



FROM NEED TO SOLUTION



Co-creation handbook for social welfare and health care

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PUBLISHER: Forum Virium Helsinki and Laurea University of Applied Sciences (2020) **AUTHORS:** Sami Kauppinen, Elina Kesäniemi, Satu Luojus, Peeter Lange and Niko Lönn **CASE EXAMPLE AUTHORS:** Jarmo Pääkkönen and Tiina Hult **COVER IMAGES:** City of Helsinki material bank **DESIGN AND PRODUCTION:** Kubo Creative Agency **CONTACT INFORMATION:** info@forumvirium.fi **ISBN:** 978-952-331-881-6 **TEXT CC BY-SA 4.0**

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Foreword

Service systems of social welfare and health care have recently been challenged by significant changes in the operating environment, such as bearing the brunt of economic pressures and massive growth in use of the service systems, which are expected to further increase as the population ages. Constantly dwindling resources force cities to withdraw from providing expensive, burdensome health-care services and move instead toward providing social welfare and health-care services that more comprehensively promote well-being and health. Digital technology is particularly expected to provide new opportunities for tackling social welfare and health-care challenges to improve the quality and scope of services. Cities seldom have the resources to develop new digital solutions on their own. Instead, cooperation with other public and private sector actors increasingly plays a crucial role in the development of public services with the aim to provide customers with higher quality social welfare and health-care services. Networked co-creation in the design and provision of public services is gaining global popularity, because it also offers a suitable approach to jointly solve complex social welfare and health-care challenges.

This document is especially intended for city decision makers, developers and other public sector reformers. It provides interested companies with information on implementing co-creation and cooperation with public sector actors. More specifically, the document discusses

co-creation and its benefits for the various actors and provides a co-creation process model and some tools to support the model's practical implementation. It also includes examples of how cooperation between cities and implementing a common operating approach can be used to promote the creation of new, innovative social welfare and health-care services.

The document is based on the experiences of various actors and their findings during the co-creation of social welfare and health-care services in the 6Aika Co-Created Health and Wellbeing project (CoHeWe) in 2018-2020. The project's goal was not only to promote and coordinate the needs-based development of public social welfare and health-care services in Helsinki, Vantaa, Tampere and Oulu but also to create the conditions for more effective collaboration. Laurea University of Applied Sciences, which is responsible for publishing the project study on co-creation, interviewed both representatives of companies partnering with the project and experts from the social welfare and health-service development units of the participating cities: the Pirkanmaa Hospital District, University of Oulu, innovation company Forum Virium Helsinki, and the social welfare and health-care professionals participating in the agile pilots. The co-creation model was developed throughout the duration of the project based on experiences gained through agile pilots. The following actors participated in co-creation:

35

agile pilots

148

companies participated in co-creation

830

social welfare and health-care professionals were involved in developing services

1,490

customers were involved in the development and testing of new services

What is co-creation?

Co-creation brings together citizens, companies, third-sector actors and public-sector actors to identify and solve needs and problems associated with the service ecosystem and services. Co-creation challenges the public sector to put service users (i.e., customers) at the forefront and establish genuinely multi-actor cooperation in the development of services. Co-creation has been found, among other things, to promote seamless services processes that take individual, customer-specific needs and the availability of services into consideration.

Co-creation is still a somewhat ambiguous concept in that it may refer to different things, depending on the situation. Co-creation in a public-sector context often refers to an approach in which both conventional service providers (companies and third sector) and customers in different roles participate in the definition, development and provision of public services. It can be defined more specifically as an approach, in a public sector context, "...through which

two or more public and private actors attempt to solve a shared problem, challenge or task through a constructive exchange of different kinds of knowledge, resources, competences and ideas that enhance the production of public value..." and, more broadly, throughout society*. In practice, co-creation involves the identification of developmental needs and a goal-oriented effort to jointly solve them. All actors are heading toward the same greater objective, even if they each approach the problem in their own way and benefit from its solution differently.

Co-creation implementation can be seen as a progressive process that offers tools for productive, multi-actor cooperation and the development of customer-oriented services. Co-creation requires 1) equal encounters, 2) the perseverance to explore and head into the unknown, 3) the proper combination of goals and resources, 4) the management and coordination of the co-creation process, and 5) a real customer environment for developing the solution.

Equal encounters

Co-creation is based on an equal opportunity for different actors to participate in genuine cooperation and dialogue. This means that all participants commit to the effort by giving and receiving something. In co-creation, the power structures defined by the organisational hierarchy are set aside, and everyone has the same right to participate and have their voices heard. Participants need to have a broader understanding of their involvement and why their contribution is important to be able to participate on an equal footing.

Coordination of co-creation

The party responsible for the steering and coordination of co-creation is often referred to as the orchestrator. The orchestrator is responsible for designing, implementing, reporting on the results and maintaining a dialogue with the management of the social welfare and health-care organisation. For example, the organisation may be an administrative development unit for social welfare and health-care services, or orchestration can be carried out in cooperation with an external actor.

Co-ordinating goals and combining resources

Co-creation requires an ability to combine goals and resources in a way that benefits all parties. Everyone involved in the process should have something to share, whether it concerns labour, competence, knowledge, ideas, technology or the development environment. Bringing the appropriate actors together and motivating them to commit to co-creation and its common objectives are crucial factors for success.

Developing a design solution in a real environment

A city or hospital district typically not only identifies and prioritises the development needs arising from customers, but it also provides a genuine environment with its customers for the joint development and testing of the design solution. The development environment is an actual service environment, such as a service facility for the elderly or an emergency clinic at a well-being centre. The motivation and commitment of the development environment managers and employees are vital to this work. It should also be noted that improving background functions and processes is often the biggest challenge faced, because they can easily expand a development project that initially feels small in scale.

Perseverance to explore and head into the unknown

The goal of co-creation is to find a solution to a developmental need identified by a public social welfare and health-care organisation that is related to its service system. A design challenge will be formulated from the identified need; then the public- and private-sector actors participating in the co-creation project will generate ideas for, develop and test approaches and design solutions that differ from the existing ones. These are usually new product or service concepts or their prototypes. A design solution, which is the objective of co-creation, is formulated during the co-creation process; this is why participation in co-creation requires an ability to deal with uncertainty. There is probably no need for co-creation if a solution to the design challenge already exists. Co-creation requires the perseverance and flexibility of all involved parties, so that the uncertainty regarding the end result that commonly occurs at the beginning of the process does not discourage the participants.

* Torfing, J., Sørensen, E., & Røiseland, A. (2019). Transforming the public sector into an arena for co-creation: Barriers, drivers, benefits, and ways forward. *Administration & Society*, 51(5), 795-825.

