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**Co-Creating and Orchestrating
Multistakeholder Innovation**

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Co-Creating and Orchestrating Multistakeholder Innovation

Foreword

Regional development promoted through increased inclusion and co-creation

To boost the conditions for regional development, Finnish universities of applied sciences have been assigned a statutory regional development task in addition to their educational and RDI (research, development and innovation) tasks. Pedagogy is no longer an internal matter of higher education institutions, but rather a common area involving the institution's partners and surroundings. The pedagogy of universities of applied sciences, which aims to integrate higher education institutions with their region and society, strengthens the institutions' ability to participate in the development of regions. Learning by Developing (LbD), an educational action model created at Laurea University of Applied Sciences in the first decade of the 21st century, was crucial to the evolving focus on regional development and the development of co-creation methods.

Inclusion, whether of individuals, communities or regions, carries enormous power. Concerning regional development, the strength of the pedagogy adopted in universities of applied sciences is based on co-creation, which also emphasises the inclusion of students. When regional development involves students of universities of applied sciences, who are accumulating their professional competence, as well as staff members, and when learning takes place in cooperation with partners in the region, the resulting development input and force are of an enormous volume. In the future, universities of applied sciences may exert an increasing impact on the renewal and revitalisation of regions. This requires the methods and forms of co-creation to be continuously developed. If, in this context, citizens are increasingly involved in the development of their residential areas and living environments, the work will most certainly result in more effective solutions for the changing needs of regions and communities.

For above-mentioned reasons, we at Laurea want to provide a channel for publication and thus facilitate dialogue between Finnish and international experts.

Jouni Koski (PhD), President and CEO
Laurea University of Applied Sciences

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Introduction

Tuija Hirvikoski

We are living in a world that is changing at a rapid pace. Globalization and technological development are bringing about many benefits. However, the challenges we meet are often complex, inter-connected and systemic, so-called "wicked problems". The challenges are no longer local or one-dimensional. Solving complex problems requires innovation based on cross-sectoral, cross-disciplinary, and cross-border collaboration (Mazzucato, 2018).

Addressing wicked problems requires new rules and new ways of thinking that are determined by collaboration, inclusiveness and openness. The world's leading consultancies and tech companies have been using co-innovation and co-creation as methods to involve customers in innovation processes for over two decades now. Global challenges call for an update of those dyadic models so that they both help to enhance involvement of multiple stakeholders in co-innovation and value co-creation, and help stakeholders to benefit from them.

However, innovation co-creation does not happen without structures and mediation. This publication introduces examples and some theoretical and methodological considerations for value and innovation co-creation and related enablers and obstacles of multi-stakeholder ecosystems. Moreover, it explores what motivates businesses, researchers, public sector players and citizens to come together and innovate. Finally, it discusses how adherence to Open science and Open innovation might be a competitive advantage for successful value and innovation co-creation in multi-stakeholder ecosystems.

The idea for this publication has matured over a long time and in consequence of the discussions and activities around the previously mentioned questions in various international expert groups. The collaboration within the European Open Innovation (OIPSG) and Living Lab (ENoLL) communities, the European Open Science Policy Platform (OSPP), the European Committee of the Regions (CoR) Innovation Camps and the expert groups of the European Horizon2020, Science with and for Society (SwafS) has been eye opening and progressive. These expert groups have taught us how understanding the power of cross-disciplinary, cross-sectoral and cross-border open science and collective innovation has called for deep collaboration between determined researchers, practitioners, policy-makers and organisations throughout the decades. However, as

each of these policy areas and expert groups focus on their own agendas, approaches and concepts, it remains unclear how the simultaneous use and systemic integration of open science and open innovation might help us to tackle wicked problems and what we should teach of this integration to our students.

As with any new approaches, to disseminate and exploit the lessons learned we need practical examples and evidence of what has been achieved so far. This publication aims to provide the floor for these examples. Another aim has been to shed light on the overlapping nature of the many concepts and policy approaches related to the public availability of science, innovation and learning.

Publishing this collection of articles became possible, because of the many different research and innovation funding programs, which have been acknowledged in individual articles. Laurea University of Applied Sciences and its two projects, both jointly funded with the Finnish Ministry of Education and Culture, organized the call for papers for this publication. The initiative was taken by the Multi-stakeholder Co-creation Orchestration (CCO) project, building a model that is helping companies, the public sector, academia, and citizens to co-create better services and to co-innovate solutions for wicked problems. The aim of the project is to make innovation, research and learning more open, inclusive, and collaborative (<https://www.cco.laurea.fi/>). The other project behind this publication is “Developing open RDI, Learning and Innovation Ecosystem at Universities of Applied Sciences”.

Due to rising urgency to understand how to jointly create solutions for the global wicked problems, an invitation was sent to both researchers and educators as well as innovation practitioners and leaders. They were asked to introduce their results, activities and challenges related to innovation co-creation and to discuss them through such concepts as multi-actor value and innovation Co-creation, Open Innovation, Open Science, Citizen Science and Living Labs. The concepts were explained in CCO webpage (<https://www.cco.laurea.fi/co-creation-orchestration>). Laurea published the first version of the abstracts during the OSPP seminar organized in conjunction with the Finnish Presidency of the European Union.

The set of articles in the publication demonstrate how such concepts as “multi-stakeholder partnership”, “co-production of research” and “participatory Research, Development and Innovation” (RDI) (Gray and Purdy, 2018; Banks et al., 2019) take place in practice. The articles epitomise how new collaborations, dialogues and partnerships are being formed among academic, public, and private partners and civic society. As the described collaboration is characterised by impactful interdisciplinary and creative methodological experimentation, this publication seeks to engage a wide audience of researchers, educators, policy-makers, practitioners and others with an interest in combining collaborative academic, business and public expertise.

The articles introduce research results, methodological considerations and practitioners’ experiences on multi-stakeholder collaboration allowing for and benefiting from open research, innovation and educational processes. They make apparent the wide range of practices, tools and benefits of co-creation in the context of open innovation, open science and higher education. The articles shed light on what the prerequisites of purposeful multi-stakeholder partnership and collaboration in different thematic and regional contexts are. Articles refer to research and innovation projects and educational activities taking place in various different countries, including Australia, Finland, France, Germany, Italy, Latvia, Lithuania, Malta, The Netherlands, Spain, South Africa and Tanzania. Moreover, they discuss cross-border collaboration within wider European or global initiatives like the European Union funded RDI projects, the European Digital Innovation Hubs, or the Erasmus+ and the Nordplus Higher Education Programme collaboration.

The book has five chapters: The first chapter is an introduction, *Theoretical and Methodological considerations*, gives an account of conceptualizations (e.g. co-creation, living labs, ecosystems) and methods in relation to cross-disciplinary, cross-sectoral and cross-border collaboration when increasing systems’ ability to

tackle complexity and challenges, to learn, and to boost different types of innovation in different environments. The discussions in the articles vary from dyadic collaboration between one organization and its clients to the collaboration within large and multifaceted ecosystems involving all kinds of stakeholders (Hirvikoski and Saastamoinen), discussing also the role of nature (Arizza et al.) as an aspect of co-innovation.

The chapter lays grounds for the definition of polyphonic and multi-innovation ecosystem orchestration by discussing the design principles and methods (Salmi and Pöyry-Lassila, and Pedell and Keirnan), the utilisation of human resources as assets (Salin and Kopomaa), as well as the forms and roles of orchestration (Priday and Pedell; Äyväri and Spilling; Arizza). When there are multiple stakeholder interactions within and between ecosystems, they need to be facilitated by an individual, organisation or an institution such as a Living Lab. Often this facilitation is referred as orchestration and it is used as an umbrella term for different activities such as management in ecosystems, facilitating, coordinating, brokering, mediating, interpreting, webbing, and building (Äyväri, Hirvikoski, and Uitto, 2019). Ferguson, de Zeeuw et al. and Juselius widen the orchestration to include also innovation deals, framework agreements, and policy structures in urban or regional environments. Arizza et al. discusses the role of biotechnological and business interaction spaces and radical innovation for the completion of marine biotech production chains. The articles by Kauppinen and Kesäniemi and by Lostrangio discuss the role of public sector and local authorities in public innovation and urban resilience. Whereas Kaartti, Ruoslahti, and Bourdache in their articles scale up the discussion on multi-actor co-creation to an internal level.

The second chapter, *Value co-creation with different types of individuals*, gives an account of involvement of different types of citizens, i.e. young people in need of special support, students, nursing professionals, patients or elderly, in co-creation activities. Articles in this chapter discuss the role of citizens, clients or end-users when promoting community development (Lund), the professional agency of primary nurses (Silvenoinen), mental health (Saarikivi and Eskelinen) or health and well-being (Häkkinen and Latva-Korpela), and active lifestyle (Laitinen and Meristö), or when co-developing a digital service platform (Kiviharju) and digital learning environment (Hankaniemi et al.).

The third chapter, *Findable, accessible, interoperable and reusable data and co-creation*, gives an account of the competitive advantages of data and secure data management in the context of open science, open innovation and open learning. Arvola et al. demonstrate how the ecosystem in the city of Kuopio, Finland, reveals its growth potential connected to the digital and data-driven economy, innovations, new technologies and business models, and how the involvement of all stakeholders in co-creating a critical success factor is at the heart of the human-centric data economy. Valjakka et al. then introduce an action model supporting the collection, analysis, and sharing of research data in the context of co-creation. The model complies with the demands of data security legislation, data protection, data management and funders' requirements.

The fourth chapter *Co-creation and learning* gives an account of the theoretical and practical considerations on how the allowing for and benefiting from more open research, innovation, and educational processes happens in higher education institutions (HEIs). Pöyry-Lassila and Juvonen explain how Triological learning operates as a theoretical ground for multi-professional learning assignments and how teachers can utilize co-creation facilitation competences. Erkkilä and Kortessalmi first explain the concept of value co-creation and then examine the benefits of multi-stakeholder co-creation in lifelong education. Henriksson et al. introduce an international course "Intercultural Approach to Design Thinking" (IADT) providing condensed innovation training involving European students, teachers, businesses and public organizations in the co-creation of new services. The course became a finalist in the 2019 Finnish Quality Innovation Award competition in education. Based on a project promoting virtual encounters between employers and students Gröhn and Nykänen

encourage higher education institutions to involve their students in different RDI activities. They also introduce portfolio management as a tool for open participatory RDI activities. Kiviharju et al. discuss collaboration among working life and hospitality management students. Whereas Fred et al. introduce and explore how HEI students with the city of Espoo, Finland, promoted the sense of security among suburb residents.

The fifth chapter, *Universities taking a role of an orchestrator of local and regional innovation ecosystems*, gives an account of the role of HEIs in multi-actor community engagement, through their research, innovation and curricular activities. First, Juselius explores the Helsinki-Uusimaa Region as an innovation ecosystem and a European region leading the EU innovation scoreboard. Then Rensburg and Nevmerzhitskaya compare HEIs' participatory activities and their roles in South Africa and Finland. Finally, Habiyakare et al. explain how a Finnish - Tanzanian capacity building project among HEIs applied the Living Lab principles in their communities and in their mutual collaboration.

Tuija Hirvikoski

Director Tuija Hirvikoski, emerita vice-president of Laurea and emerita president of European Network of Living Labs (ENoLL) holding PhD in Industrial Management, has held various managerial positions at different Finnish higher education institutions and governmental institutions focusing on sustainable regional and societal development. She has contributed to the development of several EU funded RDI projects particularly in the field of holistic and citizen driven service innovation, eHealth and Wellbeing, Citizen Cities and Entrepreneurship. As an invited expert or a Laurea representative, Hirvikoski contributed many national and international organizations and endeavour such as Helsinki-Uusimaa Regional Coordinating Committee, EC Open Science Policy Platform, EC H2020 SwafS midterm evaluation, ENoLL, Committee of the Regions, Sendai-Finland Wellbeing Centre, and the EC European University Vision 2030 group. In 2016, she was rewarded with the international Innovation Luminary Award.

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I

Theoretical and Methodological Considerations

1. Co-creation in urban living labs: A multi-level network perspective on labour market innovation

Julie Ferguson, Elke van der Heijden & Anna de Zeeuw

INTRODUCTION

This paper analyses co-creation in urban living labs through a multi-level network perspective on system innovation. We draw on the case House of Skills, a large, multi-stakeholder living lab aimed at developing a 'skills-based' approach towards labour market innovation within the Amsterdam Metropolitan Region. Our analysis helps understand stakeholder dynamics towards system innovation, drawing on an innovative living lab example and taking into consideration the multi-layered structures that comprise the collaboration. Our conceptual framework provides an important theoretical contribution to innovation studies and offers a practical repertoire that can help practitioners improve co-creation of shared value in living labs, towards orchestrating flexible structures that strengthen the impact of their initiatives.

CONTEXT AND BACKGROUND

In 2014 the Amsterdam-based *Center of Expertise Urban Governance and Social Innovation*¹ initiated the first of many living labs, supported by the district municipality and in line with the municipal democratisation agenda (Amsterdam Municipality, 2019). Since then, the Center has co-created almost 30 living labs, varying in size, subject and scale and comprising an area-based innovation approach to local challenges such as unemployment, poverty and social health (Majoor et al., 2017). A key function of the living labs is to understand the core of such problems and to devise a useful, sustainable and practical repertoire. This is done by developing a flexible collaboration structure aimed at co-creation orchestration among local entrepreneurs, NGOs, citizens, municipal stakeholders and knowledge institutions.

¹ Previously known as the research group *Urban Management*.

Living lab *House of Skills* brings together more than seventy stakeholders from the business community, trade organisations, employee and employer organisations, knowledge institutions, education and regional administrators. Under the *House of Skills* umbrella, these stakeholders collaborate with the aim of labour market innovation within the Amsterdam Metropolitan Region and subsequently fanning out towards the rest of the Netherlands. More specifically, the *House of Skills* innovation comprises a 'skills-based orientation' towards the labour market, whereby people's broadly defined *skills*, rather than (only) their formal certifications, enable them to find employment and strengthen their intersectoral mobility, towards sustaining their employability (House of Skills, 2019). Initial funding derives from European, municipal and regional subsidies and is aimed at developing a sustainable business model and structure for the innovation.

House of Skills is a particularly relevant example of co-creation through living labs because it comprises a system innovation that calls for a multi-level collaboration structure. In the next section, we introduce these core concepts. We illustrate how *House of Skills* orchestrates system innovation in practice while maintaining the flexibility to act quickly during a crisis, namely the 2020 corona pandemic. Subsequently, we apply a network perspective as a useful way to analyse how innovation through living labs occurs.

MULTI-LEVEL CO-CREATION TOWARDS SYSTEM INNOVATION: THE DUTCH LABOUR MARKET

We understand co-creation as a joint development activity that includes stakeholders in its innovation processes and that leads to shared value creation across a value chain (Puerari et al., 2018). Innovation processes can take place at different levels, for instance product innovation or an industry innovation. However, it can also occur at the system level, which we define as system innovation: a cohesive set of experiments by a multi-stakeholder network aimed at contributing to a process of sustainable structural change in dominant structures, relations and practices while interacting with the system (Beers et al., 2016). Clearly, system innovation is extremely complex in that it comprises co-creation between multiple stakeholders across different structures, whereby a substantial change is envisaged. To this end, Geels and colleagues (2002; Geels & Schot 2007) developed a multi-level framework as a means to understand how change at the local policy level is connected to innovation at a practical service level, as well as their embedding in broader societal structures.

Geels and Schot (2007) perceive system innovation as an outcome that occurs when developments at multiple levels align. These levels are conceptualised as sociotechnical *regime*, *landscape* and *niche* innovations. Sociotechnical regimes accommodate the broader community of social groups and their alignment of activities that blind professionals to developments outside their focus regulations, standards and routines. The sociotechnical landscape forms an exogenous environment that a system innovation seeks to influence but which nonetheless lies beyond direct control (macro-economics, deep cultural patterns, macro-political developments). Niches form the 'incubation rooms' at the micro-level where radical novelties emerge and are developed by small networks of dedicated actors. Indeed, the breakthrough of niche innovations in mainstream markets can be considered competition with an existing regime.

To illustrate this process, we draw on *House of Skills*, based in the Amsterdam Metropolitan Region, as an example of an urban living lab aimed at system innovation through co-creation. *House of Skills* seeks to respond to a major labour market challenge comprising, on the one hand, a large body of unemployed citizens and, on the other hand, a large number of jobs that are difficult to fill. A key impediment to resolving this challenge is the mismatch between the employable population, the jobs available and a narrow focus on certification among employers rather than skills and competencies (House of Skills, 2019).

Interpreted from the above-mentioned multi-level framework, the *sociotechnical regime* (public services) maintains a focus on unemployment, sectoral over-organisation, within-sector funding for adult education, and formal certification requirements. Adequate possibilities are lacking for the acknowledgment and development of people's broader – non-certified – skills (e.g., organisational skills, coaching skills, people skills, etc.), which can nonetheless be of great use in their employability and intersectoral mobility. The *sociotechnical landscape* of the Dutch labour market comprises a number of vast societal challenges, such as sustainable growth, an ageing population and urbanisation, which apply additional pressure to the labour market. In such a context, innovative practises or niche innovations can build up internal momentum through learning processes, price/performance improvements and support from powerful groups. In this manner, niche innovations can apply pressure on the landscape level and create windows of opportunity to break through regimes.

It is this process that *House of Skills* aims to develop, representing a system innovation of the labour market towards a skills-based approach.

CO-CREATION THROUGH HOUSE OF SKILLS

House of Skills is a long-term, multi-stakeholder collaboration aimed at system innovation within the Amsterdam metropolitan labour market towards a skills orientation (House of Skills, 2019). *House of Skills* seeks a stronger focus on lifelong learning as a structural alternative for a market orientation on formal certification as a condition for employment mobility. This living lab is illustrative for a multi-level approach to co-creation, as it brings together the business community, public institutions, trade organisations, employee and employer organisations, knowledge and education institutions, and regional administrators, all collaborating towards system innovation. Indeed, this collaboration structure makes it possible to co-create solutions for the labour market challenges summarised above.

As such, *House of Skills* is an example of a living lab that seeks to alter regimes through co-creation of *niche* innovations. The multi-level framework presented above is useful as an analytical model for understanding where change is required but does not provide a practical repertoire to identify *where* structural impediments occur and how these can be overcome. To this end, we add a network perspective to the multi-level framework.

A MULTI-LEVEL, NETWORK PERSPECTIVE ON CO-CREATION IN THE LIVING LAB

Social network analysis examines network structures that arise from social relations, which enable or constrain interactions or the flow of resources (Borgatti et al., 2009). A network perspective examines the interconnected relationships between actors (persons) that provide opportunities for and constraints on behaviour (Kilduff & Brass, 2010). The applicability of a network perspective on system innovation in the context presented above is that it can help illustrate the structural embedding of a niche, i.e., which stakeholders strive to co-create a niche, how they are embedded in a landscape and which enablers or inhibitors they are likely to encounter within the regime. Critical to applying a network perspective is clear delineation of the structural relation one is analysing, whether this is a collaboration network, a knowledge sharing network, an influence network or otherwise. Indeed, zooming in on specific structural relations within a living lab can reveal whether the network includes the appropriate actors to co-create a '*niche* innovation' and ultimately contribute to regime change.

In what follows, we illustrate this process by showing how *House of Skills* developed niche innovations as a means to orchestrate regime change through a flexible and dynamic co-creation network.

CASE EXAMPLE: INNOVATION DEALS FOR HOUSE OF SKILLS

Niche innovations can build up internal momentum through learning processes, price/performance improvements and support from powerful groups through a process of co-creation. Within *House of Skills*, this process involves experimenting, co-designing, testing, assessing, modelling, implementing and distributing service innovation throughout the labour market.

Initially, *House of Skills* had a fairly centralised operational structure, with a small programme team tasked with the negotiation of strategic partnerships with stakeholders who could help realise the intended regime change of a skills-based labour market. Figure 1a page 15 is a (partial) representation of the initial influence network.² The need for regime change was widely recognised, but concrete implementation was challenging and – occurring on a one-on-one negotiation basis – very intensive for the programme’s management and for the stakeholders themselves.

The *House of Skills* programme management therefore decided to take a more concerted approach, extending the co-creation network through ‘innovation deals’ with new strategic partners and concretising the steps towards innovation. Innovation deals are based on specific sector-based or organisational challenges (for instance, developing a skills-based human resources programme for a sector organisation in the aviation industry; other examples included below). Innovation deals are mainly funded and implemented by the partners of the innovation deals and supported by the expertise and instruments that *House of Skills* offers. Deals are realised through tailor-made arrangements drawing on the House of Skills portfolio; that is, the small *House of Skills* project team works with a broad network of organisations providing services and developing products to co-create skills-based labour market innovations for each of the partners involved. A specialised team within *House of Skills* monitors progress and helps to ensure that the innovation deals contribute to the further development of the product portfolio. In this manner, 60 innovation deals with 100 organisations were developed,³ aimed at innovative product development, practical experiments and new financial arrangements.

First, an example of innovative product development is the skills-based data platform *MyHouseofSkills* and a new skills taxonomy. The platform allows people interested in labour mobility to develop a tailor-made profile combining their certification and skills in a *Skills Passport* and then helps them find jobs that match this profile; conversely, the platform helps employers ‘translate’ their jobs on offer into a skills orientation and thus improve the matching process (Post, 2019). This process is supported by a new skills taxonomy, a ‘thesaurus’ that enables digital-enabled skills-oriented matching. In collaboration with Aviation Community Schiphol, a pilot programme comprising 100 employees from 5 different companies helped cargo and passenger handlers at Schiphol Airport develop *Skills Passports* as a means to orient themselves within their careers and possible alternatives when technology advances or physical constraints risk making them redundant.

Second, *practical experiments* were set up to challenge existing routines. An example is the successful care and technology side-intake pilot. House of Skills developed a strategic arrangement in collaboration with a professional pharmaceutical association and pharmacies, attracting job seekers into an accelerated side-intake for the position of pharmacy assistant. Following this success, a regional education institute developed a

² A selection of representative stakeholders is included as an illustration. The complete network can be provided upon request.

³ Examples include intake pathways for pharmacist assistants, electrical engineers, healthcare professions and logistical professionals; development of skills-based trajectories in shortage professions; deployment of the ‘Skills Passport’ at Schiphol Airport and at higher education Institutes; the ‘fitting room’, a digital matching tool; and practical research into a powerful learning environment and learning culture. For more, see <https://www.houseofskillsregioamsterdam.nl/about-house-of-skills/>

tailor-made training programme for pharmacy assistants to gain formal certification. The pilot programme is now being conducted nationwide. Similarly, with employment agency Manpower and Schiphol Airport, *House of Skills* developed a programme aimed at people interested in a logistical profession, which so far has yielded almost 60 successful matches. In support of such pilot programmes, a physical 'fitting room' has been setup for intake, screening and matching, with e-learning enabling candidates to learn more quickly and when it suits them.

Third, *House of Skills* is involved in the negotiation of new intersectoral arrangements for lifelong learning. An example of this is *House of Skills*' joint initiative with the Amsterdam Metropolitan Region bureau to develop a Human Capital Agenda for the climate dossier. A 'map' of the region was drawn up in spring 2019, including all existing initiatives in this area, which revealed a patchwork of initiatives that were not or were hardly interconnected. The joint development of this agenda is ongoing, for instance recently guiding discussions between an industrial multinational corporation that is facing major regional reorganisation and its representatives from within education, industry and government sectors.

Such efforts represent important efforts in developing a more concerted approach towards far-reaching societal questions related to labour market mobility while at the same time representing a flexible structure that enables quick co-creation when the situation calls for it. For example, the global corona pandemic hit the Netherlands in March 2020 and called for concerted efforts to draw skilled professionals into the vital health industry and to help with 'upskilling' of healthcare professionals, to where these were most needed. At the same time, many other sectors were forced to lay off workers (for instance the hospitality, travel and advertising industries), independent professionals saw their assignments dwindle and employment agencies faced a large influx of skilled workers applying for social benefits. In response, the House of Skills network – through the already in-place innovation deals and the ensuing appeal – was able to orchestrate strategic arrangements from within its network and based on its extant portfolio in an effort to contribute to labour market mobility and matching of jobs and professionals in a vital crisis situation.

These illustrations show how *House of Skills* developed a flexible co-creation network aimed at creating pressure at the landscape level and windows of opportunity to break through regimes. An illustration of the influence structure underlying this initial network of innovation deal partners is depicted in Figure 1b page 15, comprising a representation of actors co-creating across different organisations (see footnote 2).

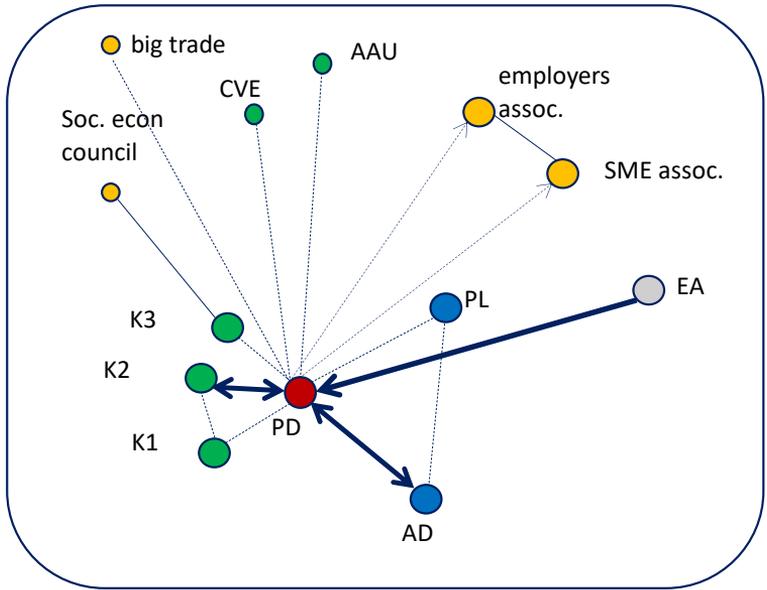


Figure 1a. Initial influence network.

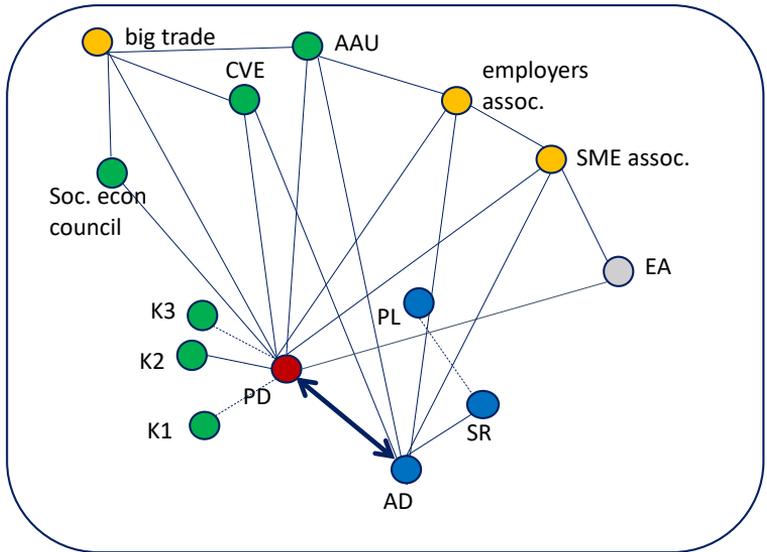


Figure 1b. Influence network after innovation deals.

- Legend:
- AAU Association of Applied Science Universities
 - CVE Council of Vocational Education
 - K_{1,2,3} Knowledge institutes
 - PD Programme Director
 - AD Adjunct director
 - PL Project leader
 - SR Senior researcher
 - EA Employment agency

ANALYSIS

Figure 1 depicts the structural differences between the influence network prior to (1a) and after (1b) the introduction of innovation deals. Figure 1a shows a low-density network⁴ comprising mostly weak ties, whereby the Programme Director and Adjunct Director played a highly centralised role, encountering significant pressure from a small number of key stakeholders. This helps understand why the living lab initially struggled in its efforts to initiate system innovation. Namely, getting stakeholders on board depended on labour-intensive, individual efforts; this did not create the necessary momentum to generate niche innovation and apply pressure on the established labour market landscape. Figure 1b depicts the network structure after the introduction of innovation deals. Analysis of the network helps understand why this intervention proved a window of opportunity to achieve the necessary breakthrough. Namely, as stakeholders committed to deals, a snowball effect ensued among others; second, working together the stakeholders developed a dense network, forming a powerful group of niche innovators and creating the landscape to break through the labour market regime.

The innovation deals thus represented a co-creation process within the *House of Skills* stakeholder network, allowing a major step forward in this living lab's efforts to orchestrate system innovation in the Amsterdam metropolitan labour market.

DISCUSSION AND CONCLUSION

In this paper, we applied a multi-level network perspective on *House of Skills*, a living lab aimed at orchestration of system innovation within the Amsterdam metropolitan labour market. The multi-level perspective provides a useful framework for conceptualising the innovation process but does not provide the means to empirically analyse the collaboration structure. To this end, we introduced a network perspective as a means to reveal structural patterns in multi-stakeholder networks and thus identify impediments or opportunities for realising niche innovation. We applied a multi-level network perspective to a living lab that initially struggled to establish system innovation but through the introduction of *innovation deals* created an enabling, flexible influence structure. This strategic move helped substantiate the co-creation process between the *House of Skills* stakeholders, allowing a major step forward in this living lab's efforts to realise a niche for system innovation within the Dutch labour market. Moreover, the structure enabled rapid co-creation orchestration from within its network in a major crisis situation, aimed at the formation of a strategic structure for upskilling and matching in the vital care industry in face of the 2020 corona pandemic.

Our study has important theoretical implications. We advance innovation studies through the introduction of the network perspective to complement the conceptual model developed by Geels and Schot (2007). That is, we explain how a network perspective on system innovation is a useful, fine-grained means for analysing system innovation at multiple levels. We also contribute to practise by providing a practical repertoire for better understanding and thereby improving co-creation processes in living labs. Indeed, applying our multi-level network perspective can help practitioners and scholars pinpoint the structural barriers to system innovation and can subsequently help identify which social relations offer fruitful grounds for overcoming these barriers, ultimately leading to important breakthroughs in regimes.

⁴ Density represents the degree of interconnectedness between actors in a social network, i.e., how many possible connections are realised. Networks are representations of cognitive social structures, or a cognitive perception and representation of social relations (Brands, 2013; Krackhardt 1987).

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Keywords:

- System innovation
- Social networks
- Co-creation
- Skills-based labor market
- Living labs

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2. Systemic design addressing complexity in service ecosystems: Integrating empathic and systemic perspectives

Anna Salmi & Päivi Pöyry-Lassila

This paper examines the joining of empathic and systemic perspectives in the development of customer-centred wellbeing service ecosystems involving multi-stakeholder, cross-sectoral collaboration. We explore how experience-focused service design tools can be used to make sense of a complex service ecosystem from the customer's point-of-view and to build shared understanding of how collaboration across sectors and organisations can be developed. We draw on literature on service and empathic design to foreground sensitivities to human experience in ecosystemic collaboration as well as on systemic design to highlight ways of engaging with systemic complexity in co-creation. The paper contributes to an increased understanding of how methods can be selected and combined to foster the integration of perspectives of different scales and how cross-organisational collaboration in ecosystems settings can be facilitated.

INTRODUCTION

The challenges that social and healthcare systems worldwide face are growing in complexity. Big societal issues such as changing demographics, cost increases and technological advancements create an urgent need for a systemic transformation. At the same time, challenges to citizens' wellbeing are becoming ever more extensive and polarised and more difficult to solve by any single actor or service. The complex systemic challenges call for an interdisciplinary approach that brings together multiple stakeholders to co-create solutions for the transformation of wellbeing service ecosystems.

The service design approach has been successful in focusing attention on the customer and aligning design efforts with the customers' needs. However, it achingly struggles to combine empathic perspectives with systemic concerns. On the one hand, customers' evolving service needs and, on the other, service providers' needs to collaborate within the ecosystem, as well as decision-makers' or policy makers' informational needs must be considered. One answer is systemic design, which integrates systems thinking and design

thinking into a singular approach, thus combining ideas from open systems and complexity perspectives with design-oriented innovation.

In this article, we report how the empathic and systemic concerns were brought together and addressed in MORFEUS, a joint multidisciplinary research project of Laurea University of Applied Sciences and Aalto University that explored wellbeing service ecosystems. The project's focus was on mental health, child protection and substance-abuse-related services, and the service ecosystems were studied by looking into a collection of services that a fictional case example family would use. The project consisted of five intensive co-development cycles employing a participative approach and co-creation methods, in which the ecosystem actors and the actual service users closely participated. As the main result, the project developed an information modelling prototype through which all information required for the procurement, production and consumption of a service could be collected. Both the development process of the information modelling and the resulting prototype serve as an example of combining the empathic customer perspective with the systemic level of design.

COMPLEXITY OF SOCIAL AND HEALTHCARE SERVICE SYSTEMS

The success of the systems perspective and systems approaches can easily be observed in the sophistication of modern infrastructure. The viewpoint has merited not only efficient systems of physical infrastructure such as roads, railways and telecommunication networks but also elegant social ones, including competitive sports, educational programs, legal policy etc. In addition, the approach provides ways to plan and engineer complex socio-technical systems that integrate people, society and technicalities such as organisational structure and processes. The power of the systems perspective lies in its ability to provide handles for grasping complex entities such as the social and healthcare service systems that are the focus of attention in this article. The systems perspective enables the conceptual framing of the systems and allows observation of the interrelations with and influences of their parts within the whole, and with their environment (Lai and Lin, 2017).

The pitfall, however, for the human observer, and particularly for the designer who seeks to utilise a systemic approach in shaping social systems lies in the call to 'externalise', as pointed out by Hämäläinen and Saarinen (2006) and Luoma (2007) in their critiques of systems thinking approach. There is a temptation to examine the systems as if they were machines, with clear-cut goals, parts perfectly specified and assembled within a well-defined entity, and functions seamlessly aligned with the overall purpose. In dealing with social systems, overlooking the obligation to 'deeply empathise with stakeholders' and 'humanise(s) processes of change' (Ryan 2014, 3) may lead the designer astray. On the other hand, grounding the systemic design effort in human experience and promoting a co-creation approach with a pragmatic and reflective orientation facilitates the integration of empathic and systemic concerns.

Social and healthcare service systems are contexts characterised by high levels of structural and contextual complexity and contingency. They are multi-layered systems consisting of, e.g., primary, specialised and supplementary services, both cross-sectoral and cross-domain, and involve a diversity of different actors and stakeholders who often have conflicting needs. Furthermore, modern social and healthcare service contexts and systems are permeated by and heavily rely on technology. Evolving technologies provide a promise of ever-new forms of care but introduce, on one hand, a problem of prioritisation to the provider and, on the other hand, a difficulty of choice to the customer. These issues inevitably affect the customer's service experience and the experienced value. In addition to the global megatrends, the highlighted local service system aspects give rise to various challenges that call for a systemic orientation in solving them.

SYSTEMIC SERVICE DESIGN

The roots that link service design in human-centred design bring with them an interest towards empathy. Empathic design is an interpretive approach that focuses on the meanings people give to everyday life experiences, moods and activities, and turns them into inspiration in design (Mattelmäki et al. 2014). Systemic design, as a designerly approach, evolved more recently from a pragmatic need to expand designers' skills and competence to attentively engage with 'situations characterised by complexity, uniqueness, value conflict and ambiguity over objectives' (Ryan 2014, 4). Theoretically, systemic design seeks to integrate systems thinking and design thinking to outline an approach that brings together ideas from open systems and complexity perspectives and designerly way of innovation. Systemic design is an emerging field, and the early theoretical frameworks and methods need to be tested and developed further.

The reason why systems theory seems to fit rather nicely with the design thinking approach is that they 'both share a common orientation to the desired outcomes of complex problems, which is to effect highly-leveraged, well-reasoned and preferred changes in situations of concern' (Jones 2014, 24). At the heart of this juxtaposition is the famous idea of design as 'devising courses of action aimed at changing existing situations into preferred ones' (Simon 1996, 111). As a derivative of systems theory, the particular strand of systems thinking relevant to systemic design is highlighted as 'a way of looking at, modelling and intervening in the world as if it is composed of open, purposeful, complex wholes' and the systems are described as involving 'webs of reciprocal influence between parts of a greater whole and their environment' (Ryan 2014, 2). However, when paralleled, the characterisations of systems thinking of both Jones and Ryan hint at a fundamental difference between systemic and design thinking. Systems thinking tends to be analytic in its approach, viewing complex problem situations as independent of interventions, whereas design thinking leans towards an action-oriented approach (ibid.). Underlining the essential connection between intellectual inquiry and hands-on action design thinking approaches are often promoted as 'practical, real, concrete, entrepreneurial and agile, and most important of all "human-centred" or "user-centred"' (Blyth and Kimbell 2011, 7) The key message in this article is that the contrasts in these approaches focus the researchers' attention differently and may eventually lead to different choices of course of action. The authors of this article encourage a careful reading of these definitions and approaches and the ambition to combine both the analytic and action orientation.

Helkkula, Kowalkowski and Tronvoll (2018) propose a typology of four archetypes of service innovation: output-based, process-based, experiential and systemic. In our research, we are especially interested in the systemic archetype of service innovation. At the foundation of the systemic service innovation archetype are the social, living systems, and they focus on resource integration of the actors engaged in the service ecosystem. Service innovation is seen as a reconfiguration of the actors, their resources and the institutional arrangements that all enable service innovation within a given context. Further, according to Helkkula et al. (2018), the systemic service innovations approach value (co-)creation from the perspective of 'value-in-context'. Value is related to 'the improved viability of the whole service ecosystem' and 'the integration of available resources within the service ecosystem in a specific context'.

COMBINING EMPATHIC AND SYSTEMIC DESIGN IN THE MORFEUS CASE

In this article, we discuss how empathic and systemic concerns were brought together and addressed in MORFEUS, a joint multidisciplinary project of Laurea University of Applied Sciences and Aalto University

(01/2015–06/2017) that studied and developed wellbeing services' cross-sector, multi-actor ecosystems. In the citizen-centred project, the focus was on mental health, child protection and substance-abuse-related services. During the research and development process of MORFEUS, a participative approach and methods of co-creation were utilised, aiming at inclusion and empowerment. The project was citizen-centred by nature but focused on the whole service system around citizens with various service needs. The purpose was to address the value-creation dynamics among the ecosystem's multiple actors. Consequently, the service ecosystem was studied and developed by looking into the collection of services that a fictional case example family would use.

The research project consisted of five intensive co-development cycles in which the consortium partners and the actual service users closely participated either directly or through indirect representation. The co-development cycles are illustrated in Figure 1. The main research problem of the project was 'How can cross-organisational collaboration be facilitated when developing customer-centred wellbeing service ecosystems?' To answer this, empirical data was collected with several qualitative methods, such as interviews, video-recording and observations of collaborative workshops, photographing of co-created artefacts and user-testing of prototypes. As the main result, the project developed a service information modelling (SIM), through which all information required for the procurement and production of a service would be collected. It consisted of a metamodeling of the service ecosystem, as well as a service prototype involving a digital service interface mock-up that addressed the empathic concerns. The information modelling clarified roles, relationships and informational needs of the actors within the service ecosystem and strived to enable the development, production and procurement of more effective and cost-effective, and citizen-oriented services in the service ecosystem. Next, the five co-development cycles will be described together with the research and service design methods applied in each cycle.

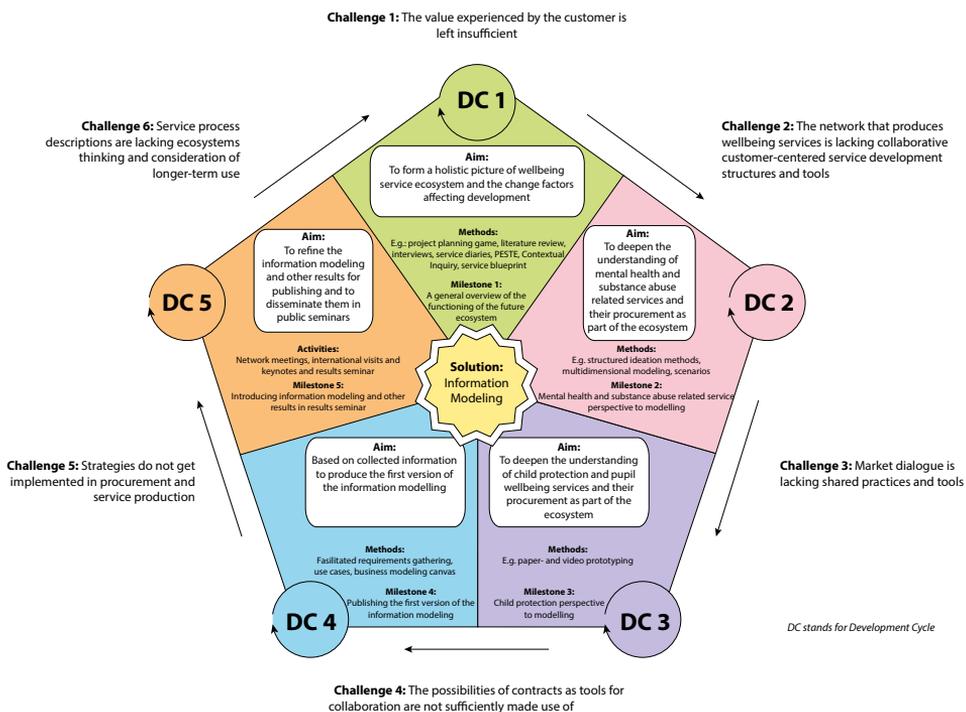


Figure 1. Five cycles of co-development in MORFEUS. (Figure Anna Salmi)

Cycle 1: Mapping the ecosystem actors

The project's first cycle of co-development set out to explore the challenge of creating customer-centred collaboration structures and tools (see Figure 1). It began with a mapping of the ecosystem actors in a stakeholder map. The companies, the public and third-sector organisations offering wellbeing services were first identified and mapped and the relations between them explored. The organisational partners involved in the project comprehensively represented wellbeing service actors in the Uusimaa region from the municipal sector, the other producers of wellbeing services and the producers of digital tools and consulting services. The citizens or the customers of the service were represented indirectly by experts by experience or directly; all of them participated in the project voluntarily, and their anonymity was ensured. The '*experts by experience*' are citizens with personal experience of a health or social challenge, and having recovered, they serve in a liaising role between health- and social care patients or customers and professionals. They are trained to express their service experiences and to act in the mediating role between patients and service provider organisations' experts and other staff.

The co-development cycle consisted of four main activities. First, the primary data collection method for ecosystem mapping was thematic interviewing. The ecosystem actors were interviewed to form a big picture of the actors and their roles in general and to understand the ecosystem dynamics and data flows between actors. The interviews represented systemic and organisational perspectives, and their content was analysed by the project researchers.

Second, at the same time, a description of a fictional case example family was created by Laurea social and healthcare master degree students who had extensive, real-life working experience in this field. The description was, hence, based on realistic customer cases that the master students had been working with. The case family consisted of several members with extensive challenges and service needs in several fields of health and social care, such as mental health and substance abuse, child protection and high risk of social marginalisation. The aim of the case description was to enable indirect participation of the service users and empathy, as it was not seen as ethically acceptable to involve a real case family in the research project. Further, the aim was to illustrate the complexity of the service needs and the service system from both the customer's and the service system's perspective. The purpose was to illustrate vividly the experiences of navigating the service ecosystem as well as the interconnections between the services and actors. This case family description remained the focus of the co-development throughout the project, and it was a central boundary object for the project team as well as for the steering group and other stakeholders.

In the third phase, a collaborative workshop for the project's steering group was organised to gain additional and deeper understanding of the service ecosystem. A stakeholder map (see, e.g., Stickdorn and Schneider 2012) was co-created utilising a gamified and designerly approach. The goal in this way of working was to enable the combining of both systemic and empathic views by making the complex whole of the service ecosystem tangible or graspable, ready for 'zooming in and out' (Sustar and Mattelmäki 2017), as well as making relations and distances visible and the information personally and emotionally relatable.

As the fourth step, a collaborative workshop was organised by the project researchers for the '*experts by experience*' in the fields of mental health and substance abuse. The goal of the workshop was to collect a deeper understanding of the customers' world, needs and wishes with regard to the services they have used. The workshop was facilitated by the researchers, and the participants created visual collages and service journey maps with the workshop materials provided to them, mainly photos that illustrated their hopes, fears and future dreams related to how they would want to be helped when facing challenges.

To sum up, the first co-development cycle combined systemic and empathic views in ecosystem mapping, and the researchers played a central role in bringing these two views together in terms of, e.g., method selection. The data collected during the first cycle served as the starting point for the next two cycles of co-development.

Cycle 2: Deep understanding of the services related to mental health and substance abuse

The goal of the second co-development cycle of MORFEUS was to dive deeper into a selected entity of services, namely mental health and substance abuse. Additionally, the second cycle took on the challenge of addressing service providers' and public procurers' points of view about the lack of shared practices and tools for market dialogue. The case family description produced in the first cycle served as a central tool for the research group when taking the customer's view and empathy into account. A specific customer group, namely young men at risk for marginalisation, was selected for this cycle, and close collaboration was done with a large organisation that provides mental health services. The practical goal of development was to enable customer-centric development of an accessible preventive service for this customer group.

The cycle consisted of three main activities that all aimed at a deep understanding of the customer's world and needs as a basis for service development. First, thematic interviews were implemented from both the customer and professional perspectives. The topics discussed in the interviews covered, e.g., how the customer needs would be met, the ideal model for a preventive service, and information flows between actors. The interviews also investigated public service procurement, i.e., challenges in drawing up customer-centred procurement notices, service providers' tendering and entering framework agreement, as well as contracting processes.

Next, as a second step, a design probes study (see, e.g., Mattelmäki 2004) was carried out to collect information from the customer's *'living world'* to address how the everyday lives of young people and what kind of help and support they might need. Probes as a design method are typically used in early phases of design to gain an empathic understanding of participants' lives and their living contexts, as well as to gather inspirational material for design (Sleeswijk Visser, Stappers and Van der Lugt 2005). The smartphone app WhatsApp was utilised for a week's time to collect messages, photos, videos and other materials from the male volunteers, aged 18–19. The participants sent WhatsApp messages to a nominated researcher according to specific instructions, and the focus was on both worrying and meaningful or empowering incidents that occurred each day of the week. After collecting and organising the material produced by probing, the participants were interviewed so that they could explain the meanings of their messages to the researchers. In addition, the mothers of the young men filled in a specific diary for the researchers during the probing week, aiming to produce a wider understanding of the young men's lives, social relationships and challenges. The mothers were prompted to recall and report, for example, what ideas, themes and issues they discussed with their sons, what they knew about whom their sons spent time with, what made them glad about their young men and also what worried them in regard to their son.

As a third step, after analysing the interviews and design-probes data, a collaborative workshop was organised at the service provider organisation for the mental health professionals to ideate and sketch the service. The probes data was brought into the workshop with the aim of sharing knowledge about the young men's experience and evoking emotional responses from the professionals. The materials were used in an envisioning exercise to create solutions for the young men's challenges that the researchers had identified for the workshop. The researchers facilitated the workshop for the professionals. Even though the presence of the original participants would have been desirable, preserving their anonymity was considered a priority.

Cycle 3: Deep understanding of the services related to child protection and pupil wellbeing

The goal of the third co-development cycle of MORFEUS was to dive deeper into a selected entity of services, namely child protection and pupil wellbeing, to add information to the emerging service information modelling. The case family description produced in the first cycle continued to serve as a central tool for the research group when taking the customer's view and empathy into account.

This cycle consisted of two main activities. First, a facilitated workshop series was implemented in close collaboration with a city that participated in the project. Service provider organisation representatives, municipal service professional and citizens in the role of experts by experience were invited to take part. In these workshops, child protection service clients played a key role in bringing in their experiences in service use and ideas for better service experience. Altogether, three workshops were organised, and each of them had a future orientation through envisioning and a distinct focus. The first workshop focused on the local ecosystem or stakeholder mapping, and the second workshop attempted to identify and explore the potential future scenarios. The third and final workshop focused on co-creating action plans for the identified future scenarios. Lastly, the results were once more sent back to the participants and steering group to be commented on and evaluated.

In the second phase, interviews and process modelling within pupil wellbeing services in a city participating in the MORFEUS project were carried out. The aim of the thematic interviews was to model the current service process and to identify the service ecosystem actors and information flows between the actors in educational support services that relate to the broader context of mental health services.

Cycle 4: Prototyping the ecosystem's information modelling

The goal of the fourth co-development cycle of MORFEUS was to define the various requirements of the ecosystem actors and customers for the service information modelling under development. Also, in the fourth cycle strategies, especially national policies for digitalisation in social- and healthcare were studied. The information modelling was prototyped iteratively, and the data collected and analysed in the three preceding cycles was integrated in this phase. For example, the understanding gathered in the interviews, the stakeholder and ecosystem mappings, customer personas and service process modelling were utilised for creating the prototypes. Further, the case family description continued to serve as a central tool for grounding the work in human experience and facilitating customer-centricity. The main activities included, among others, benchmarking of related governmental information systems nationally and internationally (e.g., Palveluväylä, X-road), analysing technical and legal requirements, defining and creating use cases, collaborative workshops for the researchers for creating visualisations and paper prototypes, etc. The working methods were visual and metaphorical in the sense that the complex model was referred to, e.g., as a 'multi-tiered cake plate' enabling vertical 'deep dives' (see Figure 2 and Figure 3) across information levels, with the customer level gathering information for the customer to help herself and provide information about her needs as a 'mirror' and the service offering level as a 'store'. The aim of this cycle was to integrate the different empathic and systemic perspectives through the prototype development. As a result, several versions of the information modelling prototype were developed, including distinct 'views to information' for three user groups, namely, decision-maker, social- and healthcare professional and the customer. In practice, the views were created as graphical user interface layouts of a web-based application.

SIM
Metamallinnus
Metamodeling

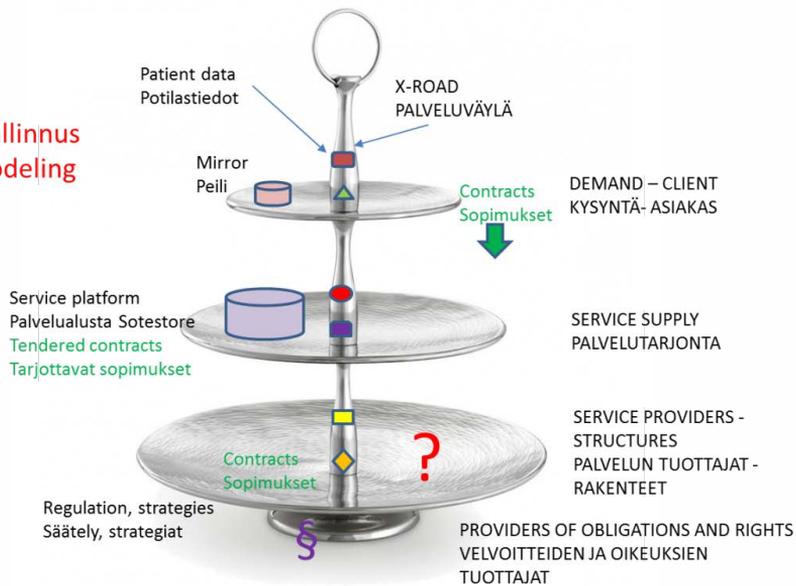


Figure 2. *Cake plate serving as a metaphor for the multi-layered service information model. (Figure: Soile Pohjonen and Marika Noso)*

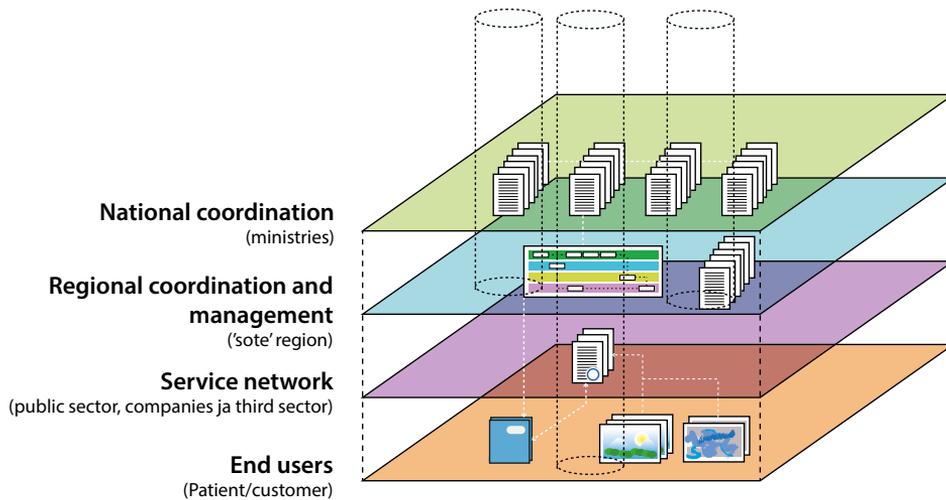


Figure 3. *Vertical deep dives across levels of service ecosystem-related information. (Figure: Anna Salmi)*

Cycle 5: Testing, refining and disseminating the ecosystem's information modelling.

The goal of the fifth and final co-development cycle of MORFEUS was to test and refine the information modelling prototype based on the feedback from the above-defined user groups. Testing was implemented according to a predefined task list that was accompanied by an interview focusing on the user experience and perceived usefulness of the prototype. The fifth and last cycle focused on the longer-term effects of the research by attending to results dissemination. Furthermore, the findings of the research project and the

developed information modelling was published in two open seminars, not only for the ecosystem but also for the wider audience.

RESULTS OF THE SYSTEMIC DESIGN PROJECT

The main result of the MORFEUS project is a service information modelling that includes an ecosystem metamodelling and a service prototype for case management and service system management and decision-making. They provide research-based understanding on how the systemic and empathic views can be combined in service design, specifically in the context of health and wellbeing services of citizens at a high risk of social exclusion. However, the knowledge created in the project is not only embedded in these particular products of research but is very much ingrained in the collaborative practices that gave rise to them. For this reason, this paper focused on carefully reporting the carried-out research activities and the related process to help the reader understand their emergence in context and in interaction between multiple actors in the ecosystem.

Regions as Ecosystems

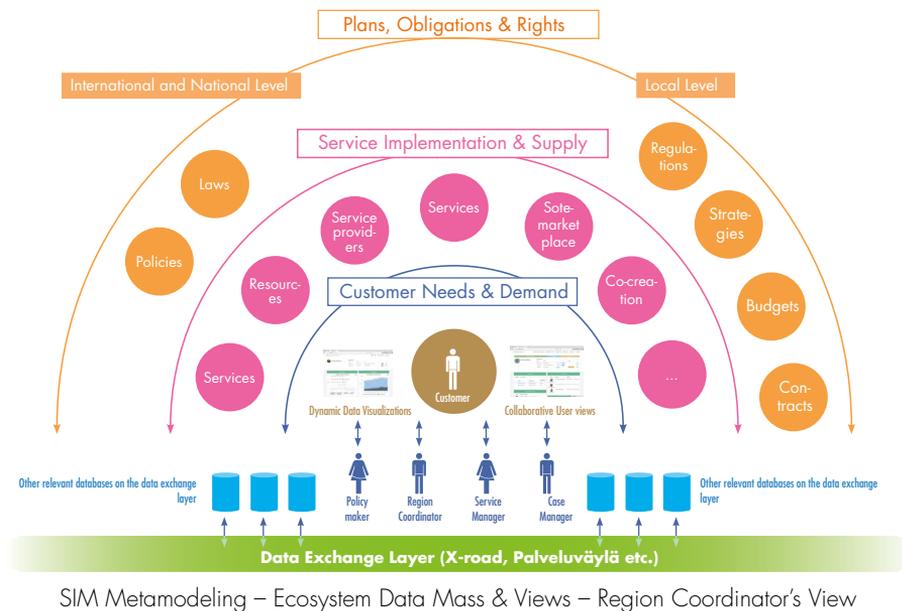


Figure 4. The ecosystem metamodelling produced in MORFEUS. (Figure: Anna Salmi)

The service ecosystem metamodelling (Figure 4) illustrates not only the various ecosystem actors and roles but also the layers of the ecosystem. At the centre of the ecosystem is the customer with his/her needs and the service demand. The next layer is formed by the service implementation and supply actors and activities, such as the service itself, resources, service providers, co-creation between actors, and platforms for encounters in terms of customer-centric service offering and selection. The third layer of the ecosystem metamodelling is formed by plans, obligations and rights at the local, national and international levels. These

include laws, policies, regulations, strategies, budgets and contracts, for instance. The data exchange layer connects all three layers by enabling data flows and integration into role-specific views through the information modelling tool. These roles include the customer, the social and health care professional, service coordinator, director and decision-maker.

The idea of information integration specifically for each role into 'views' is to enable provision of information relevant to that specific role in the particular situation of use. The aim is to create openings to information complexity that support 'situated knowledge and action', that is, action grounded on the prevailing circumstances (Suchman 1987, 35) for each role in the system. This approach steps back from rational abstraction of action, such as that promoted by the 'externalist' viewpoint in systems thinking (Hämäläinen and Saarinen 2006), in favour of contextual contingency. It calls for a perspective shift from 'the massive totality of the system', which is knowable only in abstraction, 'to the pathways of individual human experience' (Buchanan 2004, 62). This is well in line with the pragmatic approach of the 'systems thinker' in systemic design in particular, which 'emphasises the importance of analysing in context (rather than analysing parts in isolation) and of synthesising information across disciplines, scales and perspectives' (Ryan 2014, 3).

The information modelling service prototype that is the central result of the MORFEUS project (Figure 5) utilises information from several social- and healthcare repositories and customer/patient information systems, and this information is transmitted through the data exchange layer, as illustrated in the meta-modelling at the bottom layer (Figure 4). The information modelling prototype was developed for two user roles, namely, the customer and the service professional (case manager), and the director/decision-maker view was initially planned but not implemented in the final version of the prototype. The idea of the customer view, or interface was twofold: 1) to present the customer all information related to him/her, including the services used, the available service network and resources, contact persons relevant to this customer, status of social benefits or other applications, and other relevant information from the customer's point of view, and 2) to enable interaction between the customer and the professional, including communicating and guiding based on the customer's perceived experience of wellbeing. On the other hand, for the social- and healthcare professional's (case manager) role, a different view was created, integrating all relevant information about his/her customers and their situations into one view.

Further, the idea of the director's or decision-maker's view was to produce views for data that describes service use, budgets and predictive information in terms of expected service needs. With the help of the director's view, it would be possible to better manage the service system, such as by allocating resources in a timely manner as based on actual needs, monitoring quality indicators, planning, organising and balancing services, and understanding emerging patterns for continuous improvement of service offering as well as to gain ideas for new service designs.

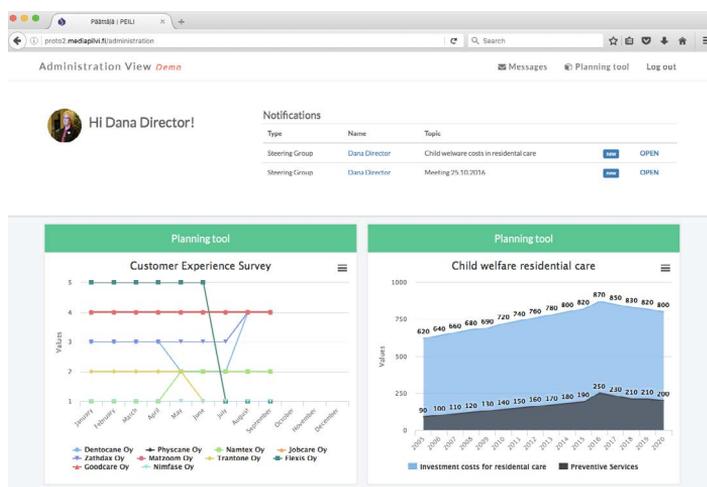
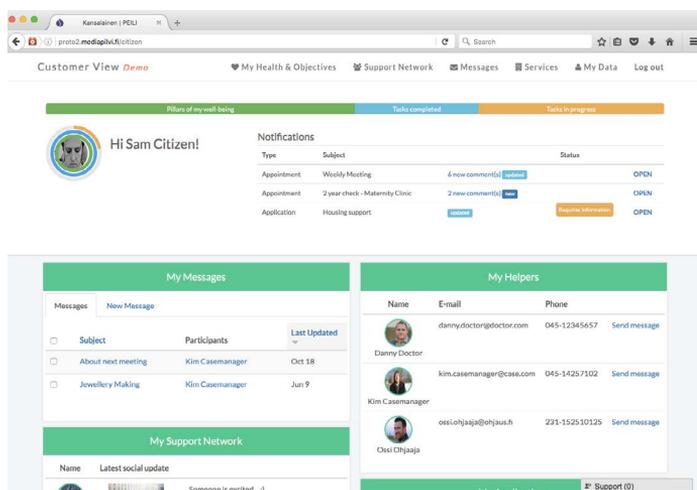


Figure 5. MORFEUS views to ecosystem information modelling prototype.

DISCUSSION AND CONCLUSIONS

Based on the relevant research literature on systemic and empathic design and the experiences gained from the research process that adopted a service design and co-creation approach, it is important to highlight that the integration of empathic and systemic views requires the careful selection and application of methods. In the MORFEUS project – in addition to basic qualitative research methods such as interviews – various narrative and visual methods were employed to create empathic understanding of the customers and their lives, challenges and future dreams, and to gain inspiration for envisioning new future solutions. Mapping techniques were utilised to lay out a view of the actors in the ecosystem of mental health, substance abuse and child protection services. In addition, process and information modelling was used to represent the key actors, elements and information flows in the service ecosystem and to provide a ‘view’ into the system to the key actors. We argue that there is a need to include a variety of methods from different research orientations and to combine them into a whole that supports both empathy or ‘stepping into another person’s life’ and a systemic viewpoint.

In order to gain new knowledge relevant to both research and the practical aim of design, the selection of participants in a complex process like the one presented is an issue that deserves some attention. This process raised questions about how to select the informants who have valuable information and experiences to be shared with the researchers and developers. Further, as the objects of research in the MORFEUS project were services involving sensitive issues such as use of child protection services or the stigma of marginalisation/ social exclusion, the recruitment process required sensitivity to participants' integrity and posed challenges in getting access to relevant participant groups. In some instances, it would also have been beneficial to the overall process of data collection and to the power balance between participants to have a stronger representation of the customers.

The representation of the collected information and means for communicating the customer's viewpoint to the professionals and directors is worth consideration. It was found that narrative approaches, such as the case family description – which was rich in detail, personal information and emotion – elicited empathy in participants. This was observed in the co-creation exercises in which they made plenty of references to the story and referred to the characters by name. The format of presenting the information has a significant influence on the participants' responses and on the ways they make use of the information in the exercises.

The role of the researchers as facilitators of the systemic design, as well as enablers of boundary-crossing between the different roles, actors and views, is crucial to a research process that includes a diversity of stakeholders from various levels of the service system. None of the cycles or the embedded activities as such provided the essential piece of information for building a holistic picture of the service ecosystem or did the trick of revealing how cross-organisational collaboration in the context of developing customer-centred wellbeing service ecosystems should best be facilitated. Most importantly, knowledge was gained as a result of researchers orchestrating ecosystemic co-creation concerning the integration of a diversity of needs of the multiple stakeholders over several development cycles in the process. Orchestration in the MORFEUS project entailed recognition of participants' different interests, identifying their varying needs and engaging them in appropriate phases and workshop setups to collaboratively reach solutions. After the project ended, the project partner organisations continued to utilise the research results in their own operations. Further research would be needed to follow and evaluate how the research results have been applied in practice, as well as what their effect and significance has been and how.

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- Systemic design
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- Information modeling

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3. Living labs in an evolutionary context of human orchestration

Gareth Priday & Sonja Pedell

INTRODUCTION

Networks are a new form of organising people, and with the recent rise of networks there has been a shift to new modes of thinking based on networks or ecosystems; this includes Service Dominant Logic (SDL) and Open Innovation. Networks represent a more complex organisational form. Living Labs as open innovation platforms are such complex organisational forms and should be able to manage greater external 'variety' in its innovation processes. We use ideas from Cybernetics about an organisation's ability to control systems through its internal complexity and to examine variety management, value co-creation and value proposition development. We demonstrate this through two cases studies, the first of which examines the development of an active ageing portal and the second of which considers the development of technology for people living with dementia.

ORGANISATIONAL FORMS

Over time, the universe has moved towards supporting more and more complex structures: gas to stars, stars to galaxies and galaxies to clusters. Ways of organising humans have also followed a similar pattern. David Ronfeldt (*Tribes, Institutions, Markets, Networks: A Framework About Societal Evolution*, 1996) provides a framework for societal evolution based on patterns of organising tribes, institutions, markets and networks (TIMN). Each form of organising builds on and is more complex than the previous form and has its own purpose and characteristics (see Table 1, page 34).

Table 1. Extract from Ronfeldt (1996).

CHARACTERISTIC	ORGANISATIONAL FORM			
	TRIBES	INSTITUTIONS	MARKETS	NETWORKS
Key Era	Hunter-gatherer	Agricultural	Industrial	Post-industrial
Key Purpose	Identity	Power/authority	Wealth/capital	Knowledge
Key Value	Belonging	Order	Freedom	Justice/equity
Idealisation	Solidarity	Sovereignty	Competition	Co-operation
Motivation	Family survival	High authority	Self-interest	Group empowerment
Structure	Acephalous	Hierarchical	Atomized	Flat, web-like
Time	Cyclic (Myth)	Past (tradition)	Present (demand)	Future (needs)
Actions	Solidarity	Command/control	Exchange/trade	Consult/co-ordinate

Organisational forms build on and interact with each other; businesses compete in world markets and may be part of networks regulated by sovereign governments as well as institutions. When Ronfeldt (1996) developed his framework, fax machines and email were the cutting-edge technologies supporting network forms; this has changed significantly with the advent of Web 2.0 and other technology.

In science and innovation, the emergence of these different forms of organising has corresponded with moves from closed to open ecosystem innovation (Open Innovation 2.0, Curley & Salmelin 2018). The transitions from triple to quadruple to n-helix models of innovation are also situated with the emergence of network forms of organising.

Living Labs are defined as 'user-centred, open-innovation ecosystems based on a systematic user co-creation approach, integrating research and innovation processes in real life communities and settings' (ENoLL, 2020) and are an example of a quadruple-helix-based form of innovation. Arguably, the Living Lab concept is the leading example of an innovation system born in the network era. Living Labs show many of Ronfeldt's network characteristics: an equity-driven, flat structure; a focus on knowledge creation and consultative action logics; and an interest in future needs. Living Labs are a more complex form of organisational structure than traditional innovation structures, bringing together different worldviews, skills and expertise (from academia, government, business and citizens). The transition into the network era has also brought network thinking into other spheres, notably the Service Dominant Logic (SDL) (Vargo & Lusch, 2004). SDL is an example of a marketing - and economic - frame that is aligned to Living Labs and to the ecosystem/network logic of Ronfeldt. SLD's foundational propositions (Lusch & Vargo, 2014) including the ideas that:

- Service is the fundamental basis for exchange (in this case, products are also a service)
- Value is co-created by multiple actors and always include the beneficiary in the process
- Value is always uniquely and phenomenologically determined by the beneficiary
- Actors cannot deliver value but can participate in the co-creation of value and offering of value propositions

This thinking is clearly aligned to the objectives of Living Labs, which focus on end-user experience in the context of an ecosystem. As an open innovation ecosystem, Living Labs represent a more complex organisational form, i.e., one that has greater internal variety. In terms of the actors, a Living Lab brings together business, government, academia and citizens and hence offers more perspectives and more complex ways of 'knowing' than any one of those entities could manage alone.

The increase in complexity can also be viewed through the lens of Cybernetics, the study of regulatory systems that includes social systems. The first law of Cybernetics states that (Espejo, 1990, p. 6) 'a "controller" has requisite variety – that is, has the capacity to maintain the outcomes of a situation within a target set of desirable states – if and only if it has the capacity to produce responses to all those disturbances that are likely to take the outcomes out of the target set'. This law is often simplified to 'only variety can absorb variety' and refers to the organisation's (or organism's) relationship with the external environment. An organisation must have an equal amount of or more variety than its environment to maintain control and viability. Typically, the environment has more variety than the organisation that must attenuate (reduce variety) inputs from the environment to maintain control and function. For example, as humans we can see only a fraction of the spectrum of light waves and have a limited set of mental models with which to view the world. In organisations, we might think of the equivalent mechanism for attenuation as the functions it has (e.g., roads and railways but not airports) and the culture or worldview of the organisation (e.g., competition and growth but not social good). Living Labs represent an increase in organisational complexity and in cultural and perspectival complexity.

Espejo and Dominici (2017) suggest that organisations require a mix of amplifiers (increasing variety), attenuators (reducing variety) and transducers (meaningful communication across boundaries) to maintain organisational viability. Ciasullo et al. (2017) highlight the intersection of Living Labs, co-creation and variety thinking for a transport project in a Living Lab in Bologna. They describe how citizens produce and modulate variety in the project process and resulting transport system design, leading to a more complex final implementation (Ciasullo et al. 2017).

As open innovation networks, Living Labs should demonstrate many of the characteristics of network forms of organising. Constituting such networks, Living Labs are more complex organisational forms and should be able to manage greater external variety in their innovation processes. As orchestrators of innovation, Living Labs must both manage variety and seek out mutual propositions for the end-service in the innovation process.

CASE STUDIES

Here, we present two case studies from the Future Self and Design (FSD) Living Lab in Melbourne, Australia. We examine the projects through the lenses of value propositions, variety and realised ecosystems. All include the broad stakeholder groups of the quadruple innovation helix (Carayannis et al., 2018).

CASE STUDY 1 – ACTIVE AGEING PORTAL

Project Overview

This case study involved the development and implementation of an 'active ageing portal' on the local council website, bringing together service offerings from local community providers into one portal for older adults. The role of the FSD Living Lab was to understand the informational needs of older adults in the council area, that could be used to encourage active ageing. The research component described here was part of a larger development project involving the Council and a software development company. The research component of the Living Lab included:

- a preliminary workshop to confirm objectives
- three interviews with each of the 12 citizens, covering aspects of technology use, understanding of active ageing, and responses to prototypes of the platform the Council had already developed; this last aspect covered function, content and visual style
- a supporting workshop with council staff, care providers and a doctor

These actors were anticipated to be part of the end-ecosystem of users. The project process was designed to elicit:

- changes for the prototype system to make the final site usable
- the value propositions of having:
 - a centralised portal for low- or no-cost active ageing activities in the Council
 - trusted information sources
 - mechanisms to access and share the information
- an understanding of whether these value propositions would encourage people to participate in activities in the future

Interviews

The first and second round of interviews revealed that the principles behind the solution were of value, but the prototype needed significant changes.

Locally, many clubs, community houses and other facilities offered physically, socially and mentally stimulating activities for the over-55s. Many citizens did not know where to look and had to search multiple sites offering similar events. This external variety could be overwhelming for some individuals. The value proposition of reducing (attenuating) this variety by having a single portal was valuable.

The prototype website was built on an assumption of an 'infirm' or 'deficit' model of ageing. Society and design approaches tend to treat older adults as a homogenous group with similar needs that can be docu-

mented and designed with a one-size-fits-all approach (Lindley et al, 2008; Vines et al, 2015), despite research showing that there are diverse pathways in ageing (Browning et al, 2018); this diversity needs to be addressed in successful solutions. The prototype portal reflected some deficit-based mental models as being different from the participants' views and actual lived experiences. For example, one participant questioned the notion of segregation by saying, 'I want to go to a philosophy lecture, not a philosophy lecture for over-55s.'

The Council's assumed value proposition of helping firm elderly to increase their activity changed to a much broader view of expanding and maintaining the activities of an already active group. The low-cost value proposition was validated, as was the model of providing trusted sources of information.

During this first round, citizens described their preferred communication channels (word of mouth, phone) and technology devices (tablet and PC), reducing the variety assumed in the original design (e.g., use of social media). In this round, the participants suggested significant changes to the wording, visual content and layout of the prototype design. Participants referenced the overall aesthetic as being 'a bit vanilla', 'lacking colour and movement', 'boring' and noting that colour had been 'banned'. They also noted that the depicted people were not having fun and did not represent their community. Websites and social media act as 'transducers', i.e., aids to communication and meaning-making across the boundaries separating the organisation, users and other parties in the ecosystem. In this case, the meaning-making of the initial version was inadequate to convey the intended value proposition. The value proposition could only be realised through revised meaning-making of the visual design, as the functionality alone was insufficient.

In the final round of interviews, the revised prototype was reviewed with the citizens, and the changes were evaluated. All participants agreed that the new prototype was a significant improvement. Some participants suggested small changes, some of which the Council could accommodate within its budget.

Additional Insights

An unintended outcome of the participant interviews was the revelation of other aspects of the wide ecosystem of activity offerings; one example was a lack of parking, which reduced attendance at events. Parking options were limited to only 1- or 2-hours and thus were of low variety. The classes had high variety, with timeframes often running for more than 2 hours, hence increasing the danger of parking tickets. For some participants who were slow walkers or needed special access, the extra time would put them over the 2-hour limit. We might construct this as a 'latent' value proposition, where the potential to increase value has been uncovered.

Workshops with Care Providers, Doctors and Council Staff

Care providers and doctors were anticipated to be significant users of the system. The care providers and Council staff's client base was frail and had limited technology use or capability. The ability to print a short list of events the client was interested in or a single event with details was the most attractive value proposition for them. Previously, the council staff had to write down details from a printed booklet that was often out of date. The doctor saw a theoretical benefit, but in practice he could not imagine there would be sufficient time at the doctor's office to show people the website. The value propositions presented a marginal fit for these medical groups.

Project Outcome

The result was a website portal for residents over 55 living in the Council area, which became a finalist for the Municipal Association of Victoria, Customer Achievement of the Year award and a finalist for the Australian Government Digital Transformation Awards. The value propositions were validated as a result of the co-design process as the following impacts were registered:

- Increase in traffic to the Over 55's home page of the portal by over 500% in the first 8 months
- Increase in page views (other pages accessed within the portal from the home page) by 169%
- Increase in traffic from the portal to partner sites that host the activities (i.e., classes, and events) by 54% compared to the previous year
- Doubling of number of class listings from 350 to over 700 within a year

The value propositions initially formulated by the Council were achieved and new value propositions uncovered through the process of involving multiple stakeholder groups in the execution and refinement of the solution, leading to these effective results.

CASE STUDY 2 – CO-DESIGNING FOR AND WITH PEOPLE LIVING WITH DEMENTIA

Project Overview

The second case study involved the co-development of technologies for and with people living with dementia. Here we report not only on one project but look into the value proposition across several technologies for different levels of the condition and use settings (home and residential care). We describe our Living Lab approach to technology development for people living with dementia across two projects, with the purpose of increasing wellbeing and participation. The first focused on increasing the independence of people living with dementia at home by tailoring a suite of assistive technologies to help with organisational and leisure tasks. The second aimed to increase quality of life and social opportunities for people living in residential care with moderate to advanced dementia through a selection of interest-based digital game activities. Both projects led to innovative technologies that support active participation of people living with dementia. The idea was that technologies should be accessible with minimal reliance on carers in a non-care context through novel touchscreen-interaction mechanisms, voice control and understanding of people's personal preferences and hobbies. The objective was to create products that do not focus on dementia but on aspects of life that promote normality and 'in the moment' experiences.

Approach

As in the first case study, our approach was based on the principles of co-design, involving all key stakeholders with a specific set of methods developed in our Living Lab to ensure users with dementia are able to contribute as design partners and that the solutions developed are neither patronising nor stigmatising by pointing to dementia. Methods applied include (i) emotion-led design, (ii) interest-based design and (iii) agile development involving the entire research and development team.

The process of technology design was not only intended to deliver a final product but served as a vehicle for the researchers and other stakeholders (staff and family members) for communication and consequently a deeper understanding of people with dementia, i.e., a flat knowledge creation structure. Our research approach also evolved regarding how we evaluated our success and how we measured impact. Besides traditional measures of use and engagement, we applied a co-evaluation approach as part of the later iterations of the co-design process. People living with dementia and their carers were empowered to develop and formulate the evaluation criteria. Impact was based on what they wanted to achieve.

In both projects, the four key stakeholder groups were represented:

- researchers
- people living with dementia as the primary end-users
- care providers and
- a not-for-profit advocacy organisation

Variety and Value for People Living with Dementia

People living with dementia benefit from low variety, as they can easily feel overwhelmed if there is too much choice in an activity; this needs to be reflected in design. However, this low variety need might be misleading if communicated as absolute. The need for the variety-poor requirement is to be presented to the user in one technology-supported activity at one moment of time. The technology as a system needs to be adaptable to the quickly changing needs of people living with dementia over time, as the condition, too, changes. That means a variety that accommodates a range of different needs is necessary, though the person living with dementia should not have to deal with this variety.

Value for people living with dementia is difficult to measure as they often cannot verbalise their experience. The experience must be interpreted indirectly by the research team or care staff. For example, during the use of a game app for people with advanced dementia, smiles as a response and the fact that the technology would be touched at all was seen and reported as a success by staff and relatives. We would not have known this unless we had asked for these success measures throughout the co-design process. In the case of people with mild dementia, the retrieval of useful information from the internet (e.g., new or local weather) through speech input was an equivalent value proposition, although in absolute terms it is hardly comparable. The value to the person living with dementia is understood through direct observation of their phenomenological reaction by the researcher.

Value is co-created for carers, family and other members of the significant support network and is based on their loved ones' reactions and their own experience. This value is much easier to measure, by members of this network who are familiar with the person living with dementia and who can compare the effects of technology use directly with them not having this technology available previously. Again, research needs to rely on the feedback of this network in order to measure success and draw on multiple individual case stories to receive a more complete picture.

The whole ecosystem includes the technology, setting (residential care or home) and social connections (family and friends). All voices need to be heard and the context considered in order to understand the value proposition of the developed intervention. The solution must be designed to fit into and leverage that ecosystem and related dynamic with the new technology. In the case of the game activities for people with advanced dementia, the aim was for shared social experiences. Hence, all participants and their needs, as well as their

willingness to support the goal in this social setting (e.g. gently facilitating the game activities and sharing personal stories when prompted), demand to be considered to achieve this value.

Our approach required to engage with the network to translate meaning into the final solution. Meaning was created in terms of understanding interests and previous experiences of people with dementia, which was elicited from their support network. This led to a series of Australian-themed images to be coloured in, such as a backyard cricket game, a barbeque party and a clothesline; it was an image of the latter, with a girl swinging on it, that got the daughter of one of the residents with dementia excited: 'This is me as a little girl in my parents' back yard.' In the assistive technology in the home project, the wife of one participant with moderate dementia requested that the house be equipped with multiple Alexa units (Alexa is a virtual assistant app that can be used to interact with home devices such as Amazon's Echo Dot). 'I want him to hear "her" wherever he is in the house. He does not listen to me but to her!'

Outcome

The expectations in re-engaging people with dementia in activities they formerly enjoyed, as well as using technology independently and even develop new skills, resulted in increased levels of wellbeing, mental activity and social integration and in some cases a decrease in occurrences of negative moods (anxiety; aggression) in both projects.

CONCLUSION

Both projects illustrate that Living Labs projects broadly meet Ronfeldt's network criteria of knowledge generation, empowerment, consultative logics and future orientation. Managing variety and forming 'transducers', i.e., meaning-making between actors, are key elements in co-creating value and determining the final value propositions in the ecosystem. In our case studies the technology acted as such a transducer creating meaning between parties. The nature of the visuals and wording in the active ageing portal were the key to positive phenomenological reactions, more so than the mere functions. The same is true of the dementia games and assistive home technology use.

In the case of the game activities, these emotions were felt by multiple actors at the same time. Moreover, variety and meaning-making management in the design process is also likely to be a determinant of future value. Value as experience is a direct and immediate observation of the beneficiary, with complementary value propositions being created for different actors in the ecosystem. Here, the 'experience' of the other actors operates over very different time horizons. For example, the value propositions (better health for citizens, lower healthcare costs) are long-term organisational experiences that sit alongside the shorter-term benefits, such as positive feedback from users. The longer-term value propositions illustrate a continued need for a future-focused ecosystem. Emerging contexts could disrupt the ecosystem (such as changes in technology, cultural values, demographics) and reducing its ability to deliver longer-term value. Long-term value is linked to the ongoing viability of the ecosystem and its ability to adapt.

Considering technology innovation development through the lens of Cybernetics adds another approach to thinking about value creation from the viewpoint of ongoing viability. Using emotion-led and interest-based design as a co-creation mechanism provide a pathway to capturing the meaning-making elements in the system. Living Labs as networked organisations have an interest in co-creating value from the level of the organisational network to individual projects. Cybernetics offers another pathway to consider value co-creation at all levels of a living lab and is worthy of further research in its potential application.

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Keywords:

- Co-creation
- Living Lab
- Value proposition
- Complex projects

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4. The promotion of assets in the community

Ossi Salin & Timo Kopomaa

From a multi-stakeholder Co-Creation perspective, asset-based approaches have become effective alternatives in successful community development, and the utilisation of human resources as assets has become essential. It has been found that governmental programme-based solutions to community problems will be gradually replaced by strengthening the role of civil society organisations and their participation in governance at the local level (Mathie, Cameron and Gibson 2017, 55; Mathie and Cunningham 2003, 474).

The aim of this paper is to explore experiences with an e-participatory budgeting process application in southern Finland in Espoo City Centre (Espoon keskus) during the years 2017–2018. In the project, people were encouraged to come up with ideas to develop their neighbourhoods with the goals of making them “more alive, more cheerful and more beautiful”. The participatory budgeting process, called My Idea, was also an experiment in e-participation. One of My Idea’s objectives was to understand how the project promotes the mobilisation of the assets of people and use of the resources available in Espoo City Centre.

The source material consists of development proposals of residents and the experiences of the ideas’ creators in the project. The results show that residents proposed several assets for use in community development. Social assets, such as people, associations and enterprises, were emphasised in the proposals. Other assets were the knowledge and skills of people, material assets and the environment and culture. In addition, the results reveal that e-participation as an asset should be developed to be user-friendly. The project’s call unintentionally evoked an individual mind-set among participants, and therefore collaboration should be motivated in the project orientation stage.

CO-CREATION AND AN ASSET-BASED VIEW OF COMMUNITY DEVELOPMENT

Multi-stakeholder Co-Creation processes, goals and applications vary in different environments and raise different issues and considerations. It is also important to analyse these issues in more detail for further development of the Co-Creation processes in specific contexts. The aim of this article is to explore experiences with an e-participatory budgeting process application in southern Finland in Espoo City Centre. In the project, people were encouraged to come up with new ideas to develop their neighbourhoods with the

goals of making them “more alive, more cheerful and more beautiful”. The participatory budgeting process was called MyIdea, and it was also an experiment in e-participation. One of the objectives of MyIdea was to understand how the project promotes the mobilisation of the assets of the people and use of the resources available in Espoo City Centre. This starting point defined an asset-based perspective of community development as one of the guiding principles in the project.

Mathie and Cunningham (2003, 477) propose that asset-based community development (ABCD) can be understood as *an approach* and as *a set of methods* for community mobilisation and as *a strategy* for community-based development. The origin of the ABCD approach is in Krezmann’s and McKnight’s (1993) studies of success stories and experiences communities had in the US with their efforts to mobilise local skills and capacities through informal and formal associations. Instead of focusing on deficits and demands of the communities, they paid attention to internal resources and capabilities in community development stories (Krezmann and McKnight 1993; Mathie, Cameron, and Gibson 2017, 56). According to Blackman, Buick and O’Flynn (2016, 1634), ABCD has its roots in an appreciative enquiry (Cooperrider and Srivastva, 1987), which refocuses attention from the negative and failing on what is successful and working.

Asset-based community development and other asset-based approaches have become effective alternatives in community development. Several projects following these principles have been applied globally in different development settings (Mathie, Cameron and Gibson 2017, 55). This development may, according to Mathie and Cunningham (2003, 474), represent a change to the bigger picture, where governmental programme-based solutions to community problems will be gradually replaced by strengthening the role of civil society organisations and their participation in local governance. At the same time, participatory budgeting as a political strategy, in various forms, pursues the democratisation of local resource allocation (Ganuza and Baiocchi 2012, 1–2; Speer 2012; Krenjova and Reinsalu, 2013). However, the processes of these two approaches, to some extent, resemble each other.

ABCD ELEMENTS IN THE MYIDEA PROJECT

However, the more important area in ABCD, and other strength-based approaches, is a perspective of the elements present and available in communities and among people. Those elements – human, social, material and cultural – become functional assets only through signification and appreciation. For instance, specific places in a residential area may be useless to some but an inviting opportunity for placemaking to others.

Mathie, Cameron and Gibson (2017, 56) refer to the work of Kretzman and McKnight (1993) and state that ABCD was codified as a deliberate process designed to encourage citizen agency, using the language of assets to generate activated subjects and collective actions. Russell and Smeaton (2009, 14) define features that are characteristic elements in ABCD. These are, for instance, initiatives that were supposed to be citizen-driven internal solutions. In addition, residents of the housing area, community, associations, municipalities were seen as assets and co-producers. Furthermore, a collaboration between residents and other stakeholders has happened in former projects. These functional relationships were interpreted as assets and strengths. Most of these characteristic elements of ABCD are also found in MyIdea.

In Scotland, there has been a critical discussion of the need to clarify the meaning of an asset-based approach (MacLeod and Emejulu 2014, 440–441). MacLeod and Emejulu highlight that asset approaches and asset speech are widely used in various methodologies and contexts; however, it seems that asset terminology, or the lack of it, does not itself define whether actions were unambiguous examples of an asset-based approach or not (ibid.). Although MyIdea clearly has many similarities with asset-based community develop-

ment principles, in light of this criticism it would be more accurate to see MyIdea mainly as an “ABCD-like” project. However, one purpose of the MyIdea project was to share the proposed ideas with participants and, if possible, combine them. In these encounters ideas were linked and people and stakeholders united for further co-operation and bonding (Blackman, Buick and O’Flynn 2016, 1637; Flora, 1988; Zahra, Gard and McGehee 2013; Mathie and Cunningham 2003, 479).

PARTICIPATORY BUDGETING IN ESPOO CITY CENTRE

According to Krenjova and Raudla (2013, 18), participatory budgeting (PB) may be defined as a process of participation that enables ordinary citizens to make decisions about budget allocation.

The aim of PB is more inclusive and transparent decision-making and open discussion among community members about the priorities of community development. In other words, it is a way of re-organising power relations between ordinary citizens and administration (Krenjova and Raudla 2013; Ganuza and Baocchi 2012, 1).

My Idea is a research and development project that explores the participatory budgeting process in Espoo City Centre in Finland during the years 2017–2018. MyIdea was administered by the Espoo City regional development group. The purpose of participatory budgeting is to provide an opportunity to identify and prioritise targets of public funding and promote residents’ role in participation, discussion and decision-making concerning public resources. In practice, this was implemented by offering small grants for initiatives ideated by residents and which were successfully chosen by residents through voting. MyIdea was partly an experiment in e-participation, and one issue to be observed was the functionality of the online platform for idea design and voting (Lund 2019).

The sum to be shared among successful initiatives was EUR 10,000, and funding for each individual initiative was a maximum of EUR 3,000. Residents were invited to come up with ideas to make the Espoo City Centre “more alive, more cheerful and more beautiful”. People were asked to describe their ideas on a digital platform and estimate the amount of money needed for implementation. The project was promoted and advertised in various ways, such as through the internet, at public events, through the local newspaper and by contacting people and associations directly.

The proposal instructions on the digital platform were rather simple: the idea should be implemented in the Espoo City Centre neighbourhood and should be open and free to everyone. The idea could be, for instance, an event, a work of environmental art, improvement of the urban environment, an investment for the common good, a training course or educational event and so forth. The main point was that the proposed idea should be implemented by the creator or in cooperation with others.

After the ideas were presented on the digital platform, the creators were invited to two workshops where their ideas were discussed more closely and their development facilitated with the help of relevant city professionals, depending on the nature of the idea and the questions that arose. Facilitators represented different branches, such as city planning, environmental services, cultural services, social services, city communication and NGOs. After the workshops, the creators finalised their idea summaries on the digital platform, to be voted on by residents. Voting was advertised through many channels, but the voting itself was made possible only through registration on the MyIdea digital platform. Finally, the outcome of the voting was published and the winning ideas were celebrated at a gala to which all participants were invited. A third workshop was arranged a few months later for evaluation of the MyIdea project’s strengths and weaknesses as well as proposals for its further development.

Myldea's objectives, philosophy and principles were discussed at several events but more in depth in workshops. In the project, where people were encouraged to come up with ideas and apply their interests, skills and networks to jointly undertake something for the good of the community, an asset-based approach was emphasised. People were asked to invite friends to the workshops and to seek out possible supporters and partners to help carry their ideas forward. Networking with relevant authorities and associations was supported. Most importantly, every idea creator was afforded the same opportunity and support needed to proceed in a way appropriate for their case.

RESEARCH IN A NUTSHELL

Myldea was a participatory action research project in which professionals from the city, residents, local firms, associations and researchers from Laurea University of applied Sciences and Helsinki University were involved. The project was funded by Helsinki Metropolitan Region Urban Research Program. From an asset-based perspective, we were interested in how this experiment encouraged residents to come up with ideas, what things they hoped to enable for other residents and how they would use available assets and resources, both human and material, to make their ideas work. In addition, we closely studied the planned roles of the residents in these descriptions. The proposals were analysed by content analysis.

All of the idea descriptions (in total 31) were categorised by applying summarised content analysis, but we focus our analysis on the descriptions (16) that proceeded to the voting phase. We also explore how participants evaluated the Myldea process they were involved in.

We interviewed nine idea creators about their experiences in the project. The interview questions were designed to open up the experiences of the Myldea project from different angles. We were interested in what thoughts they had about the Myldea project in the first place. We asked about motives for participation, the idea development process, workshops, collaboration, what support they received, what obstacles they met, how the digital platform worked, what they learned, what local resources they were able to benefit from, what were they were happy or unhappy with and what should be improved in the Myldea project implementation.

All interviews were recorded and analysed by applying thematic analysis principles. The concepts of asset-based community development and participatory budgeting were applied in the analysis to help identifying themes in the data. We have been sensitive to phrases and words related to the concepts of social and human capital and that can be interpreted as speech about assets and resources.

WHAT WAS FOUND?

Proposals

Thirty-one proposals were submitted through the digital platform. All citizens who had submitted ideas were invited to the workshops. The first workshop concerned feasibility issues related to the ideas, including clarifying the content of the idea, necessary collaboration needs, budgeting, communications, etc. The focus of the second workshop was marketing and communicating of the ideas with the target audience and other residents in the Espoo City Centre.

During the process, some of the ideas were rejected or combined with another idea. Six participants dropped out. Ultimately, 16 ideas by 13 citizens were to be voted on. The ideas were:

Suvela Bazaar: a feast for old and new Espoo dwellers of different ages and backgrounds

CenttiFest, a local music festival.

Building of a flower garden

Move green: combining exercise with environmental protection

And one example of the ideas with detailed description:

"A Torrent of Colours"

Come make a torrent of colours! Torrent of Colours is a textile community art for the Espoo City Centre. This work of art will be created together with residents of the neighbourhood by banding textiles on the handrails of the bridge. You can bring your own blue-coloured textiles with you if you'd like. The Torrent of Colours will demonstrate how community members are able to promote a beautiful environment. The Torrent of Colours brings joy and colour to Espoo City Centre. Let's make a more beautiful city centre together."

The proposals could be roughly divided into four categories: public art in the urban environment, activities for people, events, and a social issue. Depending on the proposal, the number of things to be offered (enabling things) varied from two to seven.

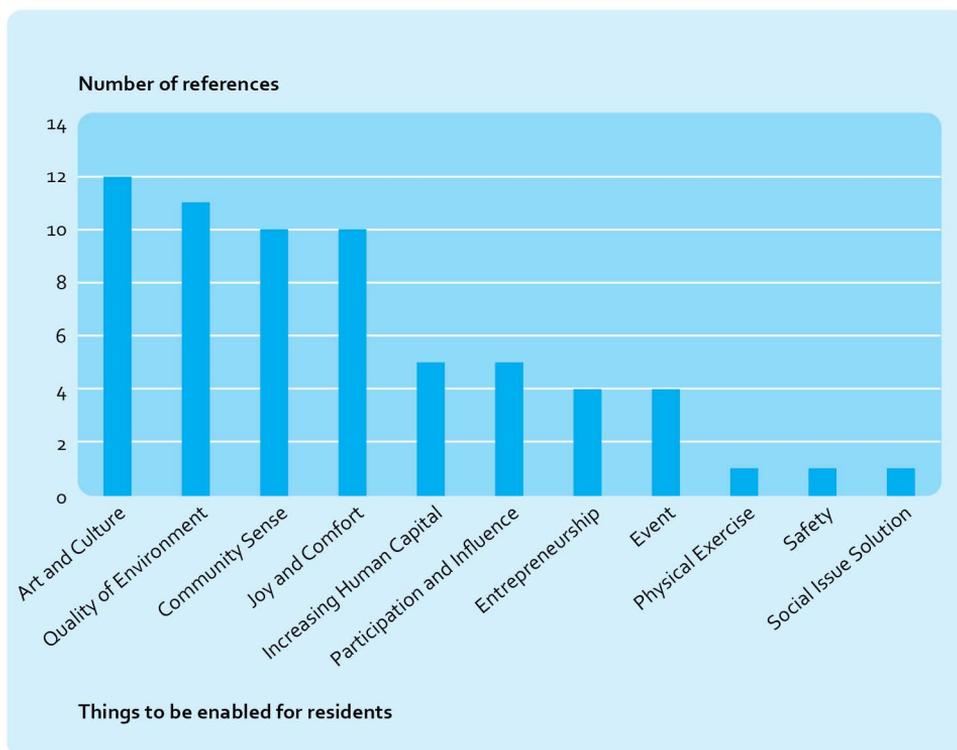


Figure 1. Idea proposals: Things to be enabled for residents.

In the majority of descriptions, art and culture were proposed to residents of Espoo City Centre. Almost as often, improvement of the environment, strengthening the sense of community and increasing joy and comfort were mentioned as positive results of the ideas. Increasing human capital refers to skills and knowledge to be shared among residents in different activities and events. This, and possibilities to influence the environment or environmental awareness among people and new means for participating, were often mentioned. The promotion of local entrepreneurship and events, such as music festivals or other performances, were referred to almost as often. Organised physical exercise for residents, better safety and solutions to social problems were mentioned in a one description only.

ASSETS IN IDEA PROPOSALS

The idea descriptions contained references to different kinds of assets. We applied Clarke's (2015) framework of situational analysis in identifying assets embedded in the descriptions. In the content analysis, these references could be defined as follows:

- Social assets (people, associations, enterprises, city professionals, experts)
- Material assets (artefacts, material objects)
- Environment (local spaces and places)
- Knowledge and skills (of the residents and experts)
- Culture (cultural heritage, tradition, proverbs, multiculturalism, art gallery)

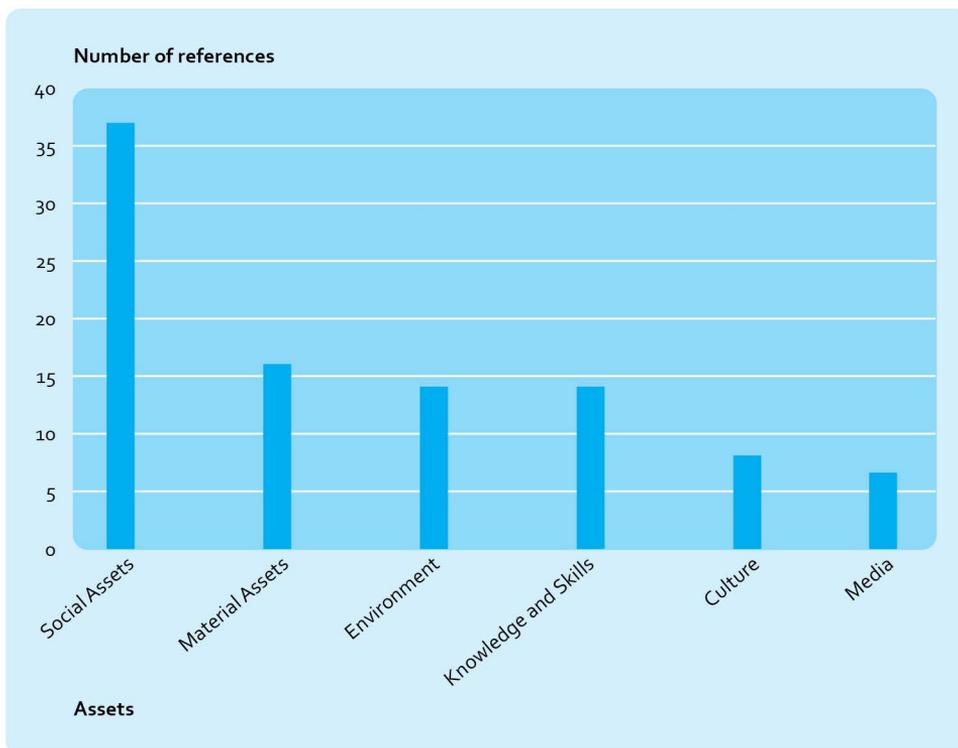


Figure 2. Assets in the proposals.

Most often, participants referred to social assets to be used in implementation of their proposals. Social assets and knowledge and skills (social and human capital) comprised over half of the assets; material assets and the environment represent about one-third. Here, media (and partly culture) may be considered one socio-material element in which social activities are intertwined with technologies.

ASSET-BASED SPEECH IN INTERVIEWS

Collaboration and social support/social capital

The participants experienced collaboration differently.

Most of the comments attached to the workshop processes were usually seen as polite and beneficial to one's idea development. Usually, participants spoke about their interest in meeting one another and hearing about other ideas in more detail. The interviewed participants were happy with the positive feedback they received from the others, which included ideas, encouragement and support. Many of the interviewees referred to the facilitators' and city experts' encouragement and support in the workshops and during the process. Some of the participants were especially satisfied that facilitators were prepared in advance and provided accurate feedback and advice for further development; they were also able to be connectors or suggest possible partners. City professionals were described as being committed and even enthusiastic. Some of the participants referred to local support and assets they have used in the development of their ideas; these might be one's own personal contacts and networks. One of the participants spoke about tacit knowledge and personal experiences people have concerning certain kinds of social issues. In one comment, the surrounding community was seen as a source of inspiration that motivates one to find solutions for sustainable community development.

However, there were other opinions. Four participants raised more critical viewpoints. One said that the first workshop was not very helpful because there was no progress in her own project. She explained that her time was spent listening to other participants' ideas. Generally speaking, the facilitation process was challenging but also beneficial. It challenged participants to explore one's idea from various viewpoints. These were, for instance: questioning realistic commitment to implementation, questioning collaboration and networking, evaluating strengths and weaknesses of the idea proposal, exploring the possibilities of optional routes for promoting one's idea if this implementation turned out to be too demanding, and questioning budgeting and communication. Some participants became annoyed with "improvement suggestions" from others because they felt that their own proposal was not appreciated. One participant explained that everyone held fast to their own ideas; according to him, the networking did not serve idea creation very well. The researchers observed that at some point, people started to talk about "an idea competition".

Personal assets/human capital

The participants explained and rather often referred to experiences with personal empowerment and opportunities to learn, share and use one's personal assets. These experiences manifest themselves as positive personal emotions but also as the practical development of skills. One of the participants was pleased with the chance to bring joy to other residents and herself with her idea. Another participant spoke about her enthusiasm in being able to benefit others and get them involved. Growth of knowledge and skills, such as learning to act in a new virtual environment was mentioned by a few. One participant explained that he and his co-crea-

tors had learned how to plan and organise an open event for residents, including budgeting, prioritisation and other necessary skills. In addition, they believed they could help their community demonstrate its potential.

Digital platforms and social media as assets

The digital platform was the only means for submitting one's proposal to the MyIdea project, as well as the only way to vote. The interviewed participants saw the promotion of new e-participation possibilities as basically desirable. On the other hand, the functionality of the MyIdea platform was more or less criticised by all participants, with two exceptions only. The positive aspects were related to the flexibility and speed of the application, and they did not face technical difficulties. One of them saw the online environment as a good way to reach different age groups. Others offered critical remarks. Voting, for example, was uncertain, because you could not tell if it was successful. Two participants explained that not all necessary information was available, such as appropriate sizes for picture or how to edit idea descriptions on the platform. Two participants used the expression "to thread" to describe the complexity of posting their ideas on the platform. According to most of the participants, the registration procedure was viewed as a source of frustration. Many of them raised the fact that people who were going to vote just gave up because of the difficulties.

DESPITE THE DIFFICULTIES, POSITIVITY WINS

The positive approach in the MyIdea project invitation was clearly seen in the proposals. This phenomena was interesting because the centre has typically been considered an area of varied and bigger problems than elsewhere. In contrast, participants did not pay attention to social problems or other social issues. Instead, the ideas touched on art and culture, environmental quality improvements, a strengthening of the sense of community, and joy and comfort in the city area.

It is possible that the participants looked upon their neighbourhood positively, seeing more possibilities than obstacles. They were granted a chance to come up with their own ideas and promote a positive image of their neighbourhood and its residents. We may say that the project invitation liberated, or at least encouraged, people to create something they saw as new, positive and inspiring. This resembles Mathies' and Cunningham's (2003, 477) notion about ABCD's principle in which a recognition of strengths and assets is more likely to inspire positive action for change in a community than an exclusive focus on needs and problems.

In the MyIdea invitations, phrases were used that evoked an individualistic and competitive attitude among participants, such as "how would *you* do it", "each *winning* proposal gets funding" and "voters choose the *winners*". These were likely to foster a spirit that did not encourage collaboration, even if this was proposed in the first workshop. The facilitators could not do much to change the course of the individualistic orientation. However, we have to keep in mind that positive experiences with collaboration were emphasised more than negative ones.

Experiences of the e-participation included a lot of criticism. The digital platform was not user-friendly, especially in the voting stage, and this frustrated many potential voters. It can be concluded from these experiences that the e-participation somewhat failed, since it did not work as an asset as planned. Based on our experiences, we suggest that in participatory budgeting, as well as in any asset-based approach to community development, close attention should be paid to project implementation as a social process at a very early stage. The ideas should be constructed and developed together. Information technology and social media

are powerful assets, but they should not be the only options for attending a participatory budgeting process, such as in this case. There should be opportunities to get involved and possibilities for those with poor technical skills and incomplete ideas to take part. And, of course, technical applications should be absolutely user-friendly. In addition, the requirement that participants be responsible for the implementation of their ideas may be too demanding. Participants should be encouraged to take part in accordance with their abilities. These would be important contributions to participatory budgeting as an asset-based process and the successful co-creation processes in community development.

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Keywords:

- Asset-based community development
 - E-participatory budgeting
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5. Building teams and identifying co-design stakeholders in healthcare projects: A social prescription case study

Alen Keirnan & Sonja Pedell

Although co-design literature promotes the involvement of multiple stakeholder groups, it is not always clear who such stakeholders should be within innovative service development. Social prescription is a new concept in Europe aiming for a more holistic health approach to increase social integration of members into the community. Through our feasibility study on introducing social prescription in Australia, we found an iterative and staged approach is necessary to understand who to involve in social prescription services. We conducted qualitative research consisting of semi-structured interviews and four co-design workshops. This way it was possible to understand who to involve in the next round of data collection on how to apply this novel concept and make the most of existing staff and resources, thus overcoming organisational barriers in the existing service landscape of our collaboration partner. We recognised the usefulness in adopting a process that presents information visually to a wide audience to identify new stakeholders and potential client groups. We placed particular emphasis on the health provider's values and needs as well as those of their clients. This article concludes with a summary of how we achieved this in our specific living lab project and includes recommendations we believe are of value for other complex projects in the community health sector, too.

BACKGROUND

The Community Healthcare Provider Access Health and Community

Access Health and Community has a proud 150-year history of providing healthcare and social support. As the oldest community health service in Australia, they have always focussed on providing services to people and families in social and financial need. Their services are available to everyone in the community and extend across medical, allied and community health portfolios. Their main locations are in three Council areas in the cities of Boroondara, Manningham and Yarra. Access Health and Community values equity, collaboration, respect, innovation and quality and has been a foundation partner of our living lab since its accreditation in 2016.

Facilitating practices are needed to create trust between different actors, to enable the development of a shared vocabulary and shared meanings, and to create and maintain an empathic atmosphere in all the encounters and gatherings. Sensitive listening and balancing of the actors' interests is a prerequisite for smooth progress of the multi-stakeholder innovation process. The use of service design tools and templates in manifold activities helps maintain the user-centric approach of the Agile Piloting Programme.

3. Practices related to learning, knowledge mobility and upscaling

Reflection and practices supporting shared learning and learning from other actors' experiences are important in the Agile Piloting Programme. Evaluation of the process and documentation of the learnings can be integrated into the process in several ways, from self-evaluation to a dedicated partner in charge of the evaluation of the process and the pilots. As a form of self-evaluation, a short survey to follow up the pilots in the start, mid- and end-phases of the pilot provides a way for the orchestrator to document the pilots systematically and to get a basic understanding of expected and experienced learnings. During the process, facilitated events or workshops with engaged partners and users are a fruitful means for reflection of the process and a joint learning experience. The nature of events varies from informal gatherings to dissemination events for a wider audience. Events support upscaling of the learnings.

Table 3. *Orchestration practices related to learning and knowledge mobility in different stages of the Agile Piloting Programme.*

PRACTICES RELATED TO LEARNING, KNOWLEDGE MOBILITY AND UPSCALING					
	1. Selecting the challenge	2. Open call for a piloting round	3. Selecting the pilots	4. Experi- mentation process	5. Evaluation & upscaling
Follow-up surveys before, during and after the pilot				X	X
Workshops for all the stakeholders engaged in pilots focusing on knowledge co-creation and learning from other actors' experiences			X	X	X
Dissemination events, open to all				X	X
Pilot descriptions on web pages and videos for a wider audience				X	X
Documentation during the whole process	X	X	X	X	X
Evaluation report as a summary of learnings and reflections					X
Updated manuals and templates for orchestration					X

The Future Self and Design Living Lab

The Future Self and Design Living Lab has developed core development capabilities in the area of innovative socio-technical systems and design solutions for health and wellbeing, with a focus on older adults. We develop services and products for older people and vulnerable groups, ensuring that their emotional and social needs are incorporated into every stage of the development process. Co-designing solutions with key stakeholder involvement at every step ensures outcomes address the evolving needs of end-users.

Purpose of the project and this article

With their range of health services offered, Access Health and Community are uniquely positioned to leverage their service capabilities to deliver a social prescription model. Working collaboratively, Swinburne University's and Access Health and Community's aim for this project is to co-design a social prescription service concept to be trialled within the organisation. The specific aim of this article is to showcase how the stakeholders were identified and involved successively in the course of the project to ensure that the right stakeholders are part of the co-design process to come up with this concept. We suggest that in order to truly understand feasibility, barriers and opportunities, and come up with a design output of a social prescription offering that is ready for trial, we must ensure the project team is representative of the organisation and enable to anticipate this future innovative service.

CURRENT RESEARCH ON SOCIAL PRESCRIBING

Social prescribing is a non-medical means of referral that links community activities and services with people who are currently, or at risk of becoming, socially isolated or depressed (Carnes et al, 2017). Prescribed activities can fall within 'social', 'physical' or 'economic' categories and aim to improve self-care within the community (Woodall, et al. 2018; Moffatt et al. 2017). Different models of service delivery exist, though it is common for a community connector to work with a clinician and identify suitable social activities for their client or patient. While the literature shows promising evidence to the benefits of social prescribing, primarily in the United Kingdom (Carnes et al, 2017; Woodall, et al. 2018; Moffatt et al. 2017; Bertotti et al. 2018; Kimberlee, 2015), Australia is yet to adopt this model of healthcare delivery. Within this emergent field, which we consider an opportunity, design plays a crucial role. The importance of design has gained increasing prominence in particular as a driver of innovation and is framed as a core capability for economic wellbeing in Australia, the UK and Europe. The 2011 'Design for Growth & Prosperity' report by the European commission suggests innovation design 'can be understood as a distinctive, competitive advantage' (Thomson & Koskinen, 2012). In Australia, the national cultural policy Creative Australia recognises design thinking as 'a ubiquitous capability for innovation' (2013).

A co-design project was agreed on after the CEO of a local healthcare provider approached the Future Self and Design Living Lab, hosted by the Centre for Design Innovation at Swinburne University of Technology. Our goal was to design and pilot Australia's first social prescription healthcare model based on a co-design process. With the application of co-design, the role of the designer has changed. As the 'Design for Growth & Prosperity' report notes: 'People-centred design requires consumers and citizens to play an increasingly active role, from the beginning of the product or service development process to the end...' This openness of design as a multidisciplinary activity that also involves users is key to our approach, in which we bring design innovation and co-creation together.

Hence, the project was set up as a multi-stakeholder eco-system involving local government, industry, research and the community – a common living lab approach based on the quadruple helix model (Carayannis & Campbell, 2009; Yawson, 2009). Here, government, industry, academia and civil participants co-create to take full advantage of ideas that cross-fertilise domains through experimentation and prototyping (Curley & Salmelin, 2018). It was decided that representation from neighbourhood houses¹ (local government), local healthcare providers (industry), patients (community) and designers at the living lab (research) would be involved. In a project bound by a complex healthcare system, we asked, 'How are the right individuals from these broad stakeholder groups selected?' The remainder of this paper explores this research question. A co-design methodology framed the project (Pederson, 2016). We formulate key learnings that we expect can support and shape other multi-stakeholder co-creation eco-systems in defining and choosing stakeholders for their co-design processes.

The social prescription case study

At the beginning of the project, knowledge maps and rich pictures were produced from the literature and supplemented with seven interviews from members of a multi-stakeholder team chosen by the initial core team. Next, two co-design workshops with health practitioners and one client workshop were facilitated. All three workshops were designed for the results to cascade into the next, ensuring the co-design process was open and flexible and did not skew its outcomes or assume too early which stakeholders should be involved in the next workshop. It was important to communicate the co-design process to the key decision-makers within the organisation; therefore, the project concluded with a presentation to the organisation's executive team. Table 1 provides an overview of the different data-collection mechanisms and the stakeholders identified.

¹Neighbourhood Houses are local organisations that provide social, educational and recreational activities for their communities in a welcoming and supportive environment underpinned by a community development framework.

Table 1. *Different data-collection stages and the stakeholders identified.*

DATA-COLLECTION METHODS	DATA	OUTCOME	STAKEHOLDERS IDENTIFIED
Literature review	–	Knowledge map based on current social prescription model in Europe	Assumed stakeholders within collaborating organisation
Interviews with organisational staff	Transcripts of seven semi- structured interviews	Knowledge map updated to collaborating organisation	More stakeholders for interviews for workshop
Co-design workshop with organisational staff 1 (Rich Picture)	Two-hour workshop recording	Extension of organisational structure; knowledge on barriers, and resources	Identify more organisational units and staff relevant to social prescription
Co-design workshop with clients (Do, Be, Feel)	Two-hour workshop recording	Values and service needs	Identification and confirmation of possible client groups. Client groups identified by clients themselves
Co-design workshop with organisational staff 2 (service concept)	Two-hour workshop recording	Concept blueprint and confirmation of values	Confirmation of client groups, new organisational stakeholders, and executive team

As with most projects, it was necessary to frame what is academically known about social prescription. A literature review began to reveal parts of the eco-system, including its actors, touchpoints, barriers, service enablers and complexity. We used this preliminary knowledge visually, presenting a knowledge map to the local healthcare provider (Figure 1). The primary purpose of the knowledge map was to identify key stakeholders within the local healthcare provider service ecosystem who mirrored the map’s domains. As a result, a team of initial stakeholders emerged to include a high-profile manager within the local healthcare provider’s community services portfolio as well as the CEO of the healthcare provider. At this stage of our co-design project, our first key learning materialised: digest the literature and produce visual knowledge maps that communicate the key aspects of the topic in which a design intervention is proposed. Our maps were used to identify a core team of stakeholders whose professional domains were mapped to the knowledge domains we identified in the literature.

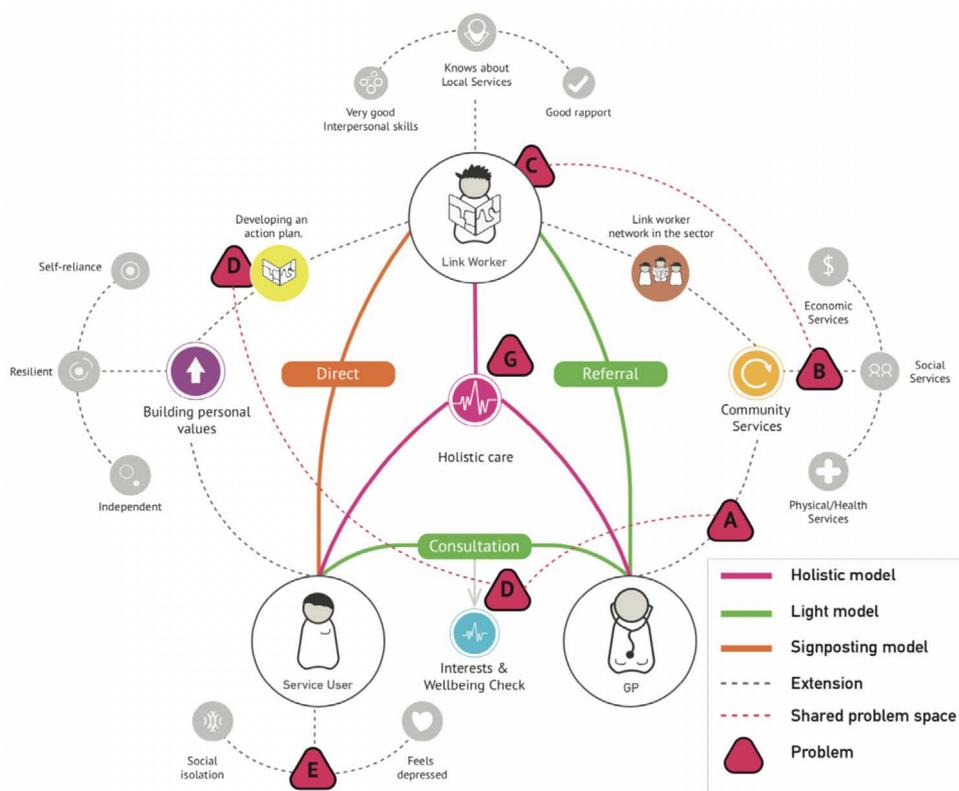


Figure 1. A knowledge map showing social prescribing characteristics, stakeholders and models of service delivery. This map was used to identify team members who shared knowledge specific to the literature themes within the healthcare provider organisation. (Figure: Alen Keirnan)

Social prescriptions draw upon community services and activities to connect isolated citizens. As the local healthcare provider offers community-based services and activities, it was agreed to chart the territory of these services that could be included as part of the pilot program. To navigate the organisation’s community services territory, the initial core team of stakeholders from the local healthcare provider directed our attention to seven key participants.

Interviews with healthcare professionals

Interviews with seven healthcare specialists identified existing services the pilot social prescription might leverage within the organisation. Participants included one allied health² specialist, a nutritionist, a medical director, two neighbourhood house managers, an NDIS³ coordinator and one community care manager. The interviews ranged from 45 minutes to one hour, and interviewees asked questions about service delivery at Access Health and Community, client experiences and what the healthcare professionals perceived their role or professional contribution to be in a pilot model of service delivery. Key findings about internal service capabilities, suitable service stakeholders, barriers and connections between stakeholders were collected.

² According to Allied Health Professions Australia, (homepage), “The term allied health encompasses a broad range of health professions working in a range of settings to improve community health and wellbeing.”

³The National Disability Insurance Scheme (NDIS) provides support to people with disability, their families and carers.

Through the seven participant interviews, we learnt about the types of existing services that might be integrated into a pilot model for service delivery. Interviews were suggested as a method that would not impede on the health professionals' time while also empowering them to share key insights into their roles. This process is in line with Palmas' view (2015), suggesting that a robust co-design process is one that builds in the values of individuals. Our second learning became clear: to focus on inclusion and involve a wide range of stakeholders early in the project-planning process in order to direct questions, identify participants and explore opportunities. Our experience of involving a diversity of stakeholders early in the process was consistent with Pederson's view (2006), in which stakeholders offered unique insight otherwise unobtainable without direct input.

From the interview data, a second visual was produced – a rich picture. It illustrates the diversity of stakeholders, their relationships to each other and the boundaries they operate within (Monk and Howard, 1998). Importantly, the rich picture identifies opportunities from which design intervention can emerge to develop a social prescribing pilot program (Figure 2). Within the core team, the rich picture was reviewed, the barriers assessed and opportunities defined. While our initial assumption was that general practitioners write the social prescription, our interviews revealed the time-poor nature of medical practitioners restricted by auxiliary systems. As a result, our focus shifted to the allied health practitioner.

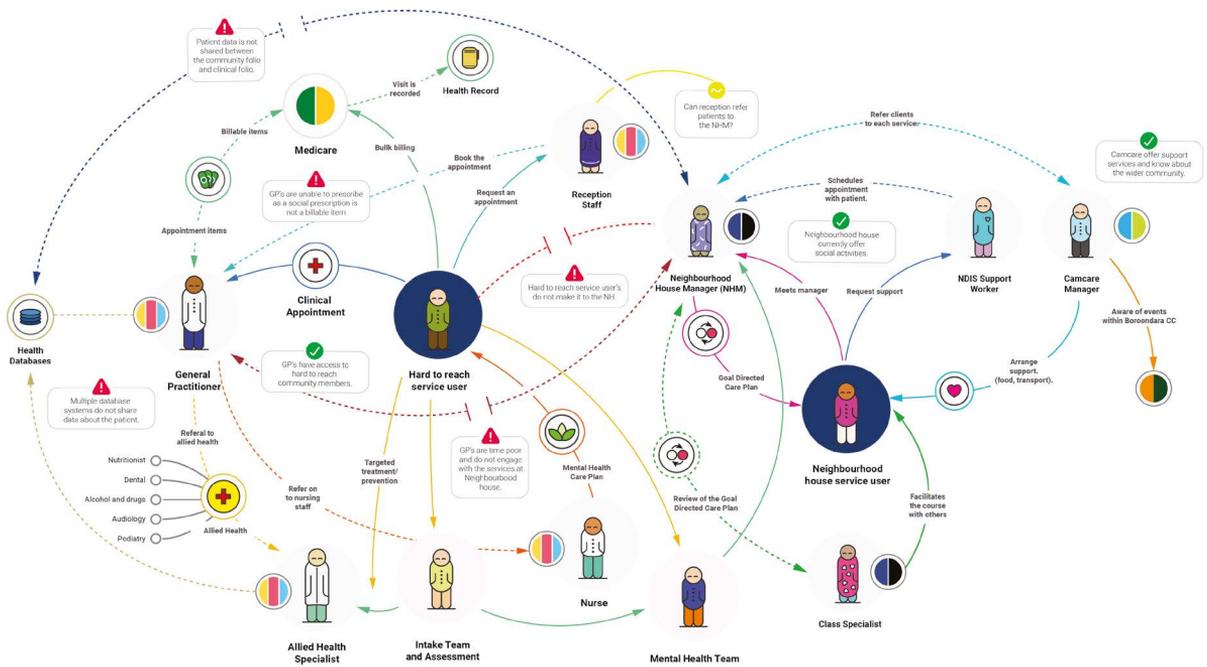


Figure 2. A section of the rich picture showing the internal service capabilities of the local healthcare provider, its stakeholders, their relationships and roles within the organisation. This rich picture was used as the basis to identify the co-design participants. (Figure: Alen Keirnan)

The rich picture also highlighted existing service offerings that could be leveraged within the community portfolio; weekly communal activities in the neighbourhood house and an outreach organisation were among such existing offerings. Here, we identified the need to widen our core team of stakeholders to include an allied health professional and stronger representation from targeted services within the community portfolio.

Our third learning presented itself: to visually depict the nature of the local eco-system in which design intervention is proposed. Doing so revealed opportunities to leverage key stakeholders who have the potential to interact significantly with a social prescription pilot model.

The different stakeholder perspectives gave us a better understanding of the high-level structure of the organisation, focusing less on how the organisation was formally structured and instead on how it functioned based on the interactions and communication pathways of the different stakeholders. The interviews with Access Health and Community staff revealed three high-level organisational portfolios relevant to a social prescription model of health care delivery (Figure 3).

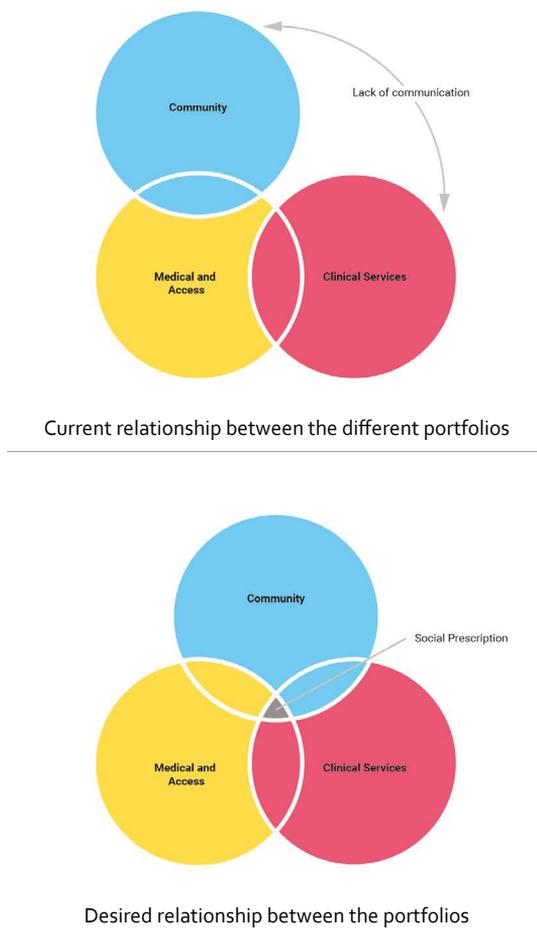


Figure 3. Organisational representation from stakeholders' point of view. (Figure: Alen Keirnan)

Here, the clinical services portfolio, comprised of occupational therapists, speech pathologists and other allied health professionals, was seen as the first point of contact for clients seeking access to social prescription. The second was the community portfolio, comprised of the neighbourhood house and social services such as Camcare (a service branch supporting community members facing personal hardship or difficult life circumstances). Primarily, given their current range of in-house social activities and wraparound support services, such as transport and food vouchers, the community portfolio was seen as essential in delivering the

social activity for which social prescription was provided. The third portfolio, medical and access, comprised the general practitioners as well as the organisational and administrative teams, such as reception and intake. Given their awareness of the range of services at Access Health and Community, the knowledge of the reception and intake teams could be leveraged to deliver social prescription. The interview data also revealed a clear divide between the portfolios within Access Health and Community. The clinical services portfolio and the work of the general practitioners was separated from the community portfolio comprising the neighbourhood house and other pastoral care services. The separation of the portfolios became central to the design process.

Revealed through its network of touchpoints, relationships and stakeholders was a user journey of a generalised 'hard-to-reach service user'. Though the user remained a generalised persona, it was anticipated that subsequent co-design workshops with the now defined team would reveal a more nuanced description of a service user to be invited to participate. Openly sharing knowledge about both the problem and the eco-system promoted a mutual understanding, offering space for the project to thrive (Jin, Y. 2006). Within this space emerged a clear understanding of the teams missing stakeholders. From our rich picture, the core team of healthcare stakeholders grew to include a more defined representation of people suited to designing social prescription (Figure 4).

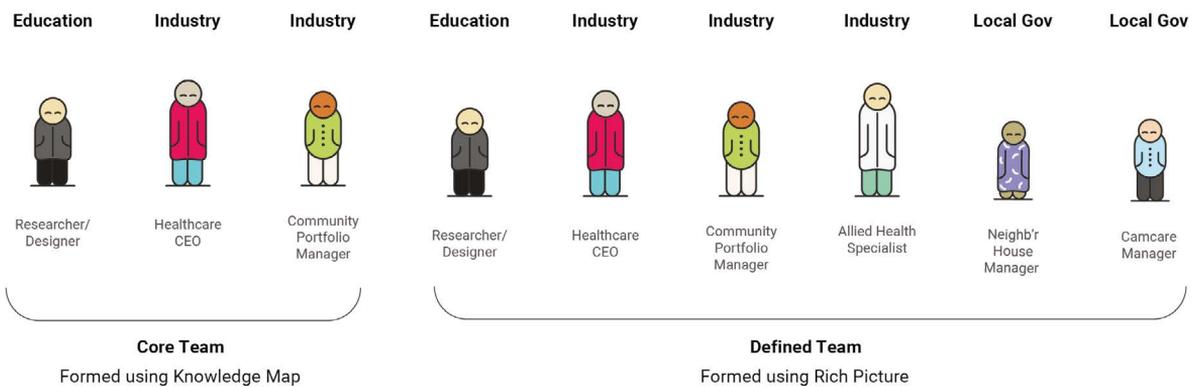


Figure 4. The core team was formed using the knowledge map and later defined using a rich picture map. (Figure: Alen Keirnan)

Rich picture workshop with staff

After creating the rich picture using the data from the interviews, five healthcare staff were invited to review its content in a co-design workshop. The co-design workshop presented the rich picture printed on a large sheet of paper (height: 1m, width: 1.6m). Participants were prompted to review stakeholders, relationships, enablers and barriers to service delivery, as well as any additional resources or faculties and departments that were not captured in the initial production of the rich picture. Three categories of cards were used to anchor a barrier, an enabler or resources to a section of the rich picture in relation to social prescription. Additionally, participants were also encouraged to draw on the map, producing new or unseen pathways. Participants' roles at Access Health and Community ranged from intake manager, to podiatry manager, to physiotherapist, to occupational therapist to a community manager.

In particular, the intake manager was identified as new stakeholder, as they would be a first point of contact for many new clients. The intake team was seen as a key pathway for the difficult-to-identify service recipient when getting recommendations for the social prescription service. Also, nurses were identified as important stakeholders, as they were expected to have more time than the general practitioners but would encounter a similar clientele focussed on physical needs, yet the clientele might also need social activities for their health and wellbeing. It is anticipated that some in need of social prescription might be more open to recommendations from a traditional health service. This brings us to our fourth key learning: to stay open to involving new stakeholders throughout the whole co-design process.

DO, BE, FEEL workshop with health clients (future service recipients on social prescription)

Curley and Salmelin suggest that 'when users are intimately involved in or indeed drivers of innovation, the adoption is almost guaranteed, as these lead users help make sure the innovation actually solves a real problem or helps seize an opportunity' (Curley & Salmelin, 2018, p.95). Hence, we were keen to involve clients as end-users of the service and therefore key stakeholders in the co-design. While this is recommended to be done from the start or early on in the process by co-design approaches and living lab methodologies, we did not know who these difficult-to-identify clients would be and how they would access the service. The previous workshops and interviews gave us a better understanding who these service recipients might be.

Five participants representing potential health clients took part in a two-hour co-design workshop about the design qualities, functions and preferred emotions that should be experienced when using social prescription. Participants were asked what a social prescription should 'do', 'be' and 'feel' like when experiencing the service; the facilitator recorded the feedback on a large wall poster. The workshop was also designed to enquire about the values intrinsic to social prescription. The values were positioned on a wheel diagram, while a description about how the value was to manifest from the experience was then recorded within each value quadrant. The participants were representative of people going through a transition in their life: a new parent, a person recently relocated to Australia for work, a PhD candidate and two older people transitioning from their home to an aged care facility represented the client and anticipated future user pool. One aim of the stakeholder workshop was to identify people in the community who might benefit from engaging with the social prescription service via their local healthcare provider. The clients then conceptualised different tangible and intangible service features that support a client throughout their journey and that might differ according to the client group. The following categories of client stakeholders (service recipients) were identified:

New parents

Parents who feel alone, are unsure how to ask for support or who are diagnosed with depression can benefit from socialising with others in the community over shared interests and coffee.

People new to Australia

People who are trying to integrate into society after relocating to Australia for work or after family or life change and find it difficult to interact with other people outside of their immediate networks (e.g., a university) might find social connections.

Older community members

Older people who are incapable of moving around or have limited mobility will benefit from social engagement within the community. These may be people who still live at home and find it difficult to get out.

Professionals

People who focus on their work or work from home a lot of the time can be isolated. As a result, a lack of social activities is detrimental to their health. These were identified by Access Health and Community staff to be difficult to be catered to through service offerings between 9 am to 5 pm, when most social activities take place.

People with a mental illness

People who suffer from depression or anxiety or are in a 'rut' may not be able to verbalise how they feel or may be unsure why they feel the way they do.

People who don't know how to socialise

For example, people who play online games or members of the tech community who do not get outside and instead spend their social time online or in the virtual world can get more guidance on social activities.

While older adults as service recipients had been expected to be included in this list by the community healthcare provider, this workshop uncovered a wide range of stakeholders within the client group of 'isolated older adults' not previously considered. Although it is not expected that all these groups are represented in equal numbers, we can see how all these groups can benefit from a social prescription service. This brings us to the fifth key learning: in co-design, we need to assume a wide range of stakeholders within the four groups of the quadruple helix.

Workshop for developing a service blueprint with staff

Four healthcare staff members from Access Health and Community participated in building a service blueprint based on the existing workshop data. The blueprint prompted participants to consider how the data collected in the previous three workshops should manifest as a final service ready for trial. The group of participants included a medical manager, an occupational therapist, a community care manager and an allied health practitioner. The two-hour workshop involved designing the touchpoints experienced by the client. Using sticky notes on a large printed timeline, participants identified the different roles and tasks of stakeholders that will facilitate the clients and their journeys. This workshop not only made use of all the identified stakeholders so far but also needed to anticipate future stakeholders based on the identified service needs not yet part of the system. The following three stakeholders were identified as new roles for the social prescription service:

Community connector

The community connector is a new dedicated resource at Access Health and Community. They are aware of how social prescription works in detail and operate in a similar context as a case worker. They are with the user throughout their journey, offering support, guidance and clarification about how the social prescription works. Primarily, the community connector works with the health client to identify their interest and suitability for different social activities, rallies other Access Health and Community services to support the client and compiles reports about the client's journey. This role has also been described in the literature as 'link worker'.

Mental health and social prescription trainer

A lack of mental health and awareness was reported across the whole of Access Health and Community. As a result, health practitioners are not equipped to identify risk factors or symptoms concerning different mental health conditions. Consequently, this lack of knowledge leads to health clients falling through the cracks and not receiving mental health care or social prescription. Therefore, there is a need for a dedicated trainer on these topics. The mental health and social prescription training is targeted towards selected representatives across all service offerings at Access Health and Community. It is recommended that one staff member within the service offering attends the training. As a result, one person across medical, allied health, intake, nursing and others will be trained in mental health and aware of the offerings for social prescription at Access Health and Community. Upon completing their training, they become a 'champion'.

Social prescription champions

For staff who have completed the mental health and social prescription training, the new title is awarded. Here, they become a 'champion'. Their role is to advocate for the social prescription, educate other staff about mental health and communicate internally how the service works and why it is important within their department.

The identification of stakeholders that have to take on new roles in the anticipated service concept brings us to our last key learning: in projects with innovative service design, we must anticipate future stakeholders with new skills and roles fulfilling evolving service needs.

Presentation to the executive team

It was suggested in the second staff workshop that the executive team become involved. Hence, this was our last stakeholder group that became involved. While the CEO was a representative of this group (being in the core team), it was important to include the whole executive team in the process, as they are the decision-makers who authorise change in the organisation. Hence, this group must be involved.

CONCLUDING RECOMMENDATIONS

For multi-stakeholder co-creation eco-systems, our project shows value in adopting a process that presents information visually to a wide audience of stakeholders to identify new stakeholders. Our key learnings are to:

1. Digest the literature and produce visual knowledge maps that communicate key aspects of the topic in which a design intervention is proposed.
2. Focus on inclusion and involve a wide net of stakeholders early in the project-planning process to direct questions, identify participants and explore opportunities.
3. Visually depict the nature of the local eco-system in which the design intervention is being proposed.
4. Stay open to including new stakeholders throughout the project.
5. Assume a wide range of stakeholders within the four groups of the quadruple helix.
6. Anticipate future stakeholders with new skills and roles through service needs.

Just as a co-design project is ambiguous in its outcomes, process and problems (Sanders, 2014), so too is the identification of its team and stakeholders. We have shown how we use a knowledge map to build core teams, who then use their domain knowledge to further recruit a wide net of specialists for interviews. Our interviews were represented as a rich picture and reviewed. The rich picture identified existing services that were leveraged in their usefulness for a social prescribing service, explored in a series of workshops and, subsequently, the gaps in the core teams' attributes and roles. We gained a better understanding of the anticipated service recipient groups and how new stakeholders need to deliver the service. The key learnings helped answer our question, 'How are the right individuals from these broad stakeholder groups selected?'

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- Mapping
- Stakeholders

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6. Orchestration practices in multi-stakeholder co-creation. Case Agile Piloting at Smart Kalasatama

Anne Äyväri & Kaisa Spilling

INTRODUCTION

Over the last decade, orchestration has been widely discussed in the context of innovation ecosystems and networks. However, it is oftentimes used as a metaphor without any specific meaning. In this article, we aim to elaborate on orchestration practices by describing Agile Piloting within the Smart Kalasatama case. On a generic level, we understand orchestration as “planning and coordinating the elements of a situation to produce a desired effect” (MOT Oxford Dictionary 2019).

First, we introduce the context of our study, the Agile Piloting Programme run by Forum Virium Helsinki, an innovation agency owned by the City of Helsinki, in the Kalasatama area. After analysing the extant definitions on orchestration in the context of innovation ecosystems, we discuss different types of orchestrators. Next, we proceed to describing the orchestration practices identified in our case. Finally, as a conclusion we propose our own definition, which captures the special elements of facilitator-type of orchestration.

THE AGILE PILOTING PROGRAMME AT KALASATAMA

Since 2013, Forum Virium Helsinki has been orchestrating innovation platform activities in Kalasatama, the model district for smart city development in Helsinki. Smart Kalasatama is an Urban Living Lab whose mission is to speed up smart city development in Helsinki. The Kalasatama district will offer homes to approximately 25,000 residents and jobs to 10,000 people by 2035. Currently, 4,500 people live in the area. Smart Kalasatama is being developed through co-creation and piloting in close co-operation with more than 200 stakeholders, including residents, companies, city officials and researchers. All activities are guided by a shared vision: smart services save one hour of citizens’ time every day. Co-creation and experimentation activities in Kalasatama have been implemented in the fields of wellbeing, mobility, education, energy, waste management, etc. (Smart Kalasatama n.d.)

The programme model for agile piloting was developed in order to accelerate innovative smart services and public-private collaboration, as well as to enable the participation of smaller players, such as start-ups and small and medium-sized enterprises (SMEs). The aim is to learn as much as possible and co-create value with all the partners. Experimentation provides useful means to approach an uncertain future. The Agile Piloting Programme is a good method for creating something new in order to uncover the best solutions and to gain insight into how users experience the service.

Agile piloting is a means to facilitate multi-stakeholder collaboration and to open up the city infrastructure, data and services as an urban lab for experimentation. The programme invites start-ups and SMEs through an open call to test and co-develop their services in a real-life environment for a period of 3–6 months. To support smaller players, the programme procures pilots for a small compensation (e.g., 1,000–10,000 €). Furthermore, it offers companies and start-ups an authentic real-life environment to test and develop their services together with residents who participate in the process as the experts of everyday life. The process engages citizens and the users of the services as pilot initiators, co-developers and users to provide learnings about what smart city development is all about.

The process requires intensive facilitation from the orchestrator, who engages the various stakeholders in the process throughout the different stages (Figure 1). The process starts with the selection of the theme or the challenge to be solved in multi-stakeholder innovation processes. Next, the orchestrator declares an open call (lasting 1.5 months) for a piloting round. After selecting the pilots (typically 4–6 per round), the experimentation processes continue for 6 months at maximum. The process ends with an evaluation stage. (Mustonen, Spilling & Bergström 2018; Spilling, Rinne & Hämäläinen 2019.)



Figure 1. Agile piloting process. (Figure modified from Mustonen, Spilling & Bergström 2018, 21)

WHAT IS ORCHESTRATION?

The concept of orchestration has mainly been discussed in the context of inter-firm innovation networks. Thus, the focus has been on the activities of a hub firm in developing, managing and coordinating the network. In a seminal article by Dhanaraj and Parkhe (2006, 659), innovation network orchestration was defined as the set of deliberate, purposeful actions undertaken by the hub firm as it seeks to create value (expand the pie) and extract value (gain a larger slice of the pie) from the network.

The above-mentioned definition has been criticised as putting too much emphasis on a hub firm, typically a large corporation with hundreds of alliances (see e.g., Gausdal & Nilsen 2011). Therefore, Verhoeven and Maritz (2012, 5) propose a new definition of orchestration:

"The set of deliberate, purposeful actions undertaken by a focal organisation for initiating and managing innovation processes in order to exploit marketplace opportunities, enabling the focal organisation and network members to create value (expand the pie) and/or extract value (gain a larger slice of the pie) from the network".

Verhoeven and Maritz (2012) acknowledge that all the actors strive for value creation, and Hurmelinna and Nätti (2018) point out that different kinds of actors can be orchestrators, not just firms.

Although the definition by Dhanaraj and Parkhe (2006) has earned criticism, many scholars (e.g., Ritala, Armila & Blomqvist 2009; Gausdal & Nilsen 2011; Pikkarainen, Ervasti, Hurmelinna-Laukkanen & Nätti 2017; Hurmelinna-Laukkanen & Nätti 2018) agree with their view of orchestration consisting of three processes: managing knowledge mobility, managing innovation appropriability and managing network stability. The first task, knowledge mobility, refers to the ease with which knowledge is acquired, shared, and deployed by all the actors. Knowledge mobility can be enhanced by reinforcing a common identity among the actors and by socialisation (Dhanaraj & Parkhe 2006). The second process, managing innovation appropriability, means that the actors within innovation ecosystems are able to capture profits and other benefits generated by the innovation processes and their outcomes (Ritala et al. 2009). To avoid freeriding and opportunistic behaviour, the orchestrator has to "play the championing role in building trust levels and in communicating, clear, pre-established sanctions for trust violation" (Dhanaraj & Parkhe 2006, 663).

The third dimension, network stability, does not only refer to maintaining relationships in the innovation ecosystem but also to allowing for entry through recruitment and brokering activities, as well as exit (Dhanaraj & Parkhe 2006). In addition to these three tasks, orchestration activities include coordination, agenda-setting and mobilisation (Pikkarainen et al. 2017).

Furthermore, it has been argued that orchestrators are like community coordinators in communities of practice (Gausdal & Nilsen 2011). Community coordinators are known for their passionate attitudes and their deep knowledge about a community's topic. They understand group dynamics and have good networking and interpersonal skills.

Orchestration is perceived as a dynamic activity and a constantly evolving practice. Orchestrators can take different roles, and there can be multiple orchestrators in a complex innovation ecosystem (Pikkarainen et al. 2017, see also the discussion on a shared governance model in Äyväri, Jyrämä & Hirvikoski 2018).

DIFFERENT TYPES OF ORCHESTRATORS

In business innovation networks and ecosystems literature, the orchestrator role is typically played by a firm, thus aligning with the definition by Dhanaraj and Parkhe (2006). The hub firm as an orchestrator can be categorised as a player-orchestrator that focuses on improving its own competitive advantages and profitability through utilisation of the network (Hurmerinta-Laukkanen & Nätti 2018). In addition to player-orchestrators, there are two types of non-player orchestrators: sponsor-orchestrators and facilitator-orchestrators (Hurmelinna-Laukkanen & Nätti 2018; Pikkarainen et al. 2017).

Sponsor-orchestrators are commercially oriented actors (e.g., venture capitalists, technology centres), but they do not offer solutions in the same market as the other actors in the innovation ecosystem. They generally have a long-term perspective for profiting. They might, however, claim membership fees, a commission or joint ownership of the innovation. (Hurmelinna-Laukkanen & Nätti 2018.)

Facilitator-orchestrators, in turn, aim to foster the co-creation of ideas, solutions and knowledge within the whole ecosystem, without any financial gain for their own organisations (Hurmelinna-Laukkanen & Nätti 2018). In addition, facilitator-orchestrators are not interested in utilising the innovation process outcomes themselves but are mainly concerned with the wellbeing and functioning of the ecosystem (Pikkarainen et al. 2017). Furthermore, facilitator-orchestrators are boundary-spanning actors aiming at increasing intellectual and social capital and widespread dissemination of ideas and innovative solutions (cf. Hurmelinna-Laukkanen & Nätti 2018).

As a city-owned innovation agency, Forum Virium Helsinki is a typical boundary-spanning actor striving to enhance the building of innovation ecosystems and co-creation of new solutions, without any financial gains for its own organisation. Thus, Forum Virium Helsinki can be regarded as a facilitator-orchestrator.

CASE: ORCHESTRATION PRACTICES IN THE AGILE PILOTING PROGRAMME

Our description of the orchestration practices was inspired by Russo-Spena and Mele (2012), who were among the first to adopt a practice-based perspective of innovation, conceptualising innovating as a set of co-creation practices. Orchestration practices were placed in three main categories of: (1) practices related to building and maintaining relationships, (2) coordinative and supportive practices to foster co-creation and (3) practices related to learning and knowledge mobility.

Next, we present the practices in Tables 1-3 and briefly elaborate on each bundle of practices. We wish to highlight that quite many of the facilitator-orchestrator's practices are relevant throughout all stages of the Agile Piloting Programme (see the x-marks in the table columns).

1. Practices related to building and maintaining relationships to mobilise actors with versatile resources

The role of the facilitator-orchestrator is to ensure that key stakeholders are motivated and have the necessary resources to engage in the process throughout the whole innovation process. Inviting key stakeholders to serve as jury members in pilot selection is one way to enforce their commitment. In this vein, the facilitator-orchestrator also ensures that the selection of the pilots is based on wide expertise from different professions and fields.

Many of the practices mentioned in Table 1 are related to the role of a bridge-maker: for example, start-ups highly appreciate the access to city professionals and infrastructure and to local communities. New

networks open up for all the actors involved in the Agile Piloting Programme in the events organised by the facilitator-orchestration or through active communication. Access to potential users of the new service is essential in the process. The users are important value co-creators in the programme, and it is essential to think about the process from the user perspective. Piloted services, as such, can be compelling and meaningful to the end-users and, in addition, participation may offer social value. Maintaining relationships with local communities of citizens and users calls for a user-centric approach in planning how to make the process a positive experience for the end-users, who contribute their time and expertise from their everyday lives.

Table 1. *Orchestration practices related to building and maintaining relationships in different stages of the Agile Piloting Programme.*

PRACTICES RELATED TO BUILDING AND MAINTAINING RELATIONSHIPS					
	1. Selecting the challenge	2. Open call for a piloting round	3. Selecting the pilots	4. Experi- mentation process	5. Evaluation & upscaling
Engaging the key stakeholders	X	X	X	X	X
Providing access to city infrastructure, services and professionals	X		X	X	X
Providing access to local communities of citizens and businesses	X			X	X
Providing access to new networks	X	X	X	X	X
Inviting key stakeholders to be jury members in selecting pilots			X		
Marketing communication via many channels	X	X		X	X
Engaging actors in communication	X	X		X	X
Organising events open to all	X	X		X	X

Active communication via many channels is a key element in the Agile Piloting Programme. It is a means to create commitment: the facilitator-orchestrator engages all stakeholders to collaborate in communication activities in their own channels before, during and after the experimentation process. The pilots have also proven to be compelling to interesting for a wider, even global, media as they provide concrete examples of the services for a smarter future. Media visibility is a powerful means to pave the way for getting new con-

tacts and upscaling. For start-ups, the market reference gained through the pilot is important – collaborative communication helps start-ups tell their stories to new audiences.

2. Coordinative and supportive practices to foster co-creation in an empathic atmosphere and to solve conflicts

Forum Virium Helsinki, as the facilitator-orchestrator, coordinates the joint activities of the key stakeholders during the first three stages of the Agile Piloting process (see Table 2). During the experimentation process, when 5-6 pilots are running almost simultaneously, the orchestrator coordinates experimentation and piloting activities both time- and resource-wise – for example, when implementation is being planned for several pilots in the local health and wellbeing centre.

Table 2. *Orchestration practices related to coordination and support in different stages of the Agile Piloting Programme.*

COORDINATIVE AND SUPPORTIVE PRACTICES TO FOSTER CO-CREATION					
	1. Selecting the challenge	2. Open call for a piloting round	3. Selecting the pilots	4. Experimentation process	5. Evaluation & upscaling
Coordinating the open call and selection process	X	X	X		
Coordinating the experimentation activities of the chosen pilots (e.g., help in organising multi-stakeholder meetings or finding users)				X	
Facilitating multi-stakeholder meetings to establish a joint focus and aims	X		X		
Facilitating meetings and workshops to create a shared terminology and shared meanings	X			X	X
Facilitating workshops to create and maintain an empathic atmosphere	X		X	X	X
Utilising service design tools and templates to ensure user-centricity	X			X	X
Sensitively listening to and balancing the interests of different actors to minimise conflicts	X		X	X	X

Documentation of all activities and learnings is vital for scaling up both the pilots and the process. In Agile Piloting, the facilitator-orchestrator writes detailed descriptions of the pilots together with the start-up or SME and uploads them, with photos, to the facilitator-orchestrator's website. These might lead to scaling up the piloted services in other districts or city sectors. Videos are also a powerful way to document key ideas and learnings. In addition to these, the engaged key stakeholders – representatives of the city, start-ups and SMEs, large corporations and research partners – are asked to document their own learnings as presentation slides and discuss the slides in the workshops or events.

We wish to highlight that the orchestrator may delegate the implementation of some practices to other actors in the innovation ecosystem. For example, workshop facilitation services can be procured from service design firms. Likewise, in one of the Agile Piloting rounds (a Fiksu Kalasatama project called Co-Designing Wellbeing, 9/2017-12/2018, funded by the Helsinki-Uusimaa Regional Council), Laurea University of Applied Sciences was a research and development partner and responsible for the evaluation and development of the process from the companies' point of view. In the project, Laurea UAS was an active partner throughout the whole process, not just in the final phase. Laurea's responsibility was to produce two evaluation reports: one for the facilitator-orchestrator's internal use and the other for anybody interested in agile piloting (Äyväre 2019). In this case, Laurea also updated the previous version (Hirvikoski, Lehto & Äyväre 2016) of the manual for Kalasatama Health and Wellbeing Centre as an innovation platform. Documentation such as Cook Book by Mustonen et al. (2018) or the report by Äyväre (2019) helps to scale up the overall learnings from the Agile Piloting Programme and orchestration practices.

Over the last five years, the Agile Piloting Programme has been adopted in different domains of smart city and used widely in the network of the six biggest cities of Finland (see more What is 6Aika, n.d). In 2019, the programme was adopted by the city of Stavanger in Norway. (Spilling et al. 2019.)

CONCLUSION

Based on the extant literature on innovation ecosystem orchestration and the description of the orchestration practices in the Agile Piloting Programme, we conclude by proposing a new definition of orchestration, focusing on the special features of a facilitator-orchestrators' goals and tasks. We maintain that:

Orchestration refers to participatory and supportive management practices in innovation ecosystems to enable multi-stakeholder co-creation, maximize learning of all actors involved and finally to achieve the shared vision of the ecosystem.

We consider co-creation as target-oriented interaction and collaboration covering all stages of the innovation process. Thus, co-creation refers to identifying key problems and solving them in a way that benefits all the parties. Moreover, co-creation involves integration of different actors' resources. (See more on co-creation of services in Oertzen, Odekerken-Schöder, Brax & Mager 2018.) Resource integration is linked to participatory management (Table 1) in innovation ecosystems: it is the facilitator-orchestrator's task to mobilise actors with versatile resources and to ensure that all stakeholders' voices are heard during the process. Supportive management (Table 2), on the other hand, includes facilitation of encounters to motivate, inspire and foster collaboration among multiple stakeholders.

We wish to emphasise that our definition of orchestration refers to managing within innovation ecosystems, not managing of ecosystems. Hence, the main issue is not control of but participation in and influence

of the formation of shared meanings and sense-making (Kilpi 2017). The facilitator-orchestrator coordinates activities (Table 2), but coordination “resembles enabling leadership rather than strict management” (Ritala et al. 2009, 571). Therefore, it can be concluded that orchestrating is about managing interactions with others, not about managing others (see, e.g., Ritter, Wilkinson & Johnston 2004).

In previous conceptualisations of innovation eco-system orchestration, knowledge mobility has been identified as one of the three main processes. Based on the case of Agile Piloting at Smart Kalasatama, we prefer to address the same issue by the notion of “maximising learning of all actors” in order to emphasise active reflection, experiential learning and knowledge co-creation, supported by tools and events organised by the facilitator-orchestrator.

As discussed above, facilitator-orchestrators are concerned with the wellbeing of the whole ecosystem. Therefore, we propose that achieving the shared vision (at Kalasatama: “smart services save one hour of citizen’s time every day”) should be the ultimate goal in the orchestration of the innovation ecosystem.

Finally, we acknowledge that the orchestration practices outlined in this paper require a wide set of both organisational capabilities and individual competences and skills (see, e.g., Ritala et al. 2009; Äyväre, Hirvikoski & Uitto 2019). More research is needed to capture the vast array of practices in the context of innovation ecosystem orchestration in order to fully understand the capabilities and competences enabling successful management within them.

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- Innovation ecosystems
- Orchestration practices

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7. A blue biotechnologies Living Lab in the Mediterranean – Not the sum of its participant organisations but the sum of the people in those organisations

Bythos Vincenzo Arizza, Alan Deidun & L. Branwen Hornsby

INTRODUCTION

Although living labs are rapidly increasing in number around the world, the majority are still oriented towards information technologies or social innovation, with the end-users as members of civil society. The key concept behind a living lab has traditionally been to ensure faster end-product success in industry; here, however, we explore the use of the living lab with a 'carrot and stick' approach in order to facilitate completion of a sustainable marine biotech production chain.

The Bythos joint Living Lab has spaces in both Sicily and Malta and has been operational since the end of 2018. It is a collaboration between research institutes from the University of Palermo and the University of Malta; the public sector, with the Malta Department of Fisheries and Aquaculture (DFA, Ministry for Agriculture, Fisheries and Animal Rights), the Council for the Island of Lipari and other Aeolian Islands, and the Distretto Pescaturismo e Cultura del Mare (a Fishing Tourism District representing 12 fishing towns and associations in Sicily); and enterprise, with an aquaculture consultancy company from Malta, AquaBioTech Group. It is funded by the EU Interreg Italia-Malta V-A programme.

Bythos is a living lab concerned with biotechnologies for human health and blue growth. Biotechnologies are grouped according to area of activity, and the colour blue represents activities associated with aquaculture, coastal and marine biotechnologies. Blue biotechnologies exploit the diversity found in marine environments in the development of new products and blue growth is the European Commission's long-term strategy to stimulate growth in the marine and maritime sectors whilst ensuring that growth is sustainable. The Bythos lab aims to use the many and varied residues from the fisheries sector in the Mediterranean as a highly sustainable source of marine organisms for the development of new biotech products.

When planning the Bythos Living Lab (LL) in 2016, we found no models of living labs operating in the area of biotechnologies, as opposed to the traditional environment of IT or social innovation in which end-users are citizens or consumers. A small number of living labs which have embraced a quintuple helix (the collaboration between researcher-industry-government and end-users operating within the limits set by environmental sustainability) and which are striving towards a circular economy or a sustainable bioeconomy are slowly beginning to appear. A more recent example is a living lab in the City of Turin (Cuomo, Lambiase, & Castagna, 2019) that seeks to ensure sustainable and citizen-friendly urban renewal through the sharing of ideas with enterprise and the principles of the circular economy as the main innovation drivers; however, the end-user remains the citizen. Grundel & Dahlstrom discuss the case for a quintuple helix model to help adopt a sustainable forestry-based bioeconomy in Sweden (Grundel & Dahlström, 2016), a model that may possibly see a move away from the citizen as the end-user.

This paper explores the application of the fundamental concept of the living lab to blue biotechnologies for human health and blue growth in a quintuple helix model. In a blue biotechnologies living lab, the end-products are marine biotech products, such as bioactive molecules, peptides, lipids, marine collagen and eco-innovation fish feed, and it was essential for co-creation to occur together with intermediate end-user companies developing bioactive ingredients for the pharmaceuticals, cosmeceuticals/cosmetics and aquaculture industries. As a young living lab, a number of challenges are emerging in view of the fact that the successful completion of the production chain will rely on radical innovation in the sectors involved located in the Mediterranean. Furthermore, it has become apparent that the role of 'facilitator' is needed, in addition to the more hierarchical and guiding roles of coordinator and project manager.



Picture 1. *Bythos in Classical Greek iconography was an ichthyocentaur or sea centaur: a creature with the head and torso of a man, forelegs and torso of a horse, and the tail of a fish. This well represents the overarching aim of the living lab: to interconnect the understanding of humankind and the force of technology with the will to make change... and fish.*

BACKGROUND – WHY BLUE BIOTECHNOLOGIES AND BLUE GROWTH

Biotechnologies in Europe have become central to the European Union's strategic priorities. The European Strategy for Life Sciences and Biotechnology agrees that '[biotechnology] is widely regarded as one of the most promising frontier technologies for the coming decades. There is a huge need for innovative approaches in healthcare [...] there are still no known cures for half of the world's diseases, and even existing cures such as antibiotics are becoming less effective due to resistance to treatments. Biotechnology already enables cheaper, safer production of a growing number of new drugs and medical services. [...] Biotechnology is behind the paradigm shift in disease management' (Commission, Life sciences and biotechnology - A strategy for Europe, 2002). In the context of Bythos marine biotechnologies, this paradigm shift refers not only to innovative drug treatments and drug design but also to cheaper and safer production due to a large, sustainable source of pure molecules. Estimates suggest that the global biotechnology market size will reach USD 727.1 billion by 2025 at a CAGR of 7.4% (Grand View Research, 2017), with Europe occupying a market share of approximately 30%. However, much of the South of Europe is not yet ready to take advantage of this growing opportunity and work is needed to facilitate expansion in this area of the economy.

The Blue Economy embraces the economic activities relating to oceans and seas and, as conceived by its principal expounder, Gunter Pauli, brings an innate circularity and sustainability to the fisheries sector. A solid set of principles developed over the last ten years lie at the heart of the approach. Many of these principles can be applied to Bythos marine biotechnologies; here we cite perhaps the most relevant: 'Natural systems cascade nutrients, matter and energy – waste does not exist. Any by-product is the source for a new product' (Pauli, 2020).

Bythos seeks to bring these two sectors together by using solid organic residues from the fish processing industry to make new marine biotech products; that which is not used for the biotech products or remains after extraction is used in fish feed production. Results so far have shown that waste is zero whereas value creation is marked.

Intermediate end-users

As mentioned above, living labs more traditionally provide a responsive environment for the creative consumer, defined as citizens co-creating social or IT sector products. In the Bythos production chain, our end-users are people who consume cosmetic or pharmaceutical products (marine collagen-based creams or innovative drugs, as an example) or fish (in the case of the zero-waste bioactive fish or animal feed). However, before reaching the market, we needed to involve the producer of these products in the creative process. This included cosmetics companies or companies which create new formulas for cosmetics companies, pharmaceuticals companies designing new drugs, nutraceuticals companies and aquaculture or animal feed production companies. These companies are end-users in as much as they use the products of specific companies; however, the companies needed to be consumer sensitive: they needed to have direct access to the end-consumer or have extensive experience in market requirements.

Pharmaceuticals sector

Marine living resources are a well-documented source of promising bioactive ingredients. Chitosan, saponins, triterpenes (including squalene), astaxanthin, hydrolysed collagen, lipids and a whole range of peptides are just a few examples of the ingredients of great interest to the pharmaceuticals sector, all with considerable

bioactivities, such as anti-tumour, antibacterial, anticoagulant, antioxidant and anti-immunoinflammatory properties found in abundance in residues from fish and shellfish processing plants.

The U.S Food and Drug Administration (FDA) asserts that, as a class of drugs, peptides are increasingly important in medicine. It defines a peptide therapeutic as a chain of amino acids containing 40 amino acids or less and regulates them as small molecules (U.S Food and Drug Administration, 2019). Peptides can occur naturally in a living organism or can be produced in a laboratory through chemical synthesis or recombinant DNA technology using other living systems. However, the manufacturing of generic peptide drug products that are equivalent to their brand-name counterparts (fundamental to ensure a wider public access to medication) is expensive and struggles with impurities which may be inadvertently introduced during the production process and which may affect a proposed generic drug's safety profile (U.S Food and Drug Administration, 2019). There are currently only approximately 100 peptide drug products marketed in the U.S., Europe and Japan; these are expensive and not always available to the wider public. The sector requires new, natural and pure molecules in sufficient amounts. This will require large amounts of the source material and relatively low-cost extraction methods to ensure that the end product is both effective and financially accessible to the general public.

Cosmetics/cosmeceuticals sector

The cosmeceuticals industry seeks ingredients with antioxidant, skin-lightening, anti-ageing, anti-inflammatory and antimicrobial activities using, for example, bioactive peptides or collagen. A considerable amount of research has already been carried out pertaining to marine living organisms as a new source of natural bioactive ingredients, such as PUFAs, vitamins, peptides, marine collagen, sterols, oligosaccharides / polysaccharides and pigments. A great deal of work is still needed in order to bring this research to near market whilst highlighting the sustainable nature of the resources at the same time.

Aquaculture sector

Although EU aquaculture (fish farming) has stagnated over recent decades compared to world production (2019 EU Blue Economy Report), the sector seems to be slowly gaining momentum and has been identified as a potential main driver for jobs and growth in the future. However, amongst those factors affecting growth and sustainability, feed is undoubtedly one of the most pressing. The Maltese Dept. of Aquaculture and Fisheries reports that feed for the vast tuna ranches in Malta is imported frozen baitfish (Aquaculture Directorate, 2019), and a large tuna ranch in Malta – in a report submitted to the Environment & Resources Authority in Malta – states that baitfish are usually herring, mackerel, anchovy and sardines (all species of human consumption). Furthermore, low-quality feed, in addition to affecting the growth of the animal, can lead to an oil slick forming on the surface of the sea, extending over wide areas (ADI Associates for AJD Tuna Ltd, 2018).

In addition, increasing interest is being shown in Recirculating Aquaculture Systems (RAS). These often highly technological systems (which currently largely rely on imported dry feed formulated for marine cages and not for RAS) would greatly benefit from specialised bioactive feed to mitigate stress response and stimulate the immune system of farmed animals. Typical farm management practices, such as overfeeding, netting, high stocking density, air exposure and chasing, cause permanently stressful conditions, which affect not only fish growth and reproductive output (Sneddon, Wolfenden, & Thomson, 2016) (Herrera, Mancera, & Costas, 2019) but also the immune system and increase susceptibility in the organisms to disease (Vazzana, Cammarata, Cooper, & Parrinello, 2002) (Barton & Iwama, 1991).

Bioactive ingredients with an immunostimulant action enhance defence mechanisms and increase resistance to specific pathogens (Barman, Nen, Mandal, & Kumar, 2013). Furthermore, research indicates that certain dietary additives, such as amino acids and fatty acids (sourceable from fish residues), can mitigate the negative effects of stress and disease susceptibility (Herrera, Mancera, & Costas, 2019).

The use of antibiotics is widely practised in fish farming to control the outbreak of disease (Cabello F. C., 2006). However, in the long term, antibiotics create selective pressure for the emergence of multidrug resistant pathogens (Cabello, Godfrey, Buschmann, & Dolz, 2016). Feed enriched with bioactive molecules may also help reduce the use of antibiotics in aquaculture and increase the quality of fish feed, thereby improving the nutritional value of fish (Martinez-Alvarez, Chamorro, & Brenes, 2015).

Bioactive feed would also be of interest in attempting to mitigate stress factors in near-shore farmed species caused by increasingly high sea temperatures and newly emerging disease.

A sustainable source of marine living resources

EU Director General Maritime Affairs and Fisheries, together with the Joint Research Centre (JRC), produces a report on their data collection activity regarding the fisheries sector. One of the main established sectors of the Blue Economy (BE) is the 'extraction and commercialisation of marine living resources' (MLR) with subsections: capture fisheries, aquaculture, and processing and distribution. According to the 2019 EU Blue Economy Report, the MLR sector contributes to 14% of jobs, 12% gross value added (GVA) and 12% profits in the BE. However, although profits continue to grow and the sector created EUR 20.7 billion in value added, direct employment in the sector is relatively low (approx. 570,000) and is falling annually (3.3% fall in the last decade), a trend which will undoubtedly continue unless new skills are introduced.

In 2018, the EU landed approx. 5.3 million tonnes of seafood with a reported added value of €7.7 billion (mostly created by the processing and distribution sectors); however, as the largest importer of seafood in the world, self-sufficiency stands at only 45% from own waters (Eurostat, 2019). Looking at these landing numbers from a waste stream perspective, our on-going work in this sector, confirmed by data from scientific literature all over the world, shows that conservative estimates put 'waste' or residues in the processing and distribution sectors as ranging between 40-50% of the weight of the living natural resource (based on yields as % of whole fish or shellfish weight, also confirmed by FAO Yearbook of Fishery Statistics, catches and landings) (FAO, 1989). Estimates on the millions of tonnes of waste produced by the fisheries sector every year vary considerably and it is of little use trying to extract an exact figure without a more systematic review; however, it is clear that the quantities of residues are considerable. A simple manipulation of the statistics reported above would put waste from the fisheries sector at over 2.5 Mt, based on annual EU landings in the EU alone. The figures are far greater if we consider waste streams from capture originating in other parts of the world which are processed/consumed in the EU or the millions of tonnes of discards (both vertebrates and invertebrates) thrown back into our waters every year as recent EC landing obligations are put into place.

The Mediterranean Sea is an extremely valuable and varied source of marine living resources. Although it covers only 0.82% in surface area of the world ocean, it is home to an estimated 8,565 macroscopic marine organisms, the equivalent of approximately 6.3% of the world's macroscopic marine biodiversity (Bianchi & Morri, 2000). Fisheries sector landings for the Mediterranean and Black Sea accounted for a modest 8.8% of the EU total landings of 5.3 Mt in 2018 (Eurostat, 2019). However, perhaps of greater interest to bioprospecting is the fact that the diversity of species in the catches is much higher in the central and eastern Mediterranean at 40 species, compared to 10 or 15 species in other areas of the Mediterranean and the EU in general (FAO and GFCM, 2018). Although there is a predominance of sardine and European anchovy, there is also a large

diversity of species which make a significant contribution (over 70%) to the catches (FAO and GFCM, 2018). This leads to great diversity in the fisheries sector residues available for bioactive ingredient extraction.

With clear sustainability benefits, 'waste' or solid organic residues from the fisheries sector must necessarily be our priority in biodiscovery. In Bythos, we ensure not only that the marine peptides are obtained from sustainable sources but that they also lead to increased circularity in the fisheries sector.

The overall objective of Bythos LL is to define commercially attractive applications of fisheries-sector residues in order to provide new bioactive ingredients for human/animal health, to reduce waste/increase sustainable sourcing through a circular economy approach and to add value to these residues, thereby reducing pressure from overfishing and/or overexploitation from new harvesting. However, there is a clear need for co-orchestration of a series of production chain criteria concerning raw material storage and collection, extraction methods and requirements for the phase/type of extract as required by the intermediate end-user. The term co-orchestration here is used to mean the definition of new procedures involving all relevant contributors and denotes a certain fluidity and nonhierarchical coordination between these parties in establishing criteria and practices. Constant dialogue is needed between the producer of the resource and the various contributors/researchers/users along the production chain to ensure requirements are satisfied on all sides.

Another essential element is to ensure that the general public as well as the industrial sectors are aware of the value of fisheries residue streams. This value is not only in economic terms but also in terms of circularity. If we are able to demonstrate the huge value intrinsic to MLRs from our waters, this will foster greater respect towards all marine life in all contexts. Knock-on effects will be created by increased economic return to the capture sector, especially encouraging growth in small-scale coastal fleets and potentially reducing pressure from overfishing due to better returns. Tourism in the sector will benefit for a whole range of reasons and employment in the blue economy will develop, both in terms of skills levels and size due to diversification.

The local context: Sicily and Malta

The fisheries sector in Sicily is facing rising unemployment and a marked reduction in investment. The impact of this crisis has affected not only the families of the fishers but whole communities where fishing once represented one of the main sources of employment and wealth. Dependency on one or two key sectors represents a risk for an economy, and skills diversification is vital for the sector. Although Sicily is the Italian region with the highest number of fish preservation companies, the enterprises are smaller on average and suffer from a substantial technological gap. Furthermore, the disposal of fish waste from the fishing and fish processing industries and the food services sector is a pressing issue: island economies are experiencing insurmountable problems concerning waste disposal at a financially and environmentally unsustainable cost.

In contrast, the fishery sector on Malta is dominated by fish farming. There are 4 bluefin tuna ranches on the island, which account for over 80% (13,000 tonnes) (National Statistics Office - Malta, 2018) of the national aquaculture industry, and 2 closed-cycle-species farms (Aquaculture Directorate, 2019). In 2017, Malta farmed 64.3% of EU tuna production (Eurostat, 2019). Primary fisheries waste on the island is produced mainly by the fish farms; during harvesting, a typical large tuna farm produces 8-10 tonnes of offal per day (ADI Associates for AJD Tuna Ltd, 2018). Currently, fish waste or organic material resulting from the processing of fish and other marine organisms may be disposed of at an official offshore spoil ground, in part due to the shortage of waste disposal capacity on land. However, the Malta Environment and Resources Agency (ERA) states that plans are being drawn up for the material to be brought on land for disposal following environmental concerns at sea (ERA, 2020).

Fish waste and legal constraints

Animal waste is regarded as '*rifiuto speciale*' (special waste) and subject not only to legal obligations towards recovery and disposal but also to severe restrictions/obligations on the landing of 'waste' from trawlers and factory boats. In Italy, waste management is governed by Environmental Regulation DLgs 3 April 2006 no. 152, which adopts EU regulations regarding animal by-products (Decreto legislativo 3 aprile 2006, n. 152 Norme in materia ambientale).

As Bythos needed access to these residues, it was obliged to follow EU regulations in this area. Residues from the fisheries sector currently fall under EC regulation 1069/2009 (European Commission, 2009) repealing regulation 1774/2002, (Commission, REGULATION No 1774/2002 laying down health rules concerning animal by-products not intended for human consumption, 2002). The directive regulates public health concerning the collection, transport, storage, handling, processing and use or disposal of animal by-products. Article 6 governs the lower-risk Category 3 materials: (h) fish or other sea animals, except sea mammals, caught in the open sea for the purposes of fishmeal production; and (i) *fresh by-products from fish from plants manufacturing fish products for human consumption*), and allows the use of these materials only for animal feed under certain conditions, otherwise obliging the collection and disposal in a highly controlled manner. Whilst of primary interest to the Bythos end-objectives of creating a marine biotech production chain, the living lab carries out pilot actions and research activities and, therefore, was able to take advantage of Article 16 (EC 1069/2009) Derogations: *By way of derogation [...] animal by-products may be: used for research and other specific purposes*. However, for future use and handling of these residues in an industrial context, policy change will be needed to allow greater flexibility for new marine biotech start-ups. As we discuss further below, the interaction between fishers and tuna ranchers, biotech companies and the Maltese Ministry is expected to have a positive impact upon accelerating policy change in this sector.

APPROACH

Given the complex nature of creating a marine biotech production chain in Sicily and Malta, it was necessary to create a sparring ring in which all the aspects explored above could be scrutinized and solutions constantly proposed and tested. The method adopted for a biotech living lab was to create various interaction spaces in Sicily and the smaller islands, and in Malta. A biotechnology space and a business space were set up, which operate between the two countries. Each country has its own space whilst working in collaboration.

Picture 2. *The Island of Lipari, Sicily where part of the physical space is located.*



Biotechnology space

The biotechnology space has two main functions: to create enterprise-centric procedures for the extraction of high-value-added products and to transfer those procedures to industry. In simple terms, samples of processing residues from individual enterprises are examined in the biotechnology labs, the residues are assessed and products which could be made from those residues are defined. On a more industry-wide level, residue samples are used for research on protocols and extraction methods for marine collagen and bio-active compounds. The different biotech products are then tested in an industrially relevant environment. For example, marine collagen at various stages of refinement is sent to a cosmetics/cosmeceuticals development company for efficacy and stability testing in a series of cosmetic formulas. The first feedback loop during co-orchestration within the living lab occurs if the collagen needs to be refined differently or if extraction procedures are not in line with industry requirements (usage needs) regarding, for example, complete traceability or medical-grade collagen.

To achieve zero-waste, the fish residues not used for biotech products are turned into fishmeal and used in the production of eco-innovation fish feed. Testing will begin shortly on a fishmeal processing system designed to use fish waste produced by local industry. This fishmeal will then be given to our partner aquaculture research company to make feed for 'waste in/fish out' trials. The lab offers the service of formulating and testing eco-innovation fish feed in collaboration with local fish farms to ensure the feed is suited to locally farmed species. Fish health and growth parameters are monitored, and, where required, formulas are adjusted or enriched with fatty acids and other nutrients found in the fish waste.

The other function of the lab regards training to ensure transfer of procedures to industry. Biotechnologists provide hands-on skills transfer sessions, workshops, presentations, vlogs on the website and educational videos to provide enterprise with the tools to evaluate how it could work for them. This is the next major feedback loop: if the businesses find extraction procedures too complex, too time-consuming or not in line with seasonal fluctuations in the availability of raw materials, the procedures then go back to the researchers for fine-tuning.

Business space

The other major space is the business space. This space fosters the quadruple helix so often lacking in science and technology projects: co-creation of user-driven products and market involvement. The business space comprises target market identification and analysis, exploration of the local economic context with a special focus on the smaller islands of Sicily and Maltese tuna penning, and the development of tailored business plans for the proposed sector. The space works side-by-side with enterprise to determine potential savings from non-disposal of residues and additional income from diversification. If the business plans do not produce viable results, the business experts will then discuss possible changes to biotech procedures to see where simplification or a reduction in costs is possible. Alternative business formulas may also be discussed. The space organises B2B meetings with end-user industries.

To ensure a quintuple helix, we have two public partners for policy change: the first is the Ministry for Agriculture, Fisheries and Animal Rights – Department of Fisheries and Aquaculture, which is working on issues connected to special waste definitions and plans to change landing restrictions for fish offal in Malta. The DFA also hosts the Bythos labs at its premises at Fort San Lucjan. The other public body is the Aeolian Islands Council of Lipari (governing body for 6 of the islands), where part of the Bythos living lab is situated. The involvement of the Council provides considerable impetus towards creating a model to cascade down to other small islands, especially given the 500,000 tourist overnight-stays on the islands and fish waste produced every year by the catering industry.

INITIAL FINDINGS – AN EMERGING CONTEXT

A fundamental aspect of the Bythos LL is to explore the various stakeholders which might take up the gauntlet of achieving high value-added zero fish waste in the fisheries sector. A successful outcome requires radical innovation, as the use of fish waste in marine biotech industries in the two geographical locations in question needed a 'remarkable change in perceived value as compared to existing solutions' (Leminen, Nyström, & Westerlund, A typology of creative consumers in living labs, 2015). This was the case both in terms of end-use of fish residues in the target areas, which are currently either dumped or incinerated, and in terms of collagen sourcing for cosmetics for the EU, which is predominantly of bovine or porcine origin. Furthermore, the creation of a new marine biotech production chain would have a significant economic, environmental and social impact, both locally and as regards prototyping a model in Southern Europe.

As there is no pre-existent marine biotech production chain in the area for the value-added products, the approach we took was a 'carrot and stick' or 'kindling' approach. Bythos LL plays the role of pilot marine biotech lab, sourcing raw materials from local fish product industries. It co-creates with end-user industries to develop a commercially attractive formula and demonstrates product creation to a range of enterprise sectors in order to spark a new biotech production chain. Potential future actors are large fish processing companies with satisfactory quantities of residues, organic waste disposal companies hoping to diversify, marine biotech start-ups, fish farms, a spin-off, a business angel or a combination of any of these. A fish processing company might carry out primary processing (to harvest the bioactive ingredients before decay of the resources) and sell a lower value-added product to a marine biotech company for further transformation. Smaller processing companies or small-scale fishers might collaborate to achieve critical mass. In this latter case, processing could be carried out by a biotech hub within the vicinity. As each territory and economy is unique, the living lab's trajectory, in order to fill the present gap in production – as supported by contingency theory – is not known and will depend on a number of both biotechnology and business factors which are still under scrutiny.

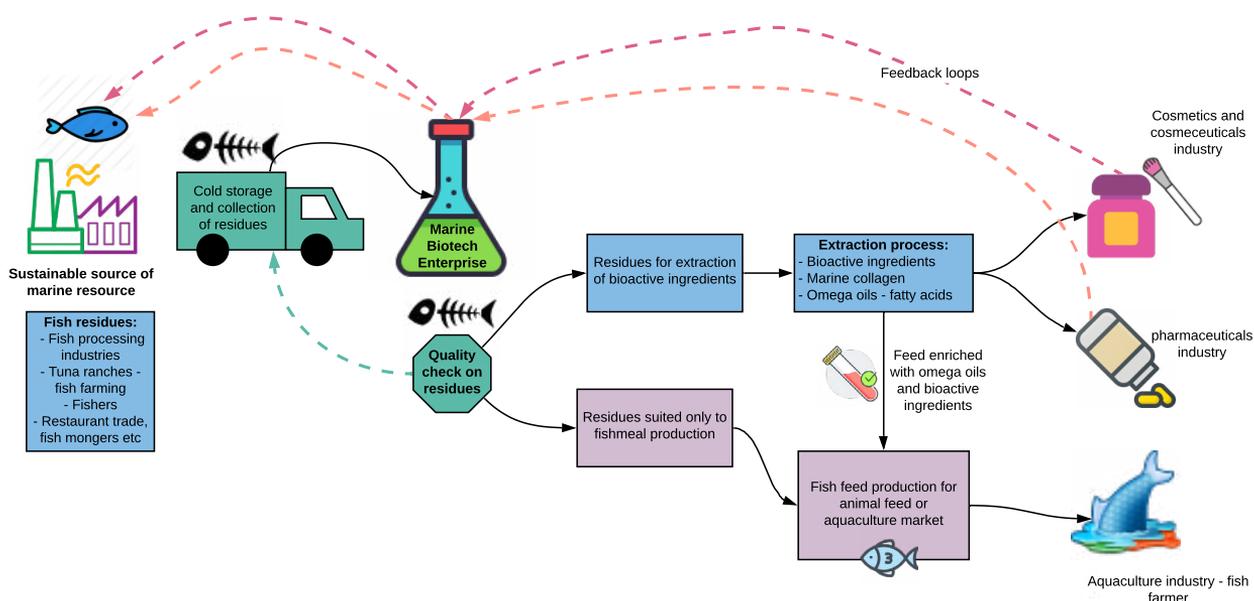


Figure 1. An illustration of the components and process of the Bythos marine biotech value chain.

Interaction with fish processing enterprises has created a great deal of interest. There is acute awareness of both the economic and environmentally unsustainable nature of current 'residue' disposal and the desire to find a solution. The Blue Economy in the Mediterranean suffers from a shrinking and ageing workforce and a marked gap in 'smart' diversification (using Key Enabling Technologies such as biotechnologies). Local enterprise quickly recognises that the Bythos LL offers clear solutions to these issues and is keen to provide samples of their factory residues in order to receive specific, tailored evaluation.

Actor roles

Bythos is very much an on-going innovation environment. However, in the time from its conception to date, certain critical points have come to light concerning actor roles. As is clear from literature documenting living lab experiences around the world, radical innovation requires co-creators and cannot settle for a network of mere user-contributors; 'as long as the user has a low degree of involvement (informant, tester, or contributor), the user has taken a role that does not activate the user into innovation' (Leminen, Nyström, & Westerlund, *A typology of creative consumers in living labs*, 2015).

The immediate tendency in Bythos was to create a top-down hierarchy led by the scientific experts as they were the keepers of the knowledge needed to kick-start the innovation: it seemed natural that they should lead. The other users adopted a comfortable contributor role, following instructions given. The living lab's current challenge is to facilitate a new role path, to provide the opportunity and, above all, the confidence to all users to adopt a more pro-active role of self-organising to propose solutions. It is crucial that all users exchange information, attract new actors – not necessarily from established sectors – and suggest new business formulas: thinking 'out of the Mediterranean status quo'.

In order to reach this level of confidence, Bythos is introducing a role of 'facilitator' to experiment with participant role transition. The facilitator is expected to encourage users to interact, to promote closer relationships between participants and 'to help actors to reach a desired goal or find an appropriate direction' (Nyström, Leminen, Westerlund, & Kortelainen, 2014), in particular between public bodies and enterprise.

The role of facilitator is increasingly recognised in collaborative engagement as fundamental in establishing fruitful dialogue. The idea of a neutral mediator is not new, especially in participatory decision-making, conflict-solving and learning environments, where it is crucial that the participants feel at ease. Neutrality means not taking a position on the issues at hand nor having a stake in the outcome (Kaner, 2007). A project manager or coordinator may find this harder to ensure, as both of these roles entail a degree of responsibility for the overall outcome of a project, acting as 'guarantor' for the lead beneficiary or funder. Participants in co-orchestration (or collaborative engagement) often feel pressured or unable to freely express their contributions. The facilitator must aim to avoid the hierarchical role of coordinator, which may discourage participants from assuming a more assertive, solution-proposing role. Furthermore, overcoming misunderstandings and cultural diversity is paramount to ensure a successful outcome in most international collaborations. Coordinated actions need careful planning and 'understanding group dynamics is an indispensable core competency for anyone, whether facilitator, leader or group member who wants to help their group tap the enormous potential of participatory decision-making' (Kaner, 2007). It is also worth noting that the facilitator, although neutral, must have reasonable knowledge not only of the territories involved but, in the case of Bythos, of the various sectors and the living lab objectives in order to guide interaction.

In a step towards promoting closer relationships between contributors and end-users, Bythos has introduced U2U (contributor/user to user), which requires one-to-one (or small group) communication directly between the various participants, with the coordinator or project manager no longer acting as intermediary.

The U2U connections exist between all participants and not solely those participants which have an obvious dialogue to pursue; initialisation of these engagements is introduced by the facilitator. Initial results have been encouraging; some communications progressed quickly, even between those partners with few presumed activities in common, and continue with no further intervention by the facilitator, often leading to unexpected solutions to persistent problems. Other U2U links will require further 'facilitation'.

The involvement of public bodies, such as the highly influential Maltese Ministry for Agriculture, Fisheries and Animal Rights, is crucial in highlighting a need for policy change on which a successful outcome may hinge. As the public bodies are partners in Bythos living lab, they share, therefore, in the success or failure, and are motivated to accelerate the implementation of policy change which may affect that outcome. However, we are also aware that public entities are often rigid in structure, with little opportunity for role making or dynamism.

DISCUSSION

The Bythos living lab has adopted an untraditional approach as its major aim is to create the missing link in the production chain. It has secured the raw materials and a number of potential end-user markets and seeks to jumpstart a marine biotech start-up to complete the chain or foster diversification in an existing enterprise. Undoubtedly, the approach is largely uncharted and will require a leap to ensure radical innovation. A living lab is not the sum of its participant organisations but the sum of the *people* in those organisations. Ultimate success of the Bythos lab in creating a biotech producer will depend on the willingness to co-create, on proactive behaviour by the users and on finding favourable funding conditions in two difficult socio-economic contexts. European Regional Development Funds (ERDF) funding measures for innovative start-ups with high aid intensity are of significant interest to the success of the lab. The *Regione Siciliana* has earmarked over 40 €M ERDF funds and is planning the release, in the near future, of funding calls for innovative start-ups (proposals of up to €1 M with aid intensity of 80%). This is an excellent opportunity for a prospective marine biotech start-up, and Bythos will provide the design of business plans and biotech consultancy for small and medium-sized enterprise proposals.

Undoubtedly, the key here is to ensure that environmental sustainability makes business sense and to change our perception of residues from the fisheries sector as being waste. There is no waste; there are simply untapped resources, and, in the fisheries sector, the potential is beyond our current expectations.

The use of residues creates returns to the fisheries sector from diversification and, therefore, employment growth in the blue and biotech sectors. It can provide new, more effective, cheaper and eco-friendly products which are potentially more readily accessible than existing patented or synthetic alternatives. In the long term, we hope to see a reduction in pressure on the harvesting of wild populations as bioactive ingredients can be found from living resources already harvested for food purposes.

Zero-waste in the fisheries sector also means optimising the use of natural resources and reducing organic waste management costs to the enterprise, the local community and the environment. The circular economy means that these aspects become an integral part of the business, tapping into a low-cost resource and creating considerable value along the chain. There is also exciting work ahead. The next major step is to widen target markets to include bioplastic and biofilm from fish waste, and bioactive medical devices, which several Bythos research teams are currently working on.

This is on-going research in order to find a network structure, actor roles and a path which will lead to the completion of marine biotech production chains in Euro-Mediterranean countries. It is clear that bringing

target organisations together is not enough without careful consideration of the *people* who will work together and the ways in which they will collaborate. When creating a living lab, we need to 'design in' those roles which are useful to the final aims of the collaboration. We need to *strategize* to create useful relationships with users (Leminen, Westerlund, & Nyström, On becoming creative consumers – user roles in living labs networks, 2014).

Although we do not expect to find a one-solution-fits-all, we do hope that new networks and a 'carrot and stick' living lab approach in domains such as these might lead to increased development in industrial sectors where there is little or no underlying industrial structure to build upon. We hope that this living lab can be used as a 'model' to tailor to other geographical areas facing similar challenges.

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8. How can local authorities plan for urban resilience?

Maria Carla Lostrangio

INTRODUCTION

Strains and shocks affect any type of system. The capacity of such a system to cope, adapt and transform its structure and functioning to these events (resilience) has a crucial role in preventing collapse and moving towards a more desirable state of equilibrium (Chaffin & Scown 2017, Cote & Nightingale 2012, Ernston et al. 2010, Kabish et al. 2018, Romero-Lankao & Dodman 2011, Walker et al. 2004, Weichselgartner & Kelman 2015). From the perspective of resilience studies, urban ecosystems are particularly relevant as they cause numerous vulnerabilities at local and global level (Romero-Lankao & Dodman 2011, UN Habitat, 2017, World Bank 2010, World Bank & GFDRR 2015). Additionally, given that urban areas are highly complex systems (Folke 2006, Meerow et al. 2015, Ollson et al. 2004), it is extremely difficult to design and implement an effective resilience strategy for them (Meerow et al. 2015). To date, whereas similar strategies have mostly been developed in response to climate change and disaster and risk reduction (specific resilience), these failed to combine the entire set of strains and shocks (general resilience) (Folke et al. 2010). Focusing too much on specific resilience might increase the vulnerability of the system to other sources of danger (Folke et al. 2010) or result in incomplete conclusion and misrepresentation (Jaabaren 2012). Consequently, several scholars argue the urgency to reshape resilience holistically (Folke et al. 2010). This paper investigates the governance model supporting resilience planning in urban contexts. Theoretical evidence is applied to probe the empirical case study of the municipality of Potenza, which utilised co-creation and stakeholder engagement to produce its first resilience action plan within the framework of the European-funded project Resilient Europe. Potenza is one of the few cases of an Italian small city where local authorities have drafted a resilience plan, and it is the only one that has used co-creation and stakeholder engagement and whose focus went beyond specific vulnerabilities. This paper reviews the literature concerning “resilience” and “urban resilience”. It follows a summary of theoretical evidence on governing mechanisms to support resilience planning, with an emphasis on co-creation and the roles of actors and institutions. Ultimately, the case study of Potenza is presented and compared to theoretical knowledge to draw up some lessons and conclusions.

RESILIENCE

Over the last century, the resilience theory has largely flourished, favouring communication and cross-fertilisation among several disciplines (Béné et al. 2017, Chaffin & Scown 2017, Manyena 2006). Whereas different scholars did not agree on a unique definition, most of them acknowledged the evolution of the concept from “engineering resilience” to “ecological resilience” and finally towards “socio-ecological resilience” (Béné et al. 2017, Chaffin & Scown 2017, Folke 2006, Manyena 2006). Socio-ecological resilience brings into the conversation three new points of reflection. First, it argues that there is no separation between social structures and nature but rather that biological, social and physical systems are strictly interdependent and co-determined (Adger 2006, Béné et al. 2017, Berkes & Ross 2013, Chaffin & Scown 2017, Collins et al. 2010, Cote & Nightingale 2012, Folke et al. 2010, Heinen et al. 2006, Holling 2001, Schlör et al. 2018, Zimmer 2010). Second, the socio-ecological resilience theory rejects the idea of the world as mechanical and predictable because of the evidence that multiple internal and external drivers of change (“press” and “pulse” events) might occur in a non-linear and unorganised way, and it might be impossible to recover or persist despite these strains (Berkes & Ross 2013, Davoudi 2012, Folke 2006). Consequently, whereas the engineering definition measures resilience in terms of time recovery – the time needed by a system to bounce back to the before-disturbance state (Cote & Nightingale 2012, Folke 2006, Holling 1973, UN Habitat 2017) –, the socio-ecological scholars theorise multi-state resilience, implying transformation over time (Holling 1973, Walker et al. 2004). As such, socio-ecological resilience can be defined as the ability of the system to learn in a systematic matter how to adapt and transform its self-organising processes in response to shocks and disturbances (Davoudi 2012, Folke 2006, Ollson et al. 2004). Third, the socio-ecological concept asserts that the property of resilience is neither positive nor negative but ‘can be labelled by humans as desirable or undesirable (Chaffin & Scown 2017, Cote & Nightingale 2012, Walker et al. 2004, Weichselgartner & Kelman 2015). Normative considerations should not be allocated to the resilience of the system but on the capacity of specific governance to shift towards desirable forms of resilience while reducing unwanted ones (Chaffin & Scown 2017, Leichenko 2011, Romero-Lankao & Dodman 2011).

URBAN RESILIENCE

In the literature, urban areas are mostly described as highly complex and adaptive systems composed by socio-ecological and socio-technical networks and elements, such as infrastructure, material, energy flows, environment, socio-cultural, economic and political structures (Ernstson et al. 2010, Folke 2006, Kabish et al. 2018, Heynen et al. 2006, Lang 2012, Meerow et al. 2015, Ollson et al. 2004, Spaath & Waterhout 2016, Zimmer 2010). Notably, urban political ecology scholars state that cities are the primary expression of a socio-ecological hybrid system shaped by power relations (Heynen et al. 2006, Zimmer, 2010) and reciprocal feedbacks (Collins et al. 2010, Folke et al. 2010), dubbed “pulse” and “press” factors (Collins et al. 2010). Pulse dynamics are used to point out sudden and more evident drivers of change, such as earthquakes, floods and windstorms, whereas press dynamics are defined as subtle drivers of change but whose effects can be greater than pulses, because they act on a longer scale of time, such as sea-level rise or increased consumption of natural resources (Collins et al. 2010). As socio-ecological systems, urban areas are characterised by the following properties: interdependency among single elements, nonlinearity, historical dependency, and multiple possible outcomes of dynamics (Folke et al. 2010, Levin 1998, Holling & Goldberg 1971). Exclusively by identifying and ana-

lysing the entire set of feedbacks and interactions within the hybrid system, it is possible to wholly understand vulnerabilities and to foresee crisis and change (Lang 2012).

Urban resilience has been defined in several ways by scholars. Among these, Meerow et al. 2015 reviewed the last twenty years of urban resilience theory and, based on this, proposed a description that simultaneously remove inconsistencies and is flexible enough to gather the entire set of knowledge related to the term.

"Urban resilience refers to the ability of an urban system and all its constituent socio-ecological and socio-technical networks across temporal and spatial scales to maintain or rapidly return to desired functions in the face of a disturbance, to adapt to change, and to quickly transform systems that limit current or future adaptive capacity." (Meerow et al. 2015: 39).

This definition integrates the properties of socio-ecological resilience and complex systems in the urban context, which include: 1. a complex hybrid resulting from multiple constituents and feedback; 2. notion of multiple equilibrium states; 3. dynamicity of the system expressed by three contemporaneous capacities: absorptive coping capacity, adaptive capacity and transformative capacity and (4) multi-scalar and multi-temporal process of change.

WHICH GOVERNANCE FOR URBAN RESILIENCE?

The intrinsic complexity and diversity of cities prevents urban resilience to be addressed by a "one-size-fits-all" strategy, and it assumes that each city needs to design a tailor-made strategy and test and adapt it over time (Meerow et al. 2015). In the perspective of urban resilience, governance is crucial in promoting transformational changes towards a more desirable and resilient system (Chaffin & Scown 2017, Ernston et al. 2010, Kabish et al. 2018, Romero-Lankao & Dodman 2011). It implies a new distribution of rules, duties, principles and criteria to design an overarching transformation towards a resilient city (Kabish et al. 2018). At the very early stages of resilient planning, co-governance was promoted as the type of governing process for resilient systems, but in the last decade the on-going discussion has claimed that the key features of co-governance – participation and integrated urban planning – fail to deal systematically with uncertainty and change (Pisano 2012). Therefore, adaptive governance was preferred to co-governance (Pisano 2012); adaptive governance is defined as *"an evolving research framework for analysing the social, institutional, economic and ecological foundations of multilevel governance modes that are successful in building resilience for the vast challenges posed by global change and coupled complex adaptive Socio-Ecological Systems"*¹. Adaptive governance assumes stakeholders are organised in societies and operate within certain structures in accordance with their agency and power of action (Kooiman et al. 2008). Structure denotes the framework within which actors perform and that might enable or constrain their actions (Kooiman et al. 2008), such as regulations, agreements, knowledge, technology and culture. Between the structure and actors exists a bidirectional flux: structures influence the actions of actors and, equally, the behaviour of actors poses a drawback on the modifications of those structures (Kooiman et al. 2008). In the view of building a plan for urban resilience, this means that not only is it vital to engage actors because of their influence over existing structures, it is also essential to modify structures to trigger change. Compared to co-governance, adaptive governance supports learning, innovation and experimentation to strengthen resilience; long-term objectives are emphasised in a transversal manner, constituting the skeleton of urban strategy and collaborative processes. Multi-level governance and institutional heterogeneity are integral to the process (Pisano 2012).

¹www.stockholmresilience.org, in the Adaptive Governance's section.

CO-CREATION AND THE ROLE OF ACTORS

Engaging stakeholders is a key component of adaptive governance (Kooiman et al. 2008) and should occur in the early stages of the resilience planning process: because no one owns the system yet, all are equally capable of influencing new structures and defining the resilience agenda (Webb et al. 2018). To this end, a wide set of collaborative processes can be put into practice, such as co-design, co-creation and co-management (Albrechts 2012, Berkes 2008, Mullenger 2017, Ollson et al. 2004, Steen et al. 2011, URBACT 2016, Webb et al. 2018). Implying open and inclusive dialogue, collaborative processes might serve urban resilience planning, resulting in shared vision and objectives and coherent systemic policies (Berkes 2008, Webb, et al. 2018). Bridging different forms of stakeholder collaboration, individual and social knowledge, learning reinforces social capital through collective learning and produces innovation (Armitage 2011, Berkes 2008, Bristow & Healey 2014, Kooiman et al. 2008, Steen et al. 2011, Tyler et al. 2016). Collaborative processes encourage more effective forms of decision-making, a multiple discipline framework and less rigid regulative, organisational and social frontiers (Bristow & Healy 2014, Webb et al. 2018). Non-hierarchical exchanges across actors promote cooperation, heterogeneity and tolerance (Kalliomaki 2015, Steen et al. 2011, Tyler et al. 2016); better access to information and resources (Berkes 2008); community-to-institutions (and vice versa) and intra-community trust (Berkes 2008, Steen et al. 2011); and conflict resolution, constructive debate or meta-consensus (Bafarasat 2016, Berkes 2008, Trivellato & Cavenago 2010). In addition, thanks to collaborative practices, the actors acquire a deeper understanding of resilience and its practical implications (Tyler et al. 2016).

Co-creation is the process of participation and involvement by which multiple actors take part in shaping any type of product, policy, research, service or strategy. Formal outcomes emerge from the integration of locally-based practices, bottom-up knowledge, different expertise and capacities coming from different stakeholders (Weichselgartner & Kelman 2015), together with informal outcomes, such as a new decision framework, ways of building agreements, and organisational arrangements (Healey 2004). Co-creation includes co-design, a plan-making process in which contexts and strategies arise from the collaboration of people with different expertise (Steen et al. 2011). The primary innovation in the co-design approach is that the “users” take on the role of experts thanks to facilitators (Steen et al. 2011). Several techniques support co-designing processes, such as visioning, storytelling, narratives, storyboards, alternative scenarios, user journeys and user personas (Fazey et al. 2018, Steen et al. 2011). In this phase, it is important to depoliticise knowledge and to balance it with scientific fundamentals (Weichselgartner & Kelman 2015). Co-management arises after the actors have produced their plan for resilience in detail and distribute power and duties among the institutions and other actors (Dwyer & Hodge 2016, Ollson et al. 2004). Concerning the resilience theory, collaborative practices are often coupled with learning-based approaches and repetitive loops of observation-planning-action-outcome (Berkes 2008, Wilkinson 2011).

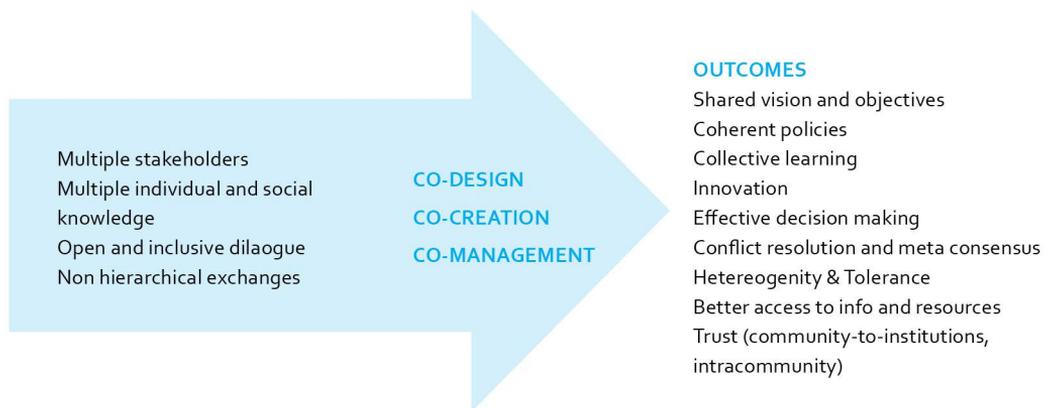


Figure 1. Outcomes of collaborative practices. (Figure: Maria Carla Lostrangio)

The role of actors in building an integrated plan for resilience in three consequential collaborative phases are: 1. Investigating the context and goals of the urban system 2. Identifying existing knowledge and strategic priorities 3. Developing knowledge and solutions by using comparative study cases, transformation, experimentation, learning, stakeholder sharing and cooperation. Each phase generates definite outcomes in terms of policy and research (Webb et al. 2018).

THE ROLE OF INSTITUTIONS

Institutions are fundamental in shaping and accelerating the resilience agenda, because of three main reasons. First, institutions permeate and endogenously influence all socio-ecological systems and their socio-economic organisations (Adger 2000) promoting multi-level coherence and synergies, as they are embedded in a multi-scalar governance framework (Webb et al. 2018). Institutions act as a connector across the system and provide a collective purpose to individual actions (Bristow & Healey 2014). The power of representation – which is allocated to them throughout elections – gives them more authority and legitimacy to make decision on behalf of citizens, and by doing this, influences all aspects of the system (Webb et al. 2018). Second, institutions concentrate power and resources to initiate and speed up resilience planning more than other actors (Armitage et al. 2011, Bristow & Healey 2014, Carmin et al. 2009, Lang 2012). Third, institutions should be driven, at least theoretically, by long-termism, which is a key element for any resilient strategy. Contrarywise, the rest of the stakeholders constitute an “incoherent and not stable amalgam”, which is not able to secure continuous and systematic steering of the resilience process (Lang 2012).

In resilience building, the role of institutions is sought to mediate the process of change, inferring five core responsibilities. First, determining a perimeter and a scale of intervention in accordance with public and private interests (Ernstson et al. 2010, Mullenger 2017, UNISDR 2012). Second, bringing stakeholders together through a collaborative process and citizen engagement, with the aim to delineate the local vision for resilience, needs and wishes (Collier et al. 2013, Ernstson et al. 2010). To this end, institutions require strengthened ties with scientists, as do scientists and all other stakeholders (Ernstson et al. 2010, Tyler et al. 2016), and must infuse a sense of awareness and urgency about resilience (Ernstson et al. 2010, UNISDR 2012). Third, identifying entities in charge, assessing risk, monitoring and evaluating the state of art and the changes of

the socio-ecological system, and protecting key infrastructures (Ernstson et al. 2010, UNISDR 2012). Fourth, fostering collective learning through on-the-ground experimentation and training (Berkes 2008, Ernstson et al. 2010, Mullenger 2017, UNISDR 2012). Fifth, producing a legislative framework that facilitates resilience, thereby reducing institutional barriers and implementing what has been established by stakeholders (Bené et al. 2012, Tyler et al. 2016, Webb et al. 2018).

Literature acknowledges that not all institutions are equally prepared to deal with or produce resilience, as institutional rigidities (e.g., path dependency, corruption) might reduce system flexibility and prevent them from leading the change (Kooiman 2008, Tyler et al. 2016, Webb et al. 2018). In this context, institutional change is a crucial process for transforming an organisation's form into a polycentric and multi-layered structure to promote redundancy and boost flexibility and diversity, which lead to system resilience in the long-term (Colding & Barthel 2012, Kooiman 2003, Pisano 2012, Ollson et al. 2004), as well as to enable a wider urban transformation (Kabish et al. 2018, Sjöstedt 2015).

METHODOLOGY

This research aims to understand how local authorities can use co-creation and stakeholder engagement to plan for urban resilience. Through an empirical case study, a qualitative assessment of the benefits and shortcomings of these two practices in resilience-building was performed. The municipality of Potenza was chosen because it represents one of the first small cities in Italy using co-creation and stakeholder engagement to build an integrated plan for urban resilience. The research was articulated in two critical frames: 1. A literature review on existing knowledge on resilience about urban contexts, planning, stakeholder engagement and institutional arrangement. 2. Theoretical knowledge supporting the empirical study of the municipality of Potenza (Italy). The case study consisted of documentary analysis, semi-structured interviews, conventional content analysis (Hsieh & Shannon 2005), which serve to identify the results and elements for discussions. Interviewee selection was designed to ensure balance among the different types of stakeholders who participated in the preparation of the Resilience Action Plan of Potenza Municipality ("Potenza Città Resiliente") within the framework of the EU-funded Resilient Europe project. In total 10 interviews were conducted of which 2 people belonging to the project team, 1 representative of the local authority, 1 external consultant supporting the Project Management, 5 representatives of local non-profit organisations, 1 representative of the private sector.

RESULTS AND DISCUSSION

Located in the south of Italy, Potenza is the capital city of the Basilicata Region, and its municipality counts 67,211 inhabitants (URBES 2015). The area presents many vulnerabilities from a physical and territorial point of view as well as concerning its environmental, socio-economical, institutional and ecosystem conditions (Table 1) (Attolico 2014, Investimento Territoriale Integrato 2017, URBACT 2016, URBES 2015).

Table 1. Vulnerabilities of Potenza (Basilicata Region, Italy).

PHYSICAL / TERRITORIAL	<ul style="list-style-type: none"> • Exposure to seismic and hydrogeological events • Overbuilding and soil consumption
ENVIRONMENTAL	<ul style="list-style-type: none"> • Multiplication of conflicts for soil consumption and use of other natural resources • Natural depletion • Lack of green corridors
SOCIO-ECONOMIC	<ul style="list-style-type: none"> • Unemployment • Income inequality • Ghettoization of the urban periphery • Deindustrialisation • Impoverishment of entrepreneurial activities • Ageing population • Individualism and social apathy • Marginalisation of vulnerable communities • Negative demographic balance
INSTITUTIONAL	<ul style="list-style-type: none"> • Corruption scandals • Lack of institutional and social trust
ECOSYSTEM	<ul style="list-style-type: none"> • Inadequate public and inter-urban transport system • Few services for the citizens • Inefficient waste management • Underuse and deterioration of cultural heritage

In Potenza, local governance is grounded prevalently in a hierarchical arrangement, with few examples of self-governance initiatives carried out by volunteers and NGOs to cover the deficiencies of public institutions. In the past, the municipality attempted to introduce some forms of co-governance, such as “comitati di quartiere” (neighbourhood committees) and to raise interest in the topic of resilience. Both were unsuccessful. Collaborative processes brought limited results, while engagement in urban resilience pertained only to the physical sphere and never became the mainstream concern of the municipality. In the biennium of 2016–2018, Potenza was involved, as a second-tier city, in the Resilient Europe project, funded by the European Commission’s URBACT programme. After this experience, Potenza demonstrated masterful facilitation of local meetings by applying collaborative techniques and to successfully promote resilience in their urban strategy. Which conditions enabled such change?

With the aim to foster general resilience, Resilient Europe’s approach uses co-creation and stakeholder engagement to foster resilience at the city level. Resilient Europe represents an important trial for the municipality to experiment with certain types of adaptive governance driven by the notion of “transitional management” (Frantzeskaki et al. 2012, Loorbach & Rotmans 2010, Loorbach et al. 2015). The project outcomes in Potenza are an action plan on urban resilience and a set of experiments to be executed by the municipality with local stakeholders. Conversely, from the literature review, stakeholders are not identified in terms of function (e.g., academic sector, private, public, citizens) but in terms of their commitment to lead the transition to a more resilient city, as expressed by three categories: agents of change, supporters of change and con-

nectors of change. This categorisation demands stakeholders identify in which measure and how they would like to be a protagonist in the process of change. Analysis of stakeholder composition offers local authorities insight into the nature of participants as well as their commitment to the process. Agents of change will be involved more consistently in activities and the co-management process, whereas supporters and connectors of change will take part in activities at a lower rate. Participants have been engaged since the early stages of the process until the very end, moving through the three stages of co-creation (Webb et al. 2018). In accordance with the literature analysis, visioning, storyboards, alternative pathways/scenarios and roundtables (Steen et al. 2011) are used to animate the discussion. Digital tools such as newsletters and social networks are also consistently used to communicate project achievements and outcomes. Digital tools allow for interaction between local and international stakeholders by informing on what is happening locally at international level and vice versa.

Interview analysis shows that three factors contributed positively to the success of resilience-building through co-creation and stakeholder engagement in Potenza: leadership, co-operation and commitment of local actors.

Leadership refers to the existence of a dedicated Project Management team who had the intuition to commit to the Resilient Europe project and place their expertise in the fields of European funds, management, research and collaborative processes in order to ensure its success. The Project Management team was led by the Office of European Planning – a transversal department of the municipality – whose duty is to connect all municipal departments. In the frame of resilience, this arrangement is highly functional, and it implements resilience holistically by integrating the concept across all domains of public life focusing on interdependencies of the system. A similar structure is advocated by the 100 Resilient Cities with the Chief Resilient Officer.

Cooperation (regional and international) contributed to building institutional and community capacities for urban resilience. On one hand, considering its facilitation experience in resilience building (Attolico, 2014), the province of Potenza became an external advisory board to the municipality, offering its advice and support, including multi-governance legislative frameworks and territorial knowledge. On the other hand, international cooperation within the Resilient Europe's consortia provided project partners the necessary sustenance to implement the methodology, both locally and internationally, thereby allowing cities to learn from each other. Peer-to-peer knowledge exchange was fundamental for the municipality of Potenza, which had never worked on integrated urban resilience.

Finally, all of this could not have produced the expected results if not complemented by the commitment of local actors. Potenza experienced a period of decay, to which local stakeholders attempted to respond with independent solutions, collaborating only in certain cases with the municipality. Resilient Europe revealed a widespread enthusiasm within the citizenship, as it became a trigger to work on the city's transformation which was an urgent need and widely demanded by large share of the society.

One further exogenous variable that played a role in the success of the project was the size of the city. Having a small population and thus a lower degree of complexity well facilitated interaction among actors and the possibility to understand system interdependencies and, as result, to determine a final action plan.

Qualitative analysis highlighted four main difficulties in the course of the project. First, each stakeholder takes its drive to action from different "springs". As argued by the province of Potenza and then confirmed by other respondents, according to motivational drivers, stakeholders tend to split between "institutions" – which are obliged to bring forward certain measures because of their organisational mission, though they often lack motivation to do such – and "communities", who take part in causes voluntarily and represent their personal interests. While the departments within the municipality of Potenza had to take part in the activities

to fulfil their professional duties, some of them were far from being devoted to the cause or understanding its real impact. Conversely, local associations, citizens and professionals voluntarily attended meetings because they considered it an opportunity to raise their voices and coordinate actions with local authorities. Disregarding this discrepancy may lower stakeholder engagement and project success.

Second, if engaging stakeholders is not easy, keeping their interest high is even harder. Co-creation infers active participation of stakeholders from the beginning to the very end of the process. Stakeholders must perceive co-creation as a value-added process and not a loss of time. In Potenza, some stakeholders gradually lost their enthusiasm because they could not participate in all meetings and over time perceived that the project would not bring operative results but merely theoretical outputs.

This links with the third point: communication is fundamental. As occurred in Potenza, not all stakeholders are experienced in collaborative practices and, hence, understanding its function and impact might rely on the ability of local authorities to use communication tools to explain the objectives, methodology and activities, and how these fit into the expected results. Communication also contributes to retaining the attention of participants and widening the audience by providing simple, transparent and timely updates on activities, results, feedback etc. Furthermore, communication with the public was mainly entrusted to social networks whose use, in the perspective of some local respondents, should not be “left to fate” but implemented in an organised manner.

Fourth, if local authorities act as facilitators, institutional change must often be considered an initial step. As seen in the case of Potenza, most Italian authorities primarily practice hierarchical governance and ignore co-creation. Institutional change implies that local implementers understand and embrace co-creation as a leading approach for resilience building and do not look at it as a source of more bureaucracy or loss of energy or a once-in-a-while experiment.

Table 2. *Strengths and shortcomings of the resilience-building process in the municipality of Potenza (Italy).*

STRENGTHS	SHORTCOMINGS
Leadership Cooperation (regional, international) Commitment of local actors	Motivational levers Interest level Communication Institutional change

CONCLUSIONS

Resilience is a multi-disciplinary and transversal matter; therefore, it requires know-how and capacity from multiple stakeholders. Without these, it is impossible to plan for urban resilience holistically. Institutions have realised that they cannot do everything themselves, as they often lack resources and capacities, particularly in small and medium-sized cities. In this respect, co-creation and stakeholder engagement are acquiring a central role in promoting resilience planning. They positively affect the sense of belonging to a community, civic engagement, cross-learning and knowledge transfer. This approach hinges on the capacity of the facilitator to organise and coordinate multiple stakeholders, and it usually builds strong governance, which is more likely to last longer in the future.

Potenza represents good practice in the landscape of resilience case studies. Leveraging collaborative practices and stakeholder engagement to develop a new city vision, set of actionable measures and urban community, the local government managed to re-connect a wide variety of urban stakeholders affected by strong physical and territorial, socio-economic, environmental and ecosystem vulnerabilities. The enabling factors of Potenza's success are leadership, co-operation and the commitment of local actors. The project implementation presented a few shortcomings that must to be addressed to increase the effectiveness of the entire process, including stakeholders' motivation to participate, stakeholder attention throughout the process, communication and institutional change.

Finally, as one respondent said, Resilient Europe is a "not-yet-ended project". Resilience is a long-term process in which planning follows implementation, monitoring, evaluation, revision etc. Thus, co-creation and stakeholder engagement should not be ends in and of themselves: they must be pursued by the co-management of the envisaged actions. The ability to turn Resilient Europe's project into a systematic and driving motor of change is essential in showing a citizenship how much the municipality is committed to change and in moving from occasional to systematic commitment and, hence, from co-governance to adaptive governance.

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- Urban resilience
- Co-creation
- Local authorities
- Stakeholder engagement

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9. Through collaboration, conflict and compromise towards an open-source book on security management

Kaci Bourdache

THE BEGINNINGS OF OUR CO-CREATION

In spring 2017, I was approached by Turība University from Latvia with a compelling proposal: the creation of mutual study materials in the field of security management, funded in part by the Nordplus Higher Education Programme. In the proposal, the lack of materials was identified as a clear problem. We at Laurea University of Applied Sciences agreed and joined the project. In this article, I will give a first-hand account of the international co-creation process of an open-source book on security management.

First, a few words about the funding instrument that provided funding for the collaboration: the Nordplus Higher Education Programme is aimed at cooperation between Higher Education Institutions (HEI) and other actors in the Nordic and Baltic countries and the autonomous regions of the Faroe Islands, Greenland and Åland Islands. Grants may be awarded for networking activities, intensive courses, joint study programmes, development projects and mobility of students and academic staff. The goal is to enhance collaboration within higher education and with working life (Nordplus, 2020).

The funded cooperation can revolve around several themes. In this case, we implemented, in Nordplus terminology, a development project as a so-called project partnership. The definition of a project in Nordplus is very much as expected and in line with background theory. See, e.g., Turner (1998) who defined a project as an "endeavour in which [...] resources are organised in a novel way, to undertake a unique scope of work, or given specification, within constraints of cost and time, so as to deliver beneficial change by quantitative and qualitative objectives". As the Nordplus (2020) handbook says: collaboration is "time limited and focuses on a specific task [...] with a specific outcome". A project partnership then refers to the consortium that works together on the common goal – co-creation, in other words. In the next chapter, I will discuss the project itself.

OUR CO-CREATION JOURNEY

The project consortiums funded by Nordplus must consist of at least three institutions from three different countries (Nordplus, 2020). Therefore, project collaborations under this funding are always international and intercultural. In this case, the consortium consisted of three HEIs from three countries: Turība University (Latvia), who made the first contact and acted as the lead, and partners Laurea University of Applied Sciences (Finland) and Kazimieras Simonavicius University (Lithuania). All three partners have study programmes and teaching subjects in various fields of security and agreed on a gap to study within that field: a lack of peer-reviewed but pedagogically sound study materials. The proposed solution to fill the gap was to create an open-source book on security management.

Whom are we writing for?

While the Nordplus Higher Education Programme funding provided funding, each university had to pledge additional resources of their own for content production. This project was not about acquiring and using funding but more about having a focused and collaborative way to fulfil a need. The project began with a kick-off meeting in Riga, Latvia, with English established as the working language of the consortium as well as the language of the final product. However, writers were allowed to write in their native language and have translations done if that was deemed better. The working-language rule was complemented by translations, if necessary, or by the use of common languages (such as Russian between Latvians and Lithuanians who had learnt it previously). This was not a problem in any way but served as a reminder that English still has some way to go in becoming the de facto language in European projects.

A simple start quickly led to back-and-forth discussions on very specific aspects on the scope, content and structure of the end-product. Each university, of course, had its own needs and perspectives. The tangible goal of the project was to create study materials, but that is a simplified description. In full, the project goal was to “raise partners’ and security experts’ knowledge about security issues, exchange experiences, revise and develop programmes related to security as well as to prepare up-to date and comprehensive study materials (book) on security issues, which will be integrated into and used in all study programmes” (Development of Society and Organisation Security Programmes, 2017). As “security” is a diverse topic, we had a lot work ahead of us to nail down the specifics of content.

Of special note is the part on using the book in all study programmes. This raised a question: who are we writing for, specifically? All partners had their own needs, starting from the study levels of students. Professional qualifications, bachelor studies and master’s studies were taught in various combinations by different partners. To decide on the required reading level, we cross-referenced the teaching levels of all our team members and found the strongest correlation and need in the bachelor level. That first hurdle was easy enough to solve with a simple, systematic approach. We thus decided that the book would be aimed primarily at the bachelor level, since it was the only reading level shared by all three partners.

What are we writing about?

The next question wasn’t as simple as the first. What would the topics be? The first thing to understand is that security is a very diverse topic. Each HEI with curricula in any field of security emphasizes different aspects or specializes in a certain topic. As we worked on what the main themes would be, there was a lot of discussion

on the content of the book and the way it would be structured. Early on, everyone knew that all sections or articles would be written independently by different authors. It was up to us in the project group, however, to create a structure for the book. This proved to be the most contentious part. Different needs in different curricula, as well as authors' personal interests, threatened to make the whole set of articles disjointed. Some articles were detailed accounts of minor issues that would come up in other articles from a wider perspective. That is not necessarily negative, but it does make creating a consistent book difficult; from a student's perspective, should they read 10 pages on private security services in general and then 10 more pages on a specific type of private security, such as cash and valuables transit – but no specifics on anything else? That again raised the question of scope, and my opinion was that every page should be as important as the next. This question of relevancy and balance within the final product was the main point of contention during the project, at least for myself.

Everyone was courteous and professional, but at the meetings as well as between them, the content of the book changed, so much so that I was not always sure what to tell the writers. They obviously needed the topic, deadline and other practical information, but weeks of adjustments to the content made that very difficult. In a three-partner project, each person has substantial weight behind them. While in many practical matters, a project with numerous partners may be challenging to manage, in this case one partner is one-third of the consortium and can stop the project in its tracks if they wish to push on the brakes. My strategy for this was to pick a very few must-win battles and then pick the nice-to-haves and the matters towards which I was indifferent. Following this procedure, I found it quite possible to create a roadmap towards a compromise that best suited the needs of our staff and students.

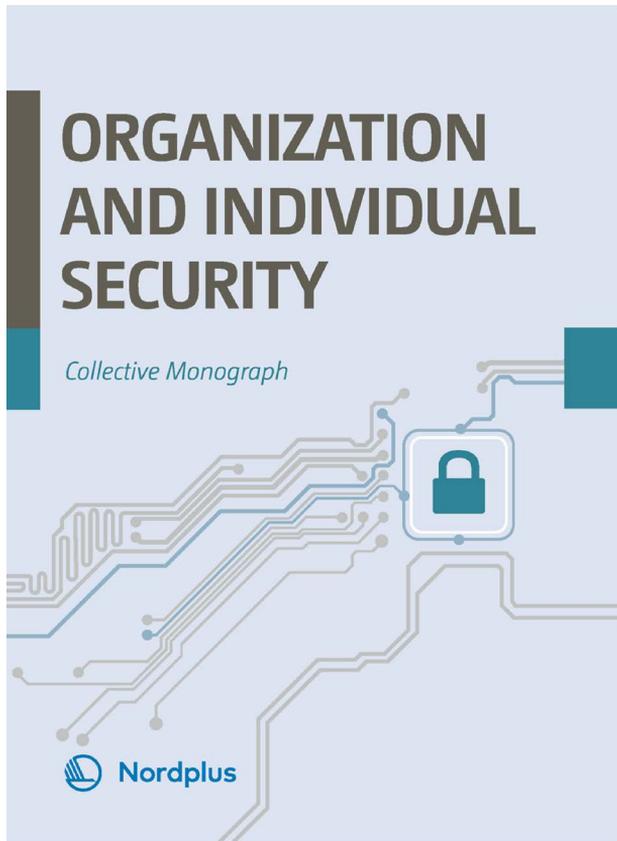
And when are we doing all of this?

Discussions of scheduling were another notable practicality. It was no surprise that deadlines in a project are important and challenging, but presumably a difference in working culture left much of the writing to be done over the Christmas and New Year's holidays. This is traditionally a two-week period in which most people, such as those on our writing staff, are off work. However, this was seen by one partner as "a good time to write the articles". I made it clear that this would not be acceptable at our workplace, and, after some discussion (insistence, on my part), the writing deadlines were relaxed. Wielding the "one-third power" mentioned previously, and picking this as a must-win battle, I got the results I wanted in this case without compromise. Knowing when cooperation requires compromise and when an intellectual conflict must be decided by other means is important for any manager.

CONCLUSION

In this article, I have focused on the interplay between the three main partners, rather than the internal workings at Laurea UAS; the latter is characterised by more regular workplace interaction. After the plan and schedule were finally in place, the process itself proceeded smoothly enough for all parties. Even so, the final product of our project, a 568-page open-source book on security, was the result of collaboration, conflict and compromise. Some might say that a result based on compromise satisfies no one, but that is an inherently negative view. For some, compromise is even a dirty word, a sign of weakness – there are significant cultural differences in this, even within Europe, that especially those working in international projects and tasks should study (see, e.g., Fumurescu, 2013). However, my view is that everyone involved with collaborative projects

should understand from the beginning that compromise is inevitable; if expectations and risks are managed, compromises can satisfy everyone, rather than no one.



Picture 1. *The cover of the final publication, the result of all our efforts*

I hope the co-creation story of Organization and Individual Security can help the reader appreciate our effort as well as highlight some of the opportunities and challenges that co-creation can bring. It certainly would be simpler to sit in one's own foxhole and produce everything internally, but never taking the risk to collaborate can lead to stagnation and deprive one of opportunities. At the time of writing this, all three partners and others are once again applying for co-created material production, so there is no evidence of lasting damage!

*The full version of **Organization and Individual Security** by Zemītis, Guntis; Makans, Leonīds; Kalesnykas, Raimundas; Bourdache, Kaci; Wuorikoski, Tuomas; Kalesnykas, Raimundas; De Andres Gonzalez, Olena; Kīsnica, Ivita; Tammilehto, Tuomas; Taitto, Petteri; Hyttinen, Kirsi; Veinbergs, Jānis; Veinbergs, Vilnis; Burda, Ryšardas; Ruoslahti, Harri; Dadelo, Stanislav; Tarkkanen, Laura; Siliņš, Dainis; Začs, Uģis; Ratačova, Viktorija; Rendenieks, Dzintars; Nevmerzhitskaya, Julia; Rajamäki, Jyri; Radionova-Girsa, Elina and edited by Kīsnica, Ivita (2018) can be downloaded at <http://urn.fi/URN:NBN:fi:amk-2018101115894>*

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10. Co-creation in the public sector: the CoHeWe case

Sami Kauppinen & Elina Kesäniemi

The Co-Created Health and Wellbeing (CoHeWe) project focuses on the promotion and development of innovation cooperation between cities and companies. One of the main goals is to develop and implement customer-oriented social, health and well-being services in four cities (Helsinki, Tampere, Oulu and Vantaa). The CoHeWe project also supports the cities in changing their role from service providers to innovative service enablers. Furthermore, it offers companies the chance to more closely participate in the development of new services, starting with a survey of service needs. In addition, companies get the opportunity to network with the municipality's social and health services and with other businesses. In the context of harmonised service trials, companies can also offer their services to the participating cities.

The practices and operating models of the participating cities, as well as the co-creation model drawn up based on studies, are assessed and developed in the context of the CoHeWe project. This article presents the initial co-creation model for the public health care sector developed during the project. The objective of this article is to depict partner selection in the co-creation process and recognise possible best practices as well as challenges based on the qualitative data gathered. In this context, co-creation means the participation of various parties, such as public-sector organisations, employees, companies and city residents, in the development work. Goal-oriented interactive cooperation is at the heart of the activities.

INTRODUCTION

The public services sector of any country plays an important role in providing services to citizens that support the wellbeing and prosperity of individuals and communities. As a whole, the public sector is a major economic actor, accounting for 20–30 percent of gross domestic product in OECD countries (Arundel et al., 2015). While this is so, the governments in the different OECD countries are encountering unprecedented challenges concerning the economic, social and environmental issues (OECD, 2015) that threaten the success of the region. The ability to deal with these fundamental socio-economic challenges – more so in the face of

limited public financing – requires new and innovative approaches to how government works, the services they provide and how they provide them to public sector innovation practices (OECD, 2015). Public sector innovation is not a new concept, but a more systematic innovation policy in the public sector is rather a new area of research that emerged after the turn of the new millennium (Jäppinen, 2015). Since then, various public sector innovation processes have been introduced. Some of these focus on the structures and modes of operation of internal innovation (e.g., Mulgan & Albury 2003, Eggers & Singh 2009), whereas others take more open approach, such as co-creation (e.g. Haukipuro et al. 2018), living labs (e.g., Bergvall-Kåreborn & Ståhlbröst 2009), or innovation platforms (e.g., Anttiroiko 2016) that actively involve multiple stakeholders also outside the public sector organization.

There are many benefits associated with multi-stakeholder co-creation between government agencies, the non-profit sector, businesses and citizens in public sector innovation. As noted by Hartley et al. (2013) and the OECD's report (2017), as well as Torfing (2018), such collaborations help to ensure customer-centricity in public service design and delivery. They are the key to ensuring increased service availability, improved service delivery, including speed of delivery, and creation of new services, including more personalised ones (Cappgemini et al., 2010). Ojasalo et al. (2016) state that co-creation enables us to notice unforeseeable innovation potentials. Consequently, involvement and collaboration between different actors have been identified as excellent bases and drivers for innovation (Torfing, 2018). Thus, many public organisations in the OECD have already noticed the need for external knowledge and expertise, and multi-stakeholder co-creation is becoming a common characteristic of public sector innovation practices (Borins, 2014). However, Hakio et al. (2011) have identified challenges relating to building trust and shared understanding among the partners involved. Also, there is a lack of knowledge about different groups' barriers to participation (Simonofski et al. 2017).

The purpose of this study is to deepen understanding of the co-creation process in the public sector with a focus on business involvement; the objective of this article is to depict partner selection in the co-creation process and recognise possible best practices as well as challenges based on the qualitative data gathered. The paper is organised as follows. First, we review relevant literature on co-creation in the public sector. Second, we introduce the research method, which involves qualitative research with various actors who participated in the co-creation activities during the process. Third, we introduce the initial co-creation model and focus on how businesses are involved in the co-creation process. Finally, the conclusion summarises the main findings.

CO-CREATION AS A PART OF PUBLIC SECTOR INNOVATION

Co-creation is an emerging trend in the design and delivery of public services. The co-creation approach seeks to involve the necessary actors who help identify and solve shared problems. Voorberg et al. (2015) define co-creation as the involvement of citizens in the initiation and/or design of public services (Voorberg et al. 2015, p. 1347). This definition focuses on bilateral interaction between a public sector organisation and an end-user, while other definitions take a broader view of networked collaboration between different public and private sector organisations. Bason (2018), for example, defines co-creation as the development or creation of new solutions through collaboration. Torfing (2019) defines co-creation as 'a process 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 in terms of visions, plans, policies, strategies, regulatory frameworks or services, either through

a continuous improvement of outputs or outcomes or through innovative step-changes that transform the understanding of the problem or task at hand and lead to new ways of solving it' (Torfing et al., 2019, p. 802).

The public sector co-creation processes usually consist of four phases, starting from an initiation phase of planning or setting up or directly from idea generation (e.g., Bason, 2018; Haukipuro, 2018; Sørensen & Torfing, 2018). Most but not all of the introduced processes are initiated, driven and managed by the public sector organisation, while some (Sorensen & Torfing 2018) show citizens as the (co-)initiators of public innovation processes. Usually, the public innovation process descriptions highlight the iterative nature of the processes, as opposed to a strictly linear process. After the idea-generation phase, the processes move on to selecting, testing and implementing ideas, and most also move further onto diffusing and scaling up the tested and successful innovations. Haukipuro et al. (2018) present a co-creation process 'innovation path' that specifically targets the healthcare sector. The process consists of four phases: 1) preparation: collecting needs for service development, 2) selection: a call for solutions is opened to companies, 3) co-creation: co-creation with professionals and 4) piloting: the procurement process. Moreover, the selection of companies in the second phase includes three stages: open call, application and selection. According to the Finnish Public Procurement Advisory Unit (2016), market mapping is useful when preparing for a public procurement process. Market mapping also provides understanding of the different prevailing conditions within the market and the actors in it, as well as informs potential suppliers of future procurement (Kuuttiniemi & Lehtomäki, 2017). In other words, public sector managers are able to gain understanding about potential companies and their solutions.

Co-creation takes place in networks orchestrated by public organisations. Sørensen et al. (2016) state that networks emphasise 'non-hierarchical forms of governance based on negotiated interaction between a plurality of public, semi-public and private actors' (Sørensen et al., 2016). Similarly, Huppé et al. (2012) state that networks enable external actors 'to contribute their unique resources to the generation of creative, collaborative, complex solutions' (Huppé et al., 2012). Emerson et al. (2015) define the aim of such a collaborative approach as to 'engage people across the boundaries of public agencies, levels of government and/or the public, private and civic spheres to carry out a public purpose that could not otherwise be accomplished' (Emerson et al., 2015). The engaged actors should have 'relevant knowledge, ideas and resources or are affected by the problem or the innovative solution' (Torfing, 2018). Thus, the participants of public sector innovation can be citizens, companies, third sector organisations and/or universities. Indeed, companies play an important role in the co-development of the public sector. However, participation is often citizen-centric, and less thought has been given to business participation. The ability of different companies to participate and provide knowledge, resources, competences and ideas is critical to the success of co-creation.

METHODOLOGY

Our empirical study was conducted in 2019 in the major Finnish cities of Helsinki, Tampere, Oulu and Vantaa as part of the Co-Created Health and Wellbeing (CoHeWe) project, which started in August 2018 and runs until the end of 2020. The project started in August 2018 and runs until the end of 2020. The aim of the project is to promote public-sector-organised collaboration between businesses and cities and enable the development and piloting of new, customer-oriented wellbeing and health services. The project concentrates especially on developing services that enhance health and wellbeing and prevent illnesses. The purpose of the project is to create a coherent model that can be utilised in the innovation collaboration of cities and businesses. Moreover, the project is based on co-creation, the core of which is the goal-oriented and inter-

active collaboration of multiple actors. The various actors can, for example, include the cities and their development organisations, other public sector organisations, employees, the third sector, citizens and businesses.

The initial co-creation process model used in the project was formed in autumn 2018 and based on the practices and operational models of the cities as well as on research. The co-creation process model has been continuously evaluated and developed throughout the project with qualitative methods. The qualitative research method was chosen because it enables an explorative perspective and an in-depth understanding of a research field. Feedback on the initial co-creation process model and its phases was collected during the project from various actors: cities, specialists and professionals, businesses and citizens who have participated in the co-creation process in the four participating cities. Feedback was collected through, interviews, surveys and focus groups. In addition, we have examined the documentation of 18 market mapping processes initiated in 2019 in the CoHeWe project. In 2019, feedback was gathered, especially on the phases of collection of needs and forming of the development challenges, as well as on market analysis and selection of the company.

INITIAL CO-CREATION PROCESS MODEL

This chapter first introduces the initial co-creation process model used in the CoHeWe project (Figure 1) and then focuses on empirical knowledge of how businesses have been involved in the 'partner selection' phase of the co-creation process.



Figure 1. *The initial co-creation process model created in the CoHeWe project.*

Previous experiences of multi-stakeholder innovation, varied practices and different models utilised by the participant cities are integrated into the CoHeWe co-creation process model. The co-creation process starts with building understanding of end-users. The objective is to define development challenges based on bottom-up needs that surface in the service ecosystem and among customers. In the second phase, the orchestrating organisation maps the market related to the chosen challenge to earn a better understanding of what it has to offer and how it functions. Integral companies, public sector professionals, end-users and other stakeholders are invited to take part in the co-creation process. Finally, the company's product or service concept is refined and tested in an authentic environment with end-users. As the prototype is evaluated and analysed, it offers beneficial data to support future wide-scale product or service pilots and potential procurement.

Next, we focus on the second phase of the co-creation process. The businesses are invited to collaborate in the 'partner selection' phase of the process by conducting market mapping. Market mapping (Figure 2) in the CoHeWe co-creation model results in finding a suitable partner or partners from the private sector to engage in co-creation. To evaluate potential partners, the cities utilised shared evaluation criteria that include factors such as novelty, scaling, information security and accessibility, as well as impact on expenses, health and wellbeing, users (and their families) and the organisation. In addition, possible adverse effects and ethical factors are evaluated. Consideration of market mapping is not explicitly defined in the Act on Public Procurement and Concession Contracts in Finland; various methods can be utilised (the Public Procurement Advisory Unit, 2016). In the CoHeWe project, these have most commonly been 1) requests for information (RFI) and 2) market dialogue.

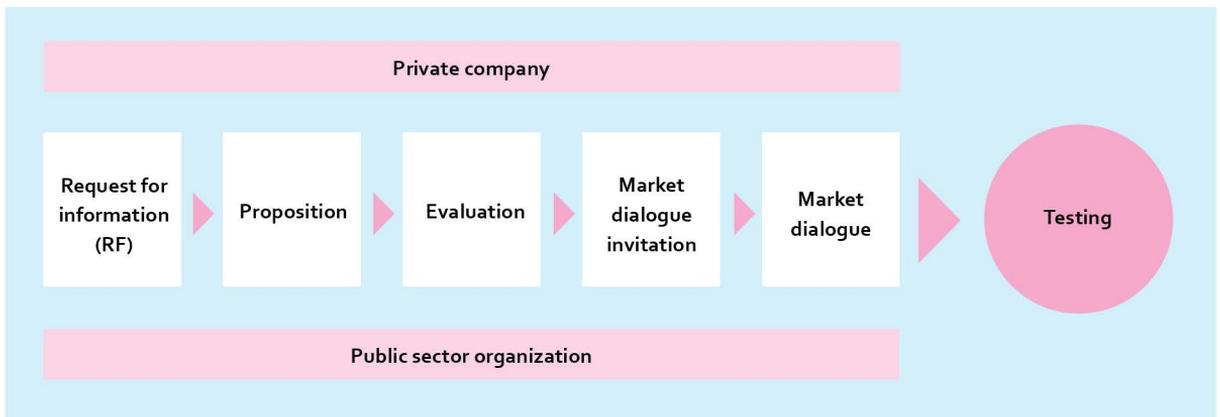


Figure 2. *The market mapping process used in the CoHeWe project.*

1. Request for information. During the project, the participant cities have published their need-based challenges as RFIs using Finland's public procurement platform, HILMA. RFI is an informal briefing request used in the public procurement process for gathering information on procurement possibilities and companies that offer potential solutions. Contrary to tender, which is legally binding, RFI and the act of responding to it obligates neither party (Kuuttiniemi & Lehtomäki, 2017). Based on the market mapping processes examined in the CoHeWe project, RFIs were coherent in format, entailing a description of the case, the recognised needs behind it and end-users, along with information about the market mapping process. The businesses were requested to depict their solutions and to include evaluative information on the solutions' applicability to the case. The latter was based on the evaluative criteria used by the cities. Most commonly used were novelty value, impact on expenses, scaling, information security and accessibility. In addition, information about the maturity of the proposed product and usability was requested. The RFIs have generated 6 propositions on average, the range being considerably wide: from 0 to 18. In the propositions, the product itself was depicted in detail, but in many cases, the evaluative questions were covered with less precision. 'Novelty value', 'accessibility' and 'effects on expenses' were more often described vaguely or disregarded completely. Moreover, the data hints that in some cases, the terms 'accessibility' and 'scaling' are unfamiliar or unclear to businesses.

2. Market dialogue. In the CoHeWe project, market dialogue events have been adopted to complement the RFIs and reinforce dialogue in the process. In most cases, businesses are selected for market dialogue events based on pre-evaluation to demonstrate and further discuss their proposition. Market dialogue is defined to be a procurement-process-related encounter between private and public organisations, as well as end-users helping to achieve a result that serves all participants' needs (Häkämies, 2017). In the CoHeWe project, variation has been seen in the interactive methods used in market dialogue events. A modified Learning Café, where public sector professionals visited the stands of each business, was especially successful. Also, an observation tour of the real user environment, organised in connection with an event, was perceived as useful by participating businesses. It seems that the focus of the market dialogue event can, depending on the orchestrator and the case in question, fluctuate. In some cases, the evaluation of the propositions was made directly after, giving more emphasis on the encounters during the events. In other cases, the events function more as probing platforms for conversation and learning followed by new, more detailed propositions from interested businesses.

Based on the empirical knowledge gathered, we have recognised two main challenges in market mapping. First, in some cases, the cities have expressed a struggle with getting proposals to their RFIs. Our initial data analysis implies that directly contacting businesses, as well as utilising several publishing channels, reaches more likely relevant businesses than publishing RFIs solely on public procurement websites. Thus, the process depends on the extent of the networks of people involved in the project. Additionally, the wording in RFIs may affect the results. More open depictions leave room for different solutions but can be obscure, failing to attract attention. More detailed requests, whilst offering a clear framework, can limit the number of applicable companies; they can also result in a more homogeneous pool of propositions and reduced elements of innovation. Second, propositions produced by businesses often vary in descriptive accuracy and quality, making their comparative evaluation unreliable. In successful market mapping processes – through, for example, interactive events such as market dialogue – the cities have succeeded in creating a better understanding of the available solutions and the necessary features of potential solutions. Companies, on the other hand, have received new information on current ways of working through case examples as well as through conversations with public sector professionals and end-users. Furthermore, companies receive immediate feedback, observations, and information on customer needs.

CONCLUSION

This article presented an initial co-creation process created in the Finnish CoHeWe project (CoHeWe). It focused particularly on the reciprocal process between public and private sectors in the early stages of co-creation leading up to prototype testing. Our empirical study suggests that market mapping contributes to recognising compatibility between the private sector's offerings and the mapped customer needs. In the article, we have depicted two complementary methods to conduct the mapping: a request for information and market dialogue. Through RFIs, the public and private sector organisations can find one another, and through interaction in market dialogue events, gain a deeper understanding of shared objectives. In addition, the market dialogue is a valuable opportunity to include multi-professional points of view, as well as end-users, in the co-creation process before the testing phase. However, some challenges can be detected as well. Without sufficient networks, RFIs might fail to reach all the relevant businesses, and evaluation of the propositions can be difficult, even when using predetermined evaluation criteria.

The results reported herein should be considered in light of some limitations. The results are initial, as the CoHeWe project is ongoing until the end of 2020. Only the processes initiated in 2019 have been examined, making the sample pool relatively small; thus, the results should not be generalised. The objective of this article was to depict partner selection in the co-creation process model and recognise possible best practices, as well as challenges based on the qualitative data gathered.

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11. Co-creation of knowledge for innovation in multi-stakeholder projects

Harri Ruoslahti

INTRODUCTION

The European Union (EU) promotes innovation by involving diverse groups of actors (academia, public sector, business), from its Member States to share in knowledge creation. EU funding schemes such as Horizon 2020 call for innovation to support collaborative knowledge development as an opportunity for innovation (Commission of the European Union, 2014). However, various stakeholders may mean conflicting interests, as development processes aim to include the goals, actions and problems of several actors whose preferences most likely differ (Saarinen, 2012).

This paper presents the main findings of the doctoral dissertation study by Ruoslahti (2019) at the University of Jyväskylä. It seeks to gain an understanding of the process of knowledge co-creation for innovation in funded projects from the viewpoint of multi-stakeholder communication, with a particular focus on the participation of end-users and communication with them.

The European Commission emphasises the active involvement of end-user organisations (Commission of the European Union, 2016). Mapping end-user processes and practices helps create innovation value (Payne, Storbacka & Frow, 2008). Yet, there is scarce research to provide strategies to enhance co-creation involving multiple stakeholders (Frow et al., 2015) or that focuses on knowledge co-creation in research and innovation projects. The dissertation also draws from literature that targets communication between organisations.

Knowledge co-creation, innovation and creativity are sources of competitive advantage (Bagayogo et al. 2014). "Multi-stakeholder networks are an organisational structure that allows collective action beyond national boundaries, since the participation is voluntary, and objectives and actions are negotiated among participants" (Roloff 2008, p. 237). Service systems co-create value because they depend on others' resources to survive (Vargo, Maglio and Akaka, 2008) yet, the interests of actors that have a stake in the innovation project affect the issues raised for discussion (Luoma-aho & Vos 2010). It is interesting and useful for scientific theory and future projects to gain more understanding of the mechanisms of collaboration and communi-

cation in these inter-organisational projects. Research and development projects funded by the EU funding programs “represent a unique form of a knowledge community” (Norvanto 2017, p. 78).

LITERATURE

This dissertation study (Ruoslahti 2019) draws from existing literature on four theoretical perspectives: co-creation of knowledge, innovation networks, knowledge development processes and resilience of complex social networks. “Co-creation of knowledge” relates to the collaboration of multiple actors. This becomes relevant as projects funded by the EU require large and diverse project consortia. “Innovation networks” refers to the networks involved (project participants and other actors) being interconnected. The process approach of knowledge development examines developments over time (e.g., the project duration). The resilience of complex social networks recognises disturbances that can affect the continuity of network collaboration, which is a key in innovation networks of funded projects.

Co-creation of knowledge

Knowledge development is approached from the current perspective of co-creation. Collaboration requires communication among the multiple actors involved (Bhalla 2014, Galvagno & Dalli 2014, Pirinen 2015), and co-creation involves communication and interaction (Gustafsson, Kristensson & Witell 2012). Knowledge can be seen as a form of value: “knowledge itself is an increasingly important source to competitive advantage” (Pirinen 2015, p. 315).

Bhalla (2014) sees co-creation as occurring in spaces that are physical, digital or both, and Vos, Schoemaker and Luoma-aho (2014) see communication taking place in issue arenas, where actors discuss issues relevant to them by either meeting in physical places or joining in digital settings. Interactions among multiple actors with diverse interests and focusing on issue-related aspects are dynamic, and, according to Luoma-aho and Vos (2010), both the participants and the issues they have a stake in may change over time as the debate evolves: “The concept of the issue arena has been suggested to lead to a more dynamic stakeholder model” (Vos 2017 p. 17).

Innovative ideas form through interactions between multiple stakeholders, who create cumulative knowledge (Frow et al. 2015), which becomes accomplished by central persons, called innovators (Tautila et al., 2006). Mapping end-user processes can support communication with end-users and strengthen value co-creation (Payne, Storbacka & Frow 2008), while the actors may be deeply engaged in all stages of the innovation process (DeFillippi & Roser 2014). Weick (2002) argues that it is worth paying attention to stories and examples that convey forgotten and avoided facts, though Vos (2018) notes this a particular challenge because of the competitiveness of issue arenas. According to Engeström (2004), learning involves “major transformations, upheavals, innovations, implementations and movements” (p. 16). Cooperation should be based on trust and common objectives that emphasise the benefits of cooperation (Tikanmäki & Ruoslahti 2017).

Innovation networks

Rowley (1997) conceptualises an organisational environment as being a set of social actors with complex interrelationships, and network theory seeks to explain the roles and power relationships that occur in networks, which Castells (2000) describes as a set of interconnected nodes. Vos et al. (2014) writes that

networks strive to maintain relative stability, yet Vos (2017) notes that the actions of actors and changes to external circumstances can cause imbalances. The inter-connectivity of system elements leads to complex actions that affect the individuals and organisations involved, who then also affect other related individuals and organisations (Mitleton-Kelly 2003).

Bhalla (2014) notes that leading organisations harness the creativity and energy of their stakeholders by developing processes that enhance value co-creation, which according to Pinho et al. (2014) results from resource integration through complex interactions among the actors of a value network. Amir and Kant (2018) urge the consideration of sociotechnical interactions (complex interactions between people, organisations, institutions and technologies) when investigating interactions in social networks, while Mitleton-Kelly (2003) stresses that sociotechnical systems are networked and interdependent.

Dealings within a multi-stakeholder network to solve a common problem urges its actors to undertake non-hierarchical interactions (Roloff 2008). Taatila et al. (2006) raise the importance of verification in social networks, where ideas receive feedback and become further developed. Innovation networks promote organisational learning (Kallio & Lappalainen 2015), and open, honest communication between participants develops trust, (Roloff 2008) which is needed in project consortia interaction to build strong connections that enable sharing experiences and collective learning among the actors of the network.

Knowledge development processes

“Co-creation has to be organised, managed and facilitated,” writes Bhalla (2014, p. 22). Pichyangkul, Nuttavuthisit and Israsena (2012) call for rigorous processes to deliver radical innovations: “investment in project management, processes, and people” (p. 158). Roloff (2008) finds that multi-stakeholder networks go through a life cycle of: initiation, acquaintance, first agreement, second agreement, implementation, consolidation and either institutionalisation or extinction. During these process phases, creative problem-solving requires management (Buijs, Smulders & Van der Meer 2009) and time for relationships to develop (Schertzer, Schertzer & Dwyer 2013).

The process model by Vos and Schoemaker (2004) identifies three phases of organisational communication: input, throughput and output. When applied to the context of innovation projects, input communication can be seen to relate to the setting of requirements (by, e.g., involving end-users) and common ways of working. Throughput communication in innovation projects can be defined as the processes of working together, co-creating knowledge for innovation and facilitating intensive collaboration. The external communication and dissemination activities (e.g., creating user communities) by an innovation project consortium can be seen as output communication.

A systems approach conceptualises organisations (in this case, projects) as systems, with interrelated parts open to influences from outside the system (Grunig, Grunig & Ehling 1992) and which interact with each other and their environment. Communication is an interface function that spans the boundaries between system parts, sub-systems and environments (Vos 2017). Senge et al. (2008) see organisational learning as involving the recognition that the organisation is a part of larger systems and the importance of building trusting relationships to create commitment among stakeholders. Katz & Kahn (1978) see the knowledge-creation process simply as turning inputs through transformation into outputs, where inputs can be seen as being resources and outputs can be ideas for products (Mitchell & Boyle 2010); Canonico et al. (2013) demonstrate the need to actively manage communication during the different phases of knowledge development.

Resilience of complex social networks

Organisational environments are changing: they have become complex and filled with interrelated risks (Linkov et al., 2013, Mitleton-Kelly 2003, Vos 2017). Organisations (e.g., innovation projects) can be understood as complex social systems (Mitleton-Kelly 2003). “Nowadays, there is a tight coupling of systems and processes, and there are many interdependencies between these systems and processes” (Vos 2017, p. 23). With increasingly complex interactions between people, technologies and processes, modern systems can increasingly be considered cyber-physical (Linkov et al. 2013, Rajamäki & Ruoslahti 2018) or socio-technical (Amir & Kant 2018). Interdependencies come with vulnerabilities, and many organisations aim to increase their resilience; as Vos (2017) states, the concept of resilience is about “coping with change and managing the unexpected” (p. 23) in turbulent environments. Organisational resilience creates tools and conditions that help reduce risks, understand issues and mitigate crises, and “resilience requires cooperation and adaptive capacities” (Vos 2017, p. 20). This can be used to create tools and conditions to help organisations co-evolve within their constantly changing environments (Mitleton-Kelly 2003).

Stanciugelu et al. (2013) emphasise the sharing of information on possible threats and vulnerabilities to “determine what preventive measures should be implemented” (p. 194). Innovation, in organisational environments, may be required to deal with unforeseen disruptive changes, though innovation is considered to be a solution to enhance organisational resilience (Pichyangkul et al. 2012), but this collaboration itself should function resiliently. Agility is needed to develop the knowledge required to flexibly adapt to changing contexts; this new knowledge can be created based on existing knowledge, and active exchange of knowledge among network actors can reduce gaps and complexity in communicating existing knowledge (do Nascimento Souto 2013). This process of knowledge creation needs to consider building flexibility and resilience into its network and guiding its multiple actors to do the same individually.

METHOD

Laurea University of Applied Sciences has been an active partner in the eight EU-funded innovation projects that are the context of this dissertation study (Ruoslahti 2019). These projects have developed security-related knowledge and concepts such as information acquisition for crisis recovery, increased flexibility of passenger movement and information sharing between European maritime authorities.

According to Myers (2008), it may be difficult for a qualitative researcher to write one’s results all in one paper. One solution is that qualitative researchers write various papers and treat each one as part of the whole story, thus clarifying a topic. This research comprises six sub-studies, and the accumulated knowledge are presented as seven published papers. The research process was iterative, each phase influencing the next and the work being elaborated from phase to phase. The data were collected in ways that relate to the chosen strategies of inquiry and analysed based on interpretive reading of the subject matter at hand (Denzin & Lincoln 1994).

RESULTS

The results of the individual studies are presented in this section. Ruoslahti (2018), a structured review on the academic literature on co-creation of knowledge for innovation, shows that co-creation of knowledge for innovation and active multi-stakeholder participation of end-users calls for collaboration and a common

problem, and that the main challenges to manage are that stakeholders need to be actively engaged throughout the project, which takes time and effort. Ruoslahti & Hyttinen (2017) show that creating a co-creation network for knowledge and information sharing can effect change by engaging end-users, building alignment and identifying best practices. Ruoslahti & Tikanmäki (2017) find that information systems benefit from tools and processes that promote continuous re-evaluation of the information (in their case, objects and phenomena) provided to its users. The results of Ruoslahti, Rajamäki & Koski (2018) show elements that promote resilience in project collaboration networks: having a clear purpose, roles and common ways of working, leadership, facilitation and a back-up system for representatives, with an open flow of communication and trust-building. Ruoslahti (2020) finds that adding and managing elements of complexity can shorten the time needed to reach innovation (time-to-innovation), and the results of Ruoslahti & Tikanmäki (2019) motivate the use of use-case narratives and scenarios as a practical way to engage end-users in co-creative (authority) interactions to gain and share information on situations, circumstances and efforts, which end-users encounter and perform in fulfilling their tasks. Henriksson, Ruoslahti & Hyttinen (2018) conclude that efficient communication and dissemination of research results of funded projects can benefit the project and efficiently address the requirements of the funding instrument.

The findings of these six studies are further discussed in the shell of the dissertation from the perspective of the four theoretical approaches, presented in section 2, (Figure 1).

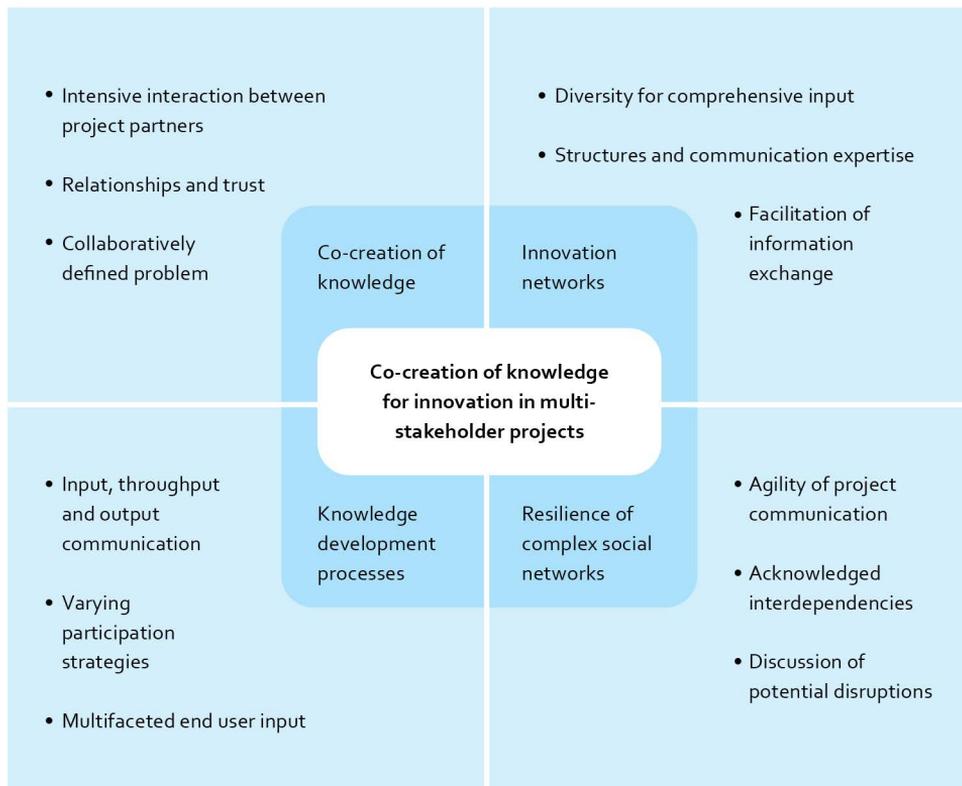


Figure 1. Insights gained on co-creation of knowledge for innovation in multi-stakeholder projects. (Figure: Ruoslahti)

As seen in Figure 1, from the perspective of co-creation of knowledge, the results show intensive interaction among the many diverse actors, enhancing relationships and trust to collaboratively define common problems that in turn motivate project partners to co-creatively work to solve them. From the perspective of innovation networks, results show the diversity needed to come to comprehensive solutions, structures and expertise for communication, and the robust facilitation of information exchange. From the perspective of knowledge development processes, the results point to the importance of input, throughput and output communication, supporting end-user input with evolving objectives and changing participation strategies. The results from the perspective of the resilience of complex social networks acknowledge the need for agile project communication, taking into account vulnerabilities through interdependencies and addressing potential disruptions.

These studies demonstrate that innovation and collaboration tools for project communication, stakeholder motivation and active process facilitation help achieve common goals faster. This can, however, be challenging because of conflicting stakeholder interests; thus, it becomes key to actively engage stakeholders to achieve user-driven innovation. The results also indicate that adding elements of complexity to processes of co-creation of knowledge for innovation seems to shorten time-to-innovation.

DISCUSSION AND CONCLUSIONS

Innovation projects are seen as structures of collaboration, where multiple viewpoints provide new thinking through disparate stakeholder roles, and are geared toward collaboratively defined common problems. This is a complex process that identifies opportunities during the different phases and end-user requirements through end-user participation. This requires strategy, structure and facilitation to promote open information sharing. Resilience thinking promotes agility and clear purpose, with preparation to absorb and recover from possible disruptions. These call for a clear situational picture on which to base decision-making and future orientation. Figure 1 can serve as one model to understand and control the many elements of co-creation in an innovation project.

As multiple actors join in an innovation project, they together form a network that creates new knowledge through an evolving process while noting changing circumstances. By enhancing the understanding of the complexities that funded innovation projects face, this research contributes by indicating areas with potential problems as well as opportunities to strengthen collaboration through communication. Resilience of complex social networks, for example, deserves more attention, as this topic is seemingly underrepresented in scholarly literature.

End-user roles change over time, which should be noted throughout the duration of the innovation project. By understanding the intensity of collaboration that is needed between multiple actors (and networks of actors), providing various kinds of input, it becomes apparent that attention must be paid to potential conflicts and opportunities. Strong facilitation of sharing of insights and experiences are needed to reach deep levels of co-creation, which can shorten the time-to-innovation. To gain impacts beyond the project participants, co-creative efforts should go beyond boundaries for the duration of the project. This research hopes to provide a better understanding of the challenges involved and their interrelatedness.

The combination of four approaches was chosen to better understand the complexities of projects aiming at creating knowledge for innovation. A systems perspective sees projects as a system consisting of several other systems linked to participant organisations within a changing social context. Investigating development processes over time shows that network partners have evolving roles and that they bring with them a variety

of input and a range of backgrounds and interests. Project dynamics and communication thus need attention, active relationship and trust building and sharing of insights and experiences to co-create knowledge for innovation.

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Keywords:

- Co-creation
 - Co-creation of knowledge
 - Innovation networks
 - Multi-stakeholder projects
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12. Collaboration and co-creation in an international multi-actor network

Virpi Kaartti

INTRODUCTION

The digital revolution is reshaping the healthcare industry, and digital and technological solutions are increasing in the market globally. Agile startups use new technology to create disruptive solutions, whereas established corporations' strength lies in improving existing business models that are in line with tight regulation mechanisms. (Herrmann et al., 2018.) In order to build their business internationally, startups need economical ways to identify needs and opportunities in the international markets, and test and iterate their solutions accordingly (Haho & Kaartti, 2018).

Furthermore, they need specialised abilities; preparedness; social networks and networking skills; the ability to learn; experience; and willingness to enter international markets (Coviello, 2015; Neubert, 2016, 2017; Neubert & Van Der Krogt, 2017). According to Ciravegna, Lopez and Kundu (2014), social networks also control the speed of internationalisation. The ability to network internationally enables entrepreneurs to create market opportunities and acquire new customers and partners from the target markets (Haho & Kaartti, 2018). Thus, early and fast internationalisation requires a lot from startups and entrepreneurs. (Neubert, 2016, 2017; Neubert & Van Der Krogt, 2017.)

The Lean Startup method (Blank, 2007, 2013; Ries, 2011; Maurya, 2012) can support startups in their internationalisation process to gain the business objectives they've set (Haho & Kaartti, 2018; Neubert, 2017). Furthermore, the Lean Global Startup concept is ideal for high-tech startups aiming to internationalise their business from the very beginning; thus, they are also called born-global firms (Haho & Kaartti, 2018; Neubert, 2017; Rasmussen & Tanev, 2015). It is also characteristic of the lean startup methodology to use incremental and iterative development cycles to create and test products in their target market for quick learning and iteration, which advances internationalisation in the initial phase (Blank, 2013; Coviello & Tanev, 2017; Haho & Kaartti, 2018; Johanson & Vahlne, 2009; Neubert, 2017; Tanev, 2017).

In addition to the lean startup methodology, actors such as the European network of living labs can foster international co-operation within multi-actor networks and facilitate SMEs in gaining access to international markets (Kaartti & Haho 2019). Living Labs in different markets collaborate with and consult each other and are thus able to provide services for testing, validating and developing services and business models (Living Lab Methodology Handbook, 2017). This can increase the speed of internationalisation by fostering SMEs to gain access to client networks and create new market opportunities (Neubert & Van Der Krogt, 2017).

This article describes collaboration and co-creation in an international multi-actor network in the context of the Spinning Pilots project. The aim of the project was to support the internationalisation of SMEs in the health and well-being sector of the Uusimaa region of Finland. The need arose from the region's strategic objective to strengthen its position as an innovative hub for enterprises and in particular to support high-growth, high-skilled entrepreneurship. Multi-actor co-creation was based on an open operating culture, competence sharing and the principles of open innovation.

The remainder of this article is organised as follows: First, it discusses the concept of co-creation; second, it presents a case of collaboration and co-creation in practice; finally, this article draws conclusions.

CO-CREATION IN MULTI-ACTOR NETWORKS

Puerari et al. (2018) identify five elements of co-creation: the purpose, formal and informal co-creation, the ownership of the process, the motivation and incentives, and the places/spaces in which co-creation takes place. There are two alternative purposes of co-creation: making together and learning together. In the former, people collaborate to achieve a concrete goal of a product, service, or process innovation. In the latter, people work together for knowledge creation, learning, and to build networks. (Puerari et al., 2018.)

Formal co-creation concerns the processes that the initiator has planned, including phases, schedule, attendants, and audience. Whereas informal co-creation concerns collaboration practices that originate from common goals or the obligation to co-create. Ownership of the co-creation process requires a set of skills to be able to give and share roles, to be actively involved in processes, and to facilitate the process with the suitable tools as needed. (Puerari et al., 2018.)

The motivation and incentives for co-creation affect people's engagement. Their motivation can be intrinsic or extrinsic, and they weigh the costs against the benefits. The initiator can use this information to select the right compensation to engage participants. Frow et al. (2015) mention several motives, such as access to resources, enhancement of customer experience, creation of customer commitment, enabling of self-service, creation of more competitive offerings, decrease in cost, faster time to market, emergent strategy, and growth of brand awareness. The spaces and places for co-creation are catalysts of mutual learning and innovation. Co-creation happens within socio-spatial contexts. The aforementioned elements are related, and they provide a framework to comprehend co-creation in practice. (Puerari et al., 2018.)

Hirvikoski et al. (2018) describe the operational model for co-creation. In their model, the emphasis is on innovation ecosystems, especially in the context of cities. There are six phases, consisting of 1. the starting point of co-creation, 2. gathering of the network actors, 3. planning of the implementation of co-creation, 4. implementation of co-creation, 5. utilisation and dissemination of the results, experiences and learnings and creative deployment of the innovation, and 6. following up on the impacts of the deployment of innovation. A co-creation process rarely happens in a linear fashion; the process may be terminated at any point and iteration is typical. (Hirvikoski et al. 2018.)

According to Hirvikoski et al. (2018), a prerequisite for co-creation is a mediator who enables multi-actor collaboration to develop. Furthermore, there is a need for several other actors. Nyström et al. (2014) have identified 17 roles, whereas Hirvikoski et al. (2018) present 10 roles that play an especially significant part in projects in which the city itself is one of the actors (see Table 1).

Table 1. *Different roles in co-creation processes (Table: Hirvikoski et al. 2018; Nyström et al. 2014)*

PREVIOUSLY FOUND ROLES (NYSTRÖM ET AL., 2014)	NEWLY IDENTIFIED ROLES (NYSTRÖM ET AL., 2014)	(HIRVIKOSKI ET AL., 2018)
Webber (similar to relationship promoter)	Coordinator	Promoter
Instigator	Builder	Advocate
Gatekeeper (similar to power promoter)	Messenger	Orchestrator
Advocate	Facilitator	Webber
Producer	Orchestrator	Coordinator
Planner	Integrator	Builder of co-operative relationships
Accessory provider	Informant	Integrator
	Tester	Facilitator
	Contributor	Messenger
	Co-creator	Evaluator

The identified roles partly overlap and, depending on the co-creation project and the context, the need for actors in different roles varies. Nyström et al. (2014) state that roles should be negotiable when concerning open innovation networks.

CASE: SPINNING PILOTS PROJECT: COLLABORATION AND CO-CREATION IN PRACTICE

The Spinning Pilots project aimed at supporting the internationalisation of SMEs in the health and well-being sector in Finland’s Uusimaa region. The concrete goal was to develop and pilot a transnational operating model for living labs: on the one hand, to build an agile avenue for SMEs to test their products or services internationally, and on the other hand, further develop existing living lab services. The resulting operating model builds on multi-actor networks and co-creation.

In the beginning of the project, the network was comprised of members of the project consortium (see Figure 1). Laurea University of Applied Sciences (UAS) was in charge of network co-operation and, together with Metropolia UAS, it contributed substance competence to the project. Upgraded, an organisation for high-growth companies in the health and well-being sector, and Helsinki Think Company, the entrepreneurship society of the University of Helsinki, also contributed their networks and platform for regional development. Living labs within the target markets were reached through the European Network of Living Labs. Development work was supported by Forum Virium Helsinki, representing urban development, and

by the Helsinki-Uusimaa Regional Council, the project funder, which offered the perspective of regional development. Later, the network grew with two SMEs in Finland, as well as two living labs operating in their target markets. Further, service users and potential customers of the pilot companies in Germany, Spain and Southern France joined the network.

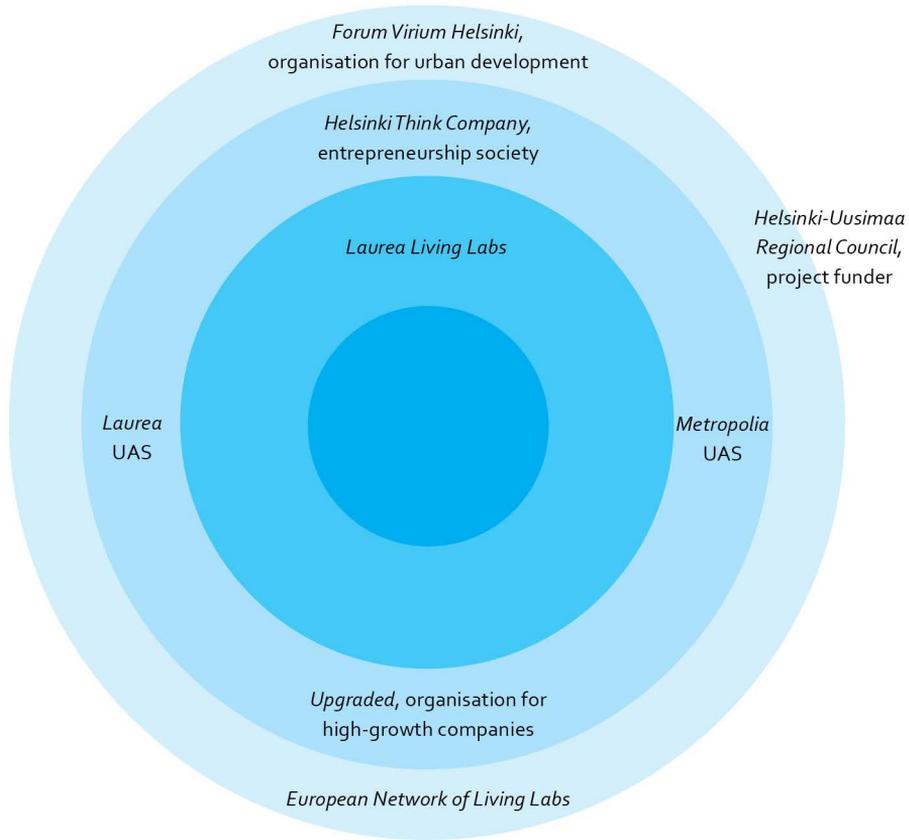


Figure 1. *The members of the project consortium (Figure: Virpi Kaartti)*

The case description focuses on the development of co-creation in a situation in which the structures and operating models of the network created during the project had not yet been established but were instead being set up and developed. Next, the elements and operational model of co-creation are described in the context of Spinning Pilots.

THE ELEMENTS OF CO-CREATION

The first element of co-creation is the purpose. In this case, the purpose of co-creation was to achieve a concrete goal: test or validate the product/service in the target market. Furthermore, the pilot companies wanted to learn about the market and build networks.

The second element concerns formal and informal co-creation. The preliminary planning for the formal co-creation was done by Laurea Living Labs (the living lab in the pilot companies’ home country). The planning

was finalised in collaboration with the living lab in the target market and with the pilot company in question. At this point, issues such as the phases of the project, timetables, target groups and outcomes were agreed on. The informal co-creation was based on common goals and the need to co-create. This happened mostly between the living labs abroad and their stakeholders and end-users. In some testing settings, participants were chosen based on who showed up in the given time frame and volunteered. Thus, planning was done to a certain extent, but there was a degree of informality.

Thirdly, ownership of the co-creation project was divided amongst the living labs. Laurea Living Labs was responsible for the whole project, but the living lab in the target market was responsible for activities in the target market within the agreed framework.

Concerning the fourth element, motivation and incentives, the pilot companies had a clear motive to gain free access to resources (living lab services abroad) and earn faster time to market. Laurea Living Labs's motivation was to implement the project and secure the funding for it, and learn for future operations. The living lab in the target market had the incentive to be paid. Other stakeholders and end-users in the target market were engaged by the local living lab, and their motivations varied and their incentives were not necessarily only to focus on this project, as they might have had a more permanent role in the local or regional network.

Lastly, the spaces and places for co-creation were the spaces of the living labs, facilities of the clients/end-users or public spaces. The aforementioned elements provided the framework for co-creation in practice.

PHASES FOR BUILDING THE OPERATIONAL MODEL FOR CO-CREATION

According to Hirvikoski et al. (2018), the operational model for co-creation consists of six phases. In the Spinning Pilots project, the first five ones were addressed during the project timeline.

The starting point of co-creation

The foundation for co-creation in a multi-actor network was created in the project-planning phase, when the aim of the project was defined and the consortium was established. However, those who planned the project proposal were mostly different people who implemented it; thus, the final members of the consortium were defined in the implementation phase of the project, even if the actors (organisations) had already been decided on. This led to a situation in which collaboration started with members getting familiar with each other and building trust. Furthermore, there was a need to discuss the project plan and interpret its content together to create common understanding: context of the development and aim of the project, how it could be achieved and in which timeframe.

Gathering the network actors

In Spinning Pilots, the actors who made up the network were the members of the project consortium; later on two pilot companies (SMEs) were recruited, as were two living labs from the target markets of the pilot companies. Moreover, the end-users and potential clients were involved (see Figure 2).

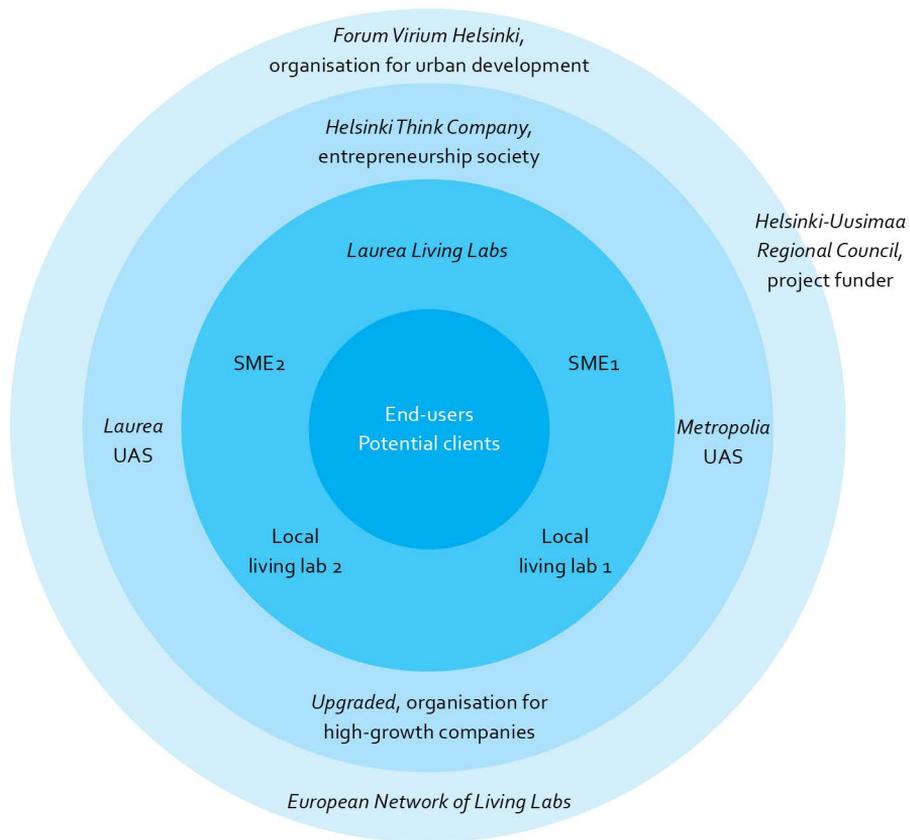


Figure 2. *The multi-actor network of the project. (Figure: Virpi Kaartti)*

The members of each organisation were mainly the same during the project, but in one organisation the contact person changed three times and in another one once. The changes had a minor effect on the progress of the project, but it concretised the significance of a few key persons who from the beginning had common understanding and goals. They were able to ensure that the work continued uninterrupted.

From planning to the implementation of co-creation

After the network actors were gathered together and the actual members of the project were named, it was time to agree on the roles more specifically (Table 1). The basis for the organisation and roles had been set in the project proposal: one of the universities coordinated the project and the activities of the network. The project coordinator was in direct contact with all members of the consortium, the funding organisation, pilot companies, local living labs abroad and the associate members of the project consortium. The role of the universities was to bring to the table their extensive offerings and both substance competence and experience in corporate partnerships. Furthermore, one of the universities (the coordinator) served as a living lab, responsible for organising the piloting activities abroad. The process involved the following steps: a call for ideas, selection of pilot companies, a call for tenders, selection of living labs to do the piloting abroad, signing of agreements with the pilot companies and living labs, planning the testing activities together with

the pilot companies and the living labs abroad, supervising of testing, assessing, and sharing the results and work and planning the next steps (Haho & Kaartti, 2018).

The organisation for high-growth companies served as a liaison with the startups (Rimpelä & Härmälä 2019), whereas the entrepreneurship society was both a hub for and bridge to its community (Kulmala, Haho & Soini, 2019). Both shared their sector specific knowledge for use in the project.

Living labs provided pilot companies with support in their innovation activities. Laurea Living Labs helped pilot companies find a living lab in charge of testing in the target market, handled the negotiations, provided the briefing and further instructions for the living labs abroad, and ensured that everything was implemented as agreed. The living labs abroad were responsible for testing activities and co-creation in an authentic operating environment. (Kaartti & Haho, 2018; Kaartti & Haapaniemi, 2018.) In the implementation phase, the active interaction between actors was essential to ensure a fluid progress.

Pilot companies needed to test their services/products in their target markets. First, in the call for ideas, they had to define their needs and produce a preliminary plan for testing. Thereafter, the plan was evaluated and possible changes were discussed and agreed on with Laurea Living Labs. Even if the project funding was used to cover the costs of testing and thus the project coordinator negotiated the agreement with the local living lab, the pilot companies were able to offer their view of the potential service providers (living labs). After the local living lab was selected, they provided orientation to the functionalities related to the product or service to the living lab. (Kaartti & Haapaniemi 2018.) Their time and effort were also needed during co-creation to acquire further information and to support decision-making regarding the next steps.

End-users (individuals) and potential clients (companies) of a product/service had an important role: testing the product or service in question and sharing their experiences and feedback. Depending on the testing requirements, their role, activities and commitment might have differed.

The organisation that funded the testing followed the project to ensure guidelines were acted upon and goals were met (Kaartti & Haho, 2018).

Associate partners, organisation for urban development and the global living lab network provided valuable support by sharing their knowledge and networks with the project coordinator.

The roles can be compared to those identified in the living lab networks and in co-creation (see Table 2). The roles may deviate from their original definitions as they have applied to the context of Spinning Pilots.

Table 2. *The participants in the multi-actor network and their roles in the project.*

ACTOR	ROLE
Laurea University of Applied Sciences	Coordinator, contributor
Metropolia University of Applied Sciences	Contributor
Upgraded organisation for high-growth companies	Messenger
Helsinki Think Company entrepreneurship society	Messenger
Laurea Living Labs	Orchestrator, facilitator, evaluator
Forum Virium Helsinki, urban development organisation	Contributor, messenger
European Network of Living Labs	Webber, messenger
Helsinki-Uusimaa Regional Council	Sponsor, promoter, evaluator
SMEs	Contributor, co-creator
Local living labs	Orchestrator, facilitator
End-users and potential clients	Co-creator, informant, tester

As stated by Nyström et al. (2014), the actors can have several roles, depending on the needs derived from the project goals and the situation.

Utilising and disseminating the results, experiences and learnings and creative deployment of innovation

The results of the projects were first shared and discussed within the project consortium. Thereafter, the results and reflections were presented in the international living lab conference and its proceedings. Lastly, a publication was made for the bigger audience. Once the pilot phase was complete, startups now had established connections with the target markets and were able to advance their business plans. Moreover, they had acquired novel ideas with which to develop their products or services further.

DISCUSSION AND CONCLUSIONS

Startups' ability to internationalise their businesses in the early phases is a challenging task (Neubert, 2016, 2017; Neubert & Van Der Krogt, 2017). They need economical ways to identify needs and opportunities, and test and iterate their solutions within their target markets (Haho & Kaartti, 2018). Furthermore, they need specialised abilities; preparedness; social networks and networking skills; ability to learn; experience; and willingness to enter international markets (Coviello, 2015; Neubert, 2016, 2017; Neubert & Van Der Krogt, 2017). International networks enable entrepreneurs to create market opportunities and acquire novel customers and partners from target markets (Haho & Kaartti, 2018).

Local living labs, with their agile approach and well-established contacts in the target market, can support startups in the internationalisation process. Lab services may include business model validation, and they

enable learning from customers' experiences, comprehending cultural aspects and recognising suitable partners and channels in local markets. (Haho & Kaartti, 2018.) The operational model of living labs is based on collaboration and co-creation in a multi-actor network.

Puerari et al. (2018) identify five elements of co-creation. They are the purpose of co-creation, formal and informal co-creation, the ownership of the co-creation process, the motivation and incentives for co-creation, and the places/spaces of co-creation. There are two alternative purposes of the co-creation, and both of them were in focus in the case project: making together and learning together. Thus, the aim of the joint project was clear, but at first there was a lot of discussion about the roles, responsibilities and activities of the actors involved. The roles and responsibilities of the two living labs had to be clarified; they had an official client and service provider relationship, which included monetary compensation to the service provider. Pilot companies had a role as a client to some extent, but the framework for collaboration had already been set in the project proposal before they were recruited to participate. Thus, their focus was on actual operations done in the target market.

The operational model for co-creation consists of six phases, five of which were addressed during the project timeline. In the starting point of co-creation, the most important issue was to create a trustworthy environment for collaboration and ensure a common understanding of the existing project proposal. In the second phase, gathering the network actors, the critical points were the changes in staff concerning two organisations involved and to ensure continuous work, despite the changes.

In the phase of planning and implementation of co-creation, the clarity of the roles and responsibilities of several actors was a key issue to solve and keep in mind. Active communication between actors was important. A key advantage of this project was that the consortium and the people involved were not so many, so if any surprises or confusion emerged during the implementation, it was fairly easy to solve.

In the fifth phase, utilising and disseminating of results, experiences and learnings and creative deployment of innovation, the collaboration was quite straightforward: everyone was willing to share. The guidelines for open sharing were already set and agreed at the beginning of the project. The most challenging task fell to the entrepreneurs: deployment of innovation. However, they were positive about the experience, learnings, and knowledge they had acquired, and they feel they have an opportunity to solve some identified challenges even before entering the market (Kaartti & Haapaniemi, 2018).

Collaboration and co-creation in an international, multi-actor network is challenging when starting with actors who do not know each other and who first need to create a common understanding of the project and its context. It takes time to get to know the partners and to build a trustworthy environment for collaboration. Moreover, the distance (both geographical and cultural) and prior knowledge and experience affect the level of collaboration and co-creation. Partly, the actors of the network had complementing roles and interests, but there was also some overlap. Companies' interest lay in testing and developing their products and services, while the role of the public sector was to provide resources and support for the development and at the same time pursue their goals and political objectives. The role of the coordinator or orchestrator of the project was to unite all actors for co-creation, thus enabling collaboration across organisational and national boundaries (comp. Björklund et al. 2019).

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Keywords:

- Co-creation
- Living lab
- Regional development

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13. “The more you are willing to give, the more you also get” - How multifaceted, multi-stakeholder innovation ecosystems are governed and orchestrated, and how to research them?

Tuija Hirvikoski* & Kaisla Saastamoinen

INTRODUCTION

In order to govern global complex issues, i.e. innovating around the wicked problems (Rittel & Webber, 1973) requires a combination of diverse commercial and social innovation (Russo & Hughes, 2000). As no actor has all the necessary tangible and intangible resources to operate successfully in isolation, innovation calls for cross-disciplinary, cross-border, cross-sectoral collaboration (Mazzucato, 2018; Pera, Occhiocupo, & Clarke, 2016), which in this article is called *participatory multi-stakeholder innovation*. Both practice and theory (Edwards-Schachter, 2016; Hirvikoski, 2018) indicate that the innovation co-creation among multiple actors does not happen without support. We call this support *orchestration*.

The concepts of innovation and innovation ecosystem have changed and become more multifaceted since OECD recognised the need of innovation policies and such concepts as regional and national innovation systems (Lundvall, 2007) in the 1970s. Chesborough (2003) emphasized the difference between closed in-house and open innovation. Democratization of innovation and user innovation were discovered by Eric von Hippel (2005), whereas Melkas and Harmaakorpi (2012) launched the notion of practise-based innovation, all relevant concepts for multi-stakeholder innovation. The space or place in which innovation evolves is metaphorically called ecosystem. ENoLL refers to Living Labs as open innovation ecosystems (European Network of Living Labs (ENoLL), n.d.).

In order to scale up, technological and commercial innovations need the support of e.g. social, user and service innovations (Lusch & Nambisan, 2015) - and vice versa. Quadruple or Penta/Quintuple Helix (Etzkowitz, 2003; Franc & Karadžija, 2019) and Open Innovation 2.0 (Curley & Salmelin, 2018) are central concepts in innovation and market co-creation and dissemination for both social and commercial innovations within

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multi-actor ecosystems. They emphasize the synergy among all actors and actions as well as the enriching effect of nature and the possibility of serendipity.

Co-creation is a central concept in multi-stakeholder innovation. Prahalad and Ramaswamy (2004) defined co-creation as an established way to create value in cooperation between customers and companies. Pera et al. (2016), based on previous research, discovered “how value is co-created by the interaction of a multiplicity of stakeholders, rather than in a dyadic interaction process between two entities”. They emphasise the shift to stakeholder ecosystem co-creation i.e. “the interaction between stakeholders with different and, at times, conflicting identities that are all temporarily brought together within the same ecosystem, triggers the mechanism of value co-creation.”

Often co-creation literature focuses on interaction between an organisation and its clients. Apart from e.g. Rabelo and Bernus (2015), there is not yet much available information on what hinders and facilitates large, multifaceted thematic or city-based ecosystems creating value for all stakeholder involved. This research was initiated in order to start filling this knowledge gap, focusing especially on the orchestration in multi-stakeholder ecosystems.

When there are multiple stakeholder interactions within the ecosystem, it needs to be facilitated. In this research, this facilitating is called orchestration and it is used as an umbrella term for different activities such as management in ecosystems, facilitating, coordinating, brokering, mediating, interpreting, webbing, and building (Äyväri, Hirvikoski, & Uitto, 2019). Orchestration has been widened to include innovation deals (Ferguson, de Zeeuw, & van der Heijden, in press), framework agreements, and policy structures (Juselius, in press).

Orchestration in literature has often been used in the context of companies and business innovation (Äyväri & Spilling, in press). E.g. Verhoeven and Maritz (2012, p. 5) define orchestration as follows: “The set of deliberate, purposeful actions undertaken by a focal organisation for initiating and managing innovation processes in order to exploit marketplace opportunities, enabling the focal organisation and network members to create value (expand the pie) and/or extract value (gain a larger slice of the pie) from the network”. In contrast, this paper aims to lay grounds for the definition of polyphonic and multi-innovation ecosystem orchestration.

Based on earlier research (Äyväri & Spilling, in press) orchestration consists of three processes: “managing knowledge mobility, managing innovation appropriability, and managing network stability”, all the stakeholders strive for value creation, and different kind of actors can be orchestrators.

This research aims to create and test a method to understand:

- How is multi-stakeholder innovation co-creation governed within the ecosystem? - What kinds of models, structures, mechanisms and practises facilitate and hinder different multi-stakeholder innovation ecosystems with regards to fulfilling their goals?
- How is stakeholder engagement, asset cultivation, and innovation co-creation orchestrated in dynamic ecosystems?

In order to examine these topics, a set of research methods was created and tested in autumn 2019 – spring 2020 (see Chapter 2.).

METHODOLOGICAL CONSIDERATIONS

The complexity of the research target demands for a multi-method approach and triangulation. In the first phase of the research, workshops with innovation co-creation experts and practitioners were organised and a list of international innovation ecosystems relevant to the research questions was crafted with the help of Cordis, ENoLL office, and the researchers' extensive tacit knowledge of globally successful diverse innovation ecosystems. This list consisted of more than 100 ecosystems. Combining those with relevant innovation theories, a matrix was created to collect data from public documents of 15 chosen cases out of the 100+. After this, the collected case data was analysed and discussed among three researchers. The analysis showed that other research methods were yet required in order to fill further knowledge gaps in specific areas of the research.

Of the leading mature innovation ecosystems, three Finnish ones were chosen to be examined more closely due to Finland being one of the world-leaders in various innovation scoreboards. During the second part of the research, the missing information was gathered from five of the most experienced innovation ecosystem orchestrating professionals working within the chosen ecosystems, with the help of four thematic interviews. The interviews were recorded, and immediately afterwards two researchers analysed both the findings and the functionality of the method.

Thirdly, continuous comparative content analysis was used to code and categorise the findings and to understand how the method worked. Also, the first empirical results were compared to theoretical knowledge, findings of cases presented in the forthcoming Co-creation Orchestration (CCO) publication (2020, in press), and results of other findings from the CCO project as well as from other projects on relevant themes such as Co-created Health and Wellbeing (CoHeWe), Product Validation in Health (ProVaHealth), CityDrivers, and Kalasatama: Co-designing wellbeing.

Reliability of the research

This research used triangulation that is typically seen as "a strategy (test) for improving the validity and reliability of research or evaluation of findings" (Golafshani, 2003). The reliability of qualitative research is evaluated based on credibility, conformability, reflectivity, and transferability (Kylmä & Juvakka, 2012). The extensive experience of the chosen interviewed orchestrators verified the credibility of this research. Moreover, the research data consisted of inclusive documentation describing the research phenomenon comprehensively, supplemented by the researchers' tacit knowledge. Additionally, besides systematic documentation, two or three researchers applied continuous comparative method.

The case study research design limits the generalizability of its findings.

RESULTS AND DISCUSSION

The first main finding was the significant role of the informal side of innovation activities as opposed to formal governance models and actions often highlighted in the literature and in the results of other projects related to the previously mentioned CCO project. With Finland's long history of well-organised open innovation ecosystems and the country scoring high on most of the global innovation scoreboards, it was surprising that the formal side (e.g. decision making, financial and managerial structures, or rules) of innovation ecosystem governance was considered only as a precondition for innovation, whereas the informal aspects (e.g.

deep collaboration based on trust and communication) were emphasised as the actual key success factors. Secondly, publicly available information is not sufficient to study such a complex phenomenon but thematic interviews were needed.

Table 1 introduces the coded and categorised findings regarding facilitating and hindering factors from the public materials and interviews of the three cases. Seven factors (formal 1-7) were found describing mainly the formal side of governance and orchestration, and one characteristic (8) that positions the ecosystem among other ecosystems was discovered. Out of the seven factors, the first four (1-4) are mostly within the authority of the ecosystem while the three others (5-7) affect the ecosystem significantly but the authority lies outside of the ecosystem.

Additionally, seven factors that concern the informal side of the ecosystem were found (informal 1-7). One of those (4: Perception of time) arose only as a negative, hindering factor.

Table 1. Results of facilitating and hindering factors of multi-stakeholder innovation co-creation, and the difference between the results from public materials and interviews from 3 cases (public materials (PM), public materials and interviews (PM&I), and solely from interviews without a code)

FACILITATING FACTORS		HINDERING FACTORS
FORMAL	1. STRONG VISION	
	<ul style="list-style-type: none"> • encompassing global, long-term opportunities and challenges • emphasizing active citizenship (PM) 	<ul style="list-style-type: none"> • contradiction between vision and everyday life • suboptimisation and fragmented project work (PM&I)
2. GOVERNANCE AND ORCHESTRATION OF MULTI-STAKEHOLDER INNOVATION		
	<ul style="list-style-type: none"> • strong visionary upper management • guardian in upper management • non-hierarchical governance model • shared leadership and decision-making • decision-making by hands-on professionals • orchestrator: interpreter and communicator of different aims to create mutual language • flow of information (PM) • orchestrator: brokering of international and national needs, solutions, and contacts • orchestrator: facilitator of collaboration, business development, agile pilots, RDI • orchestrated collaboration with international networks/ecosystems (PM&I) • common operative models and practices in the ecosystem • clear tasks as well as operative and financial roles of the orchestrator • clear and well communicated process for innovation activities • “one-stop-shop” as an external communicator (PM&I) • fast interference in case of problems (PM) • of the PPPP, emphasis on public-private • role of citizen primarily through testing, feedback and initiatives 	<ul style="list-style-type: none"> • rigid structures (PM) • lack of dedicated resources immediately impacts collaboration • lack of time for co-creation, especially a problem in health and wellbeing sector • coordination of strategic goals of various stakeholders is challenging • co-innovation is laborious and calls for active brokering and facilitation • lack of digital know-how of stakeholders involved

FACILITATING FACTORS		HINDERING FACTORS	
FORMAL	3. FUNDING OF COLLABORATION AND OTHER SHARED RESOURCES		
	<ul style="list-style-type: none"> • cooperative • each organisation funds own activities • core funding • co-creation and testing facilities and labs (PM&I) • jointly funded human resources • multifaceted open data for digital solutions (PM&I) 	<ul style="list-style-type: none"> • funding based only on projects 	
	4. SYSTEMATIC AND CONTINUOUS EVALUATION		
	<ul style="list-style-type: none"> • internal evaluation • external evaluation 	<ul style="list-style-type: none"> • measuring effectiveness difficult • lack of measuring tools 	
	5. FORMAL AGREEMENTS AMONG PARTICIPATING ORGANISATIONS		
	<ul style="list-style-type: none"> • framework agreement • agreement of shared resources 	<ul style="list-style-type: none"> • lack of or rigidity of agreements 	
	6. INNOVATIVE URBAN PLANNING		
<ul style="list-style-type: none"> • creating conditions to utilize proximity among stakeholders (PM&I) 			
CHARACTERISTIC	7. REGIONAL INNOVATION SMART SPECIALISATION STRATEGY (RIS₃)		
	<ul style="list-style-type: none"> • promoting shared vision and providing hints on what to contribute and how to benefit from collaboration (PM&I) 		
	8. CONCENTRATION OF SPECIALISTS, ECOSYSTEM CRITICAL MASS, AND LOCATION		
<p>Strong concentration of specialists, otherwise within ecosystem of limited critical mass, and remote location enforcing collaboration as a central characteristics of ecosystem (PM&I)</p> <ul style="list-style-type: none"> • within region • with other regions/cities • within international ecosystems 			
INFORMAL	1. HISTORY OF COLLABORATION		
	<ul style="list-style-type: none"> • shared history of collaboration (PM&I) 	<ul style="list-style-type: none"> • no established collaboration (PM) 	
	2. OPENNESS AND TRANSPARENCY OF CULTURE AND ACTION MODELS		
<ul style="list-style-type: none"> • continuous informal and formal communication and interaction among ecosystem stakeholders (PM&I) • willingness to share 			

FACILITATING FACTORS		HINDERING FACTORS	
INFORMAL	3. PERSONAL ATTITUDES AMONG INNOVATION ECOSYSTEM ORCHESTRATOR AND OTHER PROFESSIONALS		
	<ul style="list-style-type: none"> • willingness to understand and learn from diverse people with different points of view • willingness to collaborate • encouraging, listening, asking (PM) • perseverance 	<ul style="list-style-type: none"> • resistance to change • jealousy • participation for wrong reasons • lack of conception of benefits in the long run 	
	4. PERCEPTION OF TIME		
		<ul style="list-style-type: none"> • different perception of time among public, private, and academia 	
	5. COMMITMENT TO COMMON GOALS		
	<ul style="list-style-type: none"> • engaged and active stakeholders (PM&I) • organisations' monetary commitment 	<ul style="list-style-type: none"> • uncommitted stakeholders 	
	6. CREATING CONDITIONS FOR GROWING INTERNAL MOTIVATION AND GENUINE VALUE AMONG PROFESSIONALS		
<ul style="list-style-type: none"> • encouragement • immaterial rewarding • meaningfulness through participatory activities • respect of expertise and providing visibility • opportunities to innovate (PM&I) 	<ul style="list-style-type: none"> • non-realistic expectations ("Ecosystem is not a bottomless barrel of wishes") 		
7. TRUST WITHIN ECOSYSTEM			
<ul style="list-style-type: none"> • among stakeholders • in orchestrator 	<ul style="list-style-type: none"> • lack of trust within ecosystem 		

The three cases being from Finland, it was surprising that in the interviews citizen participation was not highlighted, since in the Nordic smart city governance model including legislation (Bremer et al., 2020) the citizen is implicitly always present ("people first"). This might explain why the interviewees concentrated more on public-private partnership. In the public materials, the benefits of the ecosystem for the citizens were emphasized, whereas the interviewees highlighted the economic vitality of the ecosystem and its testing environments and services for companies. In the interviews, the role of citizens was primarily articulated through testing, feedback, and initiatives, and less through participatory engagement as active co-creators. Additionally, shared or mutual learning or conflicts were not emphasized in the public materials or in the interviews.

The findings suggest that in cross-sectoral, cross-organisation and cross-border innovation co-creation, successful business models and good leadership alone do not generate results, despite the focus on these in the public case documents, other CCO-related projects, and relevant business literature. In the thematic interviews, there was a clear message: "It is people who do cross-border and cross-organisational work and get

results, not organisations". "Although formal structures and models vary, it is the informal human interaction that makes the ecosystem sustainable." With these comments, the interviewees referred to the collaboration between the professionals representing various organisation and sectors.

An experienced orchestrator of a leading ecosystem named communication as the biggest challenge, highlighting the importance of informal activities: "[The thing that most hinders multi-stakeholder innovation is] working on one's own; [when] quite little of what is done is shared with the world. Discussions and encounters - there isn't such a thing as too much of those." "Very important [in multi-stakeholder innovation] is continuous interaction. [Even though it is important, often] one does not regard it as part of a management model. It is not written anywhere but such practice has just arisen. There is a need for plenty [informal] 'corridor discussions' and messengers." Additionally, according to another interviewee, "Mistrust or jealousy completely obstructs [the successful operation of the innovation ecosystem]." "Instead of hierarchy, [the successful operation of the innovation ecosystem is] based on trust and collaboration. Without these, it is impossible for the ecosystem to operate." From comments such as these, it is concluded that even when functioning formal structures and processes are in place, failures on the informal side can greatly hinder the success of an innovation ecosystem or annihilate its operation.

CONCLUSIONS

As wicked problems and shocks affect any type of system, they call for holistic and long-term governing mechanisms supporting resilience (Lostrangio, in press) with an emphasis on both the informal and formal factors of ecosystems. In a country that regularly tops various innovation scoreboards, established and successful ecosystems did not consider well-functioning formal structures alone sufficient but instead highlighted the informal side arguing that failing on the informal aspects can obstruct the whole ecosystem despite functional formal structures and processes. This result would not have been uncovered purely based on publicly available materials and formal documents but diverse and complementary research methods, in this case interviews, were needed.

Based on the five experienced orchestrators' interviews on three multifaceted, mature, and successful ecosystems, the informal side of organisation within the ecosystem affects its ability to reach its goals more than the formal aspects - even when the primary goal of the ecosystem is to support the vitality of regional economy and businesses. Orchestrators emphasised the long-term benefit of the system over the subsystems: "The more you are willing to give, the more you also get". In order to draw wider conclusions, more empirical research is needed. Moreover, in literature reviews, it would be suggested to consider the field of science of the research, the maturity level of the ecosystem under construction, as well as the professional orientation of the orchestrator as important background factors of the research results. These background factors can potentially have an impact on the findings regarding the emphasis of the different aspects of governance, orchestration, and actions, as well as e.g. setting of goals of the ecosystem.

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Keywords:

- Multi-stakeholder innovation co-creation
- Orchestration
- Innovation ecosystems
- Living labs
- Hindering and facilitating

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II

Value Co-Creation with Different Types of Individuals

14. Citizen involvement in the participatory budgeting process in community development

Virpi Lund

INTRODUCTION

Collaboration between various urban actors from different fields in municipal context is expected to increase citizen participation and engagement in decision-making processes, to enhance information sharing and knowledge production, and to increase trust and motivation towards each other. This study provides a citizen-centric design of the participatory budgeting (PB) process, which means a collaborative planning process based on the needs and priorities of citizens, thereby ideally increasing satisfaction with and trust in the public sector and between various urban actors. The PB process was conducted in neighbourhoods of the city of Espoo in southern Finland. The focus was on how to engage citizens to participate in a co-creation project in the development of their community.

PB processes have been implemented in various forms of citizen participation in budget allocation concerning issues ranging from social service projects of planning urban infrastructure (see, e.g., Allegretti & Antunes 2014, Krenjanova & Raudla 2013, Sintomer, Herzberg & Röcke 2008). The PB process has to meet five criteria: discussion of financial matters, increasing power of citizens over administration and resources, public deliberation during meetings, output that reflects the public's will, and it has to be an annual process (Sintomer, Hertzberg, Röcke & Allegretti 2012). PB aims to enhance the activeness of citizenry by allowing the participation of non-elected persons in allocation of public finances and in democratic decision-making processes. In short, the aspects of PB empower citizens to identify the needs in their community, to express budget proposals to elected officials, and to vote on how to spend public funds (Gilman 2016).

There is a need for participatory knowledge-building, which recognises place-based knowledge and the expertise of citizens in community development, thus yielding more effective community solutions and changes. Recently, communication using digital tools and social media has increased, providing novel and less formal opportunities to engage people in activities (Innes & Booher 2004). Mobile participation can engage citizens to connect with each other, but the patterns of behaviour such as asking questions, justifying

claims, and suggesting constructive proposals (see Pedrini 2015) are still needed. The deliberative democracy approach is concerned with the qualitative aspects of the conversation, deliberative settings, and meaningful ways of bringing citizens into the deliberation process, especially including marginalized and silent groups (Kahane 2003). Deliberation and deliberative democracy underline two-way or multi-actor interaction in the democratic practices (Gutmann & Thompson 2004).

According to Finland's Local Government Act (2015), its citizens have the right to participate in and influence decision-making processes. Currently, cities' participatory municipal programs are interested in PB, with its ideas of democratisation and promotion of social justice, which have the potential to develop an active citizenry. This paper describes the implementation of a PB process called "My Idea" as a tool for promoting public engagement in the development of urban neighbourhoods. The study is based on the two-year research project *Participatory Budgeting as a Tool for Community Development* (2017–2018), in which residents were engaged to brainstorm and develop ideas for community development (see Lund & Juujärvi 2018b). The goals were to 1) enhance community capacity with human resources, 2) develop a resident-friendly online tool for citizen participation, 3) delegate decision-making power to citizens in defining a part of the public resources, and 4) involve citizens in the elaboration and ranking of the proposals.

CO-CREATING THE PHASES OF THE PB PROCESS AND THE CONTEXT OF THE STUDY

The PB process took place in one of the municipal districts of the city of Espoo, called Espoo Centre. Espoo is the second-largest city in Finland, with almost 300,000 inhabitants. It is a home to international companies and high-technology businesses. Espoo Centre is one of five districts in the city, and with its closely situated neighbourhoods, it has approximately 40,000 inhabitants. In terms of social and economic indicators, some of the neighbourhoods represent the most disadvantaged areas of the city. The proportion of unemployed people, uneducated people, single-parent families, large families, and people on social welfare is high. Immigrants make up the 25% of the residents in the area, which is exceptional; as well, a high number of languages (over 70) are spoken in the city, due to the concentration of social housing (City of Espoo 2013, Hirvonen 2011, Lehtinen 2016). Due to ambiguous official participatory practices and lack of stakeholder collaboration, there is a call for various kinds of increased agency among residents (Lund & Juujärvi 2018a, Lund & Kerosuo 2019).

The preparation phase included planning of the process and informing relevant stakeholders (see table 1). The regional development group, which consisted of four researchers, three civil servants, two residents, and a software expert, planned the PB process along with a digital platform as a tool for public participation in weekly meetings taking place between January and March 2017. The goal was to develop a new method for promoting the wellbeing of the area, reducing bureaucracy, and improving communication between residents and public administration. The rules were posted on the city's website and Facebook, explaining that the goal of the project was to make the neighbourhood more lively, cheerful, and beautiful created by the regional development group. Residents were invited to submit and vote on proposals, through an online-based tool, that would create positive neighbourhood development within a budget of EUR 10,000. Proposals were to include detailed concepts, estimated budgets, and potential partnerships. Various methods of communication were used to reach residents as widely as possible. Key members of neighbourhood associations and groups were contacted, and emails were sent to city officials. The public library staff and those working in municipal offices were trained to advise and support residents in the use of the digital platform. Specialists from public administration (e.g., urban planning, youth, culture, and sports) and experts from non-governmental organisations were invited to the workshops to support and help develop residents' proposals.

Table 1. *The phases of the PB process.*

PREPARATION PHASE	OPERATIONAL PHASE
<ul style="list-style-type: none"> • Meetings of the regional development group • Planning the phases of the PB process • Preparing the digital platform • Establishing the rules and practices • Training municipal staff for the process • Inviting specialists and experts to the process • Informing and inviting residents 	<ul style="list-style-type: none"> • Informing and marketing the process to the publics • Providing personal guidance to the participants • Monitoring the usability of the digital platform • Prereading the proposals • Organising two workshops • Counting the votes and announcing the winners • Celebration party • Evaluation workshop

The operational phase started by holding two briefings in the public library. The regional development group members visited neighbourhood associations and promoted the upcoming PB process. Residents submitted their proposals through the digital platform by registering with a personal email address, which proved complicated. As a result, residents were provided with personal guidance by phone and face-to-face. Thirty proposals were submitted to the digital platform within one month, and they were visible on the website after the submission period.

Two workshops were conducted in April 2017 for all residents who had submitted a proposal. The number of participants varied from 24 in the first workshop, comprised of 13 women and 11 men aged 25–70, to 16 in the second. The participants were local residents, and they were encouraged to invite their friends to come along for support and to participate in the upcoming voting. The proposals were divided into five groups by topic: murals and environmental art, local events, environmental management, citizen activities, and community building (see table 2).

Table 2. *The categories of the participants' proposals.*

MURALS AND ENVIRONMENTAL ART	LOCAL EVENTS	ENVIRONMENTAL MANAGEMENT	CITIZEN ACTIVITIES	COMMUNITY BUILDING
Mural (by an artist)	Music festival	Flower garden	A public printer for photographs	Empowering photography
Artwork (artists with citizens)	Art festival	Environmental education with sports	Art workshops across generations	Groups for promoting communality
Light installation (artists)	Multicultural bazaar	Slope for winter sledding	Handicraft workshops in the library	Groups for sharing skills
Wall painting (street artists)	Cultural sight-seeing by bus	City garden with food crops	Painting the artistic benches	Strengthening social justice in food issues
Glass installation (artists with citizens)	Community fishing event	Signs for restricting noise at night	Boards for citizen ideas	
		Skateboard park Flower pots for the square		

The researchers and civil servants of the regional development group facilitated the group discussions. The goals of the two workshops were to present the proposals to other participants, to clarify and develop the proposals, with the help of the specialists and experts, and to draw up a plan for moving towards the voting process. The specialists and experts had pre-read the participants' proposals and they were prepared to provide knowledge of technical details and regulations. During the workshops, participants revised their proposals to be more feasible and attractive. Deliberation consisted of elements of participants coming together, discussing and reflecting on real topics, forming opinions, and exchanging views.

Sixteen participants continued to the second workshop. Some proposals were dropped because they conflicted with local regulations, there was no place to host them or the participants did not want to continue anymore. With the help of communication experts, the second workshop aimed to finalise the implementation plan and make the proposal easy to read and visually attractive on the digital platform. The participants prepared to present and market their proposals to potential voters. The digital platform was open for the corrections between the first and second workshops.

The proposals were available for voting on the digital platform for three weeks in May 2017, accompanied by instructions on the city's website. Voters could select the total of three projects by first glancing at the proposals, reading and evaluating them, then clicking on the proposal to register on their vote. Voting required registration through a personal email address and the residents were again given personal guidance upon request; computers were made available for voting in the library and at service points. In total, 316 voters took

part, with 719 separate votes. Four winners were declared, and they received EUR 3,000 each to implement their ideas within one year. The winning proposals included environmental education with parkour activities for children and youth (114 votes), organising of a local music festival (111 votes), planting of a flower garden (94 votes) and organizing of a multicultural festival (62 votes).



Picture 1. Parkour activity Move Green.
(Picture: Virpi Lund)

Picture 2. Local music festival in Espoo Centre.
(Picture: Virpi Lund)





Picture 3. Flower garden in early spring. (Picture taken by a local active resident)

EXPERIENCES FROM THE PARTICIPATORY BUDGETING PROCESS

This study describes participatory action research aiming at empowering citizens through involvement in urban development, resulting in increased resources and improved relations (see Kemmis & McTaggart 2000, Nelson & Prilleltensky 2005). The collective style of collaboration necessitates a structure, setting, goals, and participants from various fields. As a participatory method, PB enabled the recognition of place-based knowledge and the needs of residents, and it presented opportunities for residents to increase their agency. It improved communication between residents and public administration as well as the financing of citizen initiatives and in mobilising the assets of the community (see Mathie & Cunningham 2003).

The participants' proposals intended to promote the common good for all residents and attempted to improve the atmosphere and evoke a common awareness of neighbourhood issues. The winning proposals concentrated on organising common activities and public events. Participants had an opportunity to learn, for instance, about budgeting issues, organising an event, and understanding regulations beyond the activities of the public sector. The workshops helped them get to know other residents in the neighbourhood. By seeking out new partners with whom they could co-operate in urban development issues in the future, they exchanged local knowledge with each other during the deliberation process. With new partners, that meant urban actors across variety of resident associations, non-governmental organisations and entrepreneur network.

The current discursive framework of the official documents and participatory programs underline the collaboration of residents and other urban actors. This PB experiment consisted of a phase of deliberation in the form of two workshops in which participants' proposals were presented. The study provides an approach to deliberation between residents and specialists from public administration and experts of non-governmental organisations in the workshops. The ability to meet others and deliberate in the workshops was highly valued. Participants received contact details for further requests of information concerning their proposals, if needed, and the collaboration with the specialists and experts enhanced trust towards authorities.

Sometimes conflicting interests arose among the participants, specialists, and experts during the workshops. Participants had an opportunity to explain clearly what they wanted, justify their claims, make suggestions, and ask for their opinions. As well, the specialists and experts could demonstrate their interest by asking and answering questions, speaking about their earlier experiences, and trying to clarify the proposals. In the workshops, participants received advice and information about regulations, rules, technical arguments, and recommendations concerning their proposals. There was also humour in the workshops, and some municipal restrictions made everyone laugh: for instance, the protected flying squirrels prevented the building of the slope for winter sledding in the forest. The participants were encouraged to continue and not to give up; however, in some cases, participants' proposals were not feasible without technical help.

It was essential to have enough time to familiarise, deliberate, and cross-fertilise proposals during workshops. More time is needed to develop the participants' proposals, according to the feedback. It is crucial to nourish the feeling of appreciation. The experience suggests that the deliberation of the participants' proposals has the potential to engage citizens in urban development.

The experience revealed both positive and negative aspects of using digital tools in public participation (see Lund & Juujärvi 2018b). The positive aspects of the digital platform were its capability for providing access to participation in neighbourhood development. The negative aspects concerned the usability of the digital platform and functionality problems. Digital tools can engage citizens in the PB process, but public deliberation of citizens' proposals must be supported to enhance citizen impact on local neighbourhood development. Two-way communication is crucial for achieving a shared understanding of issues in endeavours towards community development. Digital platforms with value-based information have provided the possibility for citizens to deliberate and enhance their ability to make informed decisions (see Goel, Krishnaswamy, Sakshuwong & Aitamurto 2015).



Picture 4. *Deliberating in the workshop. (Picture Virpi Lund)*

LESSONS LEARNED FROM THE PARTICIPATORY BUDGETING PROCESS

The study aims to explore the PB experiment and how it enhances the delegation of power to citizens in deciding on the allocation of a small-scale budget for improving their neighbourhoods. Furthermore, the study sheds light on the collaboration and co-creation between citizens and municipal authorities and discloses how a digital platform facilitates the process of submitting and voting on proposals. PB processes do not generally adhere to strict rules, but this study provides clues concerning the basic steps of submitting, deliberating on, developing, and voting on proposals, and how these steps were co-created (see Lund & Norlamo-Saramäki 2017, *Mun Idea-kokeilu*). Enabling citizens to ideate and implement their proposals increases their participation in the development of the neighbourhood. After all, citizen participation increases the wellbeing of both citizens and neighbourhoods. Table 3 describes the actions of actors in a successful model of PB in the city.

Table 3. *The actions needed in a successful PB model.*

POLITICAL DECISION-MAKERS	CIVIL SERVANTS	RESEARCH INSTITUTES	RESIDENTS
<ul style="list-style-type: none"> • Adopting a citizen participation plan • Including the PB model in the plan • Regularising the model of PB for use city-wide • Deciding on the resources, goals, focus, and extent of the PB process • Increasing residents' involvement in the allocation of the budget 	<ul style="list-style-type: none"> • Planning and implementing a goal-oriented and facilitated PB process • Involving citizens in the PB planning process and deciding on the allocation of the budget • Drawing up a marketing and communication plan • Including the principles of justice and equality in the implementation of the PB process • Developing multiple opportunities for deliberation of the citizen initiatives • Providing alternative voting methods in addition to digital voting • Establishing steering groups for supporting the implementation of the initiatives 	<ul style="list-style-type: none"> • Developing the PB process in collaboration with citizens and civil servants • Reflecting on the research findings with the decision-makers • Publishing the results in national and international publications • Utilising the national and international models of PB in local urban development 	<ul style="list-style-type: none"> • Submitting proposals • Identifying and disclosing the assets and resources of the neighbourhood



Picture 5. *Group discussion in the workshop. (Picture: Anna-Leena Mutanen)*

CONCLUSION

The co-creation process involving residents and urban actors proceeded step by step in the successive phases of the PB process and in discussions during the workshops. Residents' place-based knowledge is not easily recognized in urban development, and therefore new participatory practices are needed to enable the building of active citizenry. A citizen-centric approach has the potential to increase citizen participation and reveal residents' experience, knowledge, and shared understandings of their neighbourhood. A PB process with a deliberative phase empowers citizens and builds trust between the stakeholders involved in urban development. Successful deliberation calls for a structured and organised system in order to collect information and share ideas, make sound decisions and be connected in participation.

Acknowledgements

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Keywords:

- Citizen participation
 - Community development
 - Participatory budgeting
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15. Encouraging an active lifestyle among young people with special needs

Jukka Laitinen & Tarja Meristö

INTRODUCTION

Young people in need of special support may deal with various physical, mental and social obstacles that hinder their participation in sports and exercise. In addition, they often need a wide support network for their leisure activities. The ongoing Nappi project (2018–2020), coordinated by Laurea, aims to promote the health and well-being of young people with special needs. Another goal is to increase the target group's well-being by increasing their participation in order to prevent loneliness and marginalisation. Nappi is receiving financial support from the Ministry of Social Affairs and Health for 2018–2020.

Co-creation and service design methods have been used during the project to devise ways to promote an active lifestyle among the target group. Co-creation has been carried out both with project partners and in two open events organised in connection with well-being forums. This has helped commit partners to the project as well as engage a broader group of participants in the brainstorming and development work. The parties involved in co-creation have represented, for example, schools, organisations, housing units, sports clubs and municipal services for the disabled, as well as municipal sports and fitness services.

A total of three co-creation workshops have been organised so far during the project. The first one was held in Leppävaara in connection with the kickoff seminar. The participants consisted of project partners, and they jointly developed ecosystem maps for young individuals. The second co-creation workshop took place in Lohja, in connection with the Well-being Forum. There, service design methods were used to devise new forms of sports and exercise for young people. The planning was based on the "personas" described in the ecosystem maps drawn up during the kickoff seminar. The third co-creation workshop was also organised in Lohja at the Well-being Forum. This time, visionary concept creation was used to develop new activities for different personas in alternative futures scenarios developed by the research group in co-operation with futures researchers.

This article describes the progress of the co-creation process, the methods used and the results achieved. We also discuss the elements of a successful co-creation process, based on our experiences.

THE CO-CREATION PROCESS IN THE NAPPI PROJECT

The co-creation process in Nappi consists mainly of facilitated sessions but also includes other events and meetings with different actors from the field. The optimal result from the co-creation process will be achieved when the formal, facilitated process is repeated a couple of times in order to motivate participants to continue their activities informally, even after the project. Nappi can be seen as an enabler for this co-operation activity by providing resources such as facilitation and sport equipment but also by encouraging people in the field to work together beyond the formal organisational barriers within the ecosystem.

The co-creation process in Nappi consists of four workshops (Figure 1). The first co-creation workshop was held in connection with the kickoff seminar. The participants consisted of project partners, and they participated in co-creation in three different tasks. In the first task, the participants worked in small groups to create future headlines concerning the results of the Nappi project. That task served as an orientation exercise, and it helped participants form a shared vision of a desirable future. The main task in the first workshop was to work jointly with the people and parties involved to develop ecosystem maps for young individuals, along with a brief description of their particular situations. At first, the participants wrote a short description of an imaginary person (a so-called persona card, in the terms of service design) on a post-it note and placed it in the middle of the ecosystem map. Next, they considered and recognised persons, actors and stakeholders involved in the imaginary person's life. Those were also written on post-it notes, which were then placed in the relevant circles on the ecosystem map. The persons and actors close to the imaginary person were put close to the centre of the ecosystem map, where the imaginary person was positioned. The actors with more remote relations or acting as enablers were placed further from the centre. As a result from the first co-creation workshop, we received ecosystem maps with persona descriptions and stakeholder relations.

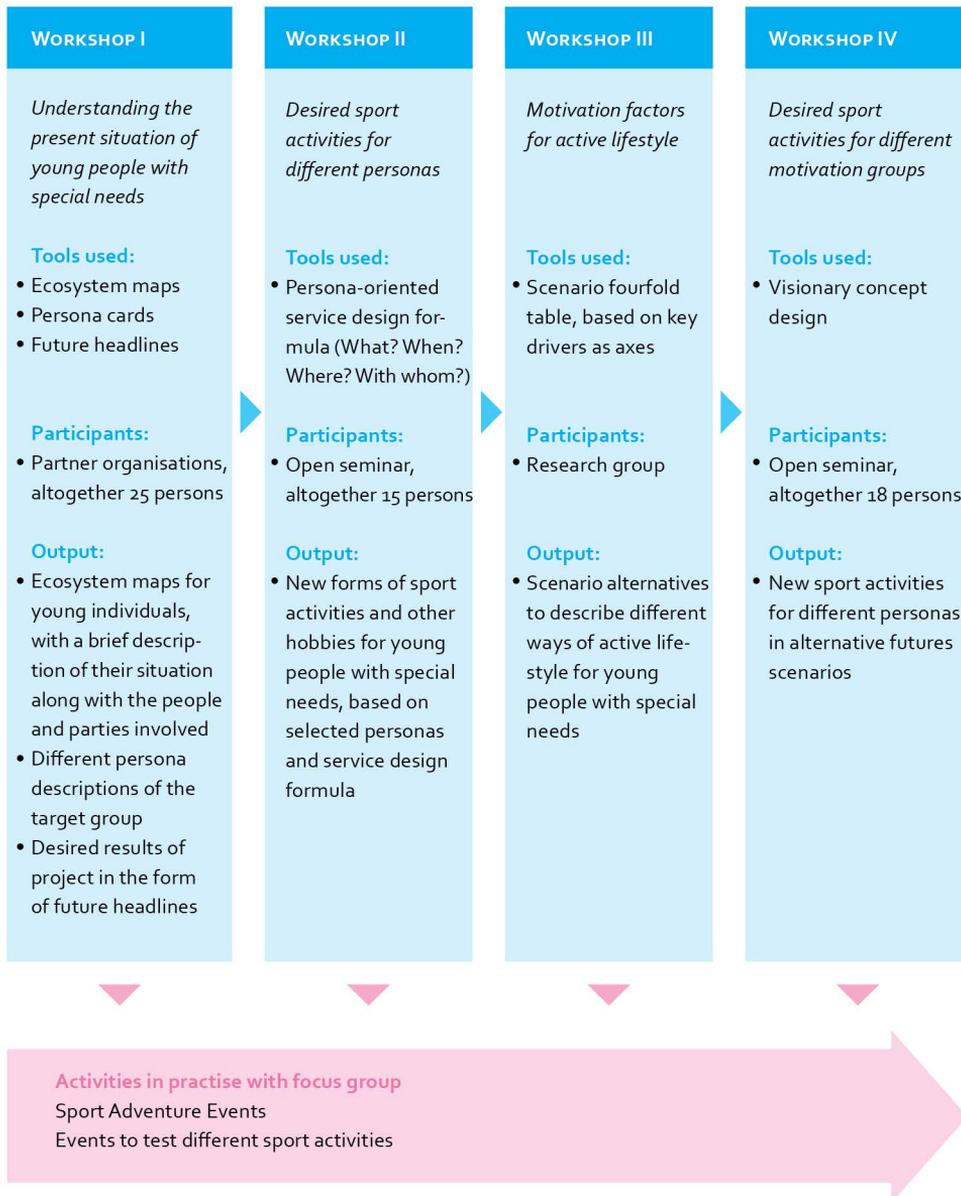


Figure 1. *The co-creation process in the Nappi project. (Figure: Laitinen & Meristö)*

The second co-creation workshop was arranged in Lohja as a part of Well-being Forum. The Well-being Forum is a regional networking event held on a regular basis on Laurea's Lohja campus. The event has generally been organised twice a year since 2009. The forum typically includes project/research presentations, keynote addresses and facilitated small-group work. The objective of the Well-Being Forum has been to serve as a platform for bringing together the region's stakeholders in the private, public (society) and other sectors (associations and organisations), as well as the citizens of the region (individuals) (Ranta & Meristö 2018). This time, the theme of the Well-being Forum focused on youth with special needs and how to support their active lifestyles. The co-creation aspect consisted of service design methods, which were used to devise new forms of sports and exercise for young people. The planning was based on the "personas" described in the kickoff

seminar. At first, the participants chose one persona from the given list. They then ideated new forms of sports and exercises for that persona. For the ideation, participants applied a service design formula created for the workshop, including supporting sub-questions: For whom? What? Where? When? With whom? As a result of this co-creation workshop, we acquired new ideas for services and activities for young people with special needs; one example is presented in Figure 3 in the next chapter.

The third session, a scenario workshop with the futures researchers, provided the key drivers for motivating these young people and alternative scenarios for an active lifestyle, depending on the orientation; i.e., if interested in activities on group basis or on individual basis, and if interested in sport as a competition or as a hobby, thus including friends and promoting well-being.

The fourth co-creation workshop was also organised as part of the Well-being Forum. This time, visionary concept creation was used as a tool to develop new activities for different personas in the alternative futures scenarios created in the third session. First, different scenarios concerning possible ways young people with special needs could engage in exercise were introduced to the participants. Next, the participants ideated concepts for scenarios that could promote a healthy lifestyle for the target group. Finally, each group picked one idea and introduced it to other groups in the form of future headlines, i.e., how the media will convey this good news in the future.

The participants in the co-creation workshops have consisted mainly of actors working with the young people with special needs, including parents. However, during the project, information about the target group's own hopes and needs has been collected during sporting events and also via a survey mailed to the youth in the region.

In the next chapter, the process, tools and methods used in the co-creation sessions will be described in more detail.

METHODS AND TOOLS USED IN CO-CREATION SESSIONS

Methods used in the co-creation sessions represented a wide range of tools from futures research methodology as well as service design practices. Facilitators from the Nappi research team have long experience in many kinds of co-creation processes. The role of facilitators in the beginning is crucial. The longer the process continues, the more the participants take responsibility for the activities. The best results have occurred here, when the participants motivate themselves for continuous interaction and activities. It is important to ensure that they not form a closed club, without opportunities for new actors or members.

The methods and tools applied in the Nappi co-creation process include: 1. Future headlines tool 2. Eco-system maps 3. Persona card and service design formula 4. Scenario framework 5. Visionary concept design.

1. Future headlines tool

The *Future headlines* tool is a simple method to illustrate future issues in the form of a news headline. The timeframe can be set case by case, but a long-enough timeframe leaves more space for imagination.

Future headlines helped start the sessions with an open-minded discussion: What will the future look like after the Nappi project? In the future, what will be the most important news concerning our subject? What would the desired state of the world look like? This tool has proved to be a fruitful opening for discussion. It also allowed for the freedom to discuss themes around the subject, regarding both good and bad news, and to get acquainted with each other. Trust is an important part of a successful process.

2. Ecosystem maps

Ecosystems consist of different kinds of interrelated actors. The main types of actors are core actors, supporting actors and enablers. An *ecosystem map* is a tool for illustrating those actors and their interrelations. The core actor is located in the centre of the map, closely related supporting actors are located around the core actor, and other not-so-closely-related supporting actors are placed on the next circle. The farthest circle includes the enablers. Figure 2 is an example of an ecosystem in which the core actor is a 12-year-old girl with Down syndrome.

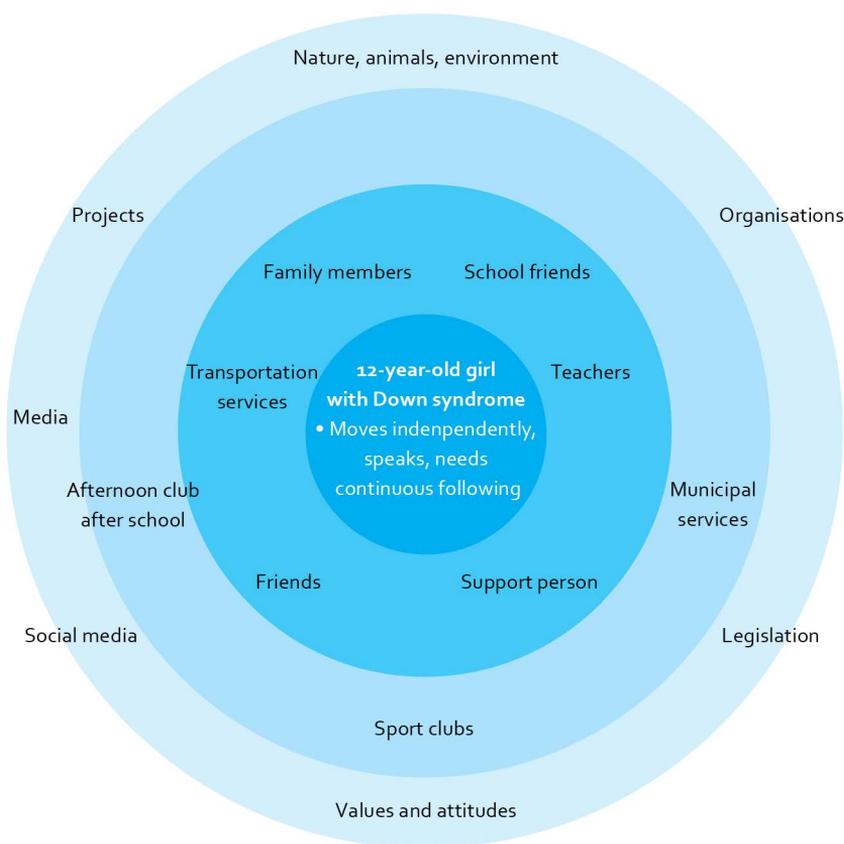


Figure 2. An illustrative example of an ecosystem map in the Nappi project. (Figure: Laitinen & Meristö)

Ecosystem maps provide a holistic view of the ecosystem by arranging all actors within the ecosystem levels around the persona created for the project in the first session. The visual aspect helps participants imagine a new sense of the situation, and the maps describes actors not yet involved the process but who will become an important part of it.

The ecosystem consists of actors from the public and private sectors but especially from the third sector, from various NGOs as well as from individuals with enthusiasm for the subject – e.g., a mother or father of a child with special needs and, of course young people themselves. In the co-creation process, all actors are needed as representatives from the many groups within the whole ecosystem. In our co-creation process, we covered all actors from the different ecosystem levels, including parents. Unfortunately, we had no chance

to have the young people themselves participate in the workshops, although two sessions were open to all. By arranging other events and activities directly for the youth, we could fill in this gap within the process.

3. Service design

According to Moritz (2015), *service design* helps one innovate new services or improve existing ones to make them more useful, usable, desirable for clients and efficient, as well as more effective for organisations. It is a holistic, multi-disciplinary and integrative field. The field of service design contains many tools. For our workshop, we developed a simple form to create useful solutions for our target group, concerning sport and recreational activities. At first, workshop participants chose a persona from the list, which was based on the results of the first workshop. Then they developed customer-oriented services for that chosen persona with the help of sub-questions: What? Where? When? With whom? Figure 3 shows an illustrative example of our service design form, which was applied in the Nappi workshop.

A *service design map*, on the other hand, combines personas created in the first session and the actors from the ecosystem who could provide various sport activities for young people with special needs.

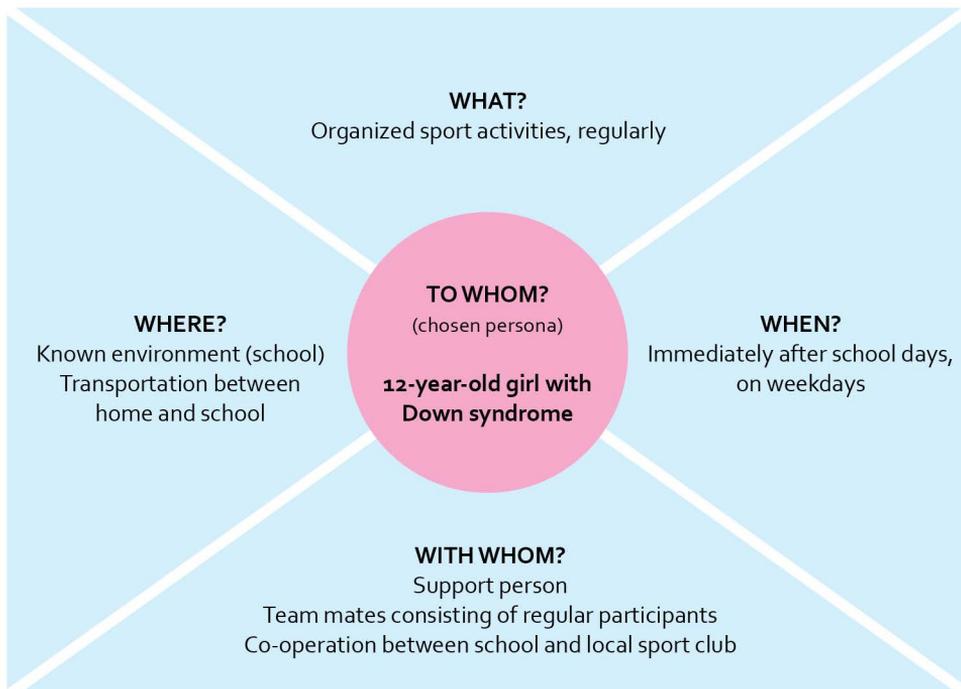


Figure 3. Illustrative example of the service design formula applied in the Nappi Project. (Figure: Laitinen & Meristö)

4. Scenario work

When thinking of the future, service design also needs *alternative scenario paths* in order to cover the many kinds of demand. Scenarios are descriptions for different futures. *Scenario working* is a method within the field of futures research (Bell 1997, Masini 1993). Scenario working includes mapping alternative futures and identifying factors and development paths leading to different future outcomes. The action scenario approach (see, e.g., Meristö 1989) incorporates evaluation of the significance of the scenarios for the user. Finally, based on the evaluation, necessary actions are suggested. In the Nappi project, four alternative scena-

rios were constructed (Meristö & Laitinen 2019) as research work (Figure 4). The theme of the scenarios was the sporting lifestyle of young people with special needs. The main drivers for the scenarios were the nature of the hobby (recreational vs. competitive) and how to engage in exercise (alone vs. in a group). Scenarios 1. Sport star, and 2. Star team, focus on the competitive side of sports, whereas scenario 3. With friend, and 4. Active mover, emphasise the recreational perspective.

In the co-creation process, this will feed the imagination to envision alternative situations and will help one acquire further new concepts with the help of *visionary concept design*.

NAPPI SCENARIO DRAFTS

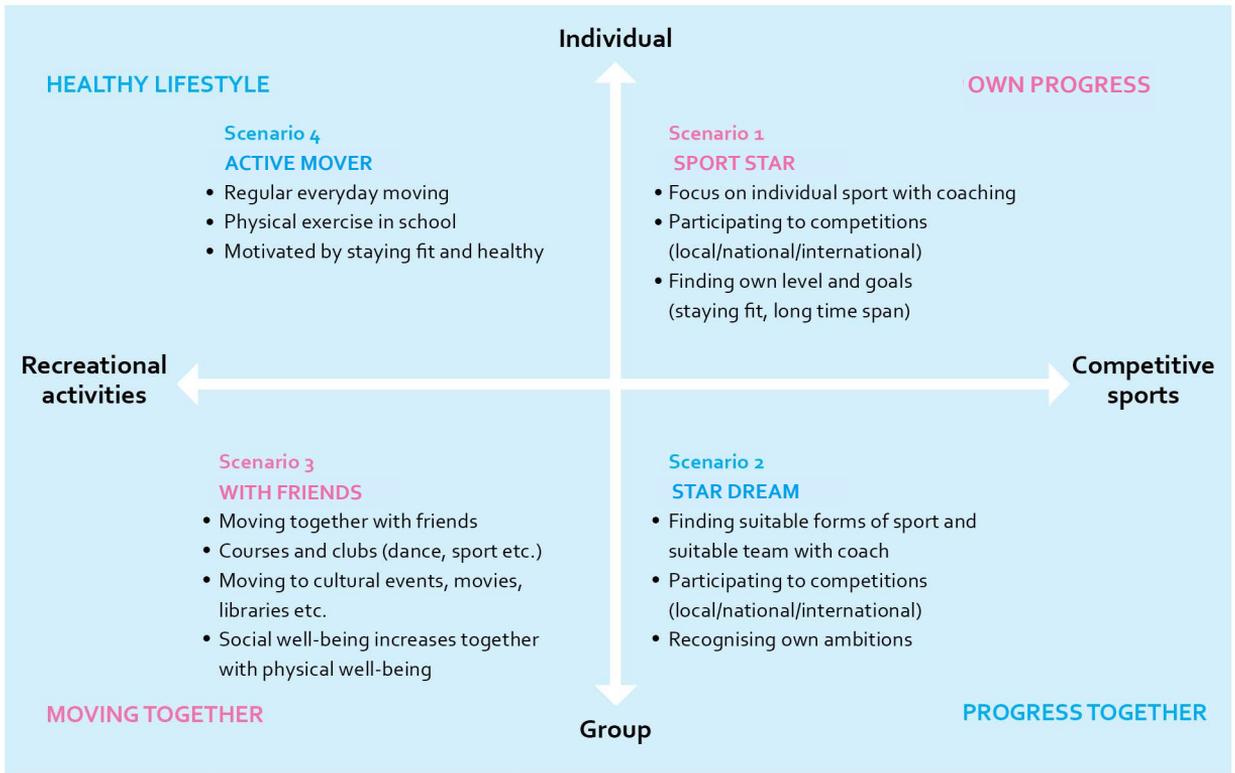


Figure 4. Nappi scenario drafts: alternative active lifestyles for young people with special needs. (Figure: Meristö)

5. Visionary concept design

Visionary concept design is a future-oriented method in which new concepts from the chosen theme are created for different scenarios (Kokkonen et al. 2005; Leppimäki et al. 2008). The time perspective of the visionary concepts is long, which offers several benefits. Visionary concepts enable systematic examination of alternative future developments, because future scenarios are illustrations of the operational environment of the future. Figure 5 illustrates the idea of visionary concept design in the context of Nappi. The visionary concepts in the figure are scenario-specific ideas, which could increase the active lifestyles of young people with special needs. For example, one possible visionary concept in Scenario 3. With friends, could be a Tinder-style app for exercise partners, which would help youth find friends for sporting hobbies.

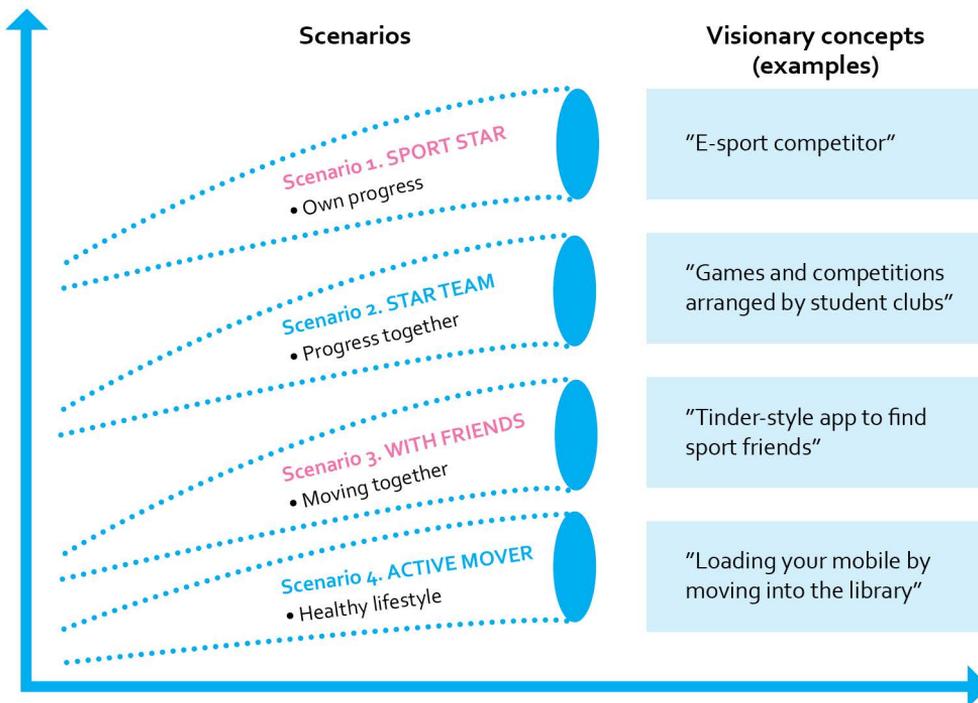


Figure 5. Visionary concept design combines scenario work and service design. (Figure Laitinen & Meristö)

LESSONS LEARNED DURING THE PROCESS

The co-creation process within Nappi was fulfilled with a step-by-step approach in a longer time period in two cities, Lohja and Espoo, which are project partners. Continuity, not only in the series of the co-creation workshops but also between workshops, is important. Themed workshops are necessary to build on the previous outcomes, with the goal of earning progressive results, thus leading to a holistic view and shared vision. An essential part of this is documentation of the sessions and its outcomes in order to share them more broadly with the ecosystem, rather than only with those who attend workshops.

Participants from the ecosystem have to cover all levels, from core actors to related actors and enablers. Facilitators have to treat all participants equally to create a co-operative, fruitful working atmosphere and to build trust in the team. No one can be left behind. Simple facilitation tools help greatly in the co-creation process, especially when people with different backgrounds attend the workshops and time is limited. In our case, the visual tools have been a great help – including different colours, shapes and sizes – when working with people of various age, skills and limitation.

The reputation of the co-creation sessions is important for attracting active participants. We can have an influence on that via social media, for example, and through active promotion among related networks but also by arranging such qualified sessions that these themselves attract more active participants. In the best-case scenario, participants will take on more responsibilities of the co-creation process in their region, even after the project has ended. Equal opportunities for people, without any kind of restriction to participate, must be ensured. The co-creation processes and illustrative tools themselves will open up many successful opportunities for all, as we have seen in the Nappi project.

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Keywords:

- Ecosystems thinking
 - Health promotion
 - Youth with special needs
 - Co-creation
 - Visionary concept design
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16. Public health nursing students as co-creators in the promotion of health and well-being

Mikko Häkkinen & Irene Latva-Korpela

INTRODUCTION

Co-creation is a method of development that engages learners, encourages creativity and yields concrete results. The goal of the research process described in this article was to examine public health nursing students' experiences of co-creation in well-being and health promotion during a course. Laurea's Strategy 2030 emphasises a student-centric approach. The student is seen as an active developer, building their own competence based on the needs of the labour market.

A particular focus of public health nurse education is the promotion of well-being and health. According to Laurea's Learning by Developing model, partners from the world of work are always involved in the learning. The course described in this article involved several institutions of well-being and health promotion from the Vantaa region. The course was carried out as part of Laurea's Co-creation Orchestration project, which aimed to enable the development of well-being and health services using the methods of co-creation.

CO-CREATION AS A PEDAGOGICAL METHOD

Co-creation means interactive, creative, goal-driven work based on equality among participants. Different education and experience backgrounds are seen as an asset among co-creation participants. Professional roles and positions in the organisation are secondary and everyone's contribution is seen as equally valuable. Diversity among participants brings different perspectives to the development, which can be used in the creation of new understanding and knowledge in a goal-driven way. (Bovill 2011, Pöyry-Lassila 2017.)

Temple Clothier and Matheson (2019) describe co-creation as a pedagogical method. According to them, co-creation builds creative meaning that improves motivation. The concrete goals of co-creation and the close cooperation with other learners maintain motivation throughout the learning process. Even though students

may at first view co-creation as a new and exciting way to learn, they will soon find that working together generates a safe atmosphere that supports learning. The supportive atmosphere is necessary because co-creation as a pedagogical method requires flexibility and tolerance of uncertainty.

For example, there is no single correct way of developing a service. Instead, learners must create solutions from several options using critical self-reflection. The central aspect of co-creative learning is the communication between the learners. In this context, the experts involved in co-creation, such as teachers, are also considered learners. Respectful and safe communication with constructive criticism promotes learning and enables the creation of new ideas. Learners are encouraged to be creative and to voice their ideas, even if they seem silly. (Temple Clothier & Matheson, 2019.)

In the course described in this article, students were divided into development teams which selected target groups as described in the previous chapter, built customer insight and developed ideas for promoting well-being and health. The goal of this real-world assignment was to motivate the learners by making the work meaningful. The development teams remained the same throughout the course to foster a safe environment and generate a deeper, co-created understanding of the learning content. Teachers were available to help and support the students when necessary. However, the teachers avoided taking a traditional position of authority, instead joining the participants in thinking about the issues and encouraging them to active problem-solving.

Billet and Martin (2018) describe co-creation as a pedagogical method with a focus on the relationship between students and teachers. Students are at the centre of the learning event, while the teacher accompanies them as a partner in conversation. In an ideal situation, the teacher develops close personal connections to the group of students, and can thus take the different learners into account as individuals. The teacher and students can also co-create their learning experience. It is possible to influence both the ongoing learning process and the learning processes of future students by collecting detailed feedback from the students.

In the course described in this article, student feedback was used to develop both the ongoing learning process and future learning processes. During the course, the teachers received useful feedback in the conversations with the development teams. At the end of the course, students gave individual feedback both through a digital feedback survey and a self-evaluation assignment.

PUBLIC HEALTH NURSE EDUCATION IN LAUREA

The public health nurse degree is 240 credits in scope, including the 210 credits of the nursing degree. Professional studies for public health nurse students must comprise no less than 60 credits, as they expand and deepen the student's nursing competence to include public health work. A graduating public health nurse will receive certificates for both a nursing degree and a public health nurse degree and is granted the right to practice as both a nurse and a public health nurse by the National Supervisory Authority for Welfare and Health. (*Ammatikorkeakouluista terveydenhuoltoon*, Government publication, 2006).

The level of the public health nurse degree from a university of applied sciences corresponds to level six (A12/2017) in the European Qualifications Framework (EQF) and the National Qualifications Framework (NQF) that is based on it. On level six, graduating students should have advanced and extensive knowledge of a field of work or study, involving a critical understanding and evaluation of theories as well as key concepts, methods and principles. In addition, they should have advanced cognitive and practical skills, demonstrating mastery and innovation as well as the ability to apply knowledge as is required to creatively solve complex and unpredictable problems in a specialised field of work or study. (European Union 2019, Finnish National Agency for Education 2020.)

On level six of the EQF, graduating students can serve independently in expert positions in the field as well as work in international cooperation with consideration for community and ethical perspectives. They can manage complex professional projects, taking responsibility for decision-making in unpredictable work or study contexts. They have good communication skills in both their native language and at least one additional language. (European Union 2019, Finnish National Agency for Education 2020.)

THE COURSE ON MULTI-DISCIPLINARY HEALTH PROMOTION

In autumn 2019, students on their fifth term of public health nurse education designed health promotion development projects in the course Innovative Multidisciplinary Promotion of Health and Well-being. The scope of the course was 10 credits, of which 8 credits were completed through development work in cooperation with the CCO project. The course was part of the Innovative and Effective Nursing module which focuses on the evaluation and development of the working environment and services in social and health care. (Laurea curriculum 2020.)

The orientation for the autumn 2019 Innovative Multidisciplinary Promotion of Health and Well-being course began at the end of the previous spring term 2019 with a Career Planning course where an expert from the CCO project led students to consider interesting health and welfare themes while exploring their co-creation potential. The autumn 2019 course started with orientation and an independent preliminary assignment on service design as well as online studies on health promotion.

The development work during the course proceeded in stages throughout the autumn, starting with a lecture introducing the themes of service design and co-creation. The twelve development teams each chose an interesting target group and then examined the health and well-being of that group through statistics and research data. The goal was to use evidence-based information to find and delineate the theme of health and well-being promotion, and then have the development team start drafting a plan. Laurea's information specialist carried out the information retrieval training relating to the development themes.

In the following stage, students were introduced to customer insight and its significance in producing and developing services. The students added customer insight to their development work by determining the opinions of their target group through surveys and interviews. At this stage, the co-creation took place in the contact-teaching classes, where the development teams presented their projects and gave each other new ideas and peer feedback.

The course concluded in a co-creation workshop with the theme of pupil and student health and well-being, as most of the team projects related to this theme. Employer representatives from social, health and education services and NGOs were invited to join this co-creation workshop. Four employer partners participated in the workshop. At the start of the workshop, the public health nursing students briefly introduced the development project plans of the teams, after which the plans were further developed using the Learning Café method. In the co-creation process, the students served as the experts for their projects and led the co-creation for their project. (Figure 1)

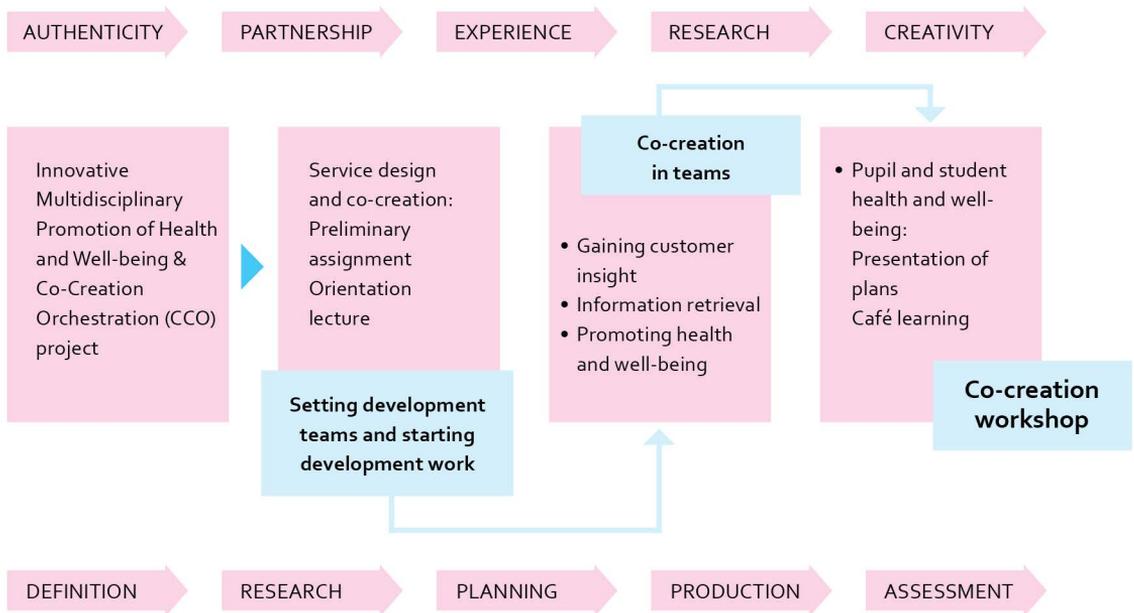


Figure 1. Course process in the context of LbD and service design (Figure: Häkkinen & Latva-Korpela)

PARTICIPANTS, MATERIAL AND ANALYSIS

A total of 39 public health nursing students participated in the course in 12 development teams. Most of the students in the course had begun their public health nursing studies in 2017 and had reached the advanced stage of their studies. All but one of the students gave their written consent for the material produced during the course to be used as research material. One student was not present when the consent was requested. The self-evaluation of this student and the report from their development team have been excluded from research use.

The research material consists of the project reports written by the students in the development teams (N=11, 66 pages) as well as the individually written self-evaluations (N=29, 29 pages). The lack of self-evaluation documents from students who gave their consent is due to documents not being submitted within the deadline.

The research material was printed for both researchers and any identifying factors removed, such as names and student numbers. The material was analysed by theme. Each researcher first studied the material independently, looking for expressions that addressed the research question. The researchers then compared these expressions and discussed them to form themes that ran through the whole material. (Pope, Ziebland & Mays 2020, 119–120.)

RESULTS

The researchers identified five themes of student experience in the material: co-creation as a new concept and method for the students, the construction of the information basis for co-creation, the co-creation workshop as a learning environment, co-creation enabling professional development and using co-creation methods in the future. These themes are described in Figure 2.

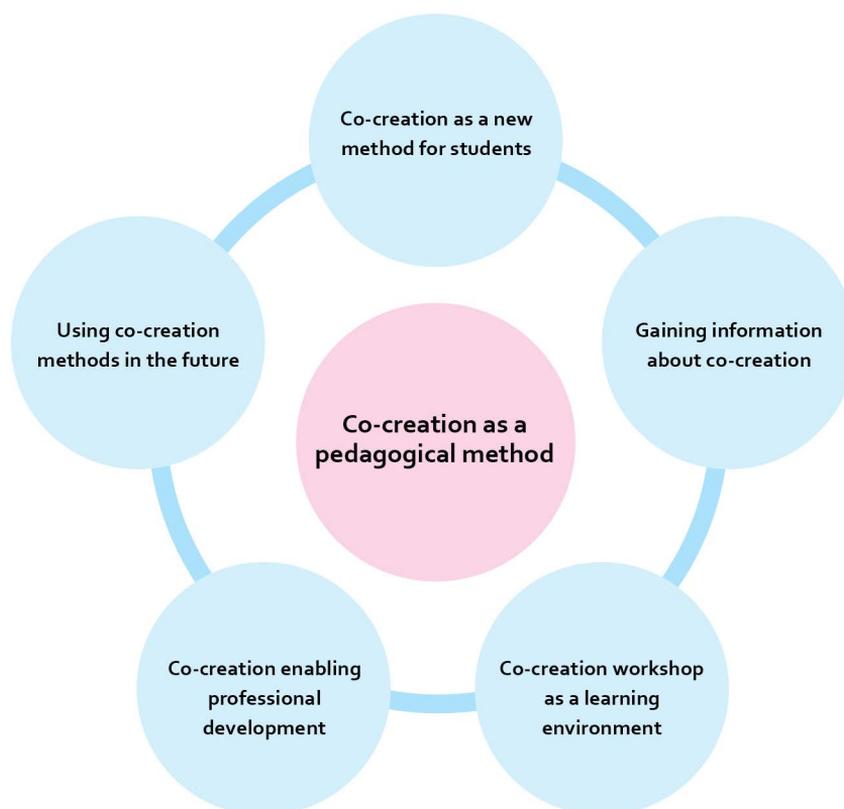


Figure 2. *Co-creation as a pedagogical method.* (Figure: Häkkinen & Latva-Korpela)

Co-creation as a new concept and method

The students described co-creation as a new method of development for them. They were not previously familiar with the concept of co-creation. At first, the new concept resulted in confusion among some of the students. Some students found the theoretical information on co-creation brought up in the preliminary assignment and at the beginning of the course too difficult.

The co-creation-based work method used in the course was also seen as new and challenging. The novelty of the topic even resulted in some irritation, but this soon led to learning as the course progressed.

"I've never read anything about service design or co-creation before."

"Our whole group was quite confused about the assignment at first. It was clear that none of us had any experience of a proper development project. At first, we were also baffled by the theory of co-creation and service design... But it got easier as time went on."

"Previously, the concepts of service design and co-creation in particular were foreign and distant to me. I had no real experience of them."

Constructing the information basis of co-creation

The students found that they could learn the concept of co-creation during the course. The theoretical understanding was built through studying the independent study materials and the conversational lectures of the contact teaching.

"After the preliminary assignment and the conversations in class, I started to understand the concept of service design, which had been completely foreign to me. I feel that at the moment I understand the concepts and could explain them in broad terms to someone who doesn't know anything about this topic."

During the course, the potential for co-creation was examined particularly in the context of health promotion. In co-creation, the students especially identified the potential for enhancing customer engagement and user-based approaches. Some of the students thought about co-creation as a method of social change.

"I also understand that development work and co-creation in general can be used to promote health and create new ideas for health promotion."

"From the perspective of health promotion, co-creation can serve all of society in projects both small and large."

The co-creation workshop as a learning environment

The co-creation workshop organized during the course was considered a platform for many different types of learning. The workshop introduced a practical perspective to co-creation, focusing on concrete content relating to health promotion. It gave participants the chance to apply their previous learning to practice.

"My co-creation competence was particularly boosted by the co-creation day which helped provide a concrete context to the contents and objectives of the whole course. It also made the concept of co-creation clearer."

The co-creation workshop enabled participants to make a synthesis of the contents they had learned during the course. For the students, the workshop was a constructive environment where the things they had learned were linked together through group work. The learned knowledge was made concrete and gained new meanings at the workshop.

"The co-creation day really helped link and highlight the things we had learned during the course while providing them with context and a practical perspective."

"The co-creation day pulled together everything we had learned and gave our development project more meaning."

The workshop helped students move the development ideas of their teams forward. Before the workshop, the teams had worked on some preliminary ideas on promoting the health of their target groups. During

the workshop, they were able to hone their ideas and gain more skills to plan their development work. Their understanding of the significance of cooperation between different partners in development work was particularly emphasized.

"Even though I had no idea what would happen during the co-creation day, it was great to see that the plan for the day really helped further the ideas and continue the co-creation."

"From a health promotion perspective, the co-creation day highlighted the understanding of how important the cooperation is between different institutions and stakeholder groups in the social and health care field."

Co-creation enabling professional development

The students stated that the co-creation process supported their own professional development. The students were responsible for the work of their team at the different stages of the co-creation process. They particularly gained more confidence in development work. The students presented the results of their development team to each other during the lessons, and to the whole student group and the visiting experts during the co-creation day. These sessions improved the students' confidence in public speaking.

"I also feel like the assignment helped me develop as a health care professional."

"I think my competence and professional skills developed during the course and the CCO project."

"Speaking in front of the class and presenting the progress of our work were a part of the course. I've previously found public speaking to be difficult and even frightening, but now I think I have improved and gained in confidence."

Using co-creation methods in the future

Participants found the course useful for their coming thesis process and future profession. Their experiences during the course increased their interest towards project work. Some students planned to use the newly learned co-creation methods in their theses. The students considered co-creation methods to be useful for their future professions as developers of social and health care services. The course also sparked the desire to learn more about co-creation methods.

"I hope that I'll be able to use this (co-creation) in my thesis in some way. These are useful tools for developing health care."

"During the course I noticed that I found project and development work very interesting. It would be interesting to participate in development projects in the future."

"I have gained motivation to use service design methods in the development of social and health care services. Development and teamwork require constant learning, so I hope that I will be able to participate in projects or development work in the future."

"I find development work interesting, but challenging. I think I could study this topic some more to deepen my understanding."

DISCUSSION

Discussion of the results

The article describes the course Innovative Multidisciplinary Promotion of Health and Well-being, which was organised for the first time. The course used co-creation as a pedagogical method. Co-creation has previously been used as a pedagogical method, for example in the curriculum development for nurse education (Watson, Horseman, Fawcett, Hockley & Rhynas 2020), development of higher education teaching (Bovill 2011) and development of learning contents for sociology (Billett & Martin 2018). At the Laurea University of Applied Sciences, co-creation has been used as a pedagogical method at least in the language studies for nurse education (Myrén 2019). In this study, five themes emerged in student experiences: co-creation as a new concept and method for the students, accrual of information on co-creation, the co-creation workshop as a learning environment, co-creation enabling professional development and using co-creation methods in the future.

The results indicate that for the students, co-creation was an unfamiliar pedagogical and development method. They learned the method partially through theoretical examination with the preliminary assignment, and partially by using it during the development work. For the students, the most significant element in terms of learning was the co-creation workshop where co-creation was applied to practical development with experts from outside Laurea.

The foundation for using co-creation as a pedagogical method in the course consisted of Laurea's Learning by Developing (LbD) model. This model is characterised by authentic learning, partnership and an experiential approach, all of which were carried out in cooperation with employer partners in the course. This was particularly emphasised in the co-creation workshop where the students and a diverse group of representatives from various professional social and health care institutions worked together to solve challenges of health promotion among school pupils and higher education students. The research-focused approach of the LbD model was present at all stages of the learning process. The learning began by acquiring research results relating to the themes of the course. The course concluded with a report produced by the students where they reflected on the experiences they had gained during the course and compared them to the research results they had compiled in the beginning. The whole learning process was characterised by creativity, from the unusual problem-solving to the creative application of development methods. (Cf. Raji 2007, Raji 2014.)

From the perspective of pedagogy specific to a university of applied sciences, the main result was the professional development of the public health nurse students during the learning process. The students described gaining development skills and confidence in public speaking. Their interest in developing the methods of health promotion increased. Watson et al. (2020) have also described professional development in the context of co-creation. In their study, the professional understanding of nursing students regarding the care work of the elderly developed in a positive direction during the co-creation process.

The results indicated the students' strong focus on the future. The students estimated that the co-creation method they learned in the course could be used in their thesis work. Co-creation was also seen as a useful tool in their future work as public health nurses and in the development of health care work.

Reliability

The reliability of a qualitative study is evaluated by its credibility, confirmability, reflexivity and transferability (Kylmä & Juvakka 2012). In this study, the credibility is supported by the fact that the information was acquired from public health nursing students who described their personal experiences in the course. The research material consisted of project reports from the development teams and the individual self-evaluations of the students. The self-evaluations in particular increased the students' in-depth reflexive thinking of their co-creation learning process.

To ensure confirmability, every stage of the research process has been described in the article in detail. The study was conducted by two researchers, which further increases confirmability. Both researchers studied the material and made a preliminary analysis independently. The final results were written together as pair work. Reflexivity was considered by recognising existing notions and previous experiences of public health nurse education and co-creation.

Ethical considerations

The different stages of the study comply with the recommendations of the Finnish National Board on Research Integrity regarding the responsible conduct of research (2012). The research process began by acquiring permission to carry out the study from the Laurea University of Applied Sciences. Students were informed of the study at the beginning of the course. The students gave informed and voluntary consent to participate in the study. The students had the right to discontinue their participation in the study at any point during the research process. The research material consisting of the self-evaluations and the development team reports was only available to the two researchers. Students' identifying factors were removed from the material. The research material was printed on paper. It will be securely stored and appropriately destroyed after the publication of the research article.

The profession of the public health nurse has traditionally been very independent in nature, and the responsibility for developing the professional competence has rested on the individual. With recent changes, customer-focused and multi-professional development has become an increasingly important development skill for public health nurses. Co-creation enables many different institutions to be involved in changing and improving services. The course described in the article offered students a safe environment in which to act as developers and implementers of innovative services for well-being and health promotion. Below we offer some recommendations on using co-creation in public health nurse education.

Conclusions and recommendations

- Co-creation is a suitable pedagogical method for public health nurse education.
- As a rule, the students possess the abilities needed for co-creation, and their methodological skills can be strengthened during the education.
- Learning a new method may be confusing at first. Teachers must provide support and enable the students' progress into experiences of competence and ability.
- The students must be seen as equal development partners.
- The knowledge basis of co-creation should be considered in the curriculum of public health nurse education as a consistent theme already before advanced studies.

- Applying co-creation methods successfully requires careful course planning.
- Teachers must be careful to generate a safe learning atmosphere, as it enables creativity and innovative thinking.
- The members of the students' development teams must agree on how they intend to work. A written team agreement supports the work of the development team.
- The different backgrounds and experiences of the learners should be used intentionally in co-creation.
- Peer feedback should be used as part of the learning assessment.
- The assessment must consider the full learning process, not just the results.

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Keywords:

- Co-creation
- Dialogic co-creation
- Promotion of health and wellbeing
- Public health nurse education
- Holistic concept of human being

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17. Digitaalisten oppimisympäristöjen kehittäminen hyvinvointiteknologian avulla

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Teknologian merkitys hyvinvointialalla ja myös sen opetuksessa korostuu entisestään tulevaisuudessa. Muuttuvan yhteiskunnan tarpeet tuovat kustannuspaineita palvelujen tuottamiseen. Julkiset resurssit niukentuvat ja paine yksilön oman vastuun kantamiseen kasvaa. Tarvitaan uusia innovatiivisia palveluratkaisuja, joissa hyödynnetään terveysteknologiaa, tekoälyä, robotiikkaa ja digitalisaatiota. Toisaalta tulevaisuudessa teknologia halpenee, robotiikan käyttö arkipäiväistyy ja tekoälyn käyttö hoiva- ja terveysteknologiassa yleistyy. Terveyspalveluiden tuotanto muuttuu perinteisestä kohtaamisesta etäyhteyden ja etämittauslaitteiden hyödyntämiseen erityisesti maaseudulla, jossa palvelut entisestään vähenevät ja keskittyvät kasvukeskuksiin. Ihminen saa reaaliaikaista terveydentilaa mittaavien digisovellusten ja henkilökohtaisten mittauslaitteiden avulla välittömän tiedon terveydentilastaan ja lääkäriä tullaan tarvitsemaan vasta hoidon tarpeessa. Mittalaitteiden tiedot voidaan välittää suoraan palveluntarjoajille ja personoitu hoitopolku mahdollistuu. Tekoälyn, ennakoivan analytiikan ja laajan datan avulla terveydenhuollon ammattilaiset pystyvät diagnosoimaan ja valitsemaan oikean hoidon potilaille entistä paremmin. (Laurea 2019; Sitra 2020; THL 2019.)

Osaamisen vahvistaminen muuttuvassa yhteiskunnassa ja työelämässä vaatii tieto- ja viestintäteknologian tehokasta hyödyntämistä. Hyvinvointiteknologian käyttö palveluiden tuottamisessa ja sosiaali- ja terveysalan opetuksessa on lisääntynyt 2000-luvun alusta lähtien voimakkaasti. (THL 2019.)

Arjen tietoyhteiskunnan neuvottelukunnan yhtenä koulutuspoliittisena tavoitteena on tieto- ja viestintäteknologiaa hyödyntävien oppimisympäristöjen kehittäminen ja opetuskäytön vahvistaminen. Koulutuksen tietoyhteiskunta 2020 -raportin mukainen visio on, että ”Suomalaiset koulut ja oppilaitokset ovat kansainvälisesti vertaillen edistyksellisiä tieto- ja viestintäteknologian hyödyntäjiä”. Tieto- ja viestintäteknologialla on merkittävä rooli pedagogisten oppimisympäristöjen kehittämistyössä esimerkiksi mahdollistaen erilaisen verkkooppimisen (Jyväskylän Ammattikorkeakoulu 2020; Opetus- ja kulttuuriministeriö 2011; Sitra 2020; Valtioneuvosto 2008;).

Digitalisaation käyttö palveluissa ja ihmisten vuorovaikutuksessa on nykypäivää. Teknologia kehitty nopeasti ja muuttaa tuotantotapoja ja toimintamalleja, vuorovaikutus voi tapahtua etänä tai virtuaalisessa ympäristössä. Teknologian hyödyntäminen myös opetuskäytössä edellyttää entistä enemmän ajatusmallien ja toimintatapojen muuttamista. Kannettavat terveydentilaa mittaavat ja seuraavat laitteet ovat tätä päivää, joita voidaan hyödyntää myös opetuksessa. Kiinnostavia kehityssuuntia opetuksessa ovat laitteiden ja palveluiden virtuaali- ja lisätty todellisuus, ääni- ja eleohjaus, esineiden tai kaiken internet. (Laurea 2019.)

Opetusteknologia sulautuu opetuksen kaikkiin osa-alueisiin ja sen avulla saadaan runsaasti keinoja opetuksen monipuolistamiseen ja kehittämiseen. Opetusteknologia on osa verkkopedagogiikkaa, jonka avulla kehitetään uusia didaktisia toimintamalleja sekä oppimisympäristöjä, jotka palvelevat opetusta mahdollisimman hyvin (Jyväskylän Ammattikorkeakoulu 2020).

Tämän päivän opiskelijoiden, tulevaisuuden hyvinvointialan ammattilaisten, pitää päästä purjehtimaan terveysteknologian aallon harjalla jo opiskeluaikana. Heidän pitää päästä kokeilemaan, testaamaan ja olla mukana kehittämässä hoiva- ja terveysteknologia laitteita, robotiikkaa, tekoälyratkaisuja ja digitaalisia palveluita, jotka mahdollistavat tulevaisuuden kustannustehokkaan ennaltaehkäisevän ja myös sairauksien hoidon. Innovatiivinen ja aktiivinen yhteistyö sekä yhteiskehittäminen yhdessä terveys- ja hoiva-alan ammattilaisten kanssa mahdollistaa ammattikorkeakouluille uusien opetusmenetelmien ja -teknologian kehittämisen.

Aktiivinen partneritoiminta on Laurean menestystekijä ja keskeinen toiminnan kohde. Partneritoiminnan päätavoite on edistää Laurean toiminta-alueen työelämän kehittymistä, uudistaa työelämää ja tuottaa ammatitoista työvoimaa alueelle. Parhaimmillaan aktiivinen kumppanitoiminta on suunnitelmallista ja systemaattista yhteiskehittämistä, joka tähtää esimerkiksi terveysteknologian hyödyntämiseen uusilla alueilla kuten opetuksessa.

Tässä artikkelissa haluamme esitellä muutamalla toteutetulla projektiesimerkillä, millaista yhteistyötä teemme terveys- ja hoiva-alan kumppaneidemme kanssa. Projektien tavoitteena on tuottaa kokemusta ja uutta osaamista projektien kaikille sidosryhmille. Opiskelijoille yhteistyö alan osaajien kanssa tuo aitoa uutta osaamista hoiva- ja hyvinvointiratkaisuissa ja -palveluissa, uusien teknologioiden ja digitalisaation hyödyntämisessä, verkostoja, uudenlaista tietoa, taitoja ja kokemusta jo opiskelujen aikana. Ammattikorkeakoulun opetushenkilöstölle yhteistyö antaa mahdollisuuksia kehittää uudenlaisia opetusmenetelmiä hyödyntäen uutta hyvinvointitekniologiaa ja digitaalisia ratkaisuja. Kumppaneille yhteistyö ammattikorkeakoulun opiskelijoiden ja lehtoreiden kanssa tuo uusia mahdollisuuksia testata tuotteitaan ja palveluitaan sekä löytää uusia käyttökohteita. Yhteistyöprojekteissa hyödynnetään yhteiskehittämisen ratkaisuja, jolloin myös palveluiden tulevat asiakkaat ovat mahdollisesti mukana testaus- ja kehittämistilanteissa.

TERVEYTEKNOLOGIAN HYÖDYNTÄMINEN TERVEYSALAN OPETUKSESSA

Tässä artikkelissa esittelemme Laurean Otaniemen kampuksella hoitotyön- ja fysioterapiakoulutuksissa toteutettuja kehittämisprojekteja, joissa testasimme kahta hyvinvointitekniologista ratkaisua. Kehittämisprojektien tavoitteena oli selvittää, voidaanko hyvinvointitekniologiaratkaisuiden avulla kehittää kummankin koulutuksen sisältöjä ja tuoda uutta osaamista opetukseen ja opiskelijoiden oppimiseen. Projekteissa testasimme kumppanimme Ilonion Care Oy:n HMT-1 puheohjattavaa älykameraa (jatkossa puheohjattava älykamera) hoitotyön ja fysioterapiakoulutuksissa. Lisäksi hoitotyön koulutuksessa testattiin myös, miten virtuaalilaseja voidaan hyödyntää opetuksessa. Puheohjattavan älykameran ja virtuaalilasien avulla olemme pystyneet luomaan uusia, todentuntuisia digitaalisia oppimisympäristöjä sekä pystyneet havainnollistamaan digitaalisesti käytännön hoito-, ja kuntoutustilanteita. Opiskelijoilta on myös kerätty kokemuksia siitä, miten uudet teknologiaratkaisut

edistävät oppimista. Artikkelissa tulemme esittelemään näiden teknologialaitteiden hyödyntämistä opetuksessa sekä opiskelijoiden kokemuksia niistä. Ensiksi esitellään HMT-1 puheohjattavan älykameran projektit ja sen jälkeen hoitotyön koulutuksessa toteutettu virtuaalilasien projekti.

Puheohjattavalla älykameralla toteutetut projektit

Puheohjattava älykamera on päähän puettava ja puheohjattava Android älylaite HD-kameralla. Laite on tarkoitettu muun muassa erilaisten terveydenhuoltoalan toimenpiteiden dokumentointiin ja opetustarkoituksiin. Älykameralla saadaan HD-tason stillkuvaa sekä videota. Kameran kuvaa voidaan katsoa pienestä monitorista, joka on otsapannassa kiinni ja siirtää langattomasti lähellä sijaitsevaan monitoriin. Älykamerassa on wifi-yhteys, joka mahdollistaa kuvan ohjaamisen reaaliaikaisesti etänä, esimerkiksi koulutustilaisuuksissa luentosaliin tai etäkonsultaatitilanteissa. Materiaalia voidaan siirtää USB-kaapelilla laitteelta tietokoneelle sekä toiseen suuntaan. Älykamera mahdollistaa siten myös tallennetun materiaalin siirtämisen tietokoneen avulla potilastiedostoihin tai haluttaessa materiaali voidaan antaa potilaalle muistitikulla mukaan. Laitteen etuina ovat langattomuus, helppokäyttöisyys, ääniohjaus sekä etäkuvan siirto ja sopii dokumentointiin ja koulutuskäyttöön erittäin hyvin. (Ilion Care Oy 2018.)



Kuva 1. HMT-1 puheohjattava älykamera. (Kuva: Realmax Oy)

Sairaanhoitaja- ja terveydenhoitajaopiskelijoiden kokemuksia puheohjattavalla älykameralla tuotetun videomateriaalin käytöstä hoitotyön opetuksessa

Laurean hoitotyön opiskelijat suorittivat Ihmisen elimistön rakenne ja toiminta -opintojaksolla Bioanalytiikan harjoituksia. Ennen harjoitusten alkua opiskelijat katsoivat puheohjattavalla älykameralla tuotetut videot. Yksi videoista näytettiin Työikäisen väestön ja ympäristön terveyden edistäminen -opintojakson oppitunnilla. Kyselyn tarkoituksena oli kartoittaa Laurean Otaniemen hoitotyön opiskelijoiden kokemuksia puheohjatulla äly-

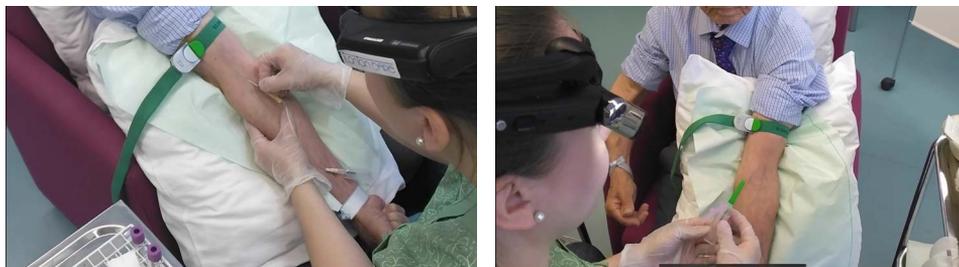
kameralla tuotetun videomateriaalin käytöstä. Puheohjattavalla älykameralla tuotetut videot olivat kestoiltaan max. 6:00 min. Tavoitteena oli arvioida käyttökokemusten pohjalta uuden teknologian hyödyntämistä hoitotyön koulutuksessa. Opiskelijoiden näkemyksiä kartoitettiin 4-portaisella Likert-asteikolla. Käyttökokemuksia mitattiin yhdeksällä kysymyksellä ja avoimella palautteella. Tutkimusaineisto kerättiin 2019-2020 neljältä eri opiskelijaryhmältä: sairaanhoitaja sekä terveydenhoitaja verkkopinnoitteinen monimuotototeutus ja päiväto- teutukset. Tutkimuksessa saatiin 79 hoitotyön opiskelijan vastaus.

Tutkimuskysymysten ja avointen vastausten perusteella opiskelijat kokivat puheohjattavalla älykameralla tuotetut videot oppimista edistäviksi ja hyödyllisiksi. Videot lisäsivät kiinnostusta opiskeltavaan aiheeseen ja niiden katsominen koettiin miellyttävänä. Videot havainnollistivat teoriassa opittua, mahdollistivat todentuntui- sen oppimiskokemuksen ja opiskelijat kokivat itsensä paremmin valmistautuneeksi tuleviin työpajaharjoituksiin, koska niitä oli mahdollista katsoa uudestaan. Videot helpottivat verkkotyökirjan täyttämistä ja työpajaharjoituk- siin valmistautumista. Palautetta annettiin myös siitä, että videot toivat kivaa vaihtelua opetukseen. Videoiden katsominen koettiin miellyttäväksi, koska ne olivat kuvattu ja toteutettu laadukkaasti. Suurin osa opiskelijoista halusi tulevilla opintojaksoilla hyödyntää opiskelussa älykameralla tuotettuja videomateriaaleja. Taulukossa 1 on esitetty tulokset vastausvaihtoehdoittain.

Taulukko 1. *Opiskelijoiden kokemuksia puheohjattavalla älykameralla tuotetun videomateriaalin käytöstä hoitotyön opetuksessa.*

	TÄYSIN SAMAA MIELTÄ	OSITTAIN SAMAA MIELTÄ	OSITTAIN ERI MIELTÄ	TÄYSIN ERI MIELTÄ
Videoiden katsominen edisti oppimistani	81 % (n=64)	14 % (n=11)	5 % (n=4)	
Koin videot hyödyllisiksi	84 % (n=66)	11 % (n=9)	5 % (n=4)	
Videot lisäsivät kiinnostusta opiskeltavaan aiheeseen	75 % (n=59)	19 % (n=15)	6 % (n=5)	
Videoiden katsominen oli mukaansa tempaava kokemus	49 % (n=39)	41 % (n=32)	9 % (n=7)	1 % (n=1)
Koin videoiden katsomisen miellyttävänä	73 % (n=58)	20 % (n=16)	6 % (n=5)	
Videot havainnollistavat teoriassa opittua	89 % (n=70)	11 % (n=9)		
Haluan opiskeltavaan aihe- alueeseen liittyvää video- materiaalia hyödynnettävän tulevilla opintojaksoilla	87 % (n=69)	11 % (n=9)	1 % (n=1)	
Koen itseni paremmin valmis- tautuneeksi tuleviin työpaja- harjoituksiin	75 % (n=58)	16 % (n=12)	8 % (n=6)	1 % (n=1)
Videoiden katsominen mahdollisti minulle toden- tuntuisen oppimiskokemuksen	72 % (n=57)	20 % (n=16)	8 % (n=6)	

Johtopäätöksenä voidaan sanoa, että puheohjattavalla älykameralla tuotetut videot koettiin oppimista edistäviksi ja viihteellisiksi. Uuden teknologian hyödyntämistä hoitotyön koulutuksessa voidaan suositella.



Kuvat 2. ja 3. Puheohjattava älykameran käyttöttestausta hoitotyön koulutuksessa. (Kuvat: Anna Ojala)

Fysioterapiaopiskelijoiden kokemuksia puheohjattavalla älykameralla tuotetun videomateriaalin käytöstä

Laurean fysioterapiakoulutuksessa on luotu uusia digitaalisia oppimisympäristöjä puheohjattavan älykameran avulla. Fysioterapiakoulutuksessa digitaaliset oppimisympäristöt ovat olleet haaste etenkin opetuksen sisältyvien manuaalisten taitojen oppimisen osalta. Puheohjattava älykamera vastaa tähän haasteeseen mahdollistamalla autenttisten potilastilanteiden luomisen myös digitaalisena.

Manuaalisen tutkimis- ja terapiaosaamisen tehtäväkohtaiset taidot

Puheohjattava älykamera mahdollistaa erilaiset ongelmanratkaisun ja kliinisen päättelyn stimulaatiot, jotka selittävät kehon rakenteiden ja ominaisuuksien sekä liikkeen ja liikkumisen yhteyttä. Laitteen avulla voidaan luoda autenttinen digitaalinen oppimisympäristö, jossa aidossa tilanteessa on mahdollista toteuttaa kliinistä päättelyä ja erotusdiagnoosia erilaisissa potilaan tutkimis- ja havainnointitilanteissa.

Osaamisen soveltaminen

Puheohjattavan älykameran avulla voidaan mahdollistaa liikkeen ja liikkumisen rajoitusta vähentävän välineosaamisen (mm. teippaus, apuvälineet ja erilaiset tuet/ortoosit) käyttämisen ohjeistus aidossa ympäristössä. Älykameran avulla on mahdollista myös kehittää ympäristön liikkumismahdollisuuksien ohjaamisosaamista (esim. liikkumisen avustaminen ja asiakkaan ohjaaminen). Ennen kaikkea puheohjattava älykamera on erinomainen laaja-alaisesti fysioterapia taitojen soveltavan osaamisen harjoittelussa.

Sairaanhoitajaopiskelijoiden kokemuksia virtuaalilasien käytöstä hoitotyön opetuksessa

Laurean opiskelijat suorittivat Pitkäaikaissairaahan hoitotyön -opintojaksolla keuhkosairauksia sairastavan potilaan harjoituksia. Yhdellä harjoituspisteellä käytettiin virtuaalilaseja. Opiskelijoille tehtiin käyttökokemuksista kysely, jonka tarkoituksena oli kartoittaa hoitotyön opiskelijoiden käyttökokemuksia virtuaalilasien hyödyntämisestä. Tavoitteena oli arvioida käyttökokemuksien pohjalta uuden teknologian hyödyntämistä hoitotyön koulutuksessa. Kysely kerättiin samalla, kun opiskelijat tarkastelivat virtuaalilaseilla terveen ihmisen sekä

astmaa ja keuhkohtaumatautia sairastavan potilaan keuhkoja. Virtuaalilasit olivat mallia HTC-Vive Pro ja käytetty sovellus oli Sharecare VR.

Kyselylomake oli strukturoitu lomake, joka sisälsi yhdeksän 4-portaista Likert-asteikollista väittämää. Lisäksi oli yksi avoin kysymys, jossa vastaajilla oli mahdollisuus antaa avointa palautetta. Kyselyyn vastasi 21 toisen lukukauden sairaanhoitajaopiskelijaa. Vastaajista itse virtuaalilaseja käytti 11 opiskelijaa, yhdeksän opiskelijaa seurasi TV-ruudulta vierestä ja yksi opiskelija ei vastannut kysymykseen. Syiksi virtuaalilasien käyttämättömyyteen raportoitiin tekniset ongelmat, aikataululliset haasteet tai laseja oli käytetty aiemmin ja haluttiin antaa muille mahdollisuus.

Tulosten perusteella opiskelijat kokivat virtuaalilasien käytön hyödylliseksi. virtuaalilasit edistivät oppimista ja lisäsivät kiinnostusta opiskeltavaan aiheeseen. Vastausten mukaan virtuaalilasien käyttö oli mukaansa tempaavaa ja miellyttävää. Lisäksi lasit havainnollistivat teoriassa opittua, mahdollisesti todentuntuisen oppimiskokemuksen ja käyttö koettiin turvallisiksi. Kaikki opiskelijat halusivat tulevilla opintojaksoilla hyödyntää virtuaalilaseja opiskelussa. Taulukossa 2 on esitetty tulokset vastausvaihtoehtoittain.

Taulukko 2. *Opiskelijoiden VR-lasien käyttökokemukset hoitotyön opetuksessa.*

	TÄYSIN SAMAA MIELTÄ	OSITTAIN SAMAA MIELTÄ	OSITTAIN ERI MIELTÄ	TÄYSIN ERI MIELTÄ
Koin VR-lasit hyödyllisiksi	81 % (n=17)	19 % (n=4)		
VR-lasien käyttö edisti oppimistani	76 % (n=16)	24 % (n=5)		
VR-lasien käyttö lisäsi kiinnostusta opiskeltavaan aiheeseen	81 % (n=17)	19 % (n=4)		
VR-lasien käyttö oli mukaansa tempaava kokemus	76 % (n=16)	19 % (n=4)	5 % (n=1)	
Koin VR-lasien käytön miellyttävänä	74 % (n=14)	21 % (n=4)	5 % (n=1)	
VR-lasit havainnollistaa teoriassa opittua	86 % (n=18)	14 % (n=3)		
VR-lasien käyttö mahdollisti minulle todentuntuisen oppimiskokemuksen	86 % (n=18)	10 % (n=2)	5 % (n=1)	
Koin VR-lasien käytön turvallisiksi	95 % (n=20)	5 % (n=1)		
Haluan tulevilla opintojaksoilla hyödyntää VR-laseja opiskelussa	95 % (n=20)	5 % (n=1)		

Avointa palautetta antoi 13 opiskelijaa. Palautteen perustella virtuaalilasien käytön todettiin edistävän oppimista.

*“Oli todella mielenkiintoista, nyt hahmottaa paremmin mitä sairaudet tekee keuhkoille fyysisesti”
“Virtuaalilasit auttavat havainnollistamaan niin paljon! Se on silmiä avaava kokemus, jota suosittelen ja mielellään käytän uudestaan.”*

Myös opiskelija, joka oli aiemmin suhtautunut skeptisesti, kertoi nyt ymmärtävänsä, miten virtuaalilaseilla pystytään edistämään oppimista. Opiskelijat arvostivat myös sitä, ettei kenenkään ollut pakko kokeilla virtuaalilaseja, jos ei itse halunnut.

Yksi opiskelija koki alussa käytön tuntuvan hiukan oudolta. Lisäksi palautteessa keuhuttiin hyvää kuvanlaatua ja todettiin kehityssuunta hyväksi. Vastauksissa toivottiin myös enemmän virtuaalilasien käyttöä opetuksessa. Tärkeänä pidettiin, että kaikilla olisi halutessaan mahdollisuus käyttää laseja.

Johtopäätökset

Opiskelijoiden kokemusten perusteella voidaan todeta, että virtuaalilasien käyttö edisti oppimista hoitotyön opetuksessa. Uuden teknologian hyödyntämiseen kannattaa panostaa ja tulevaisuudessa ottaa laajemmin mukaan opetukseen.



Kuva 4. Virtuaalilasit.
(Kuva: Pirjo Huikko)

Tarvitaan jatkuvaa kehittämistä terveys- ja hoiva-alan opetuksessa

Yhteiskunnan muutokset, muuttuva työelämä, uudet teknologiat ja digitalisaation yleistymisen edellyttävät jatkuvaa osaamisen kehittämistä. Uuden omaksumisen ja oppimisen, innovatiivisuuden, tietojen ja taitojen yhdistämisen sekä ennakkoluottomuuden merkitys kasvaa. (Sitra 2020.)

Virtuaaliodellisuuden hyödyntämistä terveysalan opetuksessa on tutkittu paljon (Ks. esim. De Gagne, Oh, Kang, Vorderstrasse & Johnson 2013; Duff, Miller & Bruce 2016; Hayden, Smiley, Alexander, Kardong-Edgren &

Jeffries 2014; Irwin & Coutts 2015; Krokos, Plaisant & Varshney 2019; Nelson 2016; Schaffer, Tiffany, Kantack & Anderson 2016; Ulrich, Farra, Smith & Hodgson 2014; Verkuyl ym. 2017). Laurea Otaniemen kampuksella toteutetut projektit vahvistavat, että virtuaalisen todellisuuden hyödyntäminen terveysalan opetuksessa lisää opiskelijoiden kiinnostusta opetettavaan aiheeseen sekä tiedonsaannin, ongelmanratkaisun ja kliinisen päätöksenteon kykyä. Opiskelijat itse kokevat virtuaalisen todellisuuden hyödyntämisen opetuksessa turvallisena, realistisena ja tehokkaana. Osallistumalla opetukseen, jossa on hyödynnetty virtuaalitodellisuutta tai puheohjattavalla älykameralla tuotettua materiaalia, opiskelijoiden on todettu omaksuvan enemmän tietoa ja pystyvän paremmin soveltamaan opittua.

Kun otetaan huomioon käytettyjen teknologialaitteiden opetuksen kokemukset ja vaikutukset oppimistuloksiin, ei ole yllättävää, että kouluttajat ja organisaatiot ympäri maailman haluavat virtuaalirealiteetin keinoin tarjota lisää luottavuutta opetukseen ja kaiken aikaa luodaan uusia tapoja, joilla virtuaalitodellisuus tukee oppimista ainutlaatuisen ominaisuuksiensa avulla. Ei siis ihme, että virtuaalirealiteettia on kuvattu 2000-luvun oppimisapuvälineeksi. (Rogers 2019). Toteutetut yhteiskehittämisen projektit kannustavat Laurea jatkamaan terveys- ja hoiva-alan opetuksessa hyvinvointiteknologian hyödyntämistä ja aktiivista kumppanitoimintaa alan toimijoiden kanssa. Kuten aiemmin artikkelissa todettiin kehittämissuunnitelmissa hyötyvät useat eri sidosryhmät kuten opiskelijat, kumppanit, opetushenkilöstö ja itse käyttäjät.

Anna-Kaisa Hankaniemi toimii hoitotyön lehtorina Laurea-ammattikorkeakoulussa

Pirjo Huikko toimii hoitotyön lehtorina Laurea-ammattikorkeakoulussa

Pia Kiviharju toimii aluepalvelupäällikkönä Laurea-ammattikorkeakoulussa

Minna Nikula toimii hoitotyön lehtorina Laurea-ammattikorkeakoulussa

Anna Ojala toimii hoitotyön lehtorina Laurea-ammattikorkeakoulussa

Pia Lahtinen toimii hoitotyön lehtorina Laurea-ammattikorkeakoulussa

Pauliina Louhiala-Hänninen toimii fysioterapian lehtorina Laurea-ammattikorkeakoulussa

Avainsanat:

- Digitaaliset oppimisympäristöt
- Virtuaalilasit
- Puheohjattava älykamera
- Laurea fysioterapiakoulutus
- Laurea hoitotyön koulutus

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18. The co-development process of work practices promoting the professional agency of primary nurses

Piia Silvennoinen

INTRODUCTION

In this article, I will describe the co-development process of care practices at the geriatric rehabilitation ward of a hospital in Southern Finland. Launched at the initiative of the nurses themselves, the main goal of the development was to reform the work practices of primary nurses to improve the patient discharge procedures and reduce the stress of the nurses' work. (Silvennoinen & Ronkainen 2019.) I will also consider how the professional agency of primary nurses is present in the context of development.

Co-development is becoming an increasingly common method in workplace development projects (Silvennoinen & Ronkainen 2019). Co-development means development through social interaction, where experts from different areas develop work practices or procedures as equals. The method is based on communal learning, in which the tacit knowledge of the participants is articulated into explicit knowledge. In co-development, information, for example of a better practice or procedure, is constructed in interaction between the participants sharing their experiences. (Pöyry-Lassila 2017.)

Social and health care sector workplaces typically develop their work and occupational wellbeing through various development projects. These projects are particularly necessary in the sector, as the limited resources and expectations of cost-efficiency increase the stress of social and health care employees and reduce their wellbeing (Heponiemi, Sinervo, Räsänen, Vänskä, Halila & Elovainio 2008). The efficiency requirements placed on the work make it difficult to maintain the respect for the needs of others and responsibility required by the professional ethics of care work and nursing. (Hirvonen & Husso 2012; Juujärvi, Ronkainen & Silvennoinen 2019; Laakso & Routasalo 2001.)

For the individual, requirements of productivity and efficiency as well as the financial pressures created by global competition coalesce into challenging situations, with demands for development, reform and change on the employee and organisational level. Initiative and proactivity are increasingly common demands in many areas of life. In the world of work, the employee's ability to influence things such as the development

of work practices and, by extension, the reconstruction of the professional identity, is known as professional agency. In concrete terms, professional agency means the employee's ability to influence, engage and innovate in the development of their work. (Eteläpelto, Hökkä, Paloniemi & Vähäsantanen 2014.) Professional agency is tied to the employee's professional identity, or their understanding of themselves as a professional. The professional identity reflects the employee's relationship towards work, professionalism as well as the values and ethical commitments that the work is based on and to which the employee is bound. (Eteläpelto et al. 2014.)

In the world of work, people must have initiative, be creative and have the desire to develop their work practices and learn continuously. Because of changes in the nature of work, employer organisations and careers, the professional identity is under constant change and development. (Eteläpelto, Heiskanen & Collin 2011.) An exemplary social and health care employee is a psycho-socially proficient occupational wellbeing expert, a professionally skilled developer as well as an agent of workplace community and cooperation (Arola, Laulainen & Pehkonen 2018).

A GERIATRIC REHABILITATION WARD AS A DEVELOPMENT CONTEXT

The article describes a ward in which geriatric hip fracture patients are treated after they have been transferred from specialist care. These patients cannot yet function outside a hospital environment. The patients have many different kinds of age-related health problems and memory disorders. The ward employs 25 nurses working in three shifts, and has approximately 30 patient places. The treatment periods at the ward are long, from a few weeks to a couple of months. The staff of the ward represent a variety of specialist fields, from experts in nursing (nurses, occupational therapists, speech therapists and physical therapists), medicine (doctors) and social work (social workers). The patients' ability to function and rehabilitation status are evaluated in the ward's weekly multi-disciplinary team meetings. The goal of this multi-professional care work is a smooth discharge process for the patient.

When patients arrive at the ward, they are appointed a primary nurse who will carry the main responsibility for the patients' care and coordination of care throughout the period of care. The primary nurse makes care-related decisions independently within the framework of professional self-determination (Laakso & Routasalo 2001). However, the primary nurse system requires active multi-professional cooperation and a clear division of responsibility (Carabetta, Lombardo & Kline 2013; Korhonen & Kangasniemi 2013). In other words, the nursing staff is responsible for the care work and the related decisions, but the doctor is responsible for medical decisions.

In the development work, the role of the Laurea researchers was two-fold: researcher and workshop facilitator. The professional connection of the researchers to the development target has been built in the course of student and development projects at different wards of the hospital over several years. These projects are part of Laurea's pedagogic Learning by Developing (LbD) model, in which the teaching and learning of students is carried out through development projects in the world of work (Henriksson, Korkiakangas & Mantere 2014).

DESCRIPTION OF CO-DEVELOPMENT, MATERIAL AND ANALYSIS

The goal of development based on the principles of co-development was to create information on the challenges relating to the work practices of the primary nurses and to propose solutions to them. The primary nurses of the ward felt that challenges relating to multi-professional cooperation resulted in extra work out-

side their job descriptions, which delayed the discharge of the patients. The development was carried out in workshops using dialogic methods. Dialogic methods focus on the equal and respectful interaction between people, attentive listening as well as an approach that seeks solutions and is focused on the future. They emphasise commitment to dialogue, reciprocity and coming to realisations together. (Arnkil 2006; Yhdessä aikuissosiaalityötä 2020.) Three workshops of dialogic co-development were organised during 2016. Participation in these workshops was restricted to the nurses at the ward. The composition of the workshops was based on the desire of the nurses to analyse their work and its development from the perspective of their professional group. The workshops had 25 participants: 11 nurses, 11 practical nurses and 3 physical therapists. (Silvennoinen & Ronkainen 2019.)

The first development workshop was organised in May 2016 on the learning café model. The learning café is a group-work method in which the participants aim towards a shared understanding of the topic at hand by examining it through dialogue from different perspectives. The goal of the workshop was to identify and solve the problems in the patients' discharge process which were resulting in stress factors in daily nursing work. The second workshop was organised in October 2016. The goal of the second workshop was to generate development suggestions for the work of the rehabilitation ward based on the results from the first workshop. The workshop used a method in which participants were asked to describe the optimal outcome for each challenge. In the third workshop in December 2016, the nursing staff reflected on a new work practice that had been developed through co-development from the perspective of employee, patient, multi-professional team and the workplace community as a whole.

The focus of the development was the information generated in the workshops through a dialogic method. The main elements were continuous learning, reflecting on the learning in the community through the development workshops, and individual reflection. Information and experience were highlighted in the individual reflection and the cooperative dialogue. (Silvennoinen & Ronkainen 2019.) The qualitative data produced in the workshops was analysed in two phases. First, the data was analysed through inductive content analysis by examining the challenges and solutions relating to the work practices of the primary nurses from the perspective of the nurses, patients and the multi-professional team. The analysis then moved from the original statements to broader themes and, finally, to conceptual analysis. After the inductive analysis, two narratives were made to describe the results (cf. Silvennoinen & Ronkainen 2019).

CO-DEVELOPMENT FOR BETTER WORK PRACTICES

The results of the co-development proved that the responsibilities in the multi-professional care team at the geriatric rehabilitation ward had to be made clearer, and that the communication within the workplace community had to be improved. This would let the primary nurses focus on their core work of nursing. (Silvennoinen & Ronkainen 2019.) The results indicate that the opportunity to compare one's own work to the job descriptions of other similar employees in charge of the patients' rehabilitation supports the professional identity and workplace culture of the nurses (Eriksson-Piela 2003). The results also show that the agency of the nurses is tied to their professional agency, which is manifested in their ability to influence and develop their work.

The co-development began with the development needs cited by the nurses, and with their desire to develop their work as a community. The community then processed the issues and sought solutions to achieve better work practices together. The development process increased the nurses' understanding of the content of their own work as well as the job descriptions of other groups, as the following interview quotes indicate:

"In these workshops we wind up talking about things with our coworkers, questions that we wouldn't talk about otherwise, but that are important. Like now that we talk about being a primary nurse, we take it for granted that everyone knows what that means." P1

"It's easier to see what the work of primary nurses is like and what the challenges are." P3

"You could say that this has improved the [multi-professional] cooperation in some ways." P2

"Yes exactly. In a way this [co-development] is something that I think is really great... Because you have to ask yourself if we're doing the right thing, if we could be doing something in a different way. When the reality is that there's not going to be more of us, but it's important that we do the things a certain way, the right way. And these development days, it's like when we go to work tomorrow we have all this enthusiasm and energy to push things forward. That's really good." P4

The development of work practices through co-development gave the nurses the chance to reflect on their work, to be heard, to make a difference and to participate in the development of their work. The co-development is not about the appearance of agency, as the need for the development was set in motion by the desires of the nursing staff to develop their own work. Etäpelto, Heiskanen & Collin (2011) point out that development at work can promote the appearance of agency, if the employees cannot choose whether to participate in the development and the development is not employee-led or engaging for employees.

Co-development requires listening to the perspectives of all participants, reflecting together, assuming a dialogic approach and learning continuously. A central feature is activating and supporting the engagement and agency of participants. (Hietala 2018; 2019.) The development of work practices of primary nurses, carried out through co-development methods (dialogic workshops) boosted the professional agency of the nursing staff. The development work gave the staff the opportunity to make a difference in their work, enabled them to develop their own professional identity and resulted in suggestions for new work practices.

Despite the positive effects, there are also risks involved in co-development, and they must be considered and understood in development work (Silvennoinen & Ronkainen 2019). The development of a work community cannot be based on replacing or fixing missing resources or structures (Hoppania, Olakivi & Zechner 2017). Successful and productive co-development is built on the equal relationship among participants, and involves reflecting and working together. Co-development also brings out the life experience of individual employees, which promotes a new kind of comprehensive understanding of the issues. The participants receive a fully formed imaged of the context of the development. (Hietala 2018; 2019.) Co-development also engages its participants and generates new understanding of professional agency and professional identity, as this study shows.

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Keywords:

- Primary nurser
- Co-developing
- Multiprofessionalism
- Elderly care
- Dialogical methods

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19. Mielensterveyspalvelujen yhteiskehittäminen SOLA-osaamiskeskuksessa

Carita Saarikivi & Anne Eskelinen

Mielensterveyspalveluissa on siirrytty entistä vahvemmin yhteistyökykyisempään kumppanuuteen palvelunkäyttäjien kanssa, jolloin palvelut pyritään räätälöimään kunkin käyttäjän tarpeisiin sopivalla tavalla. Laurea-ammattikorkeakoulun ja Keski-Uudenmaan Sopimuskoti ry:n yhteinen SOLA-osaamiskeskustoiminta käynnistyi keväällä 2015. Toiminnan tavoitteena on ollut kehittää toipumisorientaatio -viitekehikseen perustuvaa mielensterveyskuntoutusta sekä mielensterveystyön eri käytäntöjä Living Lab -toimintamallin pohjalta.

Vuonna 2018 Sopimuskodin kuntoutujille tehtiin kysely, jossa tarkasteltiin kuntoutujien (N=50) osallistumista SOLA-osaamiskeskustoimintaan ja kokemuksia järjestetyn toiminnan toteutuksesta. Kyselyllä kartoitettiin myös toiminnan vaikutuksia kuntoutujien hyvinvointiin ja toipumiseen. Lisäksi toteutettiin kaksi toipumisorientaatioon liittyvää haastattelua, joissa ensimmäisessä haastateltiin kuntoutujia (N=16) ja toisessa ohjaajia (N=6). Tavoitteena oli selvittää kuntoutujien ja ohjaajien kokemuksia toipumisorientaatiomallin pohjautuvasta kehittämistoiminnasta liittyen teemoihin elämänlaatu, osallisuus ja toivo.

Artikkelissa kuvataan yhteiskehittämistä SOLA-osaamiskeskustoiminnassa ja nostetaan esille mielensterveyskuntoutujien ja työntekijöiden näkemyksiä mielensterveyspalvelujen kehittämistyöstä toipumisorientaatiomallin pohjalta. Saatujen tulosten ja kokemusten valossa pohditaan yhteiskehittämisen mahdollisuuksia ja haasteita mielensterveyspalvelujen kehittämisessä korkeakoulun ja palveluntuottajan yhteistyössä.

TAUSTA

Keski-Uudenmaan Sopimuskoti ry ja Laurea-ammattikorkeakoulu ovat tehneet yhteistyötä vuodesta 2015 SOLA-osaamiskeskustoiminnan muodossa. Sopimuskoti tuottaa mielensterveyskuntoutujien palveluja ja sen toimintamuotoja ovat kuntouttava päivä- ja työtoiminta, asumispalvelut sekä omaistyö. Sopimuskoti tarjoaa kuntoutujille apua arjessa selviytymiseen, asumiseen, kuntoutumiseen, työllistymiseen ja vapaa-aikaan. Palvelujen piirissä on noin 100 kuntoutujaa ja Sopimuskoti työllistää 15 työntekijää. Osallisena SOLA-

osaamiskeskustoiminnassa ovat olleet mielenterveyskuntoutajat, heidän läheisensä, Sopimuskodin henkilökunta sekä Laurean opiskelijat ja opettajat.

SOLA-osaamiskeskuksen tavoitteena on edistää kuntoutujien kuntoutumista ja opiskelijoiden autenttista työelämäosaamista sekä luoda erilaisia kohtaamisia monipuolisen toiminnan ja työskentelyn kautta. Yhteistyön tavoitteena on ollut vuodesta 2017 kehittää toipumisorientaatiomallin mukaista mielenterveyskuntoutusta kumuloiden edellisen toimintakauden tulokset seuraavan kauden tavoitteiksi ja reflektoida tuloksia yhteiskehittämisen näkyväksi tekemiseen.

Palautteen ja tiedon kerääminen ja niiden kautta toiminnan kehittäminen on ollut SOLA-osaamiskeskuksen keskiössä. Kyselyjen ja haastattelujen toteuttamisesta ovat vastanneet Laurean eri opintojaksojen opiskelijat. Tutkimuksellisen otteen kautta on voitu todentaa kehittämistoiminnan vaikutuksia eri toimijoiden näkökulmasta.

LivingLab –konsepti valikoitui yhteistyön käynnistyessä kehittämistoiminnan kehikoksi sen käyttäjälähtöisen ja avoimen tutkimus- ja kehittämisorientaation perusteella. LivingLab toiminta määritellään toteutuvan tosielämän arjen kehittämissympäristössä ja se tähtää avoimeen innovaatioon eri toimijoiden yhteistyössä (ks. Heikkanen & Österberg 2012; Ståhlbröst & Holst 2012).

TOIPUMISORIENTAATIOYHTEISKEHITTÄMISEN VIITEKEHYKSENÄ

Toipumisorientaatiosta on vähitellen tullut mielenterveyspalvelujen tuottamisen ja järjestämisen keskeinen viitekehys. Aiemmin toipumisen on nähty pyrkivän johonkin entiseen toiminnan tasoon tai tasapainoiseen tilaan (Deegan 2001). Toipumisorientaatiossa painotetaan potilaan voimavaroja, toivoa, osallisuutta omassa elinympäristössään, elämän merkityksellisyyttä sekä positiivista mielenterveyttä. Toipuminen on nähtävissä prosessina, joka johtaa tyydytystä tuovaan elämään, psyykkisestä sairaudesta ja sen oireista huolimatta. (Nordling 2018.)

Toipumisorientaatiomallin mukainen ajattelutapa tarjoaa mielenterveysongelmiin ja niiden hoitoon ymmärrystä siitä, miten mielenterveysongelmasta kärsivää henkilöä autetaan ja hoidetaan, niin että hän voi elää hyvää ja merkityksellistä elämää (Le Boutillier 2011). Toipumisorientaatio tarkoittaa hyvää elämää mielenterveyshäiriöstä huolimatta (Brown 2018). Tällöin korostuu henkilökohtaisen toipumisen merkitys, vaikka mielenterveyshäiriön oireet eivät poistuisikaan. Toipumisorientaatiolla viitataankin sekä mielenterveyspalvelujen järjestämiseen että yksilön toipumisen tavoitteiden henkilökohtaistamiseen yhteisessä päätöksenteossa. (Korkeila 2017.)

Toipumisorientaatioon kuuluu viisi keskeistä ydinkokonaisuutta: yhteys muihin ihmisiin ja yhteiskuntaan (osallisuus), toivo ja optimismi, identiteetti, elämänlaatu (merkityksellisyys) sekä voimaantuminen (Slade 2013; Nordling 2018). Osallisuus tarkoittaa kuulumista johonkin yhteisöön, jossa voi toimia ja tuntea itsensä hyväksytyksi. Yhteisön jäseniltä on mahdollista saada tukea ja palautetta, joka osaltaan vahvistaa yhteenkuuluvuuden tunnetta. Tutkimusten mukaan vaikeista mielenterveyden häiriöistä toipuminen oli tuloksellisempaa, mitä paremmin kuntoutujat olivat kiinnittyneinä omaan perheeseen, työpaikkaan tai yhteisöön. (Whitley, Palmer & Gunn 2015.) Toivoon liittyy luottamus siihen, että asiat voivat muuttua ja että merkityksellisiä asioita on mahdollista löytää sairaudesta ja sen oireista huolimatta. Identiteetti tarkoittaa omaan itseensä liittyvää käsitystä ja kuvausta omista voimavaroista, jolloin myös sairauteen liittyvä stigma häviää. Tämä sisältää positiivisen minäkuvan rakentumisen. Elämänlaatuun liittyy merkityksellisyyden kokemus ja kyky löytää elämälle suunta itselle sopivan toiminnan ja tavoitteiden kautta. Tarkoitus on keskittyä vahvuuksiin

toimimattomuuden sijaan ja pyrkiä löytämään itselle tärkeitä päämääriä ja tavoitteita, jotka vahvistavat omaa elämänhallintaa. (Leamy ym. 2011; Nordling 2018.)

Toipumisorientaatioon perustuva työskentely edellyttää uudenlaista osaamista, jolloin perinteisestä hoitosuhteesta siirrytään yhteistyösuhteeseen. Käyttöönotto edellyttää työntekijältä tietoa ja kykyä soveltaa teorian lähtökohtia asiakkaan yksilölliset tarpeet ja tilanne huomioiden. Tämä vaatii siten työyhteisössä panostusta toipumisorientaatioon liittyvän työskentelyilmapiirin, asenteiden ja toimintakulttuurin tukemiseen. (Walsh ym. 2017.) Työntekijöiden valmiuksia tunnistaa esimerkiksi sosiaalisia, kulttuurisia tai sosioekonomisia tekijöitä on tärkeä vahvistaa, jotta työskentely edistää sekä asiakkaiden että henkilöstön kokemuslähtöistä ymmärtämistä (Hietala 2018b). Henkilökunnan ja asiakkaiden yhteisellä koulutuksella on saatu hyviä tuloksia, joka osaltaan on vahvistanut uudenlaisen yhteistyösuhteen muodostumista (Salkeld ym. 2013).

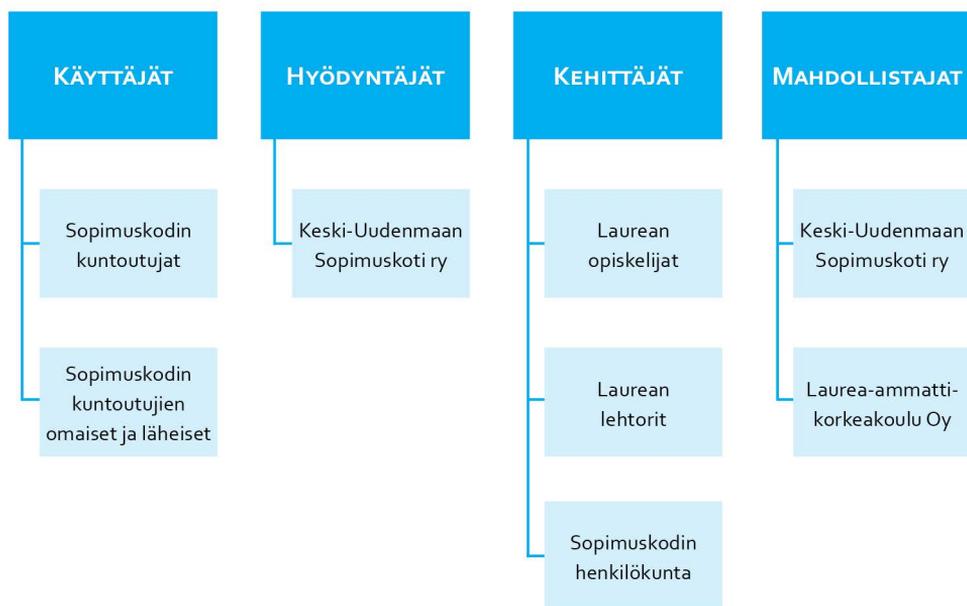
Kuntoutuksen tulisikin olla aina parhaimmillaan oppimis- ja kehitysprosessi (Järvikoski 2013). Tällöin on pyrkimys myös ylläpitää ei-tietämisen tilaa, jossa on mahdollista ilmaista ja tutkia omia ja toisten kokemuksia, mielipiteitä ja erilaisia näkökulmia. Näin valikoituvat myös menetelmät, tietämys ja osaaminen prosessin ja sen vaiheen ehdoilla. (Hietala 2018a.)

MIELENTERVEYSPALVELUJA KEHITTÄMÄSSÄ

Living Lab -toiminnan neljä peruselementtiä ovat käyttäjälähtöisyys, tosielämän kehittämissympäristössä toimiminen, avoin innovaatiotoiminta sekä toimijaverkosto eli ekosysteemi. Tuotteen tai palvelun käyttäjät ovat aktiivisesti mukana suunnittelussa ja osallistuvat toimintaan tuottamalla ideoita sekä antamalla palautetta tuotteen tai palvelun käytöstä. Käyttäjät ovat asiantuntijoita, jotka voivat tuoda esille arkielämän haasteita ja kehittämisenäkökulmia. Living Lab -toiminta toteutuu tosielämän aidossa ympäristössä, sillä kehitystyötä tehdään siellä, missä esimerkiksi palvelua tarjotaan. Avoimen innovaatiotoiminnan idea on, että kaikki toimintaan osallistuvat jakavat ideoita ja kehitysehdotuksia monialaisessa verkostossa. (ks. Leminen 2015; Heikkanen & Österberg 2012; Ståhlbröst & Holst 2012)

Ekosysteemin muodostavat Living Lab -toiminnassa mukana olevat toimijat, joilla on erilaiset roolit. Käyttäjien lisäksi muita rooleja ovat hyödyntäjät, kehittäjät ja mahdollistajat. Hyödyntäjän rooli tarjoaa väylän oman tuotteen tai palvelun tutkimiseen, kehittämiseen tai innovointiin. Oppilaitokset, tutkimuslaitokset tai yritykset toimivat usein kehittäjän roolissa tarjoten menetelmiä, työkaluja ja resursseja toiminnan toteuttamiseen. Mahdollistajana voi toimia kaupunki tai julkinen toimija, joka tukee toimintaa ja luo käytänteitä tai rahoittaa toimintaa. Living Lab -toimintaa ohjaa yleensä tiimi, joka organisoii toimintaa ja vastaa yhteyksistä eri toimijoiden välillä. (ks. Leminen 2015; Heikkanen & Österberg 2012.)

Sopimuskodin ja Laurean välistä SOLA-osaamiskeskustoimintaa lähdettiin vuonna 2015 kehittämään LivingLab -toimintamallin pohjalta määrittäen roolit eri toimijoille. Kuntoutujat ja kuntoutujien omaiset sekä läheiset nähtiin palvelujen käyttäjänä. Kehittäjän roolista käsin toimivat Sopimuskodin henkilökunta sekä Laurean opiskelijat ja opettajat. Toiminnan hyödyntäjänä toimi Sopimuskoti organisaationa erilaisine palveluineen ja toiminnan mahdollistivat Laurea-ammattikorkeakoulu ja Sopimuskoti.



Kuvio 1. SOLA-osaamiskeskuksen Living Lab -toimintamalli 2015. (Kuvio: Anne Eskelinen)

Sopimuskodin henkilökunnan jäsenistä ja Laurean opettajista muodostettiin tiimi, joka organisoisi ja suunnitteli yhdessä osaamiskeskustoimintaa. Tiimi kokoontui kuukauden välein käyden läpi kehittämistyönä toteutettavia opiskelijaprojekteja, arvioiden toteutunutta toimintaa ja suunnitellen kehittämiskohteita. Tiimin tapaamisiin osallistui mahdollisuuksien mukaan opiskelijoilta. Opiskelijat työskentelivät sovittujen projektien kautta yhdessä kuntoutujien ja henkilökunnan kanssa Sopimuskodin päivä- ja työtoiminnassa sekä asumispalveluyksikössä. Opiskelijaprojektit kohdistuivat pitkälti ryhmätoiminnan ohjaamiseen kuntoutujille ja päivä- ja työtoiminnan kehittämiseen. Kuntoutujien katsottiin olevan palvelujen käyttäjinä asiantuntijoita, jotka tuovat esille mahdollisia arkielämän haasteita. Työntekijät, opiskelijat ja lehtorit pyrkivät tarttumaan kuntoutujien ja omaisten haasteisiin ja ideoihin kehittäen toimintaa kuntoutujien ja omaisten toiveiden ja tarpeiden pohjalta.

Vuonna 2017 Sopimuskodilla järjestettiin henkilökunnalle toipumisorientaatiomallista työpaja, johon Laurean lehtorit osallistuivat. Työpajan jälkeen, yhteisten keskustelujen kautta, toipumisorientaatiomallin mukaisen mielenterveyskuntoutuksen kehittäminen valikoitui SOLA-osaamiskeskuksen yhteiskehittämisen perustaksi. Uusi näkökulma muutti myös Living Lab -ekosysteemin kuvaa. Toipumisorientaatiossa keskeistä on tasavertainen suhde eri toimijoiden välillä. Kuntoutujan ja omaisten toimijuus laajeni käyttäjän roolista kehittäjän rooliin ja puolestaan henkilökunnan, opiskelijan ja lehtorin roolin nähtiin laajenevan käyttäjän suuntaan. Toipumisorientaatiomallin yhteiskehittäminen tarjosi mahdollisuuden tasavertaiseen oppimiseen ja osaamisen jakamiseen. Myös Hietalan, Kinnusen, Kauppilan ja Karppisen (2018) mukaan yhteiskehittämisessä kuntoutuksen asiakkaille tarjoutuu mahdollisuus osallistumiseen, toimijuuteen ja vaikuttamiseen. Tämä tarkoittaa ammattilaisten, asiakkaiden ja johdon välistä tasavertaista vuorovaikutusta sekä yhteistoimintaa. (Hietala ym. 2018.)

MAHDOLLISTAJAT

Keski-Uudenmaan
Sopimuskoti ry

Laurea-
ammattikorkea-
koulu Oy

HYÖDYNTÄJÄT

Keski-Uudenmaan
Sopimuskoti ry

KEHITTÄJÄT JA KÄYTTÄJÄT – TOIPUMISORIENTAATIOMALLIN YHTEISKEHITTÄMINEN

Sopimuskodin kuntoutujat	Sopimuskodin kuntoutujien omaiset ja läheiset	Sopimuskodin henkilökunta	Laurean opiskelijat	Laurean lehtorit
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Kuvio 2. SOLA-osaamiskeskuksen toipumisorientaatiomalliin pohjautuva yhteiskehittämisen uusi toimintamalli LivingLab -toimintamallia mukailleen. (Kuvio: Anne Eskelinen)

Käytännössä toipumisorientaatiomallia on kehitetty järjestämällä yhteisiä toipumisorientaation eri osa-alueisiin liittyviä työpajoja, joiden suunnittelu on toteutettu yhteistyössä toimijoiden kesken. Lisäksi opiskelijat ovat järjestäneet kuntoutujille luovaa ryhmätoimintaa ja terveystutkimuksia, joiden tarkoituksena on ollut tukea kuntoutujien elämänlaatua ja identiteettiä sekä vahvistaa toivoa ja osallisuutta. Kehittämistyön ja toiminnan tuloksia sekä yhteisiä kokemuksia on tarkasteltu kaksi kertaa vuodessa järjestetyissä seminaareissa. Yhteisessä kehittämisessä keskeistä on ollut, että kaikki toimijat jakavat ideoita ja kehittävät toimintaa erilaisten menetelmien ja työkalujen avulla verkostossa, jossa luottamus ja oppimiselle avoin ilmapiiri ovat yhteistyön perusta.

Keväällä 2018 Sopimuskodin kuntoutujille toteutettiin kysely, jonka tavoitteena oli selvittää kuntoutujien osallistumista SOLA-osaamiskeskustoimintaan sekä kartoittaa kuntoutujien kokemuksia Laurean opiskelijoiden järjestämästä ryhmätoiminnasta. Kyselyllä selvitettiin myös toiminnan vaikutusta kuntoutujien hyvinvointiin ja toipumiseen. Kyselyn tulokset on julkaistu erillisenä artikkelina. (ks. Saarikivi & Eskelinen 2018.)

Kuntoutujille toteutettu kysely vahvisti käsitystä siitä, että kuntoutujat olivat tyytyväisiä SOLA-osaamiskeskuksen puitteissa järjestettyyn toipumisorientaatiomallin mukaiseen yhteistoimintaan, kuten työpajat, seminaarit, terveystutkimukset ja monipuolinen ryhmätoiminta. Kuntoutujat kokivat, että heillä oli mahdollisuus kartuttaa erilaisia tietoja ja taitoja sekä jakaa kokemuksia niin muiden kuntoutujien kuin opiskelijoiden kanssa yhteisen toiminnan muodossa. Tulosten mukaan toiminnalla oli ollut vaikutusta yksinäisyyden tunteen lievittymiseen, tietojen ja taitojen lisääntymiseen, sosiaalisen kanssakäymisen lisääntymiseen, arjen piristymiseen ja kokonaisuutena kuntoutumisen edistymiseen. (ks. Saarikivi & Eskelinen 2018.)

TOIPUMISORIENTAATIOMALLIN KEHITTÄMISEEN LIITTYVÄT HAASTATTELUT

Syksyllä 2018 haluttiin SOLA-osaamiskeskustoiminnassa selvittää tarkemmin kuntoutujien ja työntekijöiden näkemyksiä ja kokemuksia toipumisorientaatiosta, niin että toipumisorientaatiomallia voitaisiin kehittää tulosten pohjalta. Selvityksen toteuttivat Laurean opiskelijat teemahaastattelujen muodossa.

Terveysalan opiskelijat toteuttivat teemahaastattelun, jossa selvitettiin kuntoutujien kokemuksia toipumisorientaatiomalliin liittyvistä kolmesta eri teemasta; elämänlaatu, osallisuus ja toivo. Teemat valikoituivat kehittämiskohteiksi yhteisen kehittämistyöpajan kautta. Yksilöhaastatteluihin osallistui 16 kuntoutujaa. Kuntoutujien teemahaastattelujen tuloksia on käsitelty erillisessä artikkelissa. (ks. Pulli, Saarikivi & Ylitalo 2019.)

Sosionomiopiskelijat puolestaan haastattelivat Sopimuskodin kuutta työntekijää toipumisorientaatioon liittyvistä käsityksistä. Haastattelussa selvitettiin työntekijöiden näkemyksiä toipumisorientaatiosta ja sen merkityksestä omassa työssä sekä kuntoutujien ja koko työyhteisön toiminnassa. Työntekijöiden teemahaastattelujen tulokset on koottu lyhyesti yhteen tässä artikkelissa ja näiden lisäksi tarkastellaan jo aiemmin raportoituja kuntoutujien kokemuksiin liittyviä tuloksia (ks. Pulli, Saarikivi & Ylitalo 2019).

Kuntoutujien mukaan elämänlaatuun vaikutti keskeisesti mahdollisuus itseä kiinnostaviin asioihin sekä omaan arkeen, jossa oli tärkeää löytää mielekästä tekemistä. Tämä vaikutti myös mielialaan positiivisesti. Tunne omasta elämänhallinnasta ja elämän mielekkyyden kokemus olivat yhteydessä myös toivon kokemukseen. Työntekijöiden tarjoama tuki nähtiin merkityksellisenä elämänlaatuun ja omaan kuntoutumiseen liittyvänä tekijänä, joka sisälsi annetun tiedon lisäksi läsnäoloa, kannustusta ja turvaa. Kuntoutujien mielestä oli tärkeää kysyä heidän mielipidettään ja käydä keskustelua, jossa ylläpidetään toivoa, sillä se sisältää ajatuksia haaveista ja hyvän huomioimisesta. (Pulli, Saarikivi & Ylitalo 2019.)

Kuntoutujien elämänlaadun tukemisessa työntekijät näkivät tärkeänä, että toimintaan osallistumisen kynnys pidetään mahdollisimman matalana. Kuntoutujilla oli mahdollisuus osallistua työ- ja päivätoimintaan omien voimavarojensa mukaan, vaikka oma vointi ja kunto olisi jonakin päivänä hyvin heikko. Tavoitteena oli kuunnella, keskustella, kannustaa ja kysyä kuntoutujan vointia sekä nostaa esille voimavaroja sekä myöskin iloja ja unelmia elämästä. Tärkeänä periaatteena pidettiin sitä, että jokainen kuntoutuja tuntisi Sopimuskodilla kuuluvansa joukkoon. Elämänlaadun tukemiseen nähtiin liittyvän palvelut, kuten asumispalvelut, työ- ja päivätoiminta sekä myös kuntoutussuunnitelman laatiminen ja arviointi yhdessä kuntoutujan kanssa. Elämänlaatu tuettiin yhteisellä ruokailulla ja liikunnalla sekä muulla yhteisöllisellä toiminnalla, muun muassa retkillä.

Toivo merkitsi kuntoutujille uskoa itsen ja asioiden järjestymistä, kun tarvitsi tukea tai lohdutusta. Suunnitelmallisuus ja pitkäjänteisyys edistivät osaltaan toivoa. Työ- ja opiskeluasioihin, asumiseen ja talousasioihin liittyvät tekijät pitivät myös yllä toivoa ja lisäsivät uskoa paremmasta. Positiivisen palautteen saaminen, tavoitteisiin pääsemisen ja motivaation tukeminen sekä kuulumisten kysyminen edistivät kokemusta toivosta. Toivon koettiin olevan motivaation lähde ja siitä keskustelemista toivottiin lisää, sillä tulevaisuudesta ja omista toiveista on tärkeä käydä keskustelua. (Pulli, Saarikivi & Ylitalo 2019.)

Työntekijöiden mielestä toivo merkitsi kuntoutuksessa eteenpäin menoa, vaikka pienin askelin sekä tulevaisuuden suunnittelua yhteisesti. Toivo ilmeni päivittäisissä keskusteluissa esimerkiksi toiveikkaan asenteen ylläpidossa, puhetyylissä sekä yleisessä toiveikkaassa ilmapiirissä. Huumorin ja yhteisen iloittamisen koettiin liittyvän toivon ylläpitämiseen. Toivon nähtiin kannattelevan työntekoa ja sen toteutui kuntoutussuunnitelmassa tavoitteiden asettamisessa omalle elämälle. Toivoon liittyi toisaalta myös realismi ohjauskeskusteluissa ja vakava suhtautuminen kaikkiin ohjaustilanteisiin kuntoutujien kanssa.

Kuntoutujien mielestä osallisuutta oli huomioduksi tuleminen ja sitä vahvistivat kannustus, oikeudenmukaisuus ja hyvä, huumoria ja vertaistukea sisältävä yhteisöllinen ilmapiiri. Joustavuus edisti osaltaan

osallisuutta, jolloin myös työtä pystyi tekemään oman jaksamisen mukaan. Osallisuutta ja elämänlaatua vähensivät kuitenkin kiire, joustamattomuus ja vähäiset vaikuttamismahdollisuudet sekä koetut sairauden oireet ja väsymys. (Pulli, Saarikivi & Ylitalo 2019.)

Osallisuutta työntekijät tukivat motivoimalla, rohkaisemalla, kannustamalla, neuvomalla, ohjaamalla, kyselemällä ja sitouttamalla kuntoutujia toimintaan. Työntekijät pitivät tärkeänä kuntoutujien rohkaisemista oma-aloitteisuuteen esimerkiksi tiedonhankinnassa ja päätöksenteossa. Osallisuutta vahvistivat erilaiset vastuutehtävät ja työtehtävien jakaminen yhteisesti sekä kuntoutujien mielipiteiden huomiointi päätöksenteossa. Vertaisohjaajuus ja toisten opastaminen erilaisissa työtehtävissä vaikuttavat myös osallisuuden kokemukseen. Työntekijät kokivat, että kuntoutujien osallisuutta saattoivat rajoittaa erilaiset maksusitoumukset, joiden mukaisesti kuntoutujat osallistuvat työ- tai päivätoimintaan.

Työntekijät näkivät tärkeänä, että kuntoutuja päättää omasta kuntoutumisestaan ja on aktiivinen toimija esimerkiksi kuntoutumissuunnitelman tavoitteita laadittaessa. Ohjaajan rooli oli olla läsnä ja tukea sekä auttaa tarvittaessa yksilöllisesti. Työntekijät nostivat esille johdonmukaisuuden merkityksen kuntoutusprosessissa ja mahdollisuuksien ja tuen tarjoamisen yksilöllisesti kuntoutujan oma osaaminen ja jaksaminen huomioiden.

JOHTOPÄÄTÖKSET

Sopimuskodilla kuntoutujille toteutetun kyselyn sekä kuntoutujille ja työntekijöille toteutettujen haastattelujen pohjalta voidaan todeta, että yhteiskehittäminen Laurean ja Sopimuskodin yhteisessä SOLA-osaamiskeskustoiminnassa on vahvistanut toipumisorientaatiomallin mukaista kuntoutusta.

Kuntoutujat ja työntekijät näkivät toipumisorientaatioon liittyvien toivon, elämänlaadun ja osallisuuden merkityksen hyvin samankaltaisesti osana kuntoutumista. Elämänlaadun ylläpitämisessä ja edistämisessä korostuivat elämänhallinnan tunne sekä arjen mielekäs tekeminen. Tällä oli merkitystä myös toivon kokemukseen, sillä toivosta keskusteleminen ja sen aktiivinen ylläpitäminen vahvistavat uskoa itseän ja omaan tekemiseen. Osallisuutta rakentava ilmapiiri tukee aktiivista osallistumista yhteiseen toimintaan ja se tuo myös esille tarpeen tulla huomioiduksi omana itsenä.

Nordlingin (2016) mukaan toipumisorientaatiomallin käyttöönotto edellyttää luottamukseen perustuvan yhteistyösuhteen luomista, kuntoutujan tukemista tarpeiden, päämäärien ja tulevaisuuden suunnitelmien löytämisessä ja niiden huomioimista hoidon ja kuntoutuksen sisällöissä, toipumisorientaatiota tukevan organisaatiokulttuurin olemassaoloa sekä kansalaisoikeuksien edistämistä mahdollisuudella osallistua ja kuulua eri yhteisöihin (Nordling 2016). Toipumisprosessi näkyy myös yksilön kokemusmaailman myönteisenä muutoksena, jota järjestelmä ja siihen liittyvät palvelut edistävät (Jacobson & Greenley 2001).

Yhteistyö opiskelijoiden kanssa on edistänyt molemminpuolista oppimista ja työelämätaitoja. Yhteiskehittämisen kautta sekä kuntoutujien että opiskelijoiden on ollut mahdollista kehittää työelämävalmiuksia ja jakaa itselle ja yhteisölle merkittäviä kokemuksia, jotka ovat edistäneet sekä opiskeluun että elämäntilanteeseen liittyviä tavoitteita. Opiskelijoille on tarjoutunut mahdollisuus kehittää erityisesti toipumisorientaatio-, ohjaus- sekä tutkimusmenetelmäosaamistaan aidossa työelämäyhteistyössä.

Työntekijöiden kokemuksen mukaan toipumisorientaatiomallin mukainen toiminta on tuonut työntekijöiden työhön lisää pohdintaa ja reflektointia omasta työtöteestä sekä palautteen keruuta säännöllisesti kuntoutujilta. Leamyn ym. (2011) mukaan toipumisorientaation eri tekijät edellyttävät työntekijöiltä kyvykkyyttä ymmärtää ja mallintaa toipumisorientaation osa-alueita omissa työssään. Lisäksi työntekijän ja asiakkaan välisessä yhteistyösuhteessa tulee korostua molemminpuolisuus (Slade 2013).

Työntekijöiden haastattelujen mukaan toipumisorientaatiomallin juurruttamisen myötä kuntoutujat otetaan enemmän mukaan aktiivisesti kaikkien toimintaan ja esimerkiksi kuntoutujien mielipiteiden kysyminen on lisääntynyt. Toisaalta nähtiin, että toiminta on ollut toipumisorientaation mukaista jo aiemminkin. Toipumisorientaatiomallin kehittämistyön myötä kuitenkin tulevasta ja toivosta sekä osallistumisesta puhuminen on lisääntynyt ja puhetapa on muuttunut positiiviseen suuntaan.

Kehittämisideoina työntekijöiden haastatteluissa nousi esille yhteisen ymmärryksen rakentaminen toipumisorientaation merkityksestä kuntoutujien kanssa sekä käsitteiden avaaminen yhteisesti ymmärrettävälle kielelle. Myös kuntoutujille tehdyssä kyselyssä (Saarikivi & Eskelinen 2018) ilmeni, että toiminnassa olisi hyvä pyrkiä vahvemmin tukemaan kuntoutujien osallisuutta ja vaikutusmahdollisuuksia, niin että se vastaisi laajemmin kuntoutujien tarpeita ja toiveita.

Raivion (2018) mukaan toipumisorientaatio viitekehystä tukevat myös asiakkaan sosiaalisen toimintakyvyn vahvistaminen, syrjäytymisen torjuminen sekä osallisuuden edistäminen, jotka ovat sosiaalisen kuntoutuksen keskeisiä elementtejä. Sosiaalinen kuntoutus viedään sinne, missä kukin kuntoutuja elää omaa elämäänsä. Tällöin kuntoutus näyttäytyy yksilön, yhteisöjen sekä yhteiskunnan sosiaalista toimintakykyä vahvistavana toimintana. Sosiaalisen kuntoutuksen ytimessä korostuvat toivo sekä tulevaisuususkko, joilla muutokset ja aktiivinen toimijuus tehdään mahdollisiksi. (Raivio 2018.) Toipumisorientaatio yhteiskehittämisen viitekehystenä mahdollistaa aidosti kehittämistyön tasavertaisina kumppaneina siten, että kehittämistyötä ei tehdä pelkästään vastaanottavalle taholle, vaan kaikki toimijat ovat yhdessä sekä kehittäjän että käyttäjän rooleissa. Tästä on synergiaetua myös ammattikorkeakoulun kannalta, jolloin yhteiskehittäminen muuttaa parhaimmillaan työelämän lisäksi myös opetus- ja oppimiskäytänteitä.

Yhteiskehittämisen haasteina voidaan pitää eri toimijoiden asiantuntijuuden tunnistamista, koordinoimista ja käyttöönottoa. Haasteena voidaan pitää myös kuntoutujien mielipiteiden ja kokemusten niukkuutta, kun sairauden luonteesta johtuen omien ajatusten ja kokemusten esiin tuominen saattaa olla vaikeaa ja se vie aikaa. Lisäksi kuntoutujat ovat saattaneet omaksua kuntoutuksessa vastaanottajan roolin, jolloin muutos passiivisesta osallistujasta aktiiviseksi toimijaksi edellyttää aikaa ja kannustavaa otetta. Kehittämistyössä jokaisen panos on tärkeä ja oleellinen, kun omaa osaamista sekä omia näkemyksiä ja kokemuksia voi jakaa muiden toimijoiden hyväksi.

Yhteiskehittäminen on vaikuttanut Sopimuskodilla osallisuuden vahvistumiseen ja dialogisuuden lisääntymiseen, kun sosiaalista todellisuutta on rakennettu yhdessä. Tämä osaltaan on myös lisännyt positiivisen ihmiskuvan rakentamista, jossa keskeisenä tavoitteena on vahvistaa jokaisen omia kykyjä ja mahdollisuuksia vaikuttaa omaan elämäänsä ja tehdä siihen tarvittavia muutoksia.

Anne Eskelinen työskentelee sosiaalialan lehtorina Laurea-ammattikorkeakoulussa. Hänen opetustyönsä on suuntautunut luoviin ja toiminnallisiin menetelmiin.

Carita Saarikivi terveysalan lehtori, psykoterapeutti YET. Työskenteli Laureassa lehtorina 5.1.2020 asti.

Avainsanat:

- Toipumisorientaatio
- Living Lab
- Yhteiskehittäminen
- Kuntoutuminen

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20. Co-creation in the development of an internationally recognised digital service platform for seniors

Pia Kiviharju

ON THE FUTURE OF THE HEALTHCARE AND WELLBEING SECTOR

The population is aging and people are living longer. The size of the elderly population is growing dramatically everywhere in the world. Healthcare systems have to grapple with rising costs, insufficient care staff and increasingly common chronic illnesses – for example, cases of type 2 diabetes are expected to increase by 20% in the coming ten years (Business Finland 2019). This will cause many challenges for our society, such as insufficient public services and the need for new, cost-effective service models for our graying population. How can we support the elderly to cope with their daily challenges at home?

The costs of producing health and social services for the elderly are greatly increasing. There are currently no cost-effective digital services on the market to promote comprehensive wellbeing for the elderly and help them live active and safe lives at home. As Finland ages, it is important to protect the health and wellbeing of the elderly as well as their ability to function. Independent, enjoyable life in a familiar and safe home environment promotes wellbeing. Good mental and physical health, high ability to function, varied diet and maintaining social connections are among daily challenges for the elderly. (City of Espoo; Lehto & Leskelä 2011). At the same time, ensuring the ability to function while preventing diseases and treating them early reduce the demand for services and cut associated costs. (Finnish Institute for Health and Welfare 2019)

The use of wellbeing technologies and digital services has increased significantly in the healthcare and social services sector in the 2000s (Sitra 2020). People also feel more responsible for maintaining their own health and wellbeing and increasingly want to participate in promoting and caring for their own health. This is already possible thanks to the rapid adoption of mobile phones, smart devices and social media along with digital health devices used by healthcare providers (Business Finland 2019). Digitalisation is already a reality in services and social interaction. As technology develops, we will be able to make more functions automatic

while providing human interaction remotely or in a virtual environment. This will change the way healthcare and social services are produced and how they work, while making them more cost-effective.

The production of health services has already begun to shift towards remote connections. Remote treatment, virtual treatment and e-healthcare are defined as audiovisual care services provided through information networks or other technology in which a customer living at home connects with a healthcare professional to discuss matters relating to health and wellbeing. Remote visits are planned based on the needs of the customer. It is possible to monitor the health of the customer in remote care by connecting various instruments, devices and sensors which measure the patient's vital functions and activity. Portable or wearable health and activity monitors have become common, and the increased information enables more personalised and preventative care. Many homes already have telemonitoring devices which track health and activity in real time and transmit the results to a service provider.

Automated medication dispensers connected to medical alert phones or wrist bands are one example of at-home telemonitoring. Another might be mobile apps that use sensors to track blood pressure, blood sugar, ECG and blood oxygen levels, and then send the information to a cloud service for real-time comparison with previous results and other patient information. Sensors and wearable devices measure vital functions, sleep, activity and alertness. Wearable technology has often been called one of the most significant wellbeing applications of the Internet of Things. Wearable devices can be worn on the wrist (smartwatches and activity bands), hands, feet (sensor-enabled shoes), or they may be incorporated into a shirt, pants or glasses (Vähäkainu 2018). The data gathered by these devices are then transmitted to healthcare staff through a digital system (e.g., electronic health record, EHR). During a remote visit, a healthcare professional can check that ongoing treatment is progressing smoothly based on the monitoring data and talking to the patient. They can also monitor the patient's overall health, medication and daily challenges and provide additional instructions and advice if necessary (Lempiäinen 2019). In many cases, such a digital care pathway can replace doctor's visits as long as actual medical treatment is not needed. People can use digital applications and personal devices to gain real-time information on their health after which they can be directed to find more information or seek out care digitally. (Laurea 2020, Sitra 2020)

It has been predicted that by the year 2025, more public and private healthcare organisations will have adopted remote treatment devices and platforms to provide services to their customers "anytime, anywhere". Healthcare costs will be focused more on prevention, diagnosis and monitoring of illnesses and less on their treatment. (Business Finland 2019)

During this spring and the corona pandemic, practically all non-urgent care has moved to a virtual platform, particularly in the public sector. A possible silver lining to the coronavirus might be that it has enabled healthcare and wellbeing organisations to test various remote, virtual and e-healthcare solutions in care, advice and guidance services. This will speed up their wider adoption to a broader customer segment.

In the future, healthcare professionals will be able to use artificial intelligence, big data and predictive analytics to help diagnose and choose the right treatment for patients. This could mean that the data collected by personal sensors and devices would let the system identify abnormalities in the customer's behaviour, enabling early detection of risk factors and possibly preventing severe health incidents and diseases (Vähäkainu 2018).

Cost-efficiency pressures along with advances in artificial intelligence will also make the use of robotics more common. Care will be provided in the home by robots, enabling the elderly to stay at home for as long as possible. Rehabilitation robots already exist to support exercises aiming to restore upper-body motor function or the ability to walk, and so far, user experiences have been promising. Rehabilitation robots help patients

exercise correctly, which usually requires the assistance of a physical therapist. With the help of rehabilitation robots, a single therapist could help several patients at once. (Vähäkainu 2018).

Technology, artificial intelligence and robotics will release care staff from routine tasks to focus on the patient connection, which will let them treat older adults as fully-fledged individuals, not just objects of care. Together with artificial intelligence algorithms, robotics increases opportunities for self-care while supporting living at home. Diagnostic applications using machine learning algorithms are rapidly becoming a reality through research institutes and universities. Artificial intelligence may provide a second opinion on a diagnosis, or it could be used as a tool for early detection and more detailed diagnoses. As a diagnostic tool it is effective and cuts costs for patients, doctors and hospitals. Artificial intelligence is already being used to detect cancer. (Vähäkainu 2018, Business Finland 2019). On the other hand, artificial intelligence and digital platforms let the client transform from a passive recipient of information to an active agent of their own treatment and its monitoring. Compliance with care instructions will be monitored interactively together with the customer through digital services and applications. The applications give feedback and personalised care advice to the customer based on the monitoring. (Sitra 2020, Laurea 2019). We should embrace robotics and various digital methods in remote care and care work training.

The emphasis on independent health and wellbeing monitoring as well as digital services require new skills and attitudes towards technology from both clients and experts. The new solutions for promoting the health and wellbeing of the elderly and supporting their life at home are integrally connected to technology and smart solutions. Technology and digital platforms can already support the wellbeing of the elderly in terms of exercise, nutrition, social connections, remote rehabilitation, promoting the ability to function, self-monitoring in the self-care of chronic illnesses, promoting mental health, reducing loneliness, supporting memory functions, ensuring a safe home environment and managing medication (Kaasalainen & Neittaanmäki 2018).

However, a lack of awareness of new services, devices and products, or hesitancy in adopting them, continues to be a problem. The lack of digital skills among the elderly hampers the adoption of new services. An additional challenge is the fact that digital services are spread around different websites and consequently difficult to find. In the future, we will need service platforms and portals which provide access to several services and products for different needs in a single visit. Digital wellbeing services and wellbeing technology, artificial intelligence and robotics are cost-effective solutions for the future. They will help the elderly and their family carers live safe, easy lives in their homes while promoting their wellbeing and supporting the work of public and third-sector organisations.

The Seniori365.fi platform, developed in 2014 during the InnoEspoo project which was funded by the European Social Fund, sought to tackle the challenges of first-wave digital services by providing access to several services, products and information on a single visit.

ONE-STOP ELDERLY SERVICES

During the InnoEspoo project, the Seniori365.fi service was developed together with Espoo-based seniors, experts and students through service design and innovation theory methods. After the project ended in 2015, Seniori365.fi continued as a service platform maintained by Laurea University of Applied Sciences. Laurea students from different study programs were in charge of the platform's content creation, maintenance and development. It was an excellent learning environment for students. In addition to creating content and developing new functions, students presented the platform at hundreds of events and places both to

prospective service providers and end users. While working on Seniori365.fi, students learned about the daily lives of the elderly in practice as well as the products and services that promote health and wellbeing.

In spring 2018, Seniori365.fi became a part of the European Social Fund (ESF)funded TEKNO project and focused increasingly on building awareness of health and wellbeing technologies as well as companies and expertise in the field. Seniori365.fi was also connected to another Laurea innovation, the Teknologialainaamo, an initiative to lend wellbeing technology products primarily to elderly. In the end of 2018, Teknologialainaamo joined the Seniori365.fi platform as an independent component. This improved awareness of health and wellbeing technology among the users and network of Seniori365.fi while promoting cooperation with companies in the field. (Karlsson 2019).

The development of Seniori365.fi was based on the idea that as much help for promoting health and wellbeing of the elderly as possible would be available from a single visit. Therefore, the Seniori365.fi website featured providers of wellbeing and home assistance products and services, such as cleaning, repair, meal, IT and health services, assistive technologies as well as wellbeing technology products and services. In addition, the service featured articles on wellbeing as well as instructions for exercise, nutrition and promoting wellbeing and health. It compiled local events intended for the elderly and had easy links to access the service websites of various institutions. The activity section featured links to newspapers, online players of television channels and games. The service published digital stories by seniors, cooking recipes, a discussion forum and a nutrition blog as well as exercise and relaxation videos guided by physiotherapy students. There were sub-pages dedicated to family carers and volunteers. Safety issues for the elderly had their own page which was easy to access. Seniori365.fi was a specialised search engine for seniors (Karlsson 2019).

AN ACCLAIMED AND APPRECIATED SOCIAL INNOVATION

Seniori365.fi won the Design for All Foundation's Best Practise 2014 competition in Paris in March 2015. In October 2015, it won the social innovation category of the European Women's Invention, Innovation & Enterprise Network competition in London, and the gold medal in the co-design category of the Japanese International Association for Universal Design. In May 2018, it was voted into the top three Living Lab workshops in an open social poll organised by the European Network of Living Labs, and won the bronze medal in the category of most popular development environment. In autumn 2018, Seniori365.fi was among the top finalists for the Quality Innovation Award organised by Laatukskus Excellence Finland.

SENIORI365.FI, A DIGITAL SERVICE CREATED AND DEVELOPED BY STUDENTS IN COOPERATION WITH SENIORS AND EXPERTS

The Seniori365.fi service was developed together with Espoo-based seniors, experts and students through co-creation methods. The three cornerstones of the development were the service design process and tools created by Stefan Moritz (Moritz, S. 2005), Laurea's Learning by Developing (LbD) model along with the method of Gijs Van Wulfen (Wulfen 2011, 2013). Figure 1 describes the innovation process model which was created by combining these two models and applying the LbD model for students.

At Laurea, students primarily learn through development projects organised in cooperation with working life organizations which employ the LbD model. In the LbD model, participants learn in interaction which aims at creating new expertise in cooperation from planning to assessment. The model is based on five concepts: creativity, authenticity, partnership, experiencing and research orientation.

STAGES OF DEVELOPING SENIORI365.FI

The figure 1 maps the stages of the development process. The development process and map template were designed based on van Wulffen's model. Moritz's toolkit and methods were used at various stages of the process. The van Wulffen model answers the question "what should we do?" and the Moritz model, "how should we do it?" In addition, the LbD model for students was employed at several stages of the process.

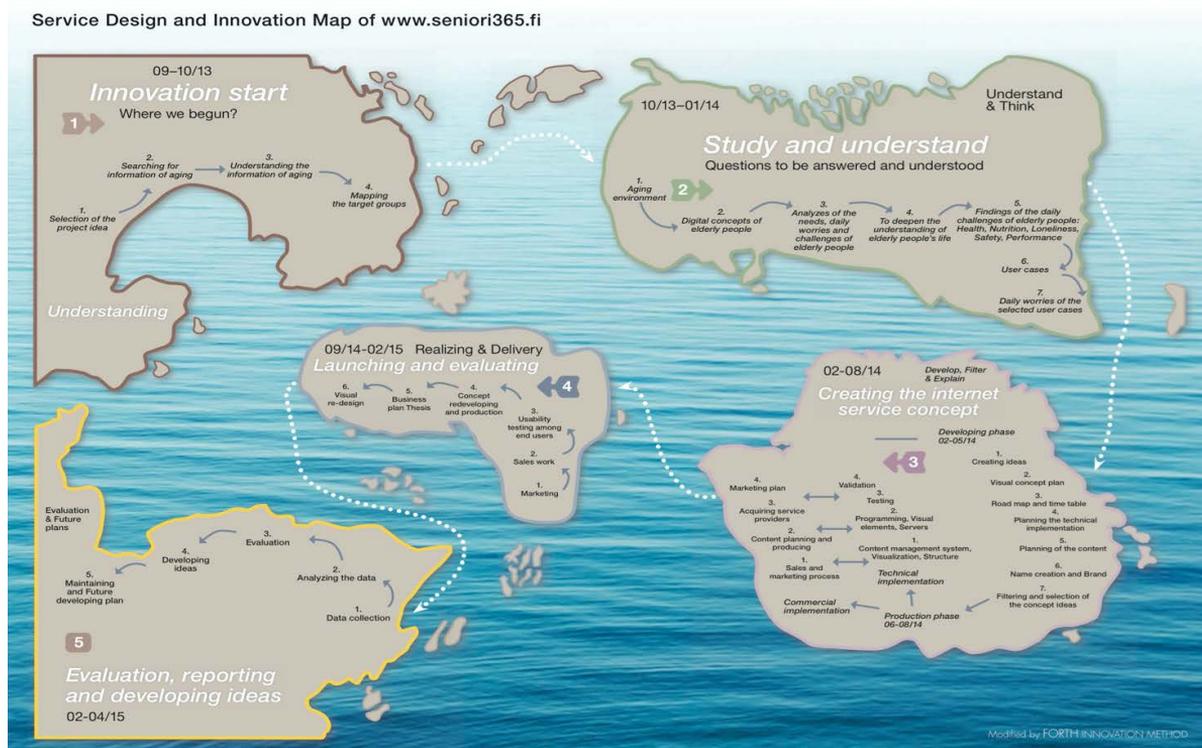


Figure 1. Stages of the Seniori365.fi development process.

In the first stage, "Innovation start", the starting point of the development process was set as the City of Espoo's *Elinvoimaa ikääntyville* programme and the kinds of services and products the elderly in Espoo might need. This led participants to explore ageing as a phenomenon along with existing digital services aimed at the elderly. One of the core ideas was using digitalisation in service development.

In the second stage, "Study and understand", events and workshops were organised to compile daily challenges and needs – both conscious and unconscious – among the elderly using co-creation processes. The methods included group and in-depth interviews, storytelling and observation. User profiles were created based on the collected information. Participants then thought about daily challenges that would be specific to each profile to create a visual concept of the service being developed. The service idea was tested among seniors and experts, after which the technical and commercial development of the service could begin.

The third stage, "Creating the internet service concept", was divided into three major sections: developing the visual and technical concept, implementing the website and performing user testing, and setting a schedule

for the project. During concept development, service paths complete with contact points were designed for several user profiles. Their goal was to help the developers understand how seniors would use the service and what type of content was needed. In the implementation stage, a technical student team created the service platform and its functions, while a commercial student team recruited service providers, created content, planned presentation events for the autumn and designed marketing materials.

The fourth stage began with the launch of the service on 29 August 2014. After that, the service was show-cased at more than 160 events. New service providers, partners and stakeholder institutions were linked to the service. New interesting content was created and the several usability tests conducted among seniors. The developers continued to hone the service based on the testing.

At the last stage of the development process, the service was evaluated and decisions regarding its future were made. Many stakeholder groups, including users and experts from the public, private and third sector institutions found the service very necessary. As had been planned, the service supported the elderly in their daily lives while offering useful information and activities to enrich their lives. As a result, the maintenance and further development stage of Seniori365.fi began at Laurea in the form of student projects.

FURTHER DEVELOPMENT AND MAINTENANCE OF SENIORI365.FI IN STUDENT PROJECTS

For students, Seniori365.fi was an excellent multidisciplinary learning environment where they could apply their skills to the production of new service ideas and content. Studying the environments and daily lives of seniors at the start of each project gave students new insight into the future opportunities and challenges that institutions in the wellbeing sector are likely to face. Through hundreds of different service development and content creation projects, the students used various service design and innovation tools, such as the storyboard method, mind mapping, the 365 method, brainwriting, creation of customer profiles, storytelling and customer experience paths, fishbone diagrams and the Business Model Canvas (BMC). Student teams tested their proposals and concepts by visiting peer support groups for family carers, senior events as well as meetings of volunteers over the age of 65. These encounters were a positive experience for both the students and the elderly customers. The students got encouraging immediate feedback while finding new insights for further development work. Correspondingly, the customers praised the students' skills and attitude and were pleased by the attention. Improving students' understanding of digital services was a significant aspect of the Living Lab environment of Seniori365.fi. In total, Seniori365.fi has yielded more than 4,800 credits and 15 theses.

Here are some student comments about working on Seniori365.fi:

Laura Virkki and Mirja Lundgren, student project managers, hospitality management and service design
Juha Majuri, Markku Pohjanheimo, Juho-Pekka Myllynen and Oskar Grob, project team members, business management students

"Creating a digital service for seniors has been interesting and motivating. The first impression of an online service is based on its appearance, function and fitness for purpose. Working on the website for seniors generated a huge amount of competence in marketing, sales and content creation for a digital service. We could take nothing for granted. Everything we made for the service had to be created with seniors in mind. The project has been very educational. Seeing Seniori365.fi specifically from a service production standpoint gave me valuable information to develop my future skills."

"Seniori365.fi was an incredibly interesting and productive experience. I learned many new things in practice, and I got to be creative with my own development areas, which taught me to take responsibility. My team and project work skills grew tremendously, for example I learned to be sensitive to the feelings and thoughts of the other team members and to brainstorm together. The best part of the project was meeting the seniors and getting feedback directly from them. They were really excited about the website and gave us encouraging feedback."

Markus Suomalainen, Veikko Laiho and Henri Hänninen, business information technology students

"During our work in the Seniori365.fi team, we learned a great deal about the technologies in our field, such as the Drupal content management system as well as the work to maintain and develop a web site. Nearly everything we did for the service supported our studies, since we are specialising in web application development. Teamwork was the most useful part of the project, and my team and project work skills improved significantly thanks to the multidisciplinary student team. All in all, Seniori365.fi was a wonderful experience. Working on the project was great, and I believe the experience will benefit us on the labour market in the future."

Niki Sahramaa, thesis student, business management

"The project was very educational and interesting. It gave us students a chance to work for an important cause. I think the most educational part was learning to understand the challenges that the elderly face in their daily lives, and developing the service based on the needs of the customers. It was great to work on a project that was intended to really help people, and not just make a profit out of wellbeing and health."

Katja Tikkanen, Laurea supervisor for the students

Seniori365.fi gave students a versatile learning environment for socially topical themes, such as the aging population, family carers and digital communications. Increasing customer insight on the needs of the target group as well as using service design methods helped students create good new content for the website. At the same time, they gained the kind of expertise that is valued on the job market. The many different themes of Seniori365.fi gave students the freedom make more flexible choices, allowing them to find their own strengths. It's rewarding to work on a service that everyone believes in: students, users and professionals. Co-creation makes the best services, and Seniori365.fi's international awards and growing numbers of partners, users and students are testament to this.

WELLBEING PROFESSIONALS APPRECIATED SENIORI365.FI

Maria Rysti, specialist in elderly care, Social and Health Services, City of Espoo

It's good that the people in the municipalities as well as their family and friends and any others interested in elderly care could find solutions and answers to everyday questions through a "digital service market". Seniori365.fi is a good innovation for this. If you need a massage or want someone to shovel snow from your driveway, Seniori365.fi could help you find an Espoo-based service provider. The service also has digital games to give your brain a workout. It would be good if people could find information on different kinds of services in the municipality from a single website. Comparing services helps people choose the company or third-sector provider that is best for them.

Kristiina Erkkilä, development director of Cultural and Education Services, City of Espoo

Developed as part of the InnoEspoo project, the digital meeting place Seniori365.fi has proven to be a necessary service enriching the lives of many. Seniori365.fi is a wonderful complement to the services of the City of Espoo, which reduces the pressure on the City to increase its services. The design and implementation of Seniori365.fi is a perfect example of true service design and co-creation. This is exactly the kind of real-world network innovation that Espoo's innovation garden can produce at its best.

SERVICE DEVELOPMENT FOR THE ELDERLY CONTINUES

As the TEKNO project drew to a close, the maintenance and development of Seniori365.fi was also ceased due to lack of funding. The technical and functional development and maintenance of a digital service, as well as its coordination as a learning environment for students, requires resources consistently, meaning fixed costs every year.

Over the course of its five years of operation, Seniori365.fi proved to be a fantastic Living Lab experiment, which benefitted many stakeholder groups. It was an excellent multidisciplinary real-world learning environment for digital services for students, a marketing channel for companies, and for the seniors and their families who used the site, it showcased wellbeing services and products, useful information and activities to ensure a safe and healthy life for elderly living at home. It also supported public and third-sector activities for the elderly. Seniori365.fi connected seniors, their families, service providers, public and third-sector operators as well as students.

Experiences from Seniori365.fi have encouraged Laurea to continue developing digital services for seniors. While the service of Seniori365.fi is no longer being developed actively, it is however stored at Laurea. The platform can be used, for example, by developing interactive services, such as remote services for social interaction or automatised wellbeing services based on remote monitoring. One thing is certain: in the future, an increasing number of wellbeing services will be on online digital platforms.



Picture 1. The site-banner. (Source: Seniori365.fi-site.)



Pictures 2 and 3. Presenting the project. (Pictures: Seniori365.fi team)

Pia Kiviharju Regional Service Manager

Keywords:

- Seniori365.fi
- Digital service concept for senior citizens
- Digital multidisciplinary learning environment

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III

**Findable, Accessible, Interoperable and Reusable Data
in the Context of Co-Creation**

21. Co-creation at the heart of human-centric data economy – Experiences and visions from Kuopio Living Lab

Tiina Arpola, Arto Holopainen & Marko Jäntti

INTRODUCTION

The European Single Market is among the world's largest economies. Europe's growth potential is connected to the digital and data-driven economy, innovations, new technologies and business models (European Commission 2015). The EU aims to be the global leader in the digital economy, and this aim was included in Finland's Presidency Programme during its presidency of the Council of the European Union, 1 July – 31 December 2019. Finland's vision is that a comprehensive, future-oriented single market that builds on a human-centric data economy by promoting the availability, interoperability and use of data while also respecting the rights and privacy of individuals.

Cities and municipalities play a role of key stakeholders in this digital revolution by adapting data and platform economy possibilities at all levels of actions. Cities can transform into open innovation living labs, places to experiment with and co-create creative solutions for improving people's health and wellbeing. For a city, an open innovation living lab is one step towards a smart and healthy society. Such a goal requires bold political choices, a strategic-level approach, open-minded governance and new operational models.

The city of Kuopio, the ninth largest city in Finland (with a population of 119,000), is one of Finland's leading cities in the fields of health, wellness and safety. Kuopio's strategic vision is to be the capital where the good life lives. Digitalisation, internationality and partnership are three themes integrated into all levels of that vision. Kuopio has put the open innovation living lab concept, namely Kuopio Living Lab, into action together with Kuopio University Hospital and Savonia University of Applied Sciences. Kuopio Living Lab is a good example of the practices cited in the city's award as a four-star European Innovation Partnership on Active and Healthy Ageing Reference Site (n.d).

The European Network of Living Labs (ENoLL) (n.d.) describes living labs as follows: 'Living Labs are defined as user-centred, open innovation ecosystems based on systematic user co-creation approach,

integrating research and innovation processes in real life communities and settings. Living Labs are both practice-driven organisations that facilitate and foster open, collaborative innovation, as well as real-life environments or arenas where both open innovation and user innovation processes can be studied and subject to experiments and where new solutions are developed. Living Labs have common elements but multiple different implementations’.

MATERIALS AND METHODS

Kuopio Living Lab makes it possible for companies and entrepreneurs to co-create and test products in authentic customer and expert environments. This opens up the opportunity for co-operation with the public sector, academia, industry and citizens (Quadruple Helix Open Innovation model) for innovations (Carayannis & Rakhmatullin 2014). This is realised through close co-operation between different stakeholders in the ecosystem. Kuopio Living Lab provides services on a one-stop-shop basis, whereby a living lab coordinator working with a company can also contact other organisations. Kuopio Living Lab environments range from Social and Health Services (including social care, primary health care and specialised medical care), Urban Environment, Growth and Learning (including day care and schools), and Wellbeing Promotion (Business Kuopio n.d.).

In addition to the physical environments, Kuopio Living Lab aims to provide a channel for different data sources, such as open data, smart city data, and real-life wellbeing and health data for the development of future human-centric digital services. Kuopio Living Lab can collect data, validate solutions and act as an interface, involving end-users in the co-creation and feedback process. The process supports service and technology providers’ business development, innovation, co-development and co-operation activities, as well as marketing activities.

RESULTS

All three Kuopio Living Lab ecosystem organisations have or are planning a platform to collect different types of data. Savonia University of Applied Sciences operates an open-source platform for collecting and sharing continuous measurement data from the environment or automation process. Savonia is also committed to open science and research and has prepared to make information produced by public funding as open as possible, within limits of research ethics and legislation.

The City of Kuopio has initiated a development project to create a smart city data platform that handles many types of data, such as data related to urban planning, the environment, wellbeing, internet of things (IoT) sensors, finances, schools and pre-schools, and culture, as well as MyData produced by citizens. This development is part of Kuopio’s aims to be the forerunner in digitalisation. This aim is being realised by systematically raising the maturity level of digitalisation in all processes. Kuopio uses the municipal digitalisation maturity model to plan digitalisation measures and targets. The goal is to be at the highest level (five) in the coming years, at which point the city will act as a service platform, Living Lab, for new digital solutions.

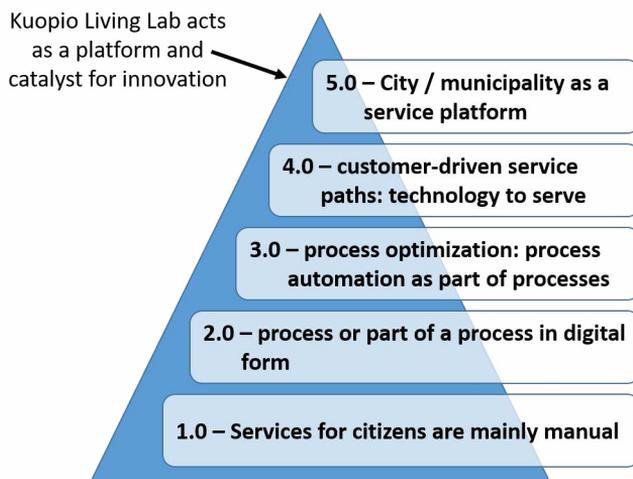


Figure 1. The five-level maturity model for municipal digitalisation. (Based on Tiihinen & al 2019, © Arto Holopainen, City of Kuopio)

Kuopio University Hospital holds one of Finland’s health data lakes, which aims to connect health data from different sources, such as the National Genome Center, the National Neuro Center, the Eastern Finland Biobank, the Cancer Center, Kuopio University Hospital, the University of Eastern Finland and the City of Kuopio.

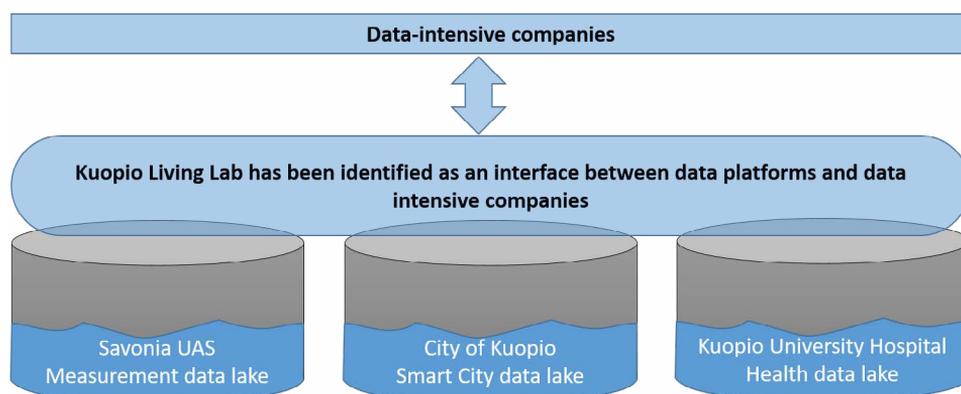


Figure 2. Kuopio Living Lab role as a channel for different data sources (© Arto Holopainen, City of Kuopio)

The operational model for utilising data through Kuopio Living Lab must include not only privacy (General Data Protection Regulation, GDPR) and legal perspectives but also ethical use of data, especially when related to individuals. In this context, three MyData principles (human-centric control and privacy, usable data and an open business environment) provide a human-centric approach in personal data management, which combines industry needs for data with digital human rights (MyData Working Group 2015). In addition, the six guiding Data Economy Principles (Access, Share, Act, Trust, Innovate and Learn) that

were drafted during Finland's Presidency of the Council of the European Union in 2019, serve as a balanced, coherent and interoperable data-policy framework of a human-centric and thriving data economy (EU2019.fi). To support data economy development, Sitra, the Finnish Innovation Fund, has launched IHAN, an initiative on a 'human-driven data economy' that aims to build the foundation for a fair and functioning data economy. Implementation of the IHAN operating model in practice includes developing a governance model and specifying data formats to support data exchange use and service standards for real-time data transfer (Ilves L. K., Osimo D & Project Team 2019).

The use of combined data in, for example, health promotion and prediction has raised new questions: How can one ensure the data is reliable? What kind of data is primarily needed? How can meaningful outcomes from the combined data be achieved? At best, Kuopio Living Lab can help identify needs and find solutions. Related to health data, Finland has passed the Act on the Secondary Use of Health and Social Data (Laki sosi-aali- ja terveystietojen toissijaisesta käytöstä 552/2019). The legislation will make it possible to use health and social data not only in research and in the compilation of statistics but also in development and innovation activities, teaching, knowledge management, supervision and steering in the social welfare and healthcare sectors, as well as in official planning tasks. The legislation has created a new data permit authority, Findata (www.findata.fi), which will be a one-stop shop for the secondary use of social and health data. Findata started its operations in early 2020. This provides interesting opportunities for health data usage when data is collected from multiple healthcare organisations.

Kuopio Living Lab acts also as a platform for matching new products or service needs arising from everyday life with companies and entrepreneurs. One example is the City of Kuopio's need to automate and use novel data analysis in the city's annual wellbeing report. The wellbeing report compiles essential data on municipal residents' wellbeing. The wellbeing report is used as a basis for planning, allocation of city resources and service development (e.g., related to health promotion). The data for the report is mainly collected manually in collaboration with different municipal sector experts and stakeholder groups as well as residents. Kuopio Living Lab has initiated the analysis of data sources needed for the wellbeing report to advance the city's need for automation and data analysis. During the process, data will be evaluated and made available as open data, when possible, for further use. Kuopio Living Lab will also arrange joint events such as hackathons and open-data seminars with other stakeholders in order to engage entrepreneurs to develop solutions for needs using open data.

Living labs are real test beds and experimentation environments where users and companies can co-create innovations for the real needs of society. Living labs can improve individual and human-centric understanding and the use of data resources. Organisations in the living lab ecosystem can also collect data to improve their own services and offer better data for customers, as well as learn how other organisations operate and share their best practices with others.

In the Kuopio Living Lab ecosystem, all three organisations have their own coordinator whose responsibility is to orchestrate the living lab process in co-operation with other participants. The coordinators meet on a weekly basis to go through new contacts and cases with a promise to reply within one week. After that, a meeting is arranged with co-creation partners and the planning of the requested services begins, which includes defining the concrete goals of collaboration as well as each participant's responsibilities during the planning, implementation and evaluation (Holopainen, Kämäräinen, Kaunisto, Kekäläinen & Metsävainio 2018).

DISCUSSION

Collaboration between all ecosystem stakeholders has made it possible to provide better products and services that can improve the health and wellbeing of the community in all sectors of life. This also promotes citizens' participation and supports the co-creation of new ideas arising from the community and the growth of a healthy city.

However, Kuopio Living Lab needs to evolve with its stakeholders to keep its customers on the edge of the future. A living lab should be a demonstrator of best practices on how to collect, manage and utilise information about a product or service development. A living lab should also be an influencer concerning open data and should generate possibilities related to data usage.

To support local companies during their digital transformation journeys, Savonia University of Applied Sciences and the University of Eastern Finland have established DigiCenter North Savo. This Digital Innovation Hub monitors and maintains up-to-date information on digital technologies and their maturity levels, performs research and development projects on digitalisation and solves demanding business problems together with customers. DigiCenter North Savo is a growing ecosystem that builds relationships between start-ups, SMEs, large companies and other stakeholders such as other digital innovation hubs.

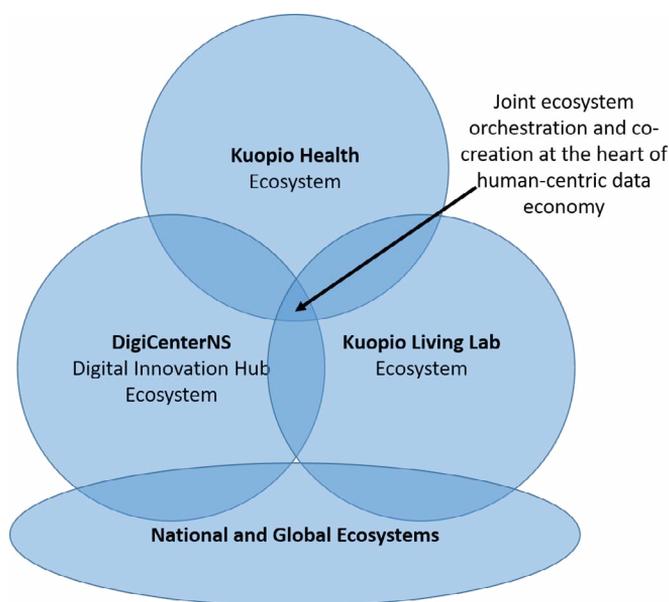


Figure 3. *Joint ecosystem orchestration and co-creation at the heart of the human-centric data economy.*
(Figure: © Arto Holopainen, City of Kuopio)

Kuopio Living lab creates an ecosystem for co-creation that connects to other ecosystems. For example, Kuopio Living Lab connects to the Kuopio Health ecosystem, which promotes wellbeing, food industry and health-care technology competence, research as well as business life both locally, nationally and internationally. Again, Kuopio Health connects to Finland's nationwide health testbed ecosystem. Kuopio Health conforms to an open innovation model in combining the public sector, academia, business and end-users, enabling new solutions and networks. These sectors have such a strong commitment to the open innovation

ecosystem that they formed the Kuopio Health co-operative, whose goal is to create predictability, continuity and efficiency for research and development projects by bringing together different actors. (Kuopio Health n.d.)

Kuopio Living Lab also connects to the DigiCenter Northern Savo Digital Innovation Hub ecosystem, which in turn connects to a national and European digital innovation network. DigiCenterNS received digital innovation hub status on 16 January 2020 and is now in the official digital innovation hub catalogue of the European Commission (DigiCenter North Savo n.d.). Digital innovation hub operations are based on daily collaboration with regional companies, and currently there are 10–12 research, development and innovation pilot projects (e.g., artificial intelligence, digital transformation, service development, open data) being run with companies.

DigiCenterNS also helps other regional ecosystems (health, food, water, manufacturing) in digital transformation. This cross-domain collaboration started well but understanding complex challenges related to each domain requires domain knowledge and a lot of resources and effort from DigiCenterNS specialists. Additionally, DigiCenterNS has an active role in networking regional companies through events (seminars, workshops and technical working group meetings).

While Kuopio Living Lab focuses on supporting the city as a capital where the good life lives, it also empowers its residents to develop the new products and services they need. Kuopio Living Lab also co-operates with regional development projects in order to acquire new ideas and needs from residents. These fast prototyping experiments, such as co-creation events like hackathons or placemaking pilots, open up the community to developing knowledge and expertise but also challenge living labs to think outside the box and generate new services to meet the community's needs.

Hackathons are also methods for living labs to add knowledge about available data and enhance its use. By organising hackathons, living labs can generate innovative applications and services for the public. For example, Kuopio Living Lab, together with DigiCenterNS and Kuopio Health ecosystems, organises hackathons for the use of open data provided by the City of Kuopio. These hackathons can provide important information for the city by analysing and developing new services (for example, the usage of e-city bikes and public traffic).

As a conclusion, in the future our living environment – i.e., cities – will be self-aware and able to reconfigure services based on what is happening, and what might happen, in the immediate future. The information surrounding us and flowing from the city will be a huge asset for the human-centric data economy, which enables more personalised services and a strong foundation for management and business growth. A critical success factor is the involvement of all stakeholders in co-creating together, with a seamless and open management chain.

Kuopio Living Lab experiences demonstrates the tangible role of co-creation at the heart of the human-centric data economy.

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Keywords:

- Co-creation
- Living Lab
- Data economy

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22. How should we co-create? Solutions for data protection, data security and data management

Marjo Valjakka, Tino Graubner & Minna Marjamaa

Co-creation involving institutions of higher education, companies, public organisations and third-sector institutions is based on sharing risks, resources and information. The foundation for sharing information rests on tools and procedures that enable a flexible and secure basis for the cooperation. Laurea has created an action model to support the collection, analysis and sharing of research data, which complies with the demands of data security legislation, data protection, data management and funder requirements. Our article describes that model, its technical underpinnings and legal basis while encouraging co-creators to work securely and openly. The article also explores the possible application of the model to teaching or to co-created data.

Many continue to share information on familiar platforms without a second thought to data security or whether the platform is appropriate for the project. The fundamental questions of co-creation include: What is required by the General Data Protection Regulation before research can begin? Which platform is the best one for this cooperation? Which materials will be shared with participants and partners and where? Projects and developers need clear instructions. This article describes Laurea's open co-creation model from the perspective of data management, data protection and information security.

WHAT KINDS OF DATA ARE PRODUCED IN CO-CREATION?

In co-creation projects, research data may be collected through workshops, group interviews or survey forms. Information may also be gained from partners' customer registers or healthcare statistics. At universities of applied sciences, the data being managed has typically been understood as material from RDI and other research projects. The material produced in RDI projects differs somewhat from traditional university data. Seinäjoki University of Applied Sciences (SeAMK) studied the nature of the material produced in RDI projects by conducting a survey among project managers in 2016. According to this survey, the data from RDI

projects usually consist of survey and interview material, various measurement, mapping and observational data as well as video, image, sound and text material (Päällysaho & Latvanen 2016).

Some forms of data generated at universities of applied sciences are not necessarily identified or collected. It is important to develop the documentation of information generated through co-creation. This may also lead to new methods for releasing, using and further developing the processes and results of RDI projects in the future (Marjamaa & Latvanen 2017). Flip charts covered with post-its from co-creation workshops are stored in staff lockers and possibly photographed, but the information held in them is not systematically collected. The same is true for information created by students. Some of the data generated at universities of applied sciences contain no personal information or corporate secrets, and could easily be shared for wider use. The special features of data from universities of applied sciences should be further studied.

At Laurea, the goal is to expand the collection and use of the data outside RDI projects so that the data from teaching, cooperation projects and RDI could be used extensively throughout Laurea. At the same time, the co-creation model ensures that the developers themselves understand when the material of the project deals with public or confidential data and which things they should consider when processing personal information.

THE OPEN MODEL FOR CO-CREATION HAS TWO PARTS

Laurea's open model for co-creation has two parts:

1. The data handling process (see Figure 1) and
2. the table for data handling (see Figure 2) and sharing data on various platforms.

Together these parts form Laurea's open model for co-creation. In addition, the process includes the handling of personal information (see Figure 3). Even though this model was originally intended for RDI projects on external funding, it can also be applied to other operations which create data.

Laurea's open model for co-creation classifies its data into public, internal, confidential and secret. It guides staff and students to create, use and share information correctly.

With the help of data management planning, the full life-cycle of the data is considered from idea to potential further use and release. The model applies the EU's General Data Protection Regulation (GDPR), the Finnish Data Protection Act and the EU's open science strategies. It complies with FAIR principles (Findable, Accessible, Interoperable and Re-usable) and is a part of the national research infrastructure. The goal is to release the data to society at large and to increase new innovation through cumulative information.

LAUREA'S MODEL IS FAIR

Laurea's data management model complies with FAIR principles. What does "fair data" mean and where does the term come from? We have long understood that it is not sufficient to just release data online. Shared procedures are needed to ensure the quality of the data and to enable the use of the data outside the institution that originally collected them.

Force11, a coalition of researchers, publishers and libraries, published the FAIR principles based on a workshop at the Lorentz Centre in 2016. That same year, the Council of Europe made a decision to encourage Member States, the Commission and stakeholders to comply with FAIR principles in their research programmes and funding mechanisms. FAIR has since spread throughout Europe, and universities and funders have committed to its principles.

FAIR IN A NUTSHELL

FAIR is an acronym of Findable, Accessible, Interoperable and Re-usable. The Finnish equivalents are *löydettävyyys, saavutettavuus, yhteentoimivuus* and *uudelleenkäytettävyys*. Many funders have recently placed FAIR at the centre of open science, and in Finland both the Ministry of Education and Culture and institutions of higher education have committed to FAIR principles.

Findability means ensuring that others can find your data. The data must be described exhaustively so that the metadata features the terms of use, technical information and structure of the data while also describing its content and nature. The data is described and registered into a search service, and a persistent identifier is assigned, such as a URN, handle or DOI. This identifier must be included in the metadata.

Accessible data and the associated metadata must be findable with the identifier using a standardised communication protocol which is open, free of charge and generally available, and cannot require the use of proprietary software. Interoperability means that the data and its metadata must be represented in a clear format that is accessible through many ways and is both machine-readable and legible to humans. The metadata must use vocabulary that complies with FAIR.

Reuse of the data is ensured by providing comprehensive metadata and describing their lifecycle. The data and metadata must be published under a clear license with easily available terms, such as the CC licenses. (Wilkinson et al 2016.)

DATA HANDLING PROCESS

A data management plan must be drafted at the funding application or project planning stage, with information of any data that may be created entered into the Repotronic project management system. Data with personal information must be protected already at the planning stage and appropriate agreements made with the informants.

Data including personal information must be securely handled at the active stage of the project. The data may also be processed in project-specific folders on a network drive, if only project participants can access them. Since early 2016, Laurea has used the cloud service eDuuni to process and share data from projects in the active stage. The eDuuni service is provided by CSC – IT Service for Science, a non-profit state enterprise owned by the Finnish state together with higher education institutions and administrated by the Ministry of Education and Culture. Laurea's experiences with the service have been positive. To process data that includes personal information, Laurea uses the ePouta cloud service, which is also provided by CSC.

After the completion of the project, the data are recorded in the project folder on a network file, and the final decision is made on whether the data should be made openly available. If the decision is made to open the data, any personal information is anonymised and the research data uploaded to a national or international data repository. It is important that the data is described into the national ETSIN service with the Qvain tool to ensure later access. Use of the data may be controlled either by making it directly accessible through the repository, or available upon request from a liaison.

Laurea data management model



Project plan and funding applications

Data management plan drafted in **DMPTuuli**



Data described in **REPO** (constantly updated)

Data collection

Does the data include sensitive personal or otherwise confidential information?

YES

ePouta
Handling and sharing sensitive data

Laurea network drive
Data processing, rights granted to project

NO

eDuuni
Sharing data

IDA
Sharing data

Project ends

Data stored permanently in-house on the K drive
Access granted to Laurea's RDI supervisors

Description of data

QVAIN

ETSIN

Should data be made open?

NO

Data stored in-house on K: drive

- Reasons to not make the data open:
- protecting results with commercial or industrial potential
 - security requirements
 - personal information
 - conflict with the primary purpose of the data

YES

Anonymisation

EUDAT

IDA

Zenodo

Aila



Figure 1. Laurea's data management process in RDI projects. (Figure: Minna Marjamaa)

DATA CLASSIFICATION TABLE SUPPORTING DATA HANDLING

Laurea must promote openness in its activities while ensuring that confidential information can only be accessed by people authorised to do so. The data classification table has been drafted to help experts handle data at Laurea. The table is based on the instructions for processing classified documents from the Government Information Security Management Board (VAHTI) (Ministry of Finance 2010). Information is classified based on the level of harm that would result from any unlawful disclosure or use of the information. The more sensitive the data, the higher level of security is required for every point of processing data.

It is important to understand the classification of the data already when data handling is being planned, as it is the only way to determine the requirements for processing the data generated in the project. The significance of the classification is even greater in cooperation projects in which information is often shared among several organisations and handlers. The goal of the classification table is to help the developer to feel confident that they are storing and sharing data correctly. With clear instructions, users do not need to worry about doing something wrong. This also helps project partners feel confident that the data they provide will not leak to third parties during or after the project.

Table 1. Example of Laurea's instructions for processing and distributing data on various platforms. (Laurea 2020)

MEASURE	PUBLIC DATA	INTERNAL DATA	CONFIDENTIAL DATA	SECRET DATA	COMMENTS
USING SHARED NETWORK DRIVES AND STORAGE AREAS					
Stored on K: or M:	Allowed	Allowed	Allowed, access must be restricted	Allowed with restrictions, password protection recommended	Restrictions: access granted only to persons authorised to handle the data
Stored on eDuuni	Allowed	Allowed	Allowed, access must be restricted	Not allowed	
Stored on IDA	Allowed	Allowed	Not allowed	Not allowed	
Stored on CollabRoom (ePouta)	Allowed	Allowed	Allowed, access must be restricted	Allowed with restrictions	Restrictions: access granted only to persons authorised to handle the data, two-factor identification required

HOW DO THE PLATFORMS ENSURE TECHNICAL DATA SECURITY?

The methods and platforms used to share data must be fit for purpose and have sufficient data protection features for the classification of the data at hand. Processing and sharing internal data within Laurea is easier to organise than when external partners are involved. As each organisation has its own network and user management system, it is usually not possible to use the familiar platforms that fulfil information security requirements, such as network drives or other internal data processing platforms.

At Laurea, the locations where documents are saved are generally in Microsoft's cloud platform, the cloud services provided by CSC, or platforms installed on internal servers in the service provider's data centres. Network drives or other solutions installed on dedicated servers and operating in the organisation's internal network typically have the best data protection and security. If cooperation between organisations is required, the best solution is to use the cloud services of the CSC, such as the eDuuni workspaces or the eDuuni Wiki. The workspaces are built on Microsoft's SharePoint software and the Atlassian Confluence wiki.

Laurea also uses ePouta, which is one of the virtualisation platforms offered by CSC. EPouta is a virtualisation platform located in a data centre with increased data protection. Laurea uses ePouta as the platform for collabRoom, an application that enables users to securely share confidential documents with external partners. CSC is an ISO/IEC 27001 certified non-profit state enterprise owned by the state of Finland and institutions of higher education. The services it provides are quite secure. For example, the eDuuni workplace service fulfils the requirements for the increased security level defined by the Government Information

Security Management Board (VAHTI). In addition, CSC's services are very affordable, or even free, for Finnish institutions of higher education.

To audit its information security, Laurea has used the information security auditing tool Katakri, produced by the Finnish Transport and Communications Agency Traficom. Katakri is primarily intended for public authorities, but it is also available to other organisations. Traficom has created the PiTuKri auditing tool to evaluate the data security of cloud services. In addition to these tools, Laurea uses the instructions issued by the

Government Information Security Management Board (VAHTI) as well as other useful tools such as the instructions from the German Federal Office for Information Security BSI and the National Institute of Standards and Technology from the USA.

Additionally, the CSC and Finnish institutions of higher education have together produced a set of instructions for cloud services to rank the services according to their suitability for the Finnish higher education sector. As this "cloud guide" discusses the services based on the consumer versions of their products, some of its sections may be irrelevant, as institutions of higher education may have their own agreements with service providers. In broad terms, however, the instructions are a good resource for evaluating the overall data security and privacy of these services.

DATA PRIVACY LEGISLATION REGULATES THE PROCESSING OF PERSONAL INFORMATION

A central part of handling data is to understand when it involves the processing of personal information. Defining the concept of "personal information" is simple in principle. It means all information that can be used to identify a specific individual. Let us think about that for a moment.

Do first names alone constitute personal information? What if they are linked to job titles or the name of an employer? Do recordings from group interviews or responses to survey forms feature personal information? How about notes taken during a co-creation workshop or observations made regarding the use of various

services? What types of personal data are being gathered at each stage of the project? As the processing of personal information in the EU is regulated by the GDPR and the national data protection legislation, their provisions must be followed at each stage of the project.

If it becomes clear during the project planning stage that personal information will not be processed at any stage of the development, the developers can move directly to defining secure ways of storing and sharing data.

THE PROCESS FOR HANDLING PERSONAL INFORMATION IS DESCRIBED IN THE PRIVACY STATEMENT

If the co-creation project intends to process personal information, the developers must understand the legal bases and purposes of handling personal data. Laurea's privacy statement template for research and development projects can help define how personal information may be processed. The privacy statement can also be used to inform participants of how their information will be handled during the project. The statement also proves that the project complies with data protection legislation.

Processing personal information in Laurea projects



Are personal data being processed?

YES

Are special categories of personal data being processed?

NO

NO

YES

- No measures required for data protection.
- Remember to inform relevant people of your research.
- Maintain data security when processing data.
- Ensure the data is archived appropriately after the project.

- Make an impact assessment if necessary.
- Draft a privacy statement.
- Inform the research subjects.
- Request consent to participate in research or to process personal information according to good research ethics, if you use consent as basis for your research.
- Ensure data protection when processing the data.
- Ensure that the data is archived appropriately after the project.

- Draft an impact assessment. Submit it to the Office of the Data Protection Ombudsman if necessary.
- Appoint a data protection coordinator for the project, if the data processing is long-term.
- Draft a privacy statement.
- Inform the research subjects.
- Request consent to participate in research or to process personal information according to good research ethics, if you use consent as a basis for your research.
- Ensure data protection when processing the data.
- Ensure that the data is archived appropriately after the project.

More information:
[datamanagement@laurea.fi](https://twitter.com/datamanagement@laurea.fi)

Figure 2. Laurea's instructions for processing personal information. (Figure: Minna Marjamaa)

The privacy statement template can also help developers understand the purposes and means for processing personal data as specified in the GDPR. Have the developers ensured that consent is formally requested from each participant, or can the information be collected on the basis of research for public interest or compliance with a legal obligation? What kinds of data will be processed and how will they be collected? Are all aspects of the information necessary for the goals of the project? Who is responsible for processing personal information at each stage? Is one of the participants in the co-creation project the data controller who has primary responsibility, or will all participants share the responsibilities of the data controller? How will the data be protected? What will happen to the personal information after the co-creation project? Will it be destroyed, anonymised or stored as-is, and what implications does each option have for potentially opening the data?

The privacy statement must also include a note on how each individual can exercise their rights to their personal information.

ACKNOWLEDGE THE RISKS ASSOCIATED WITH PROCESSING PERSONAL INFORMATION

The model has a moment specifically dedicated to processing special categories of personal information. No harm may come to the individual because their personal information is being processed. For this reason, the processing of certain categories of personal information such as health data, religious beliefs or political opinions is regulated more strictly. Not only must the processing of such data always be justified with a reason accepted by the Data Security Act, the data handlers must also ensure that the data in question are only shared and stored at locations which are appropriate for the classification of the data.

If such special category data are processed extensively or the processing involves the handling of biometric or genetic data or data relating to location or criminality, the project must first assess the impact that processing such data may have for the individual. This impact assessment should begin with the description of the planned processing measures, the purpose of the processing and any factors supporting its necessity. After this, the risks targeting the rights and freedoms of the subjects must be assessed, for example by using the Potential Problems Analysis (POA) method which is widely employed in Laurea. This risk assessment is used to determine the extent of the necessary risk mitigation measures, e.g., how to prevent external parties from gaining access to the data.

Data security risks must also be considered. As cloud services are very easy to use, they are used extensively in collaboration between organisations. In most such services, it is easy to share documents to be used by accounts from the partner organisation, or even to be downloaded from a link anonymously. Microsoft's Office 365 services are particularly common as organisational tools, which means that they are popular means of sharing and cooperating on documents.

However, the wide popularity of these services also presents a problem for data security: possibly the most common phishing messages are ones trying to gain users' Office 365 passwords, and the National Cyber Security Centre has issued several warnings of such messages. The official warnings have since been removed, as the attacks have become so commonplace. It's possible to secure Office 365 logins, and Traficom has published an extensive guide on the matter, but remember that in a cooperation project, the data security of the partner must also be at a sufficient level.

From the perspective of risk management, risk and impact assessment for data processing is not wasted time!

The idea of the framework is that all data generated in institutions of higher education is collected and used in projects and theses, and made openly available to society at large. The implementation of this framework will begin as a joint pilot of a few lecturers and the data protection and management officer, during which data will be collected from courses while processes to launch the operations will be created and tested. The intention of the pilot is to highlight the central benefits and challenges of the model and identify points that need improvement.

Choosing a platform is a key question for the holistic framework. Should an internal database be created for the data that is generated during courses and projects? Should all produced data be described into external services, or just the most important content, with less significant data described on internal platforms only? For the framework, access right agreements must be concluded with both partners and students. Answers must be found to these fundamental questions.

The pilot creates a teaching process which launches the collection of data. At the same time, a package of applicable agreements are drafted to help the courses and projects determine the access rights to the material for its authors, Laurea and users. Students and staff must be trained in FAIR principles.

THE FUTURE: PROTECTING INFORMATION AND THE BENEFITS OF CUMULATIVE DATA

Data management will continue to gain in significance in the future, and data security and management skills will become an increasingly central part of Laurea's work. The purpose of Laurea's open model of co-creation is for people to understand which locations are appropriate for sharing and processing information as well as to grasp the significance of metadata. The easiest and most familiar way of storing and sharing data may not be the most secure and sensible one. Understanding this is a major cultural shift in itself.

In the future, cooperation between institutions of higher education will intensify, creating demand for more tools to share data already at the active stage of projects. The tools for sharing data of the highest classification level are currently quite cumbersome.

If personal information, corporate secrets or data created by students are processed on a platform from which data can wind up in the wrong hands, this can quickly result in serious problems for the project manager, or Laurea as a whole. Since the adoption of the EU's General Data Protection Regulation in May 2018, officials have already issued fines to companies for neglecting their data security practices. Reputation is an important asset for an institution of higher education, and as experts we must understand the correct way of working. Data management goes beyond an individual project. An open and reliable atmosphere surrounding data handling along with the appropriate tools may also offer an edge in the competition for project funding.

If data created at different levels in institutions of higher education can be collected and released as a dedicated internal data bank, it will increase the institution's competitive edge by sparing time and resources. Time and resources need not be spent on collecting new material if the necessary data is already available. For example, students could take advantage of existing datasets in their theses and avoid having to collect data themselves. An institution of higher education can systematically create longitudinal data, which can be used as the basis of long-term research. The data created at an institution of higher education would then constitute the core of its operations.

By opening data collected in an institution of higher education to society at large and describing the data appropriately in national or international data repositories, we enable findability and interoperability while speeding up the national cycle of research and innovation. For a researcher, openly releasing the research data is considered an academic merit. Some international academic publications already require that the research

data be openly accessible before an article may be published. This is likely to become more common in the future. In addition, researchers will be cited more if their research data is used in further research.

We will likely see a major cultural shift in the coming years, as one is already in motion.

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Keywords:

- Data management
 - Data protection
 - Research information
 - Management services
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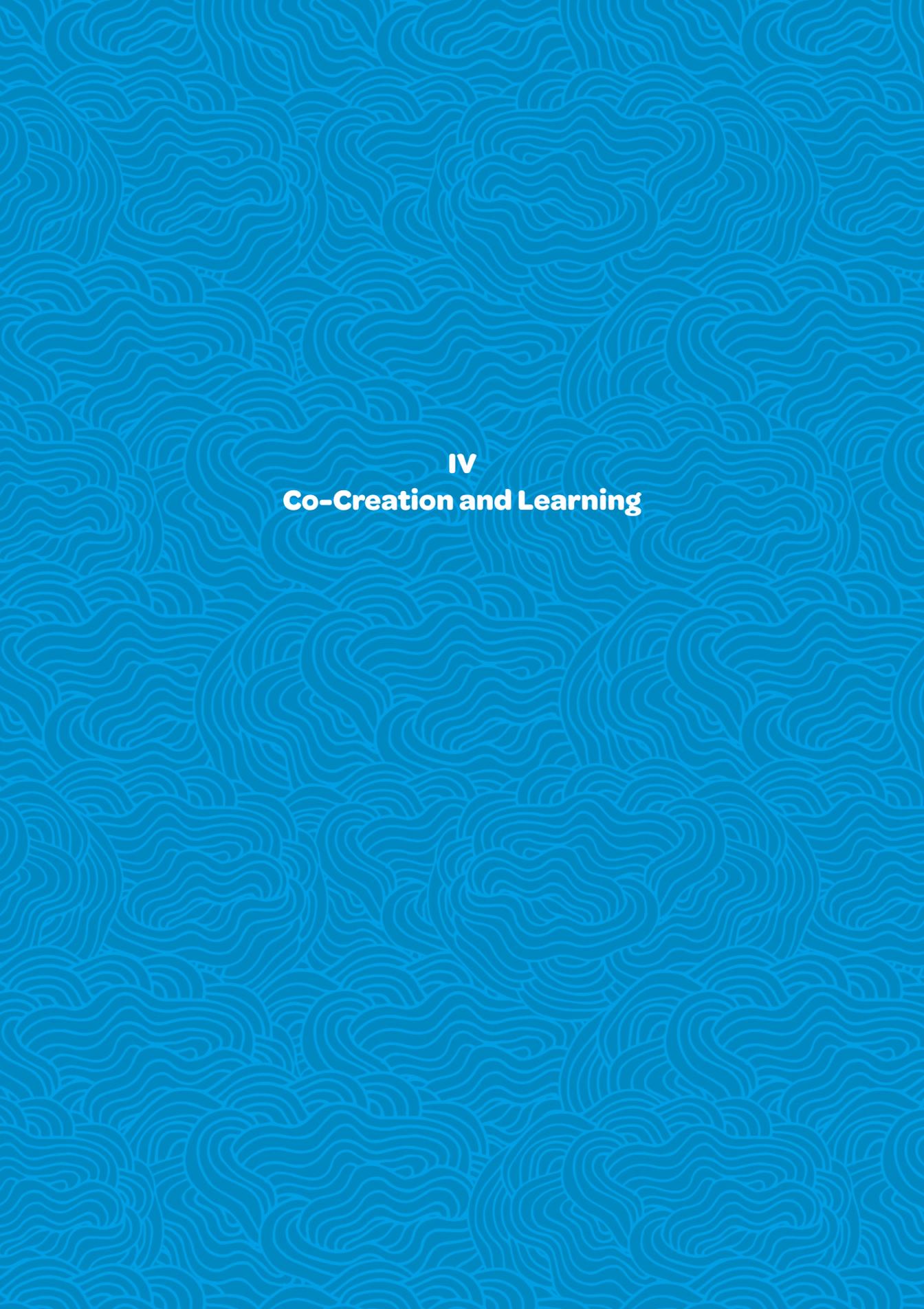
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IV
Co-Creation and Learning

23. Opettaja monialaisen tiedonrakentelun fasilitaattorina

Sanna Juvonen & Päivi Pöyry-Lassila

JOHDANTO

Tässä artikkelissa kuvataan SotePedaz4/7 -hankkeessa toteutettua opintotehtävää, jonka järjestivät kaksi ammattikorkeakoulua kolmelle eri koulutusalan opiskelijaryhmälle. Kaksi eri koulutusohjelmista koottua opiskelijaryhmää kehittivät innovatiivisia digitaalisia palveluita tai palvelupolkuja tulevaisuuden monialaiselle sosiaali- ja terveysalalle. Opintotehtävässä hyödynnettiin dialogista oppimismallia ja innovatiivisten tietoyhteisöjen periaatteita (Hakkarainen 2009). Samalla toteutettiin case-tutkimus, jossa kerättiin opiskelijoiden kokemuksia projektiopinnoista toteuttamisesta. Tutkimuskysymyksinä olivat: *Miten monialaisia kehittämissuunnitelmia fasilitoidaan, ja miten opettaja voi hyödyntää fasilitointiosaamista?*

Artikkelissa esitetyt tutkimustulokset voidaan hyödyntää ammatillisen korkeakoulutuksen monialaisten oppimistehtävien ja oppimiskokonaisuuksien suunnittelussa. Tuloksista ilmeni kehityskohteeseen liittyvän yhteisen ymmärryksen syntymisen tärkeys sekä yhteisen kielen luominen. Molemmat edellyttävät yhteistä koulutusalojen rajat ylittävää vuoropuhelua ja tiedonluomista. Opettajan merkitys tiedonrakentelun fasilitaattorina korostui, sillä se mahdollistaa osaamis- ja koulutusalojen rajojen ylittävän yhteistyön.

Sosiaali- ja terveysalalla (jatkossa sote-alalla) tapahtuneet muutokset vaikuttavat ammatillisen koulutuksen osaamisvaatimuksiin, sillä suurin osa sote-alan ammattilaista suorittaa ammatillisen koulutuksen. Merkittävimpinä sote-alan muutoksen aiheuttajina voidaan mainita teknologisoituvat työvälineet ja niiden käyttöön liittyvä digitaalinen osaaminen sekä monialaisen yhteistyön tarve. Näitä aiheita tutkitaan ja kehitetään Opetus- ja kulttuuriministeriön rahoittamassa SotePedaz4/7 -hankkeessa (2018-2020) yhdessä 23 suomalaisen korkeakoulun ja laajan yhteistyöverkoston kanssa.

Tämän päivän yhteiskunnalliset sote-alan ilmiöt harvoin ratkeavat yhden alan toimilla, vaan ratkaisuihin tarvitaan monialaista ja monitoimijaista yhteistyötä. Monialaisella yhteistyöllä tarkoitetaan julkisten toimijoiden lisäksi yksityisten palveluntuottajien, yritysten ja työnantajien sekä eri hallinnonalojen välistä yhteistyötä (kts. esim. Ahonen 2020, Nykänen 2010). Tässä artikkelissa tarkoitamme monialaisuudella eri alojen, kuten

sosiaali- ja terveysalan, liiketalouden ja tietojenkäsittelyn opiskelijoiden ja opettajien yhteistyötä yhteiseen kohteeseen eli opintotehtävään liittyen. Sote-alan toimintoja on integroitu asiakaslähtöisempään suuntaan ja eri alojen yhteistyö sekä erilaiset verkostot ovat palvelujen tuottamisen edellytys. Tämä luo paineita ammatilliselle koulutukselle, sillä monialainen osaaminen edellyttää taitoa toimia monialaisessa ryhmässä. Monialaisen osaamisen opiskelu tulisikin liittää osaksi ammattiin opiskelua. (esim. Mönkkönen yms. 2019).

Monialainen opintokokonaisuus tarjoaa opettajalle mahdollisuuden järjestää opintotehtävä toisella tavoin. Fasilitoinnin keinoja hyödyntämällä opettaja voi tukea ryhmän ja sen jäsenten tiedonrakentelua sekä keskinäistä vuorovaikusta. Fasilitoinnilla tarkoitetaan ryhmän työskentelyn helpottamista erilaisten työskentelymenetelmien ja rakenteiden avulla. Fasilitointi toimii ryhmäprosessien tukena ja helpottajana auttaen mm. yhteisen ymmärryksen ja tavoitteiden muodostamista. Fasilitaattori ei anna valmiita ratkaisuja, vaan luo puitteet yhteisten ratkaisujen rakentamiselle toimijoiden välisenä yhteistyönä tarjoten mm. rakenteen ja työkaluja yhteistyön tueksi. Fasilitaattori on ”neutraali ulkopuolinen”, joka ei suoraan osallistu ryhmän työskentelyyn, vaan ainoastaan tukee sen etenemistä kohti tavoitetta. (Schwarz, 2017)

Monialaisessa ryhmässä fasilitaattorin tehtävänä on usein auttaa ryhmän jäseniä muodostamaan ensin yhteinen kieli ja ymmärrys yhteistyön mahdollistamiseksi sekä tämän jälkeen auttaa ryhmää määrittelemään yhteinen tavoite ja sen saavuttamiseen tarvittava työskentelysuunnitelma. Fasilitaattorin tärkeimpiin työkaluihin kuuluu erilaisten kysymysten tekeminen ryhmälle, jolloin ryhmä itse työstää vastaukset kysymyksiin ja ratkaisut asetettuihin tavoitteisiin. Fasilitoinnin avulla ryhmää myös ohjataan pitämään työskentely yhteistä tavoitetta kohti kulkevana. (Schwarz, 2017.) Artikkelissa kuvataan yhtä tapaa organisoida korkeakoulutukseen monialainen opintokokonaisuus fasilitoinnin keinoin ja antaa suosituksia monialaista opintotehtävää suunnittelevalle opettajalle.

TRIALOGISEN OPPIMISEN MALLI PEDAGOGISEN KEHITTÄMISEN LÄHTÖKOHTANA

Artikkelissa kuvataan dialogisen oppimisen mallin mukaan toteutettua opintotehtävää. Hankkeen pedagogiseksi viitekehikseksi on valittu dialogisen oppimisen malli, jonka avulla hahmotamme monialaista oppimisprojektia. Dialoginen oppiminen on luonteeltaan yhteisöllistä uuden tiedon, osaamisen ja ymmärryksen kehittämistä. Oppimista voidaan lähestyä kolmen metaforan kautta: monologinen, dialoginen ja dialoginen (Sfard, 1998; Paavola & Hakkarainen, 2005).

Monologinen oppiminen nähdään yksilökeskeisenä tiedon hankintana, jossa oppija prosessoi usein faktapitoista, käsitteellistä tietoa esim. osallistumalla luennoille tai lukemalla oppikirjaa. Dialoginen oppiminen taas tapahtuu sosiaalisessa vuorovaikutuksessa ja osallistumalla jonkin ryhmän toimintaan, oppien kokemusperäistä tietoa konkareilta ja omaksuen samalla kyseisen yhteisön kulttuuriset käytännöt. Dialoginen oppiminen taas kohdistuu osallistujien aiemman osaamisen ylittävän uuden tiedon tavoitteelliseen yhteiskehittämiseen yhteisiä kehittämisen kohteita työstämällä. (Hakkarainen & Paavola, 2009.)

Nämä kolme oppimisen metaforaa tai tapaa nähdään SotePeda24/7 -hankkeessa toisiaan täydentävinä esim. siten, että monologisen oppimisen keinoin hankittua tietoperustaa tarvitaan, jotta osallistuminen sekä dialogisen että dialogisen oppimisen prosesseihin olisi mahdollista. Projektioinnossa keskitymme dialogisen oppimismallin tukemiseen siten, että opiskelijoiden oppiminen tapahtui opintojen eri vaiheissa olevien ja eri koulutusohjelmissa opiskelevien opiskelijoiden kanssa samassa pienryhmässä yhteiskehittäen ja yhteisiä kehittämisen kohteita opiskelemalla. Dialoginen oppiminen organisoidaan yhteisesti luotavien ja kehitettävien jaettujen kohteiden ympärille. Tällainen kehittämisen kohde voi olla esim. prototyyppi tai toimintamalli.

(Hakkarainen & Paavola 2009; Paavola 2012). Tässä opintotehtävässä opiskelijat toteuttivat pienryhmissä prototyyppin: digitaalisen palvelupolon.

Lisäksi dialogista oppimista tukee osallistujien organisoiminen innovatiiviseksi tietoyhteisöksi, joiden jäsenet edustavat erilaista toisiaan täydentävää tietoa, työhistoriaa ja osaamisia (Hakkarainen ym. 2004). Innovatiivisessa tietoyhteisössä näkyväksi tulee toimijoiden monialaisuus, jolloin päästään "ristiinpölyttämään" eri alojen ymmärrystä ja tapoja luoda uutta tietoa ja osaamista. Innovatiiviset tietoyhteisöt pyrkivät refleктоimaan sekä kehitettyä uutta tietoa, että toimintatapojaan, ja vastuu tiedonluomisen prosessista nähdään kollektiivisena. (Hakkarainen ym. 2004; Hakkarainen 2009.) Opintotehtävällä tavoiteltiin yhteisöllistä oppimista ja sitä tuettiin tavoitteiden sekä arvioinnin avulla sekä siten, että opiskelijajäsenet edustivat toisiaan täydentäviä osaamisia.

PROJEKTIOPINNON KUVAUS

Monialainen opintotehtävä on pyrkinyt toteuttamaan käytännössä sekä dialogisen oppimisen, että innovatiivisten tietoyhteisöjen periaatteita. Opiskelijaryhmät on rakennettu siten, että niiden jäsenet edustavat eri aloja (IT, liiketalous, sosiaali- ja terveysala), eri organisaatioita ja eri koulutustasoja (AMK-taso/EQF6 ja YAMK-taso/EQF7). Myös opettajat ovat edustaneet eri aloja, jolloin opintotehtävän suunnittelussa ja toteutuksessa on tavoiteltu alat ylittävää vuorovaikutusta ja uuden ymmärryksen luomista. Lisäksi opintotehtävä on organisoitu yhteisen kehittämisen kohteen ympärille eli sosiaali- ja terveysalan digitaalisten palvelupolkujen kehittämiseen yhteisöllisen tiedonrakentelun keinoin.

Opintotehtävä toteutettiin syyslukukaudella 2018 ja siihen integroitiin sekä AMK että YAMK -opiskelijoita dialogisen oppimismallin lähtökohtien mukaisesti. Kahden hankkeessa mukana olevan ammattikorkeakoulun järjestämän yhteisen opintotehtävän laajuus oli YAMK-opiskelijoille 5 opintopistettä ja AMK-opiskelijoille 10 opintopistettä. Opintokokonaisuuden tavoitteena oli vahvistaa sosiaali- ja terveydenhuollon, tieto- ja viestintäteknologian (IT) sekä liiketalouden opiskelijoiden tietoja, taitoja ja osaamista sekä kuvailla sosiaali- ja terveydenhuollon sähköisten palvelujen edellyttämää osaamista. Lisäksi tavoitteena oli tuottaa yhteisölliseen oppimiseen perustuvia pedagogisia ratkaisuja digitaaliseen toimintaympäristöön.

Opiskelijat kehittivät innovatiivisia digitaalisia palveluita tai palvelupolkuja monialaiselle sosiaali- ja terveysalalle. Opintotehtävän toteutuksen yhteydessä selvitettiin, miten monialaisia kehittämisprojekteja fasilitoidaan ja miten opettaja voi hyödyntää fasilitoitiosaamistaan. Eri alojen opiskelijat muodostivat kaksi ryhmää. Ryhmätöiden aiheet ideoitiin omista pienryhmissä ja aiheet pohjautuivat Sosiaali- ja terveysalan opiskelijoiden työkokemuksiin. Molemmissa pienryhmissä oli 7 osallistujaa kaikista koulutusohjelmista.

Case-tutkimusta ohjasi kaksi tutkimuskysymystä: 1. Miten monialaisia kehittämisprojekteja fasilitoidaan? ja 2. Miten opettaja voi hyödyntää fasilitoitiosaamista?

Opiskelijoille kerrottiin tutkimukseen osallistumisen vapaaehtoisuudesta ja, ettei tutkimuksesta poisjääminen vaikuttaisi opintojen arviointiin. Lisäksi korostettiin, että opiskelijoilla olisi mahdollisuus keskeyttää tutkimukseen osallistuminen milloin tahansa. Opiskelijoita informoitiin tutkimuksesta sekä suullisesti että kirjallisesti ja heiltä kerättiin kirjalliset suostumukset tutkimukseen osallistumiseen.

Tutkimusaineisto koostuu projektiopinnon aikana tapahtuneesta osallistavasta havainnoinnista yhden opintojakson vastuupettajan toimesta, opiskelijoiden haastatteluista, heidän kirjoittamistaan raporteista, tunnin pituisesta audio-nauhoksesta, joka äänitettiin Skype Business-työtilassa tapahtuneesta opintojakson arviointitilaisuudesta sekä palautekyselystä, joka lähetettiin opiskelijoille sähköpostitse opintojakson

päätyttyä. Kerätty aineisto analysoitiin laadullisella sisällön analyysillä. Tuloksena saatiin opiskelijoiden näemyksiä ja kokemuksia monialaisesta projektiopinnosta, jossa hyödynnettiin trialogisen oppimisen mallia ja fasilitoivaa opetusta. Case-tutkimuksen tulokset esitellään artikkelin luvussa 4. Kokemuksia projektiopinnosta.

Trialogisen oppimisen mallin soveltamisessa huomioitiin kuusi suunnitteluperiaatetta (Lakkala et al. 2015; Paavola et al. 2011), jotka ohjasivat opiskelijoiden monialaista opiskelua. Suunnitteluperiaatteet ja niiden soveltaminen on kuvattu taulukossa 1.

Taulukko 1. Trialogisen oppimisen suunnitteluperiaatteiden soveltaminen monialaisessa projektiopinnossa.

SUUNNITTELUPERIAATE	KÄYTÄNNÖN TOTEUTUS
1. Toiminnan organisointi yhteisesti kehitettävien kohteiden ympärille:	Opiskelijoilla oli yhteinen opintotehtävä, jossa tarkasteltiin ja kehitettiin digitaalisia ratkaisuja työterveyshuoltoon sekä potilaan kotiuttamisprosessiin.
2. Henkilökohtaisen ja sosiaalisen tason yhdistäminen sekä aktiivinen toimijuus:	Eri taustaiset opiskelijat toivat mukaan oman henkilökohtaisen osaamisensa, mutta ryhmätö edellytti yhteistä tiedon rakentelua ja kehittämistä.
3. Pitkäjänteiset työskentelyprosessit:	Oppimiskokonaisuus oli suunniteltu koko lukukauden mittaiseksi, jolloin oppimisprosesseista muodostui pitkäjänteisiä.
4. Eri tiedon muotojen yhdistäminen ja reflektointi asioiden kehittämisessä:	Opintotehtävässä tarvittiin sekä faktapohjaista että kokemuspohjaista tietoa, ja tiedonluomisen ja oppimisen prosessia reflektointiin opettajien kanssa mm. ohjaustapaamisissa.
5. Tietokäytäntöjen ”ristipölytys” eri kontekstien ja yhteisöjen välillä:	Opintotehtävässä pyrittiin ylittämään osaamisalojen ja koulutustasojen rajoja sekä oppimaan kehittämisen ja tiedonluomisen käytänteistä mukana olleiden eri alojen ja koulutustasojen edustajilta.
6. Joustavien digitaalisten työvälineiden käyttö:	Oppimiskokonaisuus toteutettiin osin lähiopetuksena mutta osin verkossa, hyödyntäen erilaisia digitaalisia alustoja, kuten Skype Business, Zoom ja Google Drive -alustoja yhteistyön ja oppimisen tukena. Lisäksi opintojaksolla oli käytössään kahden korkeakoulun verkko-oppimisympäristöt: Optima ja Moodle.

KOKEMUKSIA PROJEKTIOPINNOSTA

Projektiopinnon toteuttamisen haasteena oli korkeakoulujen erilaiset aikataulut, sillä korkeakoulujen opiskelijoiden opintojen aloitus syyslukukaudella tapahtui eriaikaisesti. Tästä johtuen opintojakson aloitus jouduttiin toteuttamaan kaksi kertaa ja osa opiskelijoista aloitti yhteisen projektiopinnon suunnittelun ennen muita. Opintotehtävän alkuun sovittiin yksi kaikille yhteinen virtuaalinen tapaaminen, missä jaettiin opiskelijat kahteen monialaiseen pienryhmään. Ohjelmaan aikataulutettiin yhteinen työpajapäivä, jossa opiskelijat tapasivat toisensa kasvokkain. Arviointi ja opintotehtävän reflektointi toteutettiin virtuaalisesti Skype Business -työtilassa.

Opiskelijoiden tehtävänä oli asettaa omat aikataulut kehittämisprojektilleen ja sopia ryhmän yhteistyötavat, kuten tapaamisajankohdat ja tapaamisympäristöt. Opettajat fasilitoivat opiskelijaryhmien toimintaa säännöllisissä ohjaustapaamisissa, virtuaalisesti tai fyysisissä tapaamisissa. Lisäksi ohjausta annettiin sähköpostitse silloin kun opiskelijat tarvitsivat tukea ja neuvoja.

Opintotehtävän suunnittelussa eriaikaisuutta ei pidetty ongelmallisena, mutta opintojen edetessä kävi ilmi, että yhteisen ymmärryksen syntymisen kannalta yhteinen aloitus olisi ollut tärkeää. Monialainen kehittämisprojekti edellyttää yhteistä aikaa ja paikkaa yhteisen ymmärryksen luomiselle. Tämän lisäksi opettajan täytyy fasilitoida yhteisen ymmärryksen syntymistä, jotta erilaisten opiskelu- ja työtaustaisten opiskelijoiden yhteinen tiedonluonti onnistuu. Kun kyseessä on eri aloilta ja koulutusohjelmista tulevat opiskelijat, on myös tuettava yhteisten opiskelu- ja toimintatapojen luomista. Opiskelijoiden erilaiset koulutus- ja ammatilliset taustat haastoivat yhteisen ymmärryksen ja kielen syntymistä ja opiskelijat olisivat tarvinneet opettajilta erityisesti alkuvaiheessa enemmän tukea ja ohjausta esimerkiksi yhteisten tapaamisten avulla.

Opintotehtävän opettajat olivat motivoituneita yhteistyöhön ja inspiroivia keskusteluja käytiin niin projektiopinnon sisällöstä kuin pedagogisista ratkaisuista. Myös opiskelijat kokivat mielekkäänä opiskelun monialaisen kehittämisprojektiin parissa. Opintotehtävän edetessä haasteita toivat opiskelijoiden kohtaamat huolet ja haasteet, jotka usein liittyivät eri koulutusohjelmien yhteisen kielen löytämiseen; kun toiselle oppijalle merkittävintä on sujuva tietotekninen käyttöliittymä, toinen oppija haluaa keskittyä vain sisältöön. Heräsi kysymys, miten muodostaa oppijoiden yhteinen kieli ja yhteinen ymmärrys digitaalisia välineitä hyödyntäen? Oppijoilla oli erilaiset elämäntilanteet ja aikataulut – yhteistä aikaa ei ollut helposti löydettävissä. Intoa ja motivaatiota uuden oppimiseen yhteiskehittämiseen oli, mutta sen toteuttaminen käytännössä oli haasteellista, kuten seuraavassa opintotehtävään osallistuneen opiskelijan kommentissa käy ilmi.

”Yhteistä tekemistä ja ymmärrystä oli melko hankala saada edistettyä. Myös näin pienellä porukalla on vaikea työskennellä yhdessä moniammatillisesti, jos ei ole selkeästi sovittu yhteisistä tavoitteista ja aikatauluista.”

Ongelmanratkaisu yhdessä opiskelijoiden kanssa oli aikaa vievää, sillä ongelman ratkaiseminen edellytti pitkällisiä keskusteluja, jotka usein päätyivät eri alojen tehtävien määrittelyyn ja eettisiin pohdintoihin ammatti-identiteetistä. Opiskelijoiden puheista välittyi yhteisen ymmärryksen puute, kuten opintotehtävän opiskelija toteaa:

”Työstäminen alatiimeissä sujui varsin irrallaan toisistaan; alussa yhteistyötä tiimien välillä oli paljon, mutta loppua kohti alkoi käydä selväksi, että alustatiimi rakentaa alustaa melko irrallaan sisällöstä. Saimme kuitenkin nivottua sisällön ja alustan melko hyvin yhteen”.

Haasteista huolimatta opiskelijoiden oppimisprosessi eteni ja projekti inspiroi jatkamaan, vaikka opiskelijat kokivat saaneensa ristiriitaista ohjausta eri vastuuopettajilta, kuten seuraavassa opiskelijan kommentissa käy ilmi.

“Opiskelijat saivat erilaisia ohjeita ja neuvoja omilta opettajiltaan ja ohjeet saattoivat olla keskenään ristiriidassa, mikä aiheutti huomattavasti pohdintaa ja työstämistä tiimillä; mitä nyt onkaan tarkoitus tehdä? Koska esitykset esitetäänkään? Mikä on sisällön ja alustan suhde? Mitkä ovat aikataulut? Millä alustalla työstämme yhteisiä töitä?”

Monialaisuus vaatii toimijoita paljon yhteistä aikaa yhteisen kehittämiskohteen ymmärtämiseen. Myös projektiopinnon vastuuopettajat edustivat monialaista ryhmää. He olivat juuri aloittaneet yhteistyön ja hankkeen yhteinen kehittämistehtävä oli alkuvaiheessa.

LOPUKSI

Artikkelissa esitettyjä havaintoja voidaan hyödyntää korkeakoulutuksen monialaisten oppimistehtävien ja oppimiskokonaisuuksien suunnittelussa. Niistä ilmeni kehityskohteeseen liittyvän yhteisen ymmärryksen syntymisen tärkeys sekä yhteisen kielen luominen. Molemmat edellyttävät yhteistä koulutusalojen rajat ylittävää vuoropuhelua ja tiedonluomista. Opettajan merkitys tiedonrakentelun fasilitaattorina korostui, sillä se mahdollistaa osaamis- ja koulutusalojen rajojen ylittävän yhteistyön.

Luottamus, avoimuus ja jaetut arvot ovat onnistuneen moniammatillisen työskentelyn perusta. Se vähentää toimijoiden rooleihin liittyviä epäselvyyksiä ja lisää avointa yhteistyötä (mm. Hesjedal, Hetland & Iversen 2015, Isoherranen 2012, Blakey 2014). Toisaalta ristiriitoja syntyy mm. monialaisen ryhmän erilaisista tavoitteista ja rajoitetusta tiedon jakamisesta (Blakey 2014). Tämä ilmeni myös opiskelijoiden palautteesta.

Opiskelijat olivat itsenäisesti rakentaneet ryhmiinsä kaksi alatiimiä, joita toinen opiskelijaryhmä kutsui “alusta- ja sisältötiimiksi”. Tämä tarkoitti sitä, että alustatiimi kehitti opintotehtävässä digitaalista alustaratkaisua ja sisältötiimin vastuulla oli asiakaspolun rakentaminen. Pienryhmien jäsenten yhteistä vuoropuhelua olisi edistänyt se, jos kaikki ryhmän jäsenet olivat järjestäneet yhteisiä tapaamisia ja keskustelut tehtävästä yhdessä.

Digitaalisen sosiaali- ja terveysalan osaamisen kehittämiseen liittyvän oppimisprosessin lisäksi opiskelijat oppivat aikataulujen ja kuuntelemisen merkityksestä ja projektinhallinnasta sekä vahvistivat oman asiantuntijuuden kehittymistä monialaisessa ryhmässä. Yhteisen ymmärryksen kehittyminen on lähtökohta, joka SotePedaz4/7 -hankkeen muissa pedagogisissa kokeiluissa huomioitiin. Opettajan roolin merkitys erityisesti eri alaisten opiskelijoiden yhteistyön ja tiedonrakentelun *fasilitaattorina* (Schwarz, 2017) nousi selkeästi esille.

Opiskelijoiden kokemukset oppimiskokonaisuudesta olivat pääosin positiivisia, mutta palautteesta kävi selkeästi ilmi, että monialaisen oppimiskokonaisuuden yhteistyön organisointi ja fasilitointi vaativat huomattavasti panostamista opettajilta. Yhteisen kehittämisen kohteen ymmärtäminen on edellytys opiskelijoiden yhteisen oppimisen ja tiedonluomisen prosessin onnistumiselle. Opettajan näkökulmasta tämä tarkoittaa, että opintokokonaisuuden alussa kannattaa käyttää riittävästi aikaa yhteisen, opiskelijoiden osaamisalat ylittävän ymmärryksen muodostamiseen, ja opettajan rooli tässä on toimia fasilitaattorina (Schwarz, 2017), joka auttaa tiedollisten rajojen ylittämistä (ns. boundary spanning, ks. esim. Levina & Vaast, 2005). Muuten vaarana on oppimisen jääminen yhteistoiminnalliselle tasolle (co-operative), jolloin muodostuu eri alojen omia alaryhmiä, jotka toimivat erillisinä eikä aidosti monialaista oppimista pääse tapahtumaan.

Tavoitteena on päästä oppimisessa yhteisölliselle (collaborative) tiedonrakentamisen tasolle, jolloin oppimisen prosessi on kaikille yhteinen taustasta riippumatta. (esim. Repo, 2010) Lisäksi opettajaa tarvitaan fasilitoimaan eri alojen välistä "ristiinpölyttämistä" (Lakkala et al. 2015) koskien niin eri alojen osaamisten että erilaisten käytänteiden välistä rajojen ylittämistä. Käytännössä esimerkiksi sote-alojen opiskelijan ja it-alan opiskelijan on helpompi tehdä yhteistyötä ja muodostaa yhteinen ymmärrys kehittämistehtävästä, kun jo opintotehtävän alussa opettajan johdolla muodostetaan tietoisesti yhteinen, jaettu ymmärrys sekä opittavasta ja kehitettävästä asiasta että yhteisen kehittämisen ja tiedonluomisen toimintatavoista ja käytänteistä.

Monialaisen oppimisprosessin fasilitointi vaatii opettajilta myös oman työn hahmottamista monialaisena siten, että eri alojen opettajat joutuvat ylittämään alojensa välisiä rajoja ja muodostamaan oppimiskokonaisuudesta aidosti monialaisen. Tämä korostuu erityisesti oppimiskokonaisuuden suunnitteluvaiheessa.

Paavolan ym. (2011) sekä Lakkalan ym. (2015) määrittelemien dialogisen oppimisen suunnitteluperiaatteiden huomioimisen lisäksi ehdotamme kokemustemme pohjalta seuraavaa:

- Suunnittele opintokokonaisuuden ja opiskelijoiden tehtävän aikataulu huolellisesti, ja varaa aika tauluun riittävästi yhteisiä tapaamisia joiden aikataulut tulee tiedottaa jo ennen opintotehtävän alkua. Käytä aikaa myös ryhmätyötaitojen opettamiseen; ryhmätyön etenemiseen, erilaisten roolien kuvaamiseen, tavoitteisiin ja erilaisiin vaiheisiin, mikä auttaa ryhmätyöhön sitoutumista ja yhteisen ymmärryksen syntymistä (Ilomäki, Kosonen 2019).
- Keskustele opintotehtävän oppimistavoitteista ja arvioinnista muiden opettajien kanssa ennen opintotehtävän alkua. Tämä on erityisen tärkeää, kun opintokokonaisuus on monialainen ja opettajat edustavat eri osaamisalueita.
- Yhteisen lähdekirjallisuuden valinta kannattaa tehdä huolellisesti ja yhteiseen keskusteluun pohjautuen.
- Yhteisten digitaalisten oppimisympäristöjen ja yhteydenpitokanavien valinta pitää myös tehdä huolellisesti, jotta ympäristö tukee monialaista ja oppilaitosten rajat ylittävää yhteistyötä.
- Sovi muiden opettajien kanssa, kuinka usein annetaan ohjausta, miten monialaista oppimista ohjataan ja voivatko eri opettajat antaa ohjausta enemmän kuin toiset.
- Tutustu digitaalisiin välineisiin ennakoon, jotta voit suunnitella opiskelijan toiminnan verkossa monialaisuus huomioiden.
- Panosta yhteisen ymmärryksen luomiseen ennen yhteistä kehittämistä. Yhteinen ymmärrys ei synny ilman riittävä yhteistyötä ja avointa, moninaisuutta arvostavaa keskustelua.

Case-tutkimuksen aineisto on suppea eikä tutkimustuloksista voida tehdä yleistyksiä ilman laajempia jatkotutkimuksia. Opintotehtävä on kuitenkin tarjonnut jatkokehitysideoita, joiden avulla opintoa kehitetään edelleen ja sen tutkimista jatketaan. Opetuskokeilu kannustaa jatkamaan monialaisten opintojen kehittämistä ja tutkimusta. Kirjoittajat jatkavat kehitystyötä dialogisen mallin soveltamisesta digitaalisesti toteutettavaan monialaiseen opintotehtävään. SotePed24/7 -hankkeen monialaisten opintotehtävien kehitystyö jatkuu ja tiedonluontia tuetaan opettajan fasilitointiosaamisen avulla yhteisen ymmärryksen luomisessa.

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24. Co-creating value: Multi-stakeholder co-creation of lifelong education

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INTRODUCTION

Co-creation is an established method for creating value in co-operation between customers and companies (Prahalad & Ramaswamy, 2004b). Co-creation has been a widely accepted value-creation tool in various contexts. In the educational context, co-creation enables different stakeholders to take part in and bring new perspectives to education design. This is seen to add value in the quality and impact of education. Studies have been conducted on the impact that increased cooperation between education institutions and students has on education design and improves the institutions' service processes (Chemi & Krogh, 2017; Wardley et al., 2017). The benefit of co-creation is anticipated to influence successful service experiences, increased personalisation of study paths and students' positive relationship with their institution (Dollinger et al., 2018).

In lifelong learning (also continuous learning), personalisation and tailored courses are typical expectations. The focus of education is on skills, expertise and adequate knowledge of working life. Its provision is increasingly towards non-degree education. Effective lifelong education (also adult education or working-life-oriented education) must be directly linked to competence needs, and education must be accessible alongside work. In lifelong learning, close interaction between education institutions, employers and employees is necessary. However, co-creation has not been widely studied in the lifelong learning context.

In this paper, we lay the foundation for an examination of the benefits of multi-stakeholder co-creation in lifelong education. It can be used to inform and guide best practices for designers of lifelong learning within higher education. We suggest that through co-creation methods, both the needs of those in working life and the conditions for education provision can be taken into account when designing education. Co-creation can thus help increase the personalisation of education and the utilisation of user experiences. In addition, participation in education design can strengthen learners' positive attitudes towards the phenomena of learning.

BACKGROUND

Continual economic globalisation, technological development and diverse occupational requirements emphasise the need to develop skills vital to working life. That requires educational institutions to design new learning models. In Finland, education has traditionally focused on formal and diploma-oriented learning (OECD, February 2020). To serve the growing need for education that updates hands-on skills and professional expertise, diverse forms of training and coaching programs have been designed expressly for working-life purposes. Adequate forms, methods and pedagogical interventions have been studied in the context of lifelong learning. However, more in-depth analysis of how education design can strengthen employees' learning motivation, as well as how to combine companies' education needs and education institutions' supply of education, is still required.

The concept of lifelong learning shifts the focus of education and the setting and methods increasingly towards a working-life context and non-degree education. Effective lifelong education must be directly linked to the competence needs of working life, and education must be accessible alongside work. Consequently, this phenomenon challenges the traditional means of education design.

In Finland, diploma-oriented higher education is funded by the Ministry of Education and Culture, and the terms of funding influence the forms and content of education. Through stakeholder surveys, higher-education institutions frequently evaluate the adequacy and accuracy of their performance (see, e.g., Laurea 2019). In addition, various predictions and research enlighten the future needs for skills and knowledge (Leveälahti et al., 2015). However, education design in higher education is a multifaceted process, and agile changes are often challenging. On the other hand, companies and stakeholders find it difficult to utilise diploma-oriented education selection to satisfy the demand for updating working-life skills. Various attempts and technological solutions are designed to tackle challenges. Companies as well as governments have their arguments for the forms and content of adult education (see Desjardins, 2017). Besides the macro-level discussions of financing lifelong education actions, it is important to underline the role of the participant. Learning is, ultimately, an individual cognitive process, even though it takes place under socio-cultural terms (Boeren, 2017).

The co-creation process considers the interests of diverse stakeholders. Because we approach the theme through the process of value creation in lifelong education context, which offers a valuable approach for education design, our aim is to contribute to the literature on lifelong learning. In practice, our paper can be used to inform and guide best practices for designers of higher education and other educational institutions. This paper presents a model that outlines the benefits a co-creation orientation offers on one hand to lifelong learners and on the other hand education institutions. The model also discusses the indicators of value co-creation, to which practitioners can pay attention in attempts to orientate their actions.

In contrast to the conceptual model of co-creation in higher education (Dollinger, Lodge & Coates, 2018), our discussion assumes that co-creation involves not only the student (here: lifelong learner) and the education institution but also working life in determining relevant feedback, opinions and other resources, thus offering value to all co-creation participants. In other words, in our co-creation setting, institutions, students and working-life (company) representatives work together to co-create value. However, the anticipated benefits are outlined from the viewpoints of the learner and the educational institution.

LITERATURE REVIEW

In order to present a model for closer investigation of value co-creation in lifelong education, we first briefly discuss the concept of value co-creation, its two main dimensions and their sub-constructs. This lays the foundation for the inspection and reformulation of the Dollinger et al. (2018) model for the context of lifelong education.

In this paper, we use the term 'lifelong learner', referring to an adult person who actively pursues knowledge and skills throughout his or her life, often to progress his or her working life. At the same time, 'lifelong education' refers to education designed specifically to respond to the needs of working life. Lifelong education can include educational elements of general personal and professional growth.

VALUE CO-CREATION

The topic of value co-creation has gained the attention of marketing academics and practitioners since the early 2000s. The concept describes collaboration between multiple stakeholders as a more customer-oriented response to the company-centric value creation of the past (Prahalad & Ramaswamy, 2004a). Interest in value co-creation was fuelled by a Vargo & Lusch (2004) study on co-creative service-dominant logic in marketing, suggesting a shift away from the exchange of tangible goods towards the exchange of intangibles, specialised skills and knowledge and processes. It became acknowledged that companies could not assume acting autonomously, e.g., in designing products and services with little or no interaction with customers (Prahalad & Ramaswamy, 2004b). The main idea is the changing role of the customer and the recognition of the customer's active, informed and connected role in the industrial system.

Conventionally, companies and customers have had distinct roles of production and consumption in the value-creation process. Prahalad and Ramaswamy (2004a) introduced the notion of customers engaging in the processes of both defining and creating value. Through continuous, in-depth dialogue, companies can learn more about customers' aspirations, desires and behaviours and get ideas, e.g., for design and manufacturing. Engagement, interaction, self-service and experience are important elements of joint value creation (Bendapudi & Leone, 2003).

In a rigorous review of scholarly value co-creation literature, Ranjan and Read (2016) distinguish between two core conceptual dimensions of value co-creation: co-production and value-in-use. Whereas co-production encompasses the aspect of (mutual) exchange or where the value proposition is created alongside the customer (Dollinger et al., 2018), the concept of value-in-use is aligned with the view that the value is created in use or consumption (Ranjan & Read, 2016) beyond production.

The process of co-production rests on the assumptions of active participation and continuous dialogue, which facilitate collaboration (Prahalad & Ramaswamy, 2004b). The customer can even be considered a part of the organisation's team (Mark, 2003). Whereas co-production is predominantly controlled by the organisation, the customer is more in charge of the value-in-use, because the customer decides what happens to the products and services, and how they are used, after they are produced (Dollinger et al., 2018).

Through their analysis, Ranjan and Read (2016) also identified sub-constructs for an additional definition of the dimensions co-production and value-in-use. Based on the review, three categories of elements further defining co-production are *knowledge-sharing*, *equity* and *interaction*. First, knowledge-sharing refers to the sharing of customers' knowledge, ideas and creativity to build understanding of current and future needs (Ranjan & Read, 2016). Second, equity manifests as mutualism, openness and non-command relations of

co-production (Arvidsson, 2011), and as a sense of ownership in the process. Third, dialog in the activity of co-production indicates interaction, engagement and willingness to act on both sides (Prahalad & Ramaswamy, 2004b).

Whereas co-production suggests that value can be derived through interaction with the company and its offerings, value-in-use is captured only through customers' consumption of the product or use of the service (Vargo & Lusch, 2004; Lusch & Vargo, 2006). The term value-in-use originates from service-dominant logic (see Vargo & Lusch, 2004). The three sub-constructs of the dimension of value-in-use are *experience*, *personalisation* and *relationship*. First, experience refers to the customer's experiential evaluation of the product or service proposition beyond its functional attributes and in accordance with the customer's own actions, processes, competences and motivation (Edvardsson et al., 2005). Second, personalisation denotes uniqueness of the use process, where the value is contingent on individual characteristics (Etgar, 2008). Finally, relationship and collaboration are suggested to result in customer empowerment to develop better solutions (Bonsu & Dermody, 2008), thereby creating value.

CO-CREATION IN HIGHER EDUCATION

Co-creation in the higher-education context has been studied from the viewpoints of learning management (Wardley, Belanger & Nadeau, 2016) and teaching quality (Axelsson et al., 2019; Diaz-Mendez & Gummeson, 2012). It is suggested that encouraging interaction between students and institutions can lead to better practices and innovation in education supply. Dolliger et al. (2018) define value co-creation in higher education as *'the process of students' feedback, opinions and other resources such as their intellectual capabilities and personalities, integrated alongside institutional resources, which can offer mutual value to both students and institutions'*.

In preliminary grades of elementary schools, student participation is formal and formulated. It takes place 'in the curriculum'. That is, the students discuss the material at hand and provide feedback during the lessons, but the content and timetable of the lessons is primarily created elsewhere. In higher education, students' backgrounds, interests and demands differ, and the study paths are more individual. Lifelong learning emphasises the agentic role of the learner, both 'of the curriculum', i.e., selecting adequate courses, and 'in the curriculum', i.e., utilizing the adequate course content.

Bovill and Woolmer (2019) explain the difference between co-creation *of* the curriculum and co-creation *in* the curriculum within the higher education context. The first conceptualisation refers to the co-design of a course before it takes place, whereas the second refers to the co-design of teaching and learning during a course. As an example of co-creation of the curriculum, Bovill and Woolmer (2019) take up a collaboration between future and retrospective students and the faculty to form a curriculum-planning team for designing course content.

Higher education has understood the power of student engagement (e.g., Wardley et al., 2017). As a response to facilitate students' engagement, co-creation methods have been brought up as an approach to ensure a better educational experience and to meet students' personal growth needs, as well as deepening commitment to their study path. Based on Ranjan & Read (2006) analysis of two main dimensions (co-production and value-in-use), Dollinger et al. (2018) present the model of value co-creation in higher education including a discussion of sub-constructs (see Table 1 and Table 2).

Dollinger et al. (2018) modify the constructs of Ranjan and Read (2016) to address them in a higher-education context (see Tables 1 and 2) and present a model of assessing and orienting institutions' value

co-creation in higher education (degree education). A key element of co-production, knowledge sharing, is achieved through various mechanisms, allowing the organisation to collect and analyse customer opinions and knowledge about the value proposition and, importantly, helping to identify current and future needs (Gibbert et al., 2002). Dollinger et al. (2018) designate students as experts when it comes to studying and being students, able to resolve issues relating to higher education system as well as provide insights into its improvement.

Table 1. *Constructs of co-production in higher education context. (Table adapted from Dolliger et al., 2018)*

KNOWLEDGE-SHARING	How does the student integrate their knowledge, experiences and/or other resources into the value proposition of higher education?
EQUITY	Does the student have equal access to the development and design of the higher-education value proposition?
INTERACTION	How to promote the quality of interaction between the student and higher education institution in order to integrate resources and to co-create the value proposition?

Equity in higher education co-creation refers to equal access to knowledge and resources and to participation in the co-creation process, balanced among student groups and not limited to a few lead users (Dollinger et al., 2018). What is needed is deep and ongoing interaction between customers and the organisation (Prahalad & Ramaswamy, 2004b). Finally, interaction between the students and the higher education provider in an ideal situation resembles alliance building and rests on continuous dialogue (Prahalad & Ramaswamy, 2004b). In practice, co-production in higher education requires a platform for providing feedback at any point in the value chain.

As suggested earlier, value-in-use is indicated through experience, personalisation and relationship constructs (see Table 2). In the context of higher education, the co-produced service, e.g., the degree, offers known value to the student only after graduation. Positive experiences with value propositions enable the forming of a positive relationship between student and institution and influence future behaviour, such as returning for further education and promoting the institution to others. Dollinger et al. (2018) suggest also that co-creation in higher education enables value creation through the personalisation of education to meet personal needs. Finally, value co-creation is suggested to improve students' relationships with their institutions.

Table 2. *Constructs of value-in-use in higher-education context (Dolliger et al., 2018)*

EXPERIENCE	How does value co-creation affect student experience within higher education?
PERSONALISATION	To what extent can students personalise their higher-education value propositions?
RELATIONSHIP	How does value co-creation affect student relationships with their higher-education institution?

In higher education, knowledge-sharing typically leans toward the lecturers’ knowledge, expertise and experiences or to the knowledge gathered from other outside sources, which is then shared and reflected on. Therefore, close interaction between educators and students is characteristic of lecturing. Ill-performed interaction can reflect on the equity of students. That is, open and voluntary discussions can benefit co-production and enable equal participation. Authoritarian interaction can easily close the door to participation and co-production. In higher and lifelong education, learners are not tabula rasas: their backgrounds and experiences influence learning and are reflected on new experiences. The agentic role of participants leads to the personalisation of education. Ideally, in higher education the relationship forms between learners and their study paths or the phenomenon of learning, not the institution.

CO-CREATION IN LIFELONG EDUCATION

In the context of lifelong education, Dollinger et al. (2018) introduce sub-constructs of co-creation (co-production and value-in-use) which emphasize the role of learners. Knowledge-sharing and interaction take place primarily among working colleagues and peers. Equal access to the learning infrastructure and sources is the responsibility of educational institutions. However, companies differ on policies for enabling participation in lifelong education. The requirements of learning are closely linked to the skills and knowledge requirements of working life. The education is fragmented among diverse learners, diverse content and diverse forms of education. Hence, personalisation of education is fundamental in lifelong education. The participants’ experiences are an important source of knowledge and vital to the knowledge-building process. Therefore, the relationship is no more built between the learner and the lecturer or the education institution but between the learner and his or her own study path or learning as a phenomenon. This requires that education implementation be compatible, courses easy to access and proceedings flexible.

In lifelong education, learners’ motivation requires special attention. The learners’ agentic role through the learning process is emphasised. Learners can be required to attend courses yet not compelled to complete assignments or even learn. The learners aim is to utilise their gained knowledge and skills in their working life. This anticipated benefit drives learning; if the education does not meet their expectations, the learner often disappears. Communication, feedback and different forms of social support are important sources of motivation, even though learning is an individual cognitive process.

In addition to social support, the learning infrastructure should enable, as well as empower, learners’ study path. Employers and education institutions can enable access to education. The existence of a wide variety of courses may not meet the participants’ needs if the selection is not communicated to them or if learning is not

supported in the workplace. However, the creation of a wide variety of courses cannot be the sole responsibility of employers; society has an important role to play in enabling education.

Table 3 below compiles our suggestions for addressing value co-creation in lifelong education. The questions are aimed at directing the education designers towards key issues in the value co-creation process.

Table 3. Comparison of constructs in higher education and lifelong education. (Table adapted from Dollinger et al., 2018)

SECOND-ORDER CONSTRUCT	UNDERLYING ELEMENTS (FIRST-ORDER CONSTRUCT)	MODIFICATION FOR HIGHER EDUCATION (DOLLINGER ET AL., 2018)	MODIFICATION FOR LIFELONG EDUCATION
CO-PRODUCTION	Knowledge-sharing	How does the student integrate their knowledge, experiences and/or other resources into the value proposition of higher education's curriculum?	How does the learner integrate their gained knowledge into the value proposition of his/her workplace?
	Equity	Does the student have equal access to the development and design of the higher-education value proposition?	How does the co-production process ensure equal access of all learner groups and working life representatives to the development and design of lifelong education?
	Interaction	How to promote the quality of interaction between the student and higher education institution in order to integrate resources and to co-create the value proposition?	How do the stakeholders communicate their needs in order to integrate working-life demands and learner's preferences into the value proposition of lifelong education?
VALUE-IN-USE	Experience	How does value co-creation affect student experience within higher education?	How does value co-creation impact learner experience of lifelong learning?
	Personalisation	To what extent can students personalise their higher-education value propositions?	To what extent can the learner personalise their study-path value propositions to meet their and their employers' needs and the requirements of working life?
	Relationship	How does value co-creation affect students' relationships with their higher education institutions?	How does value co-creation affect learners' relationship with learning and their own personal development?

ANTICIPATED BENEFITS OF VALUE CO-CREATION IN LIFELONG EDUCATION

In the higher-education context, the anticipated benefits of value co-creation orientation relate to innovation, knowledge and relations (Dollinger et al., 2018). Both students and institutions stand to benefit. For students, the suggested benefits are quality interactions with faculty and staff, higher satisfaction and transferrable graduate capabilities. Benefits from value co-creation for institutions are realised as student loyalty, university image and student-university identification (see Table 4).

In the lifelong-education context, we equally suggest a set of three benefits of value co-creation for learners (see Table 4 on the right). First, through continuous interaction and dialogue, education designers are able to take working-life prerequisites into consideration. Thus, lifelong learning is enabled and positively reinforced through flexible learning approaches, such as online learning platforms and suitable timetables and methods. By engaging learners and other stakeholders such as employer representatives in defining necessary skills and knowledge, learners can enjoy a working-life-relevant update of knowledge and skills. Finally, we suggest that value co-creation reinforces the learning capabilities of a lifelong learner, directing them along a relevant path of personal development, and supports a lifelong learner’s identification with learning.

Proposing the benefits for institutions, we suggest that multi-stakeholder co-design of courses challenges education designers in a potentially fundamental manner. Engagement in quality interactions with relevant stakeholders sets education designers in a position to reinvent learning as an insightful and joyous phenomenon in the eyes of adult learners. This can result in higher return rates and referrals. Second, understanding working-life needs also supports the design of not only relevant lifelong education but also relevant degree curricula. Finally, we suggest that becoming knowledgeable of learner and working-life demands, and being able to respond to them, reinforces higher education institutions’ role in the market for lifelong education by making visible the opportunities for specialisation.

Table 4. Comparison of anticipated benefits of value creation in higher education and lifelong education. (Table adapted from Dollinger et al., 2018)

HIGHER EDUCATION		LIFELONG EDUCATION	
<i>anticipated benefits for students</i>	<i>anticipated benefits for institutions</i>	<i>anticipated benefits for lifelong learners</i>	<i>anticipated benefits for institutions</i>
increased quality of interactions	student loyalty	reinforced learning (to learn)	learners’ agency to formulate their own study paths
satisfaction with learning experiences	university image	relevant update of knowledge and skills	relevant and updated curricula
transferrable graduate capabilities	student-university identification	identification with lifelong learning	opportunities for specialised education implementation

DISCUSSION

This paper contributes to the discussion of value co-creation in higher and lifelong education. Our practical aim is to expand the understanding of how one can benefit from co-creation in education design. We argue that the specific needs and preferences of a lifelong learner should play a key role in education implementation. In addition, our goal is to deepen the understanding of the preconditions working life sets for lifelong education.

On a final note, we suggest that further research investigate lifelong learners' value-creation process empirically. In lifelong learning, the learner takes on the dominant role in value formation, flexibly acquiring the knowledge, skills and education needed for working life. This idea reflects the perspective known as the customer-dominant marketing logic (Heinonen et al., 2013), in which the customer rather than the service provider, is in a position of focal agency. From the viewpoint of the lifelong learner, value is created, as the learner can choose from different value propositions within the all-encompassing formal–informal–non-formal learning environment, as well as among various forms of education implementation. This perspective justifies the recognition of value as multi-contextual and dynamic, based on learners' lives and ecosystems (Heinonen et al., 2013) and provides relevant stakeholders with new insights on value creation in learning-service design and learning innovations.

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25. IADT – Design thinking with a twist

Kristina Henriksson, Päivi Mantere, Irma Mänty & Marco Hardiman

Laurea and Kiel Universities of Applied Sciences (UAS) offer the international course Intercultural Approach to Design Thinking (IADT). The course provides condensed innovation training, which has been run in many European countries and involves students, teachers, businesses and public organizations in the co-creation of new services. The course became a finalist in the 2019 Finnish Quality Innovation Award competition in education.

IADT combines studies and activities in cultural theories, Design Thinking methods and intercultural teamwork and skills. The course is offered as traditional studies on the home campus or as a version offered jointly by Laurea UAS, Finland, and Kiel UAS, Germany, in one or both countries and lasting for one to two weeks. University students, businesses and public organizations work together during the course in different roles to generate new services with support from the teachers. The course challenges participants to innovate creatively in international settings. Businesses are committed to the process and as a result acquire networks and prototypes for new service products.

EARLY YEARS

In 2010, the idea to develop IADT was born when a few teachers realized that studies at Finnish universities of applied sciences were offered separately by subject, and projects were separated from studies. IADT was developed in a small team as a result of the joint will to find new creative solutions. The innovation training, IADT, was launched in 2011 when the development team of IC-SID (Intercultural Approach to Service Innovation & Design Methods) at Laurea UAS ran three funded Erasmus projects in Leicester, England, from 2011 to 2013. Annually, approximately forty students and fourteen teachers from 5–7 countries participated in the training.

The training met the needs of students to learn to work in intercultural settings in all participating countries. Steven Levitt discusses in his article *Cultural Factors Affecting International Teamwork Dynamics* how the trend of hiring multicultural teams at work is continuously increasing. These teams work together online, and

they run and manage complex projects and solve issues from distances far away from each other and maybe even from the problems themselves. Levitt points out that even though training about cultural differences has been provided for a long time, "international work groups continue to be plagued by ethnocentrism, prejudices and stereotypes" (2014, 9). Taking this into consideration, it is important that the teamwork in a multicultural environment, with people from different cultural backgrounds together with the innovation process challenged the participants in an exceptionally creative way to generate new ideas and service products. Businesses and public organizations involved in the co-creation process were committed to the development tasks and gained not only new service products at the prototype stage but also networks. Image 1 illustrates the IADT process in five steps.



Figure 1. Intercultural Approach to Design Thinking: 5 Steps. (Figure: Kristina Henriksson, Päivi Mantere, Irma Mänty & Marco Hardiman)

DEVELOPMENT OF IADT

After the years in Leicester, the training product has been continuously developed, especially in cooperation with Kiel UAS, Germany. The experiences of both students and businesses have been exploited in the development process. Based on knowledge and experiences, the contents and process have been developed and slimmed down so that the creativity of the students will not be stifled. More guidance is included, and students participate in the planning of IADT more. The evaluation of the learning has changed from assessing the final products to assessing the work process and development of know-how.

The process has been modernized by, for example, involving the use of gamification and digital tools. Final products nowadays include a product portfolio instead of a written report. The process supports the use of hands-on skills when generating prototypes. The process length has been shortened in order to force the production of results in a more compact timeframe. It has been noted that organizations are more interested and open to changes and students' ideas than before. New teachers have joined the team during the past few years. IADT has become a permanent training product in the curriculum at Laurea UAS in 2014 and at Kiel UAS in 2018. It is offered annually in both countries, and at least once a year it is run jointly with participants from both universities.

Since 2011, IADT has been held over 30 times in Europe. In collaboration with businesses, these have resulted in approximately 200 service ideas. A great number of organizations have participated in the process in both countries. Some examples are the Finnish Tax Administration, the City of Vantaa, EMMA art museum, Kiel Marketing (Germany), the City of Kiel and the municipality of Laboe (Germany), Clarion Hotel and Sokos Hotel. In spring 2019, an international student group solved a long-term problem by developing successful service ideas at the seawater swimming hall in Laboe, Germany. The municipality and representatives were pleased with the results, which afterwards were presented to various stakeholders in Germany. In addition, the Erasmus+ project VISIT includes IADT as a process in the development of services on small European islands, involving small and medium-sized enterprises (SMEs) to develop ideas for the SMEs' future business operations.

When the training was being launched, the teacher team was a prime mover. It was understood that many things can be learned simultaneously, and, at the same time, training could be interesting, challenging, international and creative. Still, the team keeps its finger on the pulse when generating novelty value for the service business of organizations by combining cultural competences, internationalization and an orientation toward the future in its training process. IADT is fast, efficient and flexible. The training can undertake several innovation projects at the same time, or several teams can focus on one project. The training offers both students and teachers the opportunity to network internationally with working life. In addition, both universities welcome exchange students from different fields to participate in the course.

The Finnish implementation integrates language learning in the process, so that separate language courses are not needed for the five ECTS of English language that are part of the curriculum of the Hospitality Management degree program at Laurea. The training is run by implementing Laurea's pedagogical approach called Learning by Developing, thus generating both new knowledge and regional development. IADT differs from other sprints offered in the way that both language and cultural knowledge are embedded in the learning process. Furthermore, IADT is a result of long-term international development work.

The innovation training can easily be utilized in different fields of education as well as in businesses and public and other organizations. The training is most successful when participants represent different cultures, backgrounds, and fields of education. Co-creation results in prototypes of service ideas, which the clients can adopt in their operations.

GAMIFICATION BOOSTING CREATIVITY AND TEAMWORK

Because the intensive studies of one to two weeks are very tight and full of work especially for the students, the teacher team wanted to further develop the creative process. The aim was to enhance student motivation by introducing gamification so that the students would work hard every day with their teams and keep the quality of their work high while enabling them to innovate. Students need to be able to work with different kinds of people all the time. Some organizations have applied gamification to education to increase motivation. However, Dichev and Dicheva (2017) argue that the educational benefits of gamification have not yet been scientifically confirmed and more scientific research is needed.

IADT tried gamification for the first time in 2016, when the teachers constructed an IADT game on the Seppo game platform. The game ran during the intensive studies so that each evening the teams had one task to complete. The tasks dealt with improving the team spirit, teamwork and assessing the development of know-how and the themes from studies. The feedback from the students (Image 2) has been so positive that several IADT implementations have also included games. Results from the games have been published in blog texts and on Twitter.

Final thoughts after successful completion



Feedback from the Seppo games in Intercultural Approach to Design Thinking

★ Fun and creative

★ Exited and interesting

★ More team spirit and motivation

★ Thinking out of the box.
Something different

★ Freedom to make more visual work

★ Brought the team together

● Time consuming

★ Friendly competition.
Hungry to win

★ Learn how to stay positive under pressure

● Small technical problems

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Figure 2. Feedback from the Seppo games in Intercultural Approach to Design Thinking. (Figure: Irma Mänty)

CO-CREATION WITH STUDENTS AND COMPANIES

For students, the training provides networking opportunities with international peers and organizations. They learn how to run a design thinking process with people from different backgrounds, how to work in English in a challenging process with strangers in a team setting and how to work for and with an organization. Together with the client organizations, the students form part of the learning environment, including the teachers. IADT provides a joint development challenge for these actors in an innovation training that meets the needs explained in the training, producing results and answers by implementing different methods and know-how. The expectations of the operational environment and society are met by the process and are included in the development process.

Students develop a prototype for the organization with the guidance of teachers. At best, the innovation is an opportunity for the students to see their own potential and develop themselves more than what they might have expected; for businesses and organizations, it opens up new opportunities for their own operations and offers new perspectives and understanding of their operational environments. All actors network during the training. Often, the results are direct regional development, which generates benefits for society. (Crumpton 2012, 98-101.)

Looking closer at the organizations who choose to take part in the process of IADT, one understands that today's companies need to innovate, not only to be up to date in their market offerings and to meet new customer needs and wants but also because innovation has a positive effect on other dimensions such as productivity, culture, employees and management. Despite this importance, many businesses and public organizations are struggling with real innovations. This applies especially to SMEs.

In the Design Thinking process, it is understood that "Service design is creative, human-centered, and iterative approach to service innovation" (Patrício, Gustafsson and Fisk 2018, 6). Co-creation between multiple stakeholders strongly enhances actors' creativity. Ethnographic service design methods and tools require a human-centered approach. Using service design instruments creates in-depth understanding of the user, service, context and environment. The service design process is based on an iterative process; testing and prototyping force the actors to be creative and increase their capability to tolerate uncertainty. In addition, IADT embeds cultural learning in the process. Therefore, Design Thinking requires participants to share cultural knowledge, creativity and teamwork skills to work efficiently together.

The typical innovation process in companies is still highly standardized and follows the New Product Development Process (NPD). It often starts with the objective of the new product, and based on this, proceeds with ideation without any deep understanding of the customer or learning and feedback cycles. (Kotler & Keller 2016, 171-175.) IADT is completely different. Companies benefit from IADT with better solutions. These solutions are customer-focused and developed with the background of different cultures. Moreover, companies can earn deep insight into the real problems of their customers, which they try to address with their offers. Companies can change their whole marketing approach regarding the marketing mix (product, promotion, price and place) with the results of IADT, which is not possible with the standard NPD. In total, IADT produces real innovations with deep insights for companies in short time frames and with fewer resources than other approaches.

RESULTS AND BENEFITS

IADT has been implemented approximately thirty times so far. In each implementation, there have been 1–5 organizations as clients for the student teams. (Image 3 below illustrates the IADT process.) Altogether, approximately 200 service ideas have been generated, and each implementation has generated, in addition, hundreds of unrefined ideas. Over the years, IADT has bolstered cooperative skills for hundreds of people. Teacher exchange has grown. Students have become more international both at their home university and on short-term exchanges.

IADT also benefits organizations who participate in the projects. Service design is a human-centered and iterative approach, which can include user experience and a creative attitude to service development. The service design process follows the process model, starting with the generation of concepts and co-creation and ending with increased organizational capabilities. (Yu & Sangiorgi 2017, 53.) The impact of IADT can be considered from several perspectives. Social impact refers to both improving the capabilities of students as

well as enterprises. Economic effectiveness is verifiable by numerous ideas and the implemented service concepts. Changes and improvements in curricula at the universities demonstrate the educational significance of this multi-stakeholder co-creation.

The feedback received from students is encouraging. One student mentioned that the 2019 IADT was the highlight of the year for him. Other feedback from students includes the great team spirit they experience, the challenges they face being inspiring and the learning opportunities as motivating. The international context stimulates each participant, resulting in an energetic working environment and cultural experiences.

IADT has provided impressive results. Nowadays, IADT increasingly employs digital working methods. The future-oriented ideas have offered information on technological changes and their impact on future consumers and services. Cooperation has generated competitive advantage for organizations in the training process. International student groups have produced customer understanding and international comparative data and information in a cost-efficient manner. Future plans include studies of how development ideas that have been produced are being implemented in clients' operations. These indicators are being developed in the Erasmus+ project VISIT; for more information please see www.visit-islands.eu (Erasmus+ KA2).

Intercultural Approach to Design Thinking



Intercultural Design Thinking

Higher education institutes, businesses and public organizations co-create services both domestically and abroad, working in English during the process.



1 - 2 Week Intensive Studies

Students work in interdisciplinary, international teams during the studies, utilizing Learning by Developing and gamification. The studies can include online study contents and tasks before and after the intensive weeks.

Development of Know-How

Students learn to work in intercultural teams and networks, which will benefit them in their future careers. Customer understanding increases in organizations.



New Innovations

New innovations based on international comparative data are co-created with organizations. The results promote regional development and international cooperation.

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Figure 3. Intercultural Approach to Design Thinking: Process. (Figure: Kristina Henriksson, Päivi Mantere, Irma Mänty & Marco Hardiman)

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Keywords:

- Co-creation
- International, bilateral
- Intercultural
- Design Thinking

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Lyhyesti hankkeesta

Sometaduuniin – sosiaalinen media rekrytointiin ja työllistymisen apuna -hanke toteutui 12/2016 – 12/2019 Pohjois-Pohjanmaan ELY-keskuksen myöntämän ESR-rahoituksen tukemana. Hanketta koordinoi Tampereen ammattikorkeakoulu ja mukana olivat Laurean lisäksi Lapin ammattikorkeakoulu sekä Itä-Suomen yliopisto. Laurean koordinoimalla osahankkeella oli kaksi tavoitetta: kehittää virtuaalisia kohtaamisia opiskelijoille ja työnantajille sekä kehittää portfolioikäytänteitä.

26. Portfoliotyöskentelystä työtapa avoimeen TKI-työhön

Saara Gröhn & Anna Nykänen

Sometaduuniin-hankkeessa työstettiin ja kokeiltiin uudenlaisia toimintamalleja hyödyntäen portfolioita eri tavoin hanketyössä. Kokeiluihin perustuen näyttää siltä, että portfolioikäytänteiden kehittäminen voi olla yksi avaintekijä ammattikorkeakoulujen tekemän kehittämistyön näkyväksi tekemiseen sekä avoimeen TKI-työskentelyyn. Artikkelissa pohdimme kaikille toimijoille yhteisen hankeportfolion etuja projektijohtamisen ja yhteistyöstämisen näkökulmasta. Lisäksi pohdimme millainen rooli portfolioilla voisi olla hanketulosten levittämisessä, hankkeen aikana syntyvän osaamisen näkyväksi tekemisessä ja projektissa mukana olevien opiskelijoiden ohjaamisessa sekä hanketoimijoiden verkostoitumisessa.

Portfolion pedagogisen käytön kehittäminen oli yksi Sometaduuniin – sosiaalinen media rekrytointiin ja työllistymisen apuna -hankkeen keskeisistä tavoitteista. Kolmivuotisessa hankkeessa tehtiin runsaasti yhteistyötä opiskelijoiden kanssa eri kehittämistehtävien muodossa (ks. toinen artikkelimme tässä julkaisussa), minkä takia sujuvien työmuotojen kehittäminen oli onnistumisen varmistamiseksi hankkeen alusta alkaen avainasemassa. Hankkeen aikana työstimme ymmärrystä portfolion käytön mahdollisuuksista ja kokeilimme pienimuotoisesti uudenlaisia toimintamalleja hanketyössä portfolioita eri tavoin hyödyntäen.

Portfolioilla tarkoitamme mitä tahansa sivua tai sivustoa, johon kootaan multimodaalista sisältöä tarkoitustaan palvelemaan (ks. Lehtilinna 2019, 70). Tyypillisiä portfoliotyyppejä ovat prosessiportfoliot, arviointiportfoliot, oppimisportfoliot ja näyteportfoliot. Multimodaalisella sisällöllä tarkoitetaan sitä, että portfolio koostuu monenlaisesta erityyppisestä sisällöstä kuten tekstistä, videoista, ääniraidoista, kuvista, linkeistä tai tiedostoista. Tässä artikkelissa kuvaamme näitä toimintamalleja sekä pohdimme mahdollisuuksia, miten portfoliot voivat tukea avointa ja osallistavaa kehittämistyötä. Toivomme artikkelin antavan uudenlaisia ajatuksia niin hanketyöskentelyyn kuin myös muuhun yhteiskehittämiseen sekä innostavan tuottamaan sisältöä monimuotoisesti portfolioalustoilla, sillä ne mahdollistavat virallisia kotisivuja vapaamuotoisemman sisällön ylläpidon ja julkaisemisen.

PROSESSIPORTFOLIO HANKETYÖSKENTELYN TYÖKALUNA

Hankkeen alussa perustimme Laurean käyttämälle Kyvyt.fi-portfolioalustalle ryhmän virtuaalisten kohtaamisten kehittämiseksi. Kyvyt.fi on Discendumin tarjoama alusta, jota eri oppilaitokset varsin laajasti käyttävät. Kyvyt.fi mahdollistaa paitsi henkilökohtaisten portfoliosivujen tekemisen ja niiden koonnin sivustoiksi, myös ryhmien perustamisen.

Sinänsä Kyvyt.fi:n ryhmätoiminto ei ole mitenkään erityinen. Samaa tarkoitusta voisi palvella myös esimerkiksi Microsoft Teamsin työtila. Uutta oli ryhmätilan valjastaminen prosessiportfolioksi sen sijaan, että ryhmää käytettiin ainoastaan tiedostojen jakoon ja keskusteluun. Lisäksi poikkeavaa on varmastikin se, että työtila on ollut täysin julkinen ja siten kiinnostuneiden löydettävissä, vaikka sitä ei erityisesti olekaan pyritty levittämään.

Ryhmän sivulle kirjoitimme hankkeen kehittämistehtävän tavoitteen, kuvauksen sen tarjoamista mahdollisuuksista opiskelijoille osaamisen kehittämiseksi, portfoliosivun tarkoituksen sekä hankehenkilöstön yhteystiedot. Ryhmän tarkoituksiksi kirjasimme sen olevan ”Yhteinen prosessiportfolio on koetun ja opitun sekä tulosten jakamisen paikka. Se on myös paikka, jossa jaamme materiaalia ja syntyneitä tuotoksia hankkeessa mukana olevien kesken.”

Näiden perustietojen lisäksi lisäsimme ryhmän sivulle tiedostokirjaston keskeisille dokumenteille, joita hankkeen eri vaiheessa mukaan tulevat opiskelijat tarvitsivat (Kuva 1.). Näitä olivat mm. viestintäohjeet, diapohjat, hankelogot sekä tarkempi projektisuunnitelma ja etenemissuunnitelmat. Näin materiaaleja ei tarvinnut yksittäin toimittaa opiskelijoille, vaan riitti, että heidät kutsuttiin ryhmän jäseniksi. Toimintatapana tämä helpotti projektipäällikön ja –assistentin työkuormaa.

Prosessiportfolioksi ryhmää voi kutsua siksi, että näiden lisäksi kirjoitimme sivulle jatkuvasti tarinaa kehittämistehtävän etenemisestä. Erityisesti aina ennen uusien toimijoiden aloittamista oli tarpeen tarkistaa, että olimme kuvanneet riittävällä tasolla hankkeen siihenastiset tulokset. Hankkeen kulusta kertovan kuvauksen alle sijoitimme oman kirjastonsa kokousmuistioille.

Keskeiset materiaalit osahankkeesta

-  **Kohtaamisten aikataulu palikkoina.pptx**
38,9KB | 22.09.2017 | [Tarkemmat tiedot](#)
-  **Ideakilpailu A4 (003).pdf**
669,5KB | 22.09.2017 | [Tarkemmat tiedot](#)
-  **Pilotti1_prosessikaavio.vsd**
54,8KB | 22.09.2017 | [Tarkemmat tiedot](#)
-  **Sometaduuniin - AC-ohjeet.docx**
26,1KB | 22.09.2017 | [Tarkemmat tiedot](#)
-  **Suunnitelma hankkeen ajalle virtuaaliset kohtaamiset.docx**
87,8KB | 22.09.2017 | [Tarkemmat tiedot](#)

Kohtaamisten kehittämisen eteneminen

2016 ja 2017

Hankkeen alussa valmisteltiin ja käynnistettiin virtuaalisten kohtaamisten kilpailu. Kilpailua markkinoitiin paitsi hankkeen sivustoilla sekä korkeakoulun sisällä, myös muille korkeakouluille sekä SYLille ja SAMOKille levitettäväksi. Kilpailijoita tuettiin tarjoamalla kilpailuinfotilaisuus sekä keskustelutilaisuudet. Näihin tartuttiin huonosti. Kilpailua markkinoitiin Laureassa myös projekti- ja opinnäytetyötoreilla. **Blogissakin kannustettiin osallistumaan kilpailuun vielä toukokuussa.**

Keväällä 2017 kaksi opiskelijaa aloitti opinnäytetyön hankkeessa: Ilja Prohorov tarttui alustojen tutkimiseen ja ensimmäisten pilottien toimivuuden arviointiin. Ville Savolainen lähti selvittämään kohtaamisten tietoturvaa ja tekemään tähän ohjeita.

Ensimmäistä virtuaalisten kohtaamisten konseptia, joka toteutetaan Adobe Connectia hyödyntäen, on suunniteltu keväällä hankkeporukassa. Mukaan yhteistyökumppaniksi pyydettiin on ensivaiheessa Royal Ravintoloita.

Kuvio 1. Dokumentteja ja kuvausta hankkeen etenemisestä prosessiportfoliossa.

Prosessiportfolion ryhmämuotoisen hyödyntämisen osalta tunnistamme myös käyttämättömiä mahdollisuuksia: Ryhmässä olisi ollut mahdollisuus työstää myös rinnakkaisia sivuja asiasta, mutta tätä mahdollisuutta ei hyödynnetty. Jos olisimme toimineet näin, olisimme yhdessä voineet dokumentoida etenemistä vieläkin paremmin portfoliosivuina. Jos olisimme sallineet ryhmän sivujen kopioinnin, jokaisella hankkeeseen osallistuneella olisi ollut mahdollisuus tallentaa sivut myös itselleen, ja hyödyntää niitä omassa näyteportfoliossaan kertomalla osallisuudestaan hanketulosten tuottamisessa.

Prosessiportfoliosta koimme olevan apua hankkeen aikana, jotta hankkeen tavoitteita saatiin joustavasti edistettyä. Nyt hankkeen päätyttyä työtilan voisi hyvin sulkea tai sen sisältöä karsia.

HANKETULOKSIA VOI VIESTIÄ PORTFOLIONA

Portfoliosta tulee usein mieleen henkilökohtaiset portfoliot, kuten työnhaussa käytettävät näyteportfoliot. Kuten alussa totesimme, portfolio sanana viittaa kuitenkin yksinkertaisesti kollaasiin tarkoitustaan palvelivista sisällöistä. Näin ollen voimme puhua myös portfoliosta silloin, kun haluamme tuoda hanketuloja monimuotoisesti esille.

Portfoliokäytänteiden kehittämiseen liittyvien hanketulosten osalta päädyimme kokoamaan portfolion, jossa portfolio kertoo itsestään. Herätimme siis portfolion henkiin kehittämällä sille persoonan, jonka kasvoina toimii Unelma-Pulina Portfolio, joka jatkuvasti kehittää omaa portfoliotaan. Hanketulokset eivät ole syntyneet hetkessä, eikä ole näin ollen myöskään Unelma-Pulinan sivusto. Portfoliossa on hyödynnetty staattisten sivujen lisäksi myös blogikirjoituksia. Etusivulle laitoimme lokin, josta näkee nopeasti, onko portfolioon lisätty jotain uutta. Nimensä mukaisesti portfolio on paikka, jossa pulista hanketuloksista. Aivan kaikki sisältö ei ole aina viimeisteltyä ja aivan valmista, vaan mukana voi olla myös muistiinpanoja, jotka ovat saaneet myöhemmin toisenlaisen muodon esimerkiksi blogikirjoituksena. Portfoliosivut ovat kuitenkin jatkuvasti olleet auki ja siten hanketulokset avoimesti saatavilla.

Unelma-Pulinan portfolio oli hankkeen näkökulmasta monella tapaa toimiva ratkaisu: sivuston kautta saatiin etäännytettyä asiaa siten, että asia ei personoidu tekijöihinsä, vaan portfolion pedagogisista mahdollisuuksista voitiin keskustella neutraalisti Unelma-Pulinan ajatuksiin viitaten. Materiaalia saa vapaasti linkittää, hyödyntää ja jatkokehittää (Kuva 2.).



Kuvio 2. Tutustu QR-koodin kautta Unelma-Pulinan portfolioon ts. Mistä portfoliossa on pedagogisesti kyse (<https://kyvyt.fi/user/sometaduuniin/portfolio>).

PORTFOLIO MAHDOLLISTAA OSAAMISEN JA OPPIMISEN NÄKYVÄKSI TEKEMISEN

Korkeakouluissa yhteiskehittämiseen osallistuvien opiskelijoiden oppimista on tarpeen ohjata sekä arvioida syntyvää osaamista. Tähän tarvitaan työvälineitä, joissa portfolio voi tulla avuksi. Tätä testasimme hankkeessa osana virtuaalisten kohtaamisten kehittämistehtävää työstämällä Kyvyt.fi-palveluun kopioitavan mallipohjan projektin suunnittelun ja toteutumisen raportointiseksi. Mallipohja antaa portfolioitaan kokoavalle vinkejä siihen, mitä ja miten portfolioon voi dokumentoida jo projektin suunnitteluvaiheessa ja mitä sivustolle voi lisätä projektin tuloksista itsearviointia unohtamatta. Pohja on avoimesti saatavilla Unelma-Pulinan portfolioissa.

Hankkeessamme pohja oli käytössä yhdellä YAMK-opiskelijalla sekä virikkeenä yhdellä opiskelijaryhmällä oman projektityöskentelyn aikana. Kokemuksemme mukaan opiskelijoilta olisi tullut pyytää portfolioityöskentelyn aloittamista heti, kun he aloittivat projektityöskentelynsä. Portfolioityöskentely kun jää helposti jo tehdyn raportointiseksi. Toisaalta huomasimme, että selkeät ohjeet siitä, mitä projektista voi raportoida portfolioon, auttavat sen tekemisessä. Kaikkinensa YAMK-opiskelijan projektiportfolio koettiin onnistuneeksi ja sen pohjalta pystyttiin käymään keskusteluja projektin vaikutuksista kehittämistehtävään sekä myös oppimiseen ja opiskelijan arviointiin liittyvät keskustelut. Kun tavoitteet on dokumentoitu hyvin ja niitä voidaan verrata lopputulemaan, voidaan pohtia myös kriittisesti, mitä osaamista projektissa lopulta syntyi ja minkä verran opintopisteitä opiskelijalle on työstä mahdollista antaa.

UUSIA RATKAISUJA TKI-TOIMINTAAN PORTFOLIOTA HYÖDYNTÄEN

Kokemuksiimme perustuen olemme pohtineet, miten portfolioityöskentely voi hyödyttää yleisesti hanke-toimijoita ja edistää avoimuutta TKI-työssä. Edellä mainitun projektityöskentelyn mallipohjan lisäksi haluamme tuoda esille seuraavia ajatuksia:

Portfoliot auttamaan hanketyöskentelyn käynnistymistä

Hankkeessa teimme myös toisen mallipohjan projektiportfoliopohjan lisäksi: korkeakoulutoimijan portfolion mallin. Tämäkin löytyy Unelma-Pulinan sivustolta. Malli antaa vinkejä siitä, mitä omaan näyteportfolioon voisi työntekijänä laittaa oman osaamisen ja työn tulosten esittelemiseksi. Mallin laatimisen taustalla oli ajatus, että portfolion tekemistä on helpompi ohjeistaa, kun sen on tehnyt kerran itse.

Henkilöstön jäsenten omilla portfolioilla voisi kuitenkin olla myös itseisarvoa. Niiden kautta olisi helppo tutustua uusiin kollegoihin yhteistyötä käynnistäessä. On varsin aikaa vievää selvittää eri henkilöiden osaamista aina konkreettisiin taitoihin asti. Portfolioihin tutustumalla pääsisi nopeammin vauhtiin ja töiden jakaminen henkilöstön osaamisen mukaan helpottuisi. Eri henkilöiden vahvuudet tulisivat siis portfolioita hyödyntämällä paremmin hyödynnetyksi.

Kansainvälistä yhteistyötä ajatellen julkiset portfoliot voisivat tehdä myös organisaatiosta houkuttelevan yhteistyökumppanin. Portfolioiden kautta välittyvä kuva osaavasta henkilöstöstä, joka saa tuloksia aikaan.

Portfolio hanke- ja projektityön kokoajana ja näyttämönä

Miltä tulevaisuus voisi siis näyttää, jos valjastaisimme portfoliot yhteiskehittämisen työkaluksi? Edellä kuvattujen toimintamallien mukaisesti syntyisi monenlaista materiaalia portfolioiden muodossa: hankkeilla

voisi olla omia portfolioita työn etenemisen ja tulosten esittelemiseen, mukana olevilla opiskelijoilla omista projekteistaan, ja lisäksi henkilöstöllä ja opiskelijoilla omaa osaamistaan kuvaavia portfolioita.

Mitä jos näiden lisäksi olisi vielä hanketoiminnan portfolioita esimerkiksi siten, että samaan teemaan liittyvät portfolioit linkitettäisiin yhteen tai kopioitaisiin samaan paikkaan? Esimerkiksi organisaatioiden tutkimusohjelmilla voisi olla omia portfoliokollaasejaan, jotka kertoisivat konkreettisesti kehittämistyöstä. Näin olisi mahdollisuus tuottaa uudella tavalla avointa dataa ja materiaalia yhteiseen käyttöön ja jatkojalostettavaksi. Tätä ideaa on kuvattu kuvassa 3.



Kuvio 3. *Oppimisportfoliota voi hyödyntää hankkeen portfolioissa ja hankkeen portfolioa edelleenkehitystyötä kokoavassa portfolioissa. (Kuvio: Anna Nykänen)*

Käytännössä useat olemassa olevat portfolioalustat mahdollistavat tämän. Toimintatapana tämä tarkoittaisi sitä, että portfolioiden rooli avoimen materiaalin kokoamisen toimintatapana kuvattaisiin, ja tekijät määrittäisivät portfoliollaan haluamansalaiset käyttöehdot, jotta sisällön jatko-hyödyntäminen olisi mahdollista. Portfolioiden keruu voisi tapahtua siten, että tekijä määrittäisi portfolion kopioitavaksi ja kokoelman ylläpitäjä huolehtisi ilmoitukseen perustuen kopion ottamisesta. Vaihtoehtoisesti portfolion tekijä voisi palauttaa portfoliosivunsa yhteiseen palautuskansioon.

Näin syntyvä materiaali vaatii hallinnointia. Ajallinen säästö syntyy kuitenkin siitä, että jo tehtyä työtä olisi avoimesti jaettuna helpompi hyödyntää tehokkaasti. Aiempia tuloksia voisi jatkojalostaa, käyttäen erilaisten selvitysten pohjana tai tiivistää tietoa esimerkiksi hyvistä käytänteistä, joita hanketyössä on koottu. Parhaimmillaan korkeakoulun näkökulmasta voisi syntyä uusia oppimateriaaleja koulutusikäyttöön.

LOPUKSI

Yhteiskehittäminen tuottaa sekä yksilöllisiä että yhteisöllisiä tuloksia. Prosessin ja tulosten esilletuominen ja hallinnointi on mahdollista verkossa portfolioajattelua kehittäen kaikenlaisessa yhteiskehittämisessä riippumatta siitä millainen organisaatio toiminnasta vastaa.

Korkeakouluissa ollaan pitkällä, kun hanketoiminnassa tekijät saavat niin oman osaamisensa kuin hankkeensa tulokset näkyviksi omina portfolioinaan. Haasteeksi esitämme koko korkeakoulun hanketulosten koontia omiksi portfoliokollaaseikseen. Samalla ratkeaa välillä haasteita aiheuttanut ongelma siitä, että portfolioilla on terminä kaksi merkitystä: portfolio tarkoituksen mukaisena esittävänä kollaasina ja portfolio hankesalkkuna. Artikkelissa hahmotellussa toimintamallissa merkitykset yhdistyvät.

Saara Gröhn työskentelee Laurea-ammattikorkeakoulussa palvelumuotoilijana TKI-hankkeiden ja liiketoiminnan parissa

Anna Nykänen työskentelee suunnittelijana Laurea-ammattikorkeakoulussa ja toimi Sometaduuniin-hankkeessa Laurean osahankkeen projektipäällikkönä 2016-2019

Avainsanat:

- Yhteiskehittäminen
 - Oppimisympäristöt
 - Portfolio
 - Avoin tiede
-

Lähteet

Lehtilinna, M-K. 2019. Portfoliotyöskentely osana oppimisprosessia. Teoksessa Rantanen, O., Isosuo, T. & Merivirta, M. (toim.) Someta Duuniin. Digitaaliset urataidot korkeakoulujen uraohjauksessa. Lapin ammattikorkeakoulun julkaisuja Sarja B. Tutkimusraportit ja kokoomateokset 25/2019, 70-75. Viitattu 24.3.2020. <http://urn.fi/URN:ISBN:978-952-316-330-0>

Lyhyesti hankkeesta

Sometaduuniin – sosiaalinen media rekrytointiin ja työllistymisen apuna -hanke toteutui 12/2016 – 12/2019 Pohjois-Pohjanmaan ELY-keskuksen myöntämän ESR-rahoituksen tukemana. Hanketta koordinoi Tampereen ammattikorkeakoulu ja mukana olivat Laurean lisäksi Lapin ammattikorkeakoulu sekä Itä-Suomen yliopisto. Laurean koordinoimalla osahankkeella oli kaksi tavoitetta: kehittää virtuaalisia kohtaamisia opiskelijoille ja työnantajille sekä kehittää portfoliokäytänteitä.

27. Osallistavasta yhteiskehittämisestä lisäarvoa Sometaduuniin-hankkeen virtuaalisiin kohtaamisiin

Saara Gröhn & Anna Nykänen

Sometaduuniin-hankkeen yksi tavoite oli kehittää virtuaalisen kohtaamisen toimintamalli työnantajille ja opiskelijoille. Tähän liittyen tarjosimme hankkeen aikana opiskelijoille monialaisia kehittämistehtäviä. Yhteensä 50 opiskelijaa tarttui näin ollen kuuteentoista eri tehtävään.

Tässä artikkelissa kuvaamme, miten toimimme virtuaalisten kohtaamisten kehittämiseksi työnantajille ja opiskelijoille hyödyntäen yhteiskehittämisen mahdollisuuksia, sekä millaista lisäarvoa työskentely erityisesti opiskelijoiden kanssa hankkeelle tuotti. Lisäksi pohdimme hanketta oppimisympäristönä. Toivomme artikkelin rohkaisevan korkeakoulujen hanketoimijoita ottamaan opiskelijat ennakkoluulottomasti mukaan erilaisiin ja eri kokoihin kehittämistehtäviin osana tutkimus-, kehittämis- ja innovaatiotoimintaa (TKI).

TAVOITTEENA TYÖNANTAJIEN JA KORKEAKOULUOPISKELIJOIDEN KOHTAAMISEN HELPOTTAMINEN DIGIