics of the partners have the following consequences:

- × Companies pursue a business mission, be it profit maximization, shareholder value or the stakeholder approach. The business models, company sizes and company cultures are different.

This has practical implications for the focal actor:

- Analyze the partner and ask yourself what the partner wants to achieve and whether this is compatible with your idea of business. Show that the project is compatible with the business mission
 - Ask yourself whether the business model and your idea (even if it is vague) fit together or whether a fit can be created. Show the partner that the innovation stabilizes, improves or has a radically positive influence on the business model.
 - Understand the corporate culture and consider whether it fits the co-creation project. Communicate your ideas of the co-creation project.
 - Build up contacts and relationships. Make sure that the partner does not act opportunistically. Document arrangements. Show the employees involved that to the co-creation project will have positive effects on a personal level (e.g. reputation in the partner company).
- × Elderly people are the primary target group for whom the innovations are conceived, developed, produced, and marketed. They are characterized by unique features that must be taken in account:
 - Elderly people have a lot of experience that they can bring to projects. Show that you value this experience and that it is highly relevant for the success of the project.
 - At present, elderly people are less technology-oriented. Find suitable communication platforms and listen to the advice of these people in developing innovation.
 - Elderly people are the customers and/or users of the innovation. They know their needs best. They know how complex an innovation can be and how to use it. Keep in mind that it makes sense to develop an innovation with the primary target group and not for them.
 - Older people do not pursue strict profit maximization goals. However, this does not mean that they are available as co-workers. Show the mutual benefit. Also show what the potential partners will lose if they do not participate in the project.
- × Public authorities can be involved in various places. Be it because funding opportunities are available, because the innovation must be approved or because public authorities act as a sub-final target group (influencer of the primary target group). This is accompanied by practical consequences:
 - Inform yourself about support possibilities.
 - Inquire about special conditions for support.
 - Consider the economic environment in which publ authorities operate. Understand political guidelines and typical patterns of action.
- × Researchers can take on different roles in a co-creation project. They may be interested in co-creation and consider the project as a study object. But they can also bring in expertise and thus a resource that is crucial for innovation:
 - Find out about research projects that have a connection to your idea.
 - Use electronic channels to get a picture of the state of research relevant to your idea.
 - Contact the researchers. Familiarize yourself in advance with the corresponding objectives and emphasize the mutual creation of value.



3. Co-creation concepts for I-Care Smart

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.

3.1. 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 6):

- × **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 more or less 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 in order to discover the issues and challenges involved. The problem definition can be kept open, which stimulates discussions and brainstorming.
- **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.

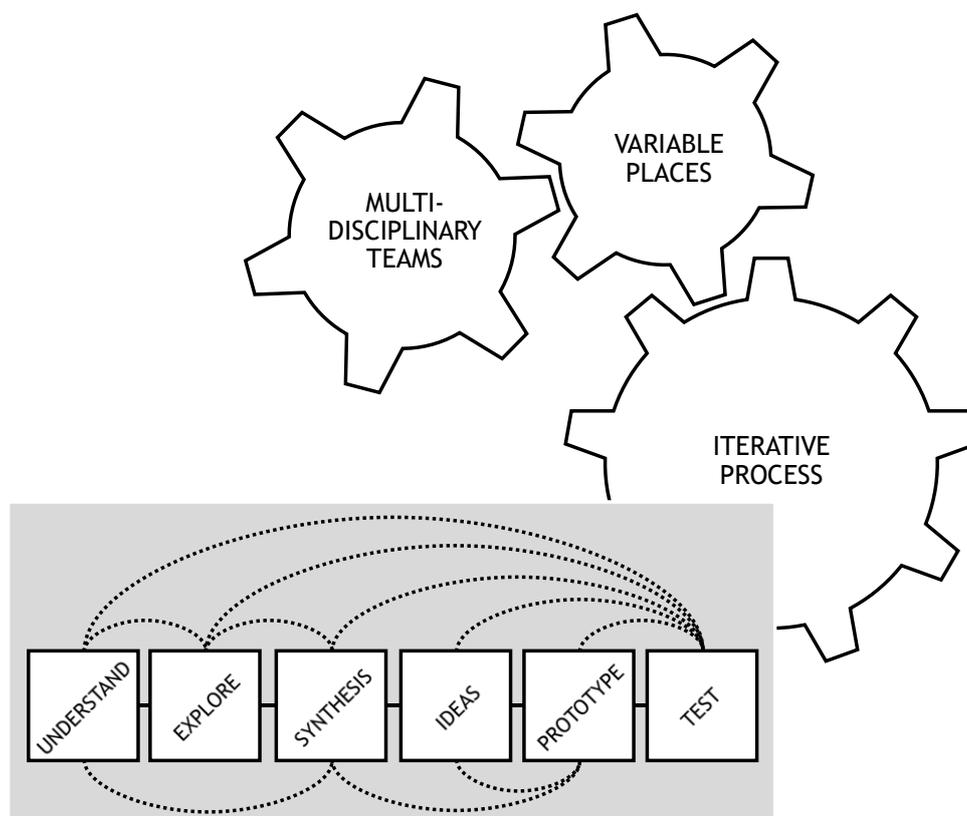


Figure 6: Elements of Design Thinking

3.2. World-Café

With World-Café, the actors involved in the innovation process can be brought into conversation with each other in order 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.

3.3. 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 a large number of 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.

3.4. 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,

in order 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.

3.5. 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 taken into account 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. A concrete application can be found in the next section, namely when reasons for and against an innovative solution from the perspective of potential users are to be found.

3.6. 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 this 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 center:

- × 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 relevant 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.



4. Conclusions

This handbook provides information on the design of co-creation processes for the I-Care Smart Project between different stakeholders and from different perspectives. It serves as a guide for the creation of training materials. It contains three main perspectives (see Figure 7):

- × The management perspective allows the co-creation process to be broken down into sub-processes and contains concrete recommendations for actors who want to develop and market an innovation for older people.
- × The cause-and-effect perspective is based on hypotheses that were obtained from the qualitative preliminary studies. It shows under which conditions co-creation projects can be successful and under which conditions they threaten to fail. Furthermore, it provides information about the arguments and behaviour patterns with which co-creation partners can be won and how the innovation can be marketed jointly.
- × The actor and context-related perspective emphasizes the importance of the role of the focal actor, the characteristics of the partners (companies, elderly people, public authorities, researchers) and the environmental conditions that frame a co-creation project.

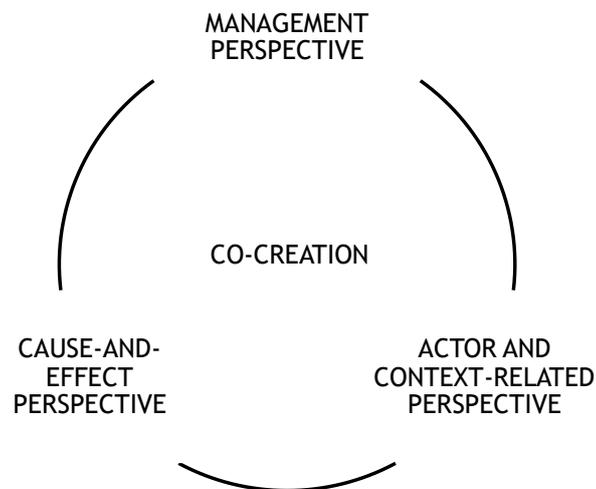


Figure 7: Perspectives

In addition to motivation and the intention of mutual creation of value, suitable structures and systems for co-creation must be available to all participants. Based on these considerations, practically applicable concepts (Design Thinking, World-Café, Open Space, Service Blueprint, World-Café, Technology and User Acceptance Tests) for the implementation of co-creative processes can be identified and adapted. These concepts are relevant at different points of the innovation process and complement each other to a methodological toolbox that facilitates co-creation with the relevant stakeholders and makes the process manageable (see Figure 8).

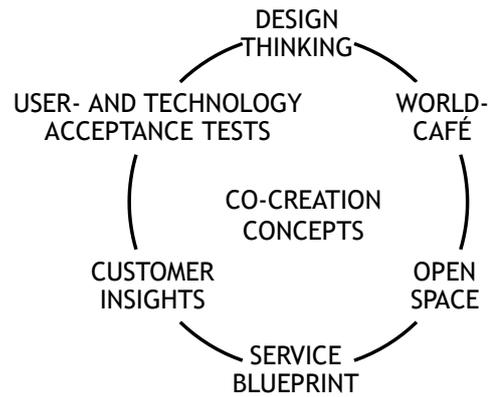


Figure 8: Co-creation concepts for I-Care Smart

It should be noted that the concepts presented are not independent of each other and can be applied in different or the same phases of the co-creative innovation process. A static assignment is not meaningful, since innovation projects do not follow a static approach, but rather require a dynamic and flexibility, which has to be demanded and coordinated by the focal partner. Nevertheless, Figure 9 provides a rough classification of the concepts in an ideally conceived co-creation project. The solution to the dynamics challenge lies in the subsequent phases of the I-Care Smart project.

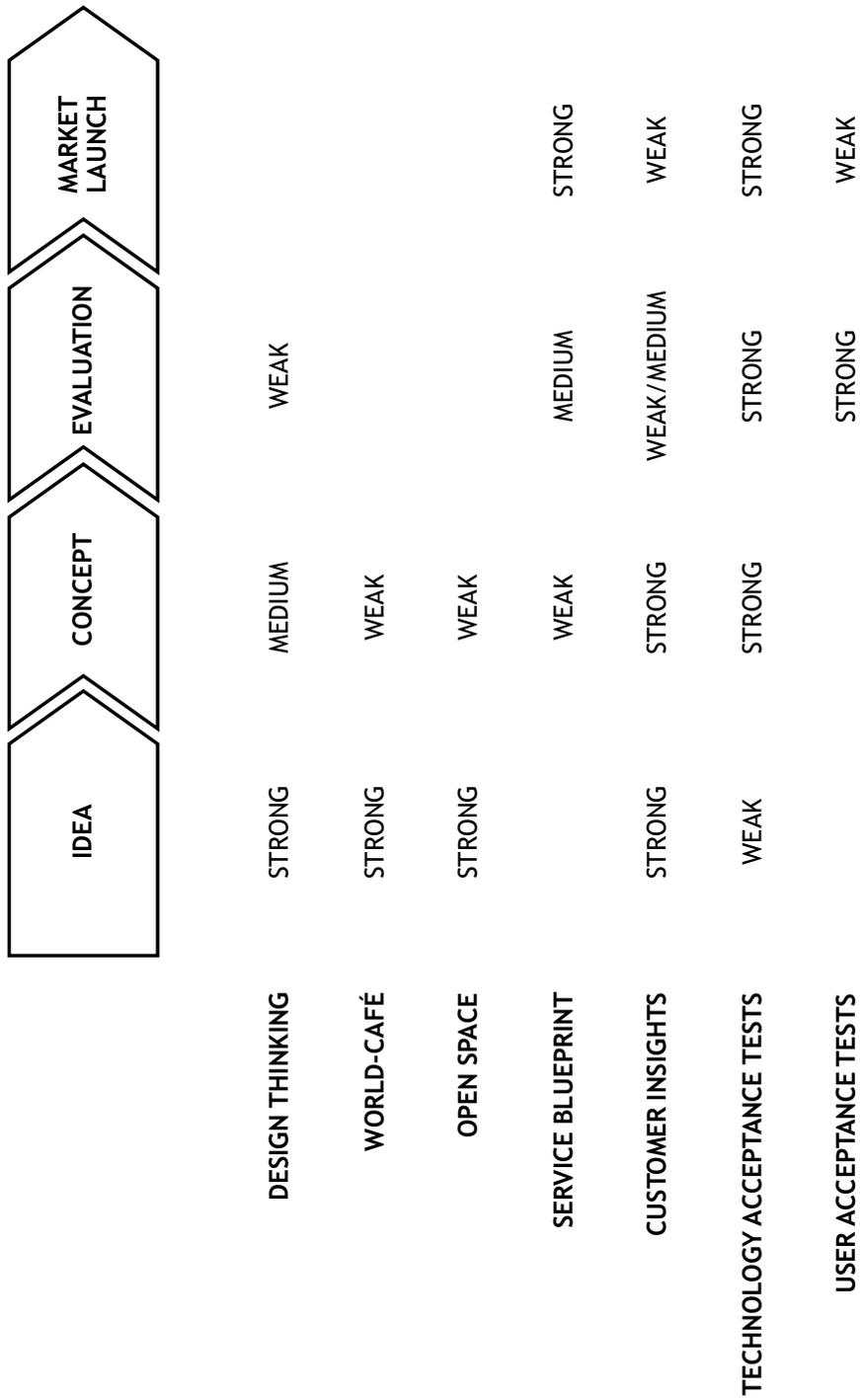


Figure 9: Ideal innovation process and concepts for co-creation



5. Discussion

The handbook is based on the presented UFCC framework, which was distilled from scientific sources and empirical studies (see summary). It is assumed that each actor has resources (tangible or intangible) that they can put into a common process (co-creation) to produce new resources (tangible or intangible). Actors will appreciate this process if these resources are perceived by them as valuable for themselves (value determination). This can be material artefacts, money, experience, appreciation or simply fun.

Co-creation must be controlled and coordinated by a focal actor. This requires suitable systems and structures, but also the ability to involve other actors. In this handbook you will find advice from different perspectives on how this can be achieved. Particular attention should be paid to the primary target group (elderly people): Finding ideas, concretising ideas, developing and marketing them is more promising with the primary target group than for this target group, because this opens up the possibility of experiencing and considering the special needs first hand. The handbook highlights numerous other effects and problems associated with the integration of other actors. However, this does not mean that all effects have been fully considered. However, the handbook does provide a basis for initiating and implementing successful co-creation.

The practically applicable methodological toolbox to facilitate co-creation forms the basis for training materials. It must be evaluated whether and to what extent the individual tools can be interlocked with each other to find and establish a best-in-class solution.



Appendix

Notes on the coding paradigm:

Co-creation with elderly people is the focal construct (phenomenon of interest). It is characterized by the following features:

- × 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.

The central causes (willingness and actual involvement in co-creation) for the phenomenon can be named as follows:

- × Experience: The more experience the provider has with the management and co-creation with the target group, the higher the probability of success. The more experience and positive experiences with co-creation on the customer's side, the higher the probability of success.
- × Being professional: The more professionally co-creation is initiated, coordinated and executed, the higher the probability of success. The relationship between the parties involved must be taken into account: A positive personal relationship enhances this effect.
- × Structured process: The more structured and transparent the presentation of objectives and the path to joint achievement of objectives, the higher the probability of success.
- × Communication barriers and platforms: The more the participants speak a common language (i.e. understand each other based on the same language milieu), the higher the probability of success. This includes the use of communication platforms that the parties involved are familiar with and trust.
- × Barriers on the provider side: The less willing the employees are to integrate the target group in the development of innovative offers, the lower the probability of success. Typical examples of unwillingness are mistrust in the target group's ability to evaluate new technologies or bureaucratic structures.
- × Demand-side resistance: The higher the resistance on the part of the target group to change habitual everyday processes and the higher the desire to stick to habitual patterns of behavior, the lower the interest in co-creation.
- × Ease of interaction: The simpler, less bureaucratic and less complicated the interaction between the participating parties, the higher the probability of success.
- × Expected usefulness: The parties involved must feel that they benefit from co-creation without being taken advantage of. The higher the perceived usefulness, the higher the probability of success.
- × Knowledge about co-creation possibilities: The parties must know where and in which projects they can carry out co-creation activities and be involved.



- × Demographic characteristics: Demographic characteristics (age, gender, nationality, etc.) influence the willingness to participate in co-creation. The higher the fit between these characteristics and the concrete innovation project, the higher the probability of success.

Co-creation goes hand in hand with consequences, which can be positive or negative from the perspective of those involved:

- × Involvement: Stakeholders (both employees of the provider and older people) identify more with the innovation when they realize that their involvement has influenced the outcome. These people are more willing to participate in further co-creation projects.
- × Consistency: People who have contributed positively to an innovation tend to behave consistently in the sense of acceptance of the innovation. The more influence was exerted on the outcome of an innovation, the higher the acceptance of the innovation.
- × Satisfaction and loyalty: Contributors who have co-created an innovation are more satisfied, which leads to more loyalty and positive word-of-mouth advertising to customers.
- × Identification: Contributors who have co-created an innovation identify more with the result.
- × Perceived risk reduction: The more customers are involved in the co-creation of an innovation, the less risk they perceive in using the innovation.
- × Feeling of exploitation: Customers who participate in co-creation may feel exploited if they feel that they are being used as co-workers without receiving the appropriate recognition from the partner.
- × Resistance: Bad experiences with the co-creation process leads to resistance against further co-creation processes and to resistance against the innovation.

Each co-creation activity is embedded in a concrete context (roughly: situation) that influences this process. Based on the prior knowledge and on the analysed materials, the following aspects are of particular relevance:

- × Business Model: The business model of the provider influences the way co-creation can be carried out. It also influences the willingness of customers to participate in co-creation. The more social the business model is perceived, the higher the willingness to cooperate.
- × Stakeholder situation: The specific situation of those involved must be considered. This refers to the ability to cooperate, to the intellect, to personal goals and to the personal life situation.
- × Economic environment: The economic situation is not identical in the partner regions. This influences the ability and willingness to co-create for all parties involved.
- × Cultural environment: Cultural influences (signs, language but also basic assumptions, e.g. regarding the way of doing business) have to be considered and incorporated into the design of a co-creation platform
- × Political environment: The political system, in particular the design of the health care system, determines the willingness to participate and the possibilities of co-creation.

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.