Co-creating services



The co-creation of social and health-care services challenges various actors, such as clients, professionals and service providers of social welfare and health-care services and companies, to jointly define and solve problems and challenges related to social and health-care services and the service system. This section discusses the co-creation of social welfare and health-care services and the benefits and challenges of co-creation from different actors' perspective. The experiences presented are based on interviews with the various actors involved in the CoHeWe project.

Customers are central to co-creation

The role of customers as co-designers of public health and social services has grown exponentially over the past decade. A broader change in the role of the public sector and service sector is being seen now as service users are being placed at the centre of service design and development.

This development was also accelerated in Finland by reform of the Local Government Act of 2015, which ensures that residents can now participate in and influence the municipalities' activities for the first time. This change is also reflected in customer expectations. Social welfare and health-care services are seen as particularly important, and people increasingly want to have a say in what the services are and how they are delivered. Indeed, customers should be involved in the design, production and development of services. Customers can best explain the value of the services being provided to them; thus, they can provide valuable information on how services can be developed to meet their needs more effectively.

In addition to the traditional channels of civic participation, co-creation offers a new way for customers to participate in and directly influence the services and operating methods that play a role in their quality of life. In co-creation, customers are experts from their own experience who can generate ideas for and test solutions to be developed in their daily lives. The following factors should be taken into account when designing co-creation:

“Customers are the core of all this. It doesn't make much sense to develop something that is only functional to professionals if customers do not feel the same way.”

(SOCIAL WELFARE AND HEALTH CARE PROFESSIONAL WHO PARTICIPATED IN CO-CREATION)

1. How and where can you find suitable participants for co-creation?

The most natural connection to customers when developing social welfare and health-care services is usually through professionals in the development environment, i.e., where the service is provided. Participation is often considered rewarding when there is a strong connection between the customer and what is being developed. Various associations and customer panels can also be good channels for reaching people who are experts from their own experience if the development environment is initially unfamiliar. It is important to identify the different customer groups associated with the service being developed in order to include many different viewpoints on the value of the service.

2. Is customer understanding based on quantitative or qualitative information?

Encountering a customer requires an empathetic approach and dialogue. A survey produces quantitative information quickly and cost effectively, but it does not always promote an in-depth understanding of customers' needs and experiences. Qualitative research data collection methods based on collaboration, such as ethnographic interviews, participative observation and creative workshops, have been found to foster a very broad customer understanding.

3. What can block participation?

Co-creation also provides an opportunity to involve special groups that cannot, for example, communicate verbally or in writing. Co-creation workshops can use methods that help participants express their thoughts by creating concrete and tangible artifacts.

4. How should co-creation be communicated?

Public service development processes may seem long from the customers' perspective. The stages of co-creation should be clearly understood by all participants, so that they know where they are going, how the process is progressing and what the expected outcome is.

Social welfare and health-care professionals offer expertise

Social welfare and health-care professionals play a crucial role in ensuring co-creation success. Social welfare and health-care professionals working in customer care and rehabilitation are experts in their field and the everyday processes of the operating environment in question. In many cases, professionals are also the end-users of solutions to be developed and are therefore their primary beneficiaries, along with customers. Participation in co-creation gives professionals an opportunity to primarily influence the work processes, the tools used and the seamlessness and quality of the service. Professionals' engagement from the start of the process fosters their commitment to introduce new working methods and tools resulting from co-creation and to assess their effectiveness.

Professionals can participate in co-creation in a variety of ways: 1) sharing information based on their professional competence and previous experiences; 2) testing the solution to be developed as part of their own work and giving feedback; 3) further developing the solution prototype with the development team; and 4) acting as the company contact person in their own units as well as ensuring practical arrangements and communications not only within their own organisation but also with customers and their family members. The following factors should be taken into account when designing co-creation:

"The culture of development is baked right into our everyday way of being and working together. It means that we don't get stuck on problems - we believe that there is always a solution to them."

(SOCIAL WELFARE AND HEALTH CARE PROFESSIONAL WHO PARTICIPATED IN CO-CREATION)



1. How does the organisation support the professionals' participation in co-creation?

Development-friendly operating cultures and organisational structures lay the foundation for professionals' successful participation in co-creation. Development should be part of an employee's job description, which is reflected in the ability of the organisation and community to deal with problems in everyday life and solve them together. An operating environment that fosters co-creation encourages professionals to think in new ways and eliminates any fear of failure.

2. How does a supervisor enable and encourage participation in co-creation?

Communicating both the objectives and roles of co-creation and the progress of its process to social welfare and health-care professionals promotes a sense of governance and the smooth running of co-creation. Professionals' participation can also be realised as part of their basic work when the design challenge is based on a real need arising from the field and the solution promotes the objectives of the organisation's basic task. Supervisors must support the professionals so they can be detached from their basic tasks, if necessary, to participate in co-creation, even though resources can sometimes make this challenging.

3. What motivates professionals to participate in co-creation?

A genuine effort to identify developmental needs and develop solutions that benefit the organisation, professionals and customers makes co-creation sensible and meaningful for social welfare and health-care professionals. Professionals are motivated when the expected benefits of the solution being developed are apparent in the development process. In many cases, participation in development work often not only offers experiences of success and variation but also enhances professional competence. It also increases well-being at work in the best case scenario.

Companies as innovative co-creation partners

Various companies, start-ups, small and medium-sized enterprises and large multinational corporations can participate in the co-creation of public social welfare and health-care services. Although a company can operate in the social welfare and health-care sector, it is usually another, for example technology company. The starting point is for the company to offer a solution to the design challenge published by the social welfare and health-care organisation. The company's solution proposal, which may be a preliminary product or service concept or a prototype under development, is developed and tested during the co-creation process. The company will have an opportunity to test its own solution in a real social welfare and health-care environment by participating in co-creation. It can also gain valuable feedback intended to support its development work from both the social welfare and health-care professionals and the customers of social welfare and health-care services.

The following factors should be taken into account to promote companies' cooperation:

1. What motivates companies to participate in co-creation?

In many cases, companies' participation in the co-creation of public services is primarily motivated by an opportunity to grow their business through acquiring new customers and partnerships, developing their products, and increasing their competence, credibility and reputation. Testing the solution in a real service

environment helps develop the design solution and anticipate its expected impacts. Co-creation is an opportunity for companies to gain an understanding of the social welfare and health sector that supports their innovation activities. The partnership with the public sector often also produces positive exposure in the media, for example.

2. What kind of resourcing supports the realisation of company cooperation?

Participation in co-creation is a major investment for companies; thus, it is important for them to ensure that they receive its potential benefits. Co-creation is primarily the identification, sharing and pooling of resources. Valuable public sector resources for companies include feedback from social welfare and health-care professionals on the design solution, their social welfare and health-care expertise for co-creation and their knowledge of everyday work processes and customers. Real service development environments, networking with other actors, increased understanding of the city's procurement process and open data produced by the public sector are also meaningful to companies.

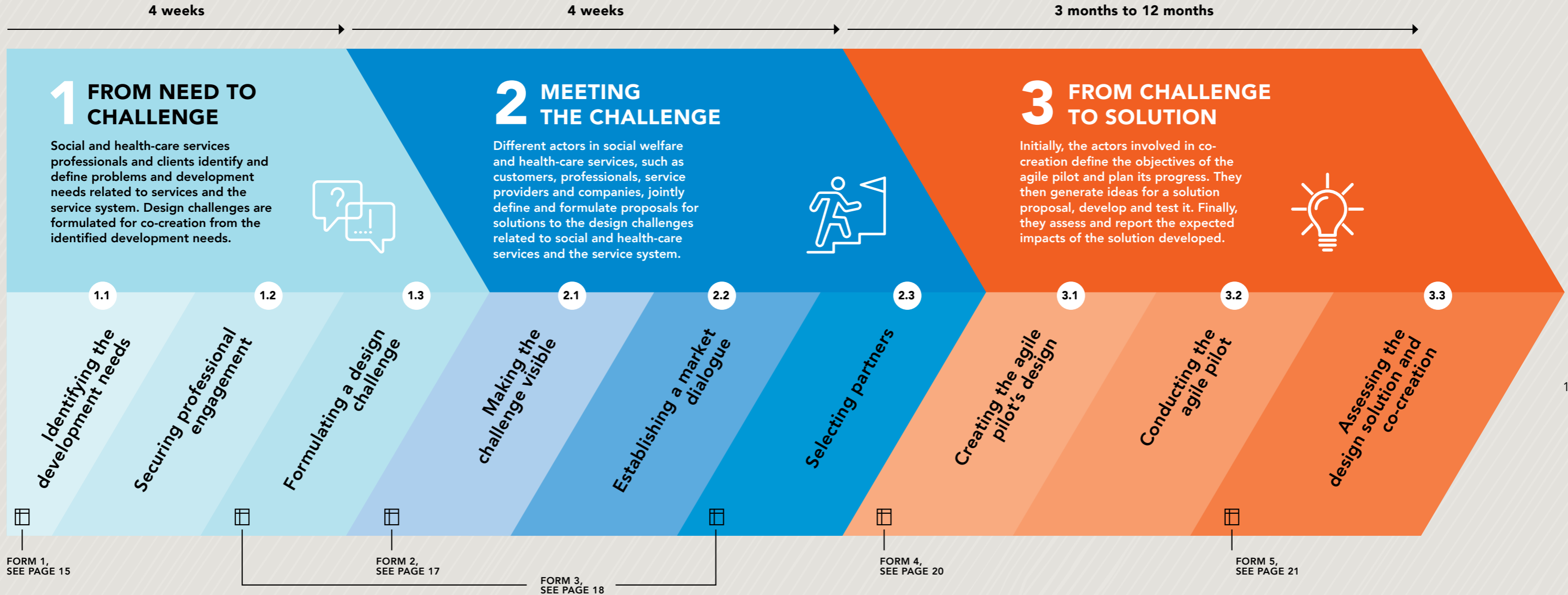
3. How does the maturity of a company's solution affect the end result of co-creation?

The best case scenario is that the result of co-creation is a new product or service tested by customers that the company can quickly launch on the market. A company's innovation activities are usually long-term; thus, co-creation should, in practice, be limited to a clearly defined development phase. Co-creation is suitable, for example, to further develop a service concept into a prototype, to harness an existing technology solution for another purpose, or to serve a whole new user group. A company is less likely to be able to utilise the development ideas generated during co-creation if the design solution is a nearly completed product before co-creation starts.

4. How can companies network in co-creation?

The participation of several companies in the co-creation process is effective when their activities support each other or they benefit from each other and when the roles of the companies in solving the development challenge are clearly defined. Competitiveness jeopardises co-creation, because development work requires trust, information and resource sharing. It is also important to agree beforehand on who will own the new design solution that may be created in co-creation.

Co-creation process



1.1 Using methods that involve different customers and social welfare and health-care professionals will deepen the understanding of the service environment and of the effort needed to identify the development needs arising from it.

1.2 An operating environment needed to develop the design solution and the professionals working in it will be requested and committed to co-creation as early as possible. Social welfare and health-care professionals will engage in a dialogue with companies as well as in

solution assessment and selection.

1.3 Based on the collected, analysed and prioritised needs, a design challenge will be created for the identified development needs. Its description must not be too restrictive to leave room for different solutions.

2.1 The companies operating in different sectors will be notified of the design challenge as much as possible utilising different communication channels and direct contact. The development needs behind the challenge will be presented to companies through different

visualisations that describe the intended customers, any suggested co-operative activities and any proposed visits to the development environment.

2.2 Comparing the solution alternatives submitted by the participating companies will provide an idea of the opportunities offered. The aim will be to generate different alternatives for solving the challenge. Market dialogue will enable an information exchange and dialogue between social welfare and health-care professionals, companies, customers and other actors.

2.3 The proposed solutions will be assessed using pre-agreed assessment criteria, and companies will be selected for the final phase of co-creation, i.e., to conduct agile pilots. An agreement will be made with the companies concerning implementation of their pilot.

3.1 The objectives, practical implementation and evaluation of the agile pilot will be designed in cooperation with various actors. The design solution will be developed into a prototype that can be tested and further developed in a real operating

environment together with customers and stakeholders.

3.2 End users, social welfare and health-care professionals and clients of social welfare and health-care services will test the prototype in a real environment. Based on the user feedback collected during the pilot, the design solution will be further developed to more effectively meet the needs of end users and the functional objectives of the social welfare and health-care organisation's service system. The testing and additional development phases will vary.

3.3 Design solutions are evaluated against the evaluation criteria defined in the design phase of the experiment (see Agile pilot report on page 21). The assessment will examine, for example, how well the design solution is expected to promote the health and well-being of customers and how it is linked to the functional and economic objectives of the social welfare and health-care organisation's service system. The implementation of the entire co-creation process will be assessed simultaneously in relation to the resources it used.

Orchestrating co-creation



The social welfare and health-care service system is complex and consists of several stakeholders who may have some conflicting interests. Multi-actor and multi-professional co-creation may increase uncertainty if the different actors in the network do not have a shared view of the co-creation process and its objectives. Even though co-creation is based on equal encounters between different actors, real cooperation and dialogue, its success requires highly effective coordination.

The party responsible for co-creation's coordination is often referred to as the orchestrator. The orchestrator is responsible for forming and maintaining co-operative networks. The orchestrator coordinates the design, implementation and evaluation of the co-creation process. This includes the following tasks:

- Maintaining dialogue between different actors
- Mapping and assessing development needs
- Formulating a design challenge and communicating information about it
- Assessing and selecting solution proposals
- Making agreements and designing agile pilots
- Reporting on the results of co-creation.

The CoHeWe project has developed various tools to support the orchestration of co-creation. These are presented next.



KIM ÖHMAN

Identification, description and evaluation of development requirements

The orchestrator plays a key role in launching the co-creation process, engaging professionals and refining development needs into a design challenge. Understanding the development needs and wishes of clients and professionals concerning social welfare and health-care services and the service system lays the foundation for co-creation.

Co-creation is usually begun in the "From Need to Challenge" phase by gathering ideas on the development needs related to social welfare and health-care services. This is done by engaging the organisation's employees and customers (e.g., ethnographic interview, focus group, observation, etc.) or using traditional

data collection methods (e.g., survey, feedback). However, the challenge associated with a change in the operating environment or a need for development previously identified in the organisation can also be addressed. Describing the current operating environment and the problem areas identified in it reveals the need for development (see Describing the need for development).

The identified development needs are assessed according to how well they are expected to promote people's well-being and are linked to the functional objectives of the social welfare and health-care organisation's service system. Assessment and prioritisation can help create a meaningful, motivating and realistic design challenge.

FORM 1

Describing the need for development

DESCRIPTION OF THE OPERATING ENVIRONMENT	Brief description of the operating environment and actors
	Description of the current mode of operation
PROBLEM DESCRIPTION	Description of shortcomings or problems in the current approach and their impacts
	Description of the expectations and wishes of the reform

A multi-professional working group formulates a design challenge based on the need for development:

1

The design challenge determines the expected impacts of the future solution. At this stage, the assessment criteria are also defined for the selection of solution proposals and their expected impact is assessed (see the Assessment criteria for solution proposals on page 18).

2

The design challenge must be clear and unambiguous, connected to the social welfare and health-care service system and able to be solved within the given time and with the resources needed for co-creation. Development ideas that are unsuitable for the service system's objectives or whose expected impacts are difficult to assess can be offered as a solution to a design challenge that is ambiguous or difficult to interpret.

"The co-creation model gives our process a real boost. Now, we can really show the nurses and the company how co-creation progresses, step by step."

(CO-CREATION ORCHESTRATOR)

"When the everyday needs are taken into account, both customers and nurses benefit from solutions co-created."

(SOCIAL WELFARE AND HEALTH-CARE PROFESSIONAL WHO PARTICIPATED IN CO-CREATION)



Building co-creation partnerships

Companies respond with their own solution proposals after the design challenge is published. The Meeting the Challenge phase focuses on finding the best developer partners in the final phase of the process, i.e. From Challenge to Solution. The solutions offered for the design challenge will be assessed at the end of the phase. The task of the orchestrator is to find potential co-creation partners and initiate and maintain a dialogue between the different actors.

The aim of publishing the design challenge is to find several different companies with the necessary knowledge, resources, expertise and ideas to develop and implement a new design solution. The challenge is communicated as widely as possible to companies operating in different sectors by utilising diverse communication channels and directly contacting the companies. A good way to map out companies interested in co-creation is to publish an open request for information, such as in the HILMA public procurement portal.

A request for information is an advance notification by which a city asks companies to indicate their interest in taking part in solving a design challenge and engaging in market dialogue. The request for information differs from the invitation to tender in that it is not binding on either party - it is, by nature, only an enquiry. A good request for information reveals the need for development and the design challenge as well as any constraints

affecting functionalities or other implementation. Publishing the evaluation criteria for the stages of the selection process, the timetable and the joint development proposals (see the evaluation criteria for the solution proposals on page 18) will increase the transparency of the co-development process. Describing and presenting proposals for decisions and comparing them on an equal basis can be supported by providing companies with instructions or a ready-made template for describing their own solution proposal (see Description of the company solution proposal).

Partner selection can be promoted in different ways. The development needs behind the challenge can be presented to companies, for example, through different visualisations that describe the intended customers, any suggested co-operative activities and any proposed visits to the development environment.

Proposals for solutions received on the basis of a request for information and the information presented in them will be assessed on a preliminary basis. Based on this, all companies that have proposed appropriate solutions will be invited to participate in a market dialogue. The orchestrator coordinates the market dialogue, which can be held as a single event or more broadly as an event entity involving different actors. The objective of market dialogue is to promote dialogue and increase understanding between social welfare and health-care professionals, companies, customers and other actors.

FORM 2

Yrityksen ratkaisuehdotuksen kuvaus

Description of the solution	Description clarifications
BASIC COMPANY INFORMATION	Company Name / Contact Name, email and phone Number / Business ID / Business Sector
SERVICE/PRODUCT DESCRIPTION	Name of the service or product / Short description of the solution that meets a need / If the service/product has not yet been launched, when would the completed service/product be available?
SERVICE/PRODUCT PROPERTIES	The company is asked to describe the features of the service / product (see page 18 in the Assessment criteria table for criteria appropriate to the challenge, how the company's solution proposals and their suitability will be assessed).

These are some good practices for organising a market dialogue:

- 1 Market dialogue should be planned carefully in advance: purpose, progress, roles of different actors, required materials and the desired end result.
- 2 The dialogue should involve social welfare and health-care professionals, whose work is closely related to the design challenge to be solved, and possibly also customers of social welfare and health-care services. The expertise of customer panels or patient organisations can also be put to use.
- 3 It is a good idea to offer companies the opportunity to refine their original solution proposal on the basis of what they learned in the dialogue.

“As a process, this is easier than competitive tendering. Market dialogue does not impose such a strict obligation on either party in terms of implementation. This is an easier way of getting into the public sector. It is also good to discuss common objectives in time.”

(COMPANY REPRESENTATIVE INVOLVED IN CO-CREATION)

Assessment of solution alternatives

The solution proposals offered by companies for the design challenge are assessed based on the assessment criteria defined and published at the time the challenge was created (see the assessment criteria for the solution proposals). It is important to involve social welfare and health-care professionals at different levels of the organisation when assessing the solutions, so that the assessment group

has the required specialist expertise in the field and experiential competence in assessing the expected functionality of different solution options as part of the entire service system and routine processes. The orchestrator coordinates the solutions' assessment and summarises the results. A binding agreement is made with the selected partner company for the implementation of the agile pilot accordance with the city's practices.

 FORM 3

Assessment criteria for solution proposals

Evaluation criteria	Specification of assessment criteria
SERVICE CORRESPONDENCE TO THE DESIGN CHALLENGE	The service/product meets the requirements of the design challenge and also includes other potentially useful functions.
NOVELTY VALUE OF THE SERVICE	The service/product enables new practices or perspectives.
SCALABILITY OF THE SERVICE	The service/product business model is responsible and sustainable. The service/product can become a permanent solution in the organisation.
INFORMATION SECURITY AND PRIVACY OF THE SERVICE	The availability, confidentiality and integrity of information have been maintained. The General Data Protection Regulation (GDPR) has been taken into account in the service/product.
TECHNICAL FUNCTIONALITY OF THE SERVICE	The technical functionality of the service/product has been tested and documented. There is a plan for possible disruptions.

ACCESSIBILITY OF THE SERVICE	Accessibility requirements in accordance with the WCAG 2.1 standard have been taken into account in the development of the service/product and an accessibility statement is available.
USABILITY OF THE SERVICE	In the development of the service/product, the usability heuristics of Nielsen (www.nngroup.com/articles/ten-usability-heuristics/) have been taken into account in the designing of interaction.
POSSIBLE ADVERSE IMPACTS OF THE SERVICE	Use of the service/product is expected to have limited or minor potential adverse effects (including those caused by incorrect use)
ETHICAL ASPECTS RELATED TO THE SERVICE	Ethical perspectives have been taken into account in the development, testing and production of the service/product.
IMPACT OF THE SERVICE ON THE CUSTOMER'S HEALTH AND WELL-BEING	The service/product is expected to have a positive impact on quality of life and a lifetime impact on an individual user (compared to current practices), and research evidence proves this. The service/product is expected to have a positive impact on the autonomy and human dignity of an individual user, and research evidence proves this.
IMPACT OF THE SERVICE ON FAMILY AND FRIENDS	The impact of the service/product is expected to reduce the burden on close relatives and caregivers.
IMPACT OF THE SERVICE ON SOCIETY	The service/product is presumably of positive (national/municipal) economic importance and does not increase the burden on the rest of society outside the organisation. The service/product is expected to have a positive impact on the equality of care.
IMPACT OF THE SERVICE ON THE SOCIAL WELFARE AND HEALTH CARE ORGANISATION	Implementation of the service/product is expected to have a positive impact on the organisation's work processes and is compatible with existing equipment or information systems, which will not require any modifications. Introduction of the service/product is expected to reduce the workload of employees in the organisation and does not require significant training.
IMPACT OF THE SERVICE ON COSTS	Implementation and maintenance costs for different parties (organisation, company, end user) have been assessed beforehand and are easy to compare with current practices. Unbiased evidence shows this.
BENEFITS OF CORPORATE COOPERATION FOR THE COMPANY	Companies are able to test the technical functionality, accessibility and usability of the service/product during the co-creation project. They are also able to deepen their understanding of the social welfare and health-care sector and its operating processes.

Designing, implementing and assessing agile pilots

The orchestrator coordinates the design, implementation, assessment and reporting of the agile pilot in the third phase of co-creation, i.e., From Challenge to Solution. The plan defines, for example, the objectives of the pilot, the desired impacts, documentation practices and assessment (see the Agile pilot program plan). The orchestrator monitors the implementation of a jointly approved plan and ensures regular communication with different actors (internal and external). Good management of the co-creation project and clear communication commit different actors to co-creation and help them engage with the iterative nature of the co-creation project, in

which design and testing alternate. According to the plan, different actors will assess the tested solution proposal for the duration of the agile pilot. Thorough pilot reporting is crucial. The final pilot program report will include an assessment. Companies involved in co-creation can use the report as a reference in their own business as well. It is also a tool for communicating the results of the agile pilot more broadly to organisation management and decision makers. It is possible to prepare potential follow-up measures and decisions based on the report. The value of co-creation for the public sector remains low without clearly-defined, consistent reporting.

FORM 4

Agile pilot plan

AGILE PILOT	Brief description of the pilot	
	Company objectives for the pilot	City objectives for the pilot
	Anticipated impacts of the pilot <i>E.g. impact on health and well-being, impact on costs, impact on end users and relatives, impact on the organisation</i>	
	Potential risks and threats and preparing for them <i>E.g. clinical safety, information security, data protection</i>	
PARTICIPANTS	Participants <i>E.g. users, company representatives, social welfare and health-care professionals, other potential actors</i>	
	Delegation of tasks between key actors	
IMPLEMENTATION DESIGN	Recruitment of testers <i>Who is recruiting? How is recruiting handled?</i>	Research permits <i>Necessary permits, obtaining permits</i>
	Schedule <i>Incl. mid-term review and checkpoints</i>	Communications <i>Main lines and delegation of tasks</i>
	Collecting feedback and trial documentation <i>Testing plan, research methods, summary of results</i>	
	Privacy statement/collection of personal data in the agile pilot <i>What kind of data are collected, where are the data recorded and what is the purpose of the data's use?</i>	
Agile pilot resources <i>Budget, materials, prototypes, applications, devices, data, facilities, facilitation work, etc.</i>		

FORM 5

Agile pilot report

AGILE PILOT	Pilot Name	Pilot Description <i>Why piloted? Phases and schedule</i>			
PARTNER NETWORK	Partners <i>Roles of different actors in the agile pilot</i>	Participants, such as customers, social welfare and health-care professionals and company representatives <i>Number, background information essential to the agile pilot</i>			
DOCUMENTATION	Description of trial monitoring, documentation and assessment <i>What has been researched? Feedback collection, testing and research methods used</i>				
RESULTS	Description of the new service, product, process or operating model resulting from the agile pilot				
ASSESSMENT	Achievement of the objectives set for the agile pilot <i>Company perspective and city perspective</i>				
	Impacts of the solution tested:				
	Health and well-being 1	End users and relatives 2	Employees and organisation 3	Integration and technology 4	Economy and scalability 5
Other significant assessment findings <i>Surprises, observed adverse impacts, observed threats</i>					
CONCLUSIONS	Pros of the piloted solution			Cons of the piloted solution	
	Further development needs, ideas and plans <i>What's next?</i>				
CONTACT INFORMATION	Report completed by and date			Additional Information/Attachments	

1. Compared to current practices: Quality of life impact on an individual user and lifetime impact on an individual user
2. Suitability for the user group (incl. accessibility and usability), impacts on end user's life and daily activities, impacts on the workload of informal carers and relatives
3. Suitability for the organisation's work processes (incl. usability), impacts on workload, impacts on the relationship and interaction between employees and customers
4. Compatibility with existing equipment or information systems, prerequisites and importance of harmonisation for the user, impacts on security
5. Cost impacts vs. current practices (Implementation, continuous and end-user costs), wider economic impacts, scalability, can it be made into a permanent solution?

Co-creation of better social welfare and health services

Six examples of company cooperation using the co-creation model.



Case 1

Multisensory room in a senior service centre environment

► Design challenge

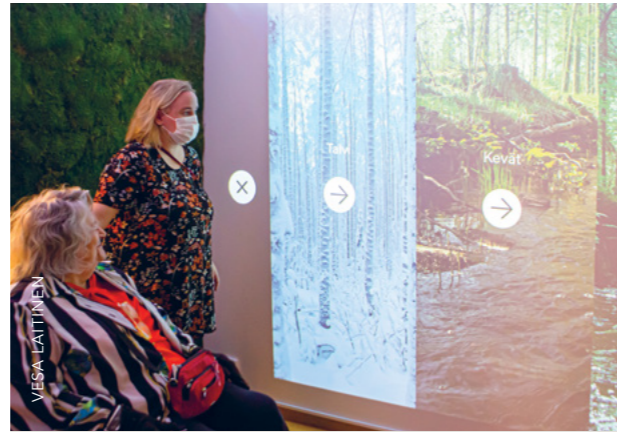
THREE OUT OF four seniors in long-term care suffer from memory disorders. These disorders often involve restlessness and accelerating physical degeneration, which can be slowed down by physical activity and stimuli. However, the resources of the care staff are limited, and recreational activities and outdoor activities for a client with a memory disorder are not always possible when the client wishes.

The challenge was to map out new technologies for creating a sensory room for clients. The purpose of the sensory room is to provide daily support for the mental and physical well-being of residents by stimulating several different senses. The solution aims to reduce the anxiety and passivity caused by memory disorders and to give residents individual experiences that stimulate their everyday life.

Multisensory solutions should take into account at least vision, hearing and touch, as well as the residents' advanced age and health. The sensory room is expected to provide a solution for comfort, physical rehabilitation and memory rehabilitation.

► Lessons for co-creation

- 1 **A SOLUTION** targeted to the need produces significant results that will also bring exposure in the media and attract interest elsewhere.
- 2 **WELL-IMPLEMENTED** co-creation with the company and the active engagement of professionals promote the duplication of solution agile pilot and experiences in different operating environments in new cities.
- 3 **A SUCCESSFUL** enterprise solution was scaled for several cities with the help of co-creation operating and assessment models.



► OPERATING ENVIRONMENT

Located in Oulunkylä, Helsinki, Eeden is one of the units in the Kustaankartano Comprehensive Service Centre for people with memory disorders. The unit has 45 residential apartments designed for long-term care and shared facilities for eating and working together. In Tampere, a similar sensory room agile pilot was conducted at Tuomikallio, a day activity centre for the disabled that has approximately 40 clients. It was also conducted in Oulu at Hanhilehto, a day activity centre for the disabled and persons with mental disabilities, which serves approximately 60 clients a day.

► Solution and results

IN THE OiOi Collective Oy solution selected for the Helsinki project, an interactive wall was built in the sensory room, where clients can enjoy nature excursions, do art or just be silly. The sensory room offers a wide range of possibilities to find sources of joy, reasons to smile and enjoy the feeling of success, awaken memories and calm the mind.

The RAI (Resident Assessment Instrument) results obtained during the pilot show that the use of psychopharmaceuticals during the sensory room trial decreased slightly, as have the indicators for depression and anxiety. The cognitive capacity of the clients in the test group remained unchanged (spending time in the sensory room is an activity that slows down the progression of the disorder) and their health stability has improved slightly (CHESS).

The Helsinki sensory room pilot program was duplicated in Tampere and Oulu. The sensory wall has had a calming effect and, for example, clients who were previously unable to relax can now do so there. Similar impacts have been observed in Oulu.

Case 2

Remote weight monitoring of patients with cardiac impairment

► Design challenge

THE CITY of Tampere and Tampere University (TAYS) Heart Hospital are jointly developing a patient-oriented outpatient care pathway geared toward patients with cardiac insufficiency and using technology to support self-care. Weight monitoring is an essential part of self-care in accordance with the current standard of care for patients with cardiac impairment.

Remotely monitoring changes in weight can improve the efficacy of treatment at an early stage, improve the patients' quality of life and reduce the need for hospital care. Long periods of hospital care cause a long-term reduction in seniors' functional capacity. In many cases, senior patients with cardiac impairment endure at home for a long period of time and do not seek treatment of their deteriorating condition in time.

► Lessons for co-creation

- 1 **CO-CREATION** succeeded in developing a new operating model as well as a solution and user interface for remote monitoring together with professionals, clients and the company.
- 2 **THE CLIENTS** felt that systematic remote monitoring of their weight encouraged them to keep track of their own condition and living habits. Real-time monitoring enables early intervention if any changes in the heart health of clients and patients should occur.
- 3 **THE QUALITY** of cardiac insufficiency treatment process will improve because weight monitoring is digital and systematic. Co-creation and real-time remote monitoring can affect the seamlessness of treatment.



► OPERATING ENVIRONMENT

The agile pilot was conducted by the City of Tampere Home Care Department (Tesoma, Pispa, Tammerkoski) and at the TAYS Heart Hospital Cardiac Outpatient Clinic. The B5 Cardiac Ward in TAYS Hatanpää Hospital also participated in the pilot.

Remotely monitored home-care patients weigh themselves daily at home on a scale (device capacity: 34 devices). The weight reading is digitally transmitted to nurses at the Cardiac Outpatient Clinic. If a weight change exceeding the predetermined limit value is observed, the nurse will contact the Home Care Department, where decisions on further measures will be made in consultation with the Cardiac Ward, if necessary.

► Solution and results

THE BENETE OY solution selected for the project uses digital scales to remotely monitor the weight of the patient with cardiac insufficiency. The digital scales can be used to automatically transmit the measured weight to the company's service platform in real time. The user interface enables the setting of individual limit values, alarms triggered by any deviations detected and the automatic transmission of data to the professional user interface.

A digital operating model for remote monitoring was created during the experiment, and a suitable user interface was developed together with professionals. The agile pilot produced a solution that can be quickly commercialised. The trial provided promising indications that the objectives set for remote weight monitoring could be achieved in order to improve the quality of care and realise cost benefits. Digital remote monitoring enables the monitoring not only of weight but also of many other data related to health and functional capacity.

Case 3

Digital solution that enables the independent mobility of people with memory disorders

► Design challenge

THE LONG-TERM objective of the Kustaankartano Senior Centre has been to find a solution that would enable residents with memory disorders to move independently and safely around the centre.

The solution aims to reduce anxiety caused by memory disorders, increase residents' activity and provide them with individual experiences that stimulate their everyday lives. Memory disorders often also involve accelerating physical deterioration, which can be retarded by adding activities. This also involves a change in the treatment culture when the aim is to give clients as independent a life as possible in a service centre setting.

The solution, which was required to have the following features, should:

- allow residents to move independently indoors and outdoors (designated areas).
- identify hazardous situations indoors and outdoors (e.g., falling down, leaving the yard area) and alert staff
- provide a solution that does not include the use of wearable elements, such as bracelets.

► Lessons for co-creation

- 1 UTILISING** the co-creation method makes it possible to find solutions to the challenges of the health-care sector in technologies developed for the needs of different environments. In the example described, the solution designed for the foodstuffs sector was harnessed to improve the quality of life of seniors.
- 2 CO-CREATION** and new technologies bring new opportunities to examine and develop internal operating models



► OPERATING ENVIRONMENT

The Kustaankartano Comprehensive Service Centre is a senior service centre, administered by the City of Helsinki, that offers both short- and long-term care for the elderly. Kustaankartano, Finland's second largest service centre, contains specialised units for people with memory disorders, persons with reduced mobility and older people in need of psychogeriatric care. Kustaankartano consists of 5 residential buildings located on park-like grounds.

► Solution and results

EMPIRICA FINLAND OY, which has previously developed artificial intelligence and IoT solutions for, among others, Arla in the foodstuffs sector, was selected as the partner. The company's previously developed technology that is based on artificial intelligence and cameras was put to use by co-creating a solution for the service centre sector. The technology enables the safe, independent movement of seniors with memory disorders in the outdoor areas of service centres without the presence of nursing staff. These are the solution's functionalities:

- The clients of the service centre are first identified indoors. The system then opens doors for residents, sends for lifts and ensures that clients have access to the correct floors.
- The nursing staff uses a mobile application that can monitor the real-time situation of who is outdoors and how long they have been there. The application will issue a separate alert if, for example, the customer falls or leaves the designated area.
- The system does not use or record personal data or video.

Case 4

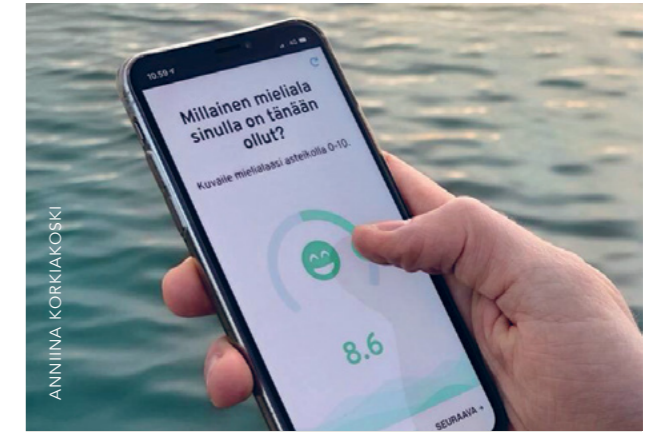
Mood Tracker application assists in monitoring of depression and mood

► Design challenge

ASSISTIVE DEVICES were needed to support the mood and functional capacity of a client suffering from symptoms of depression and to identify opportunities offered by digitalisation, both for self-monitoring and for use by professionals, in order to develop low-threshold mental health services. The ability to monitor mood fluctuations, record symptoms and self-assess had to be included in a mobile application so the information could be distributed to professionals with the client's consent. In addition to self-care, the information can also help in face-to-face meetings, for example, when discussing mood changes or symptoms or in any remote monitoring being used.

► Lessons for co-creation

- 1 THE CO-CREATION** model between cities and an open dialogue already held in the design phase will open up new perspectives, improve results and improve the efficacy of services.
- 2 CO-CREATION** gives meaning to work, and functional services offer the opportunity to support clients even under exceptional circumstances, such as in self-care and even to assist remote monitoring during the COVID-19 pandemic.
- 3 ACADEMIC-LEVEL** research cooperation on services is easier to plan with the help of additional information obtained through co-creation and agile pilots.



► OPERATING ENVIRONMENT

The application is installed on a smartphone, enabling mental health service clients to receive high-quality, individualised care and support regardless of the situation. Usability was initially assessed by the City of Tampere's Mental Health and Substance Abuse Services: 12 clients and 6 professionals participated in co-creation and, based on their feedback, training in an improved version of the application was given to 5 professionals in outpatient care at Oulu Well-being Services, who introduced the service to 14 clients.

► Solution and results

THE MEDIFIED OY mood tracking application was selected for co-creation, allowing the customer's condition to be monitored remotely without requiring a face-to-face meeting, or even when another client meeting is cancelled or the work schedule permits. The app helps users understand what might have a negative impact on mood and what might have a positive effect. The application provides realistic information on what the psychological condition has actually been. A person suffering from depression only sees things in a dark, negative light, but the application also informs the user that even good days can be included. The agile pilots conducted in Oulu and Tampere have helped the company launch the service and make its Mood Tracker (Mielipäiväkirja) app available in mobile application stores. It was also found that the matter requires further research, and academic cooperation will continue after the initial pilots.

Case 5

COVID-19 breath test

► Design challenge

THE SARS-COV-2 virus is diagnosed by means of a PCR (Polymerase Chain Reaction) test, using a sample taken with a nasopharyngeal swab. The test results take approximately one day and the test has a clinical sensitivity of 60-80%. The challenge was to map out new technologies that would make sampling and diagnosis quicker and cheaper while increasing the reliability of the diagnosis. A new technology of this kind would allow society to remain open and safeguard its basic functions.

Technology criteria:

- The technology must be safe and scalable
- The technology enables real-time diagnosis
- The technology can be based on, for example, breath sampling

► Lessons for co-creation

- 1 **THE CO-CREATION** approach can be effectively employed to address sudden emergencies and societal challenges.
- 2 **CO-CREATION** accelerates the development and integration of new technologies into health care



► OPERATING ENVIRONMENT

SARS-CoV-2 (a coronavirus) caused a global pandemic and in Finland in the spring of 2020. In Finland, SARS-CoV-2 has been classified as a generally hazardous communicable disease, because the disease is life threatening, especially for the elderly and those with chronic, pre-existing conditions. The pandemic has had an enormous impact on society. Schools, restaurants and public spaces were closed, and people's freedom of movement was restricted.

► Solution and results

THROUGH CO-CREATION, Deep Sensing Algorithms Ltd. has developed a COVID-19 breath test. The nanosensors of the device detect Volatile Organic Compounds, which are biomarkers generated by human metabolism, in the exhaled breath gas. The device requires a 20 second breath sample, after which it issues a diagnosis in approximately 5 seconds. This enables a patient turnaround of approximately 2 minutes.

The breath test is currently being tested at the Laakso Corona health station in Helsinki, where clients can voluntarily participate in testing the new technology in connection with a PCR-test based on a physician's or nurse's assessment. Experiences with use of the device have been positive, and the new test format has been easily integrated with health station routines. In the near future, the aim is to have clients provide a breath sample at the entrance of the health station. A real-time diagnosis thus enables clients to be directed to either a "clean" area or to a "contaminated" area where a higher degree of protective measures are taken. This will save resources and minimise further transmission of the disease.

Case 6

Mobile application for 24-hour social services work statistics

► Design challenge

THE AIM WAS to facilitate and accelerate the recording of tasks performed by regional 24-hour social services in Oulu that operate in several different municipalities and to obtain real-time information on the content and time use of the tasks in aggregated reporting views. The time of manual table reporting after working hours was over - a digital approach was desired. A mobile solution was needed because the solution's user friendliness was considered important for field work and the solution had to be particularly suitable for mobile work. Real-time statistics and reporting on work tasks had to be guaranteed by an expandable and editable solution.

► Lessons for co-creation

- 1 **THE USE OF** co-creation operating and assessment model will help achieve success and enhance remote cooperation, thus allowing the parties to implement everything remotely without ever seeing each other.
- 2 **A COMMITTED**, active staff and a real need help to find the right solution, and the benefits of digitalisation not only are restored to the staff but also improve the statistical data's reliability.
- 3 **EFFECTIVE** services are provided by investing in user friendliness, and customisable platform solutions offer benefits to all actors in terms of further development and procurement.



► OPERATING ENVIRONMENT

Approximately 30 employees participated in the trial of the co-created service at regional 24-hour social services in Oulu. Smartphones were purchased for the service, and the applications were installed for the purpose of logging tasks for a trial period of four months.

There may be some overlapping tasks in 24-hour social services, and some of the tasks can be performed while on break or pushed to the next shift. The data cannot be obtained from the client information systems and are reported in a compiled form to assist the planning and invoicing of work shifts and tasks.

► Solution and results

DEVIATING FROM the norm, co-creation with Wallasvaara Engage Oy took place entirely remotely due to the COVID-19 situation. The co-creation succeeded in creating a completely new service for the market, 'Keino Mobile Work' application, and at the same time the company improved its Keino Core™ application engine. The Keino Mobile Work agile pilot was launched in less than two months.

The tasks are reported to the service according to the time, duration, nature, reporting party, reason, client types and the measures taken. These are recorded on a daily, weekly and monthly basis by municipality or task type. Automatic reporting is done in an office environment within the user interface of a computer browser. The agile co-creation of a service that meets the need helped make the service available for use by 24-hour social services and also attracted interest in other units.

Is co-creation effective?

An impact assessment describes how effectively the identified development needs could be solved through the co-creation process. The objective must be precisely defined in order for the impact to be assessed*. The impact chain** can be used as a tool to assess the co-creation of social welfare and health services; the chain is formulated at the beginning of the co-creation process and supplemented as the process progresses. Changes resulting from activities are documented and measured to verify the impacts generated as the co-creation process progresses. It can be difficult in some cases to demonstrate that a given change was caused by a particular activity; therefore, it is essential to maintain a reflective and deliberative approach to the impact assessment. The impact chain can be formed by describing:

1. Need for and objective of co-creation

What is the challenge posed by the service environment? An effective need is general enough to have positive social, public health or economic impacts. The objective, on the other hand, is concrete and realistic, even if it is based on a major societal challenge. The objective describes what the activities aim to achieve, who they concern and over what timeframe. Achievement of the objective must be verifiable. The objective must be precisely defined.

“Once you’ve had the courage to give your opinion and given yourself time for development, you will at some point realise, ‘Wow! Look what’s been accomplished!’”

(SOCIAL WELFARE AND HEALTH-CARE PROFESSIONAL WHO PARTICIPATED IN CO-CREATION)

From need to solution



2. Resources

What resources will be allocated to the process in order to implement the measures? Separate funding, other working hours and skills, materials, rights, agreements, ideas and networks can be listed as resources.

3. Measures, target group and outputs

What will be done in practice to achieve this goal? Who benefits from co-creation? What are the immediate consequences of co-creation, i.e., what are the expected results? Co-creation involves concrete and measurable efforts that result in change and move towards the set objectives.

4. Impacts

What kind of changes do co-creation and its outputs achieve in the competence and capabilities of target groups, opportunities, situations, activities, relationships or well-being? Impacts are changing, for example, in a public sector organisation: How do they affect organisations' work processes, employee workloads or organisation costs? These can also be changes at an individual level: Does the activity improve the quality of life of an individual user/person/client or increase their life expectancy?

* Kettunen, P. 2017. Vaikuttavuuden arviointi sosiaali- ja terveysalan palveluissa. Turun kaupunki. Tutkimusraportteja 2/2017.

** Valovirta, V. 2017. 6Aika-strategian vaikuttavuusmalli. VTT.

Participants in development of the co-creation model

Niko Lönn, Peeter Lange, Tiina Inki, Mette Hiltunen, Jarmo Pääkkönen, Niina Keränen, Sami Kauppinen, Elina Kesäniemi, Satu Luojus, Kaisla Saastamoinen, Tiina Hult, Tiina Karttunen, Terhi Koskinen, Anna Ahokangas, Jaana Kokko, Anna Herukka, Ulla Hakola, Jenni Konttila, Sari Helenius, Heini Koskensalo-Kleemola, Kirsi Grym, Nansy Mass

From need to solution

“Multi-professional dialogue is the most important factor. We’ve been in our own little cubbyholes for a long time, but, in my view, we come up with better solutions when we work together.”

(COMPANY REPRESENTATIVE INVOLVED IN CO-CREATION)

“The company was pretty much given carte blanche, and we got to work with a service designer. The designer spent the day with nurses, getting to know our routine: he got to see firsthand what the clients were like and what they were capable of.”

(SOCIAL WELFARE AND HEALTH-CARE PROFESSIONAL WHO PARTICIPATED IN CO-CREATION)

6 Aika



Leverage from
the EU
2014–2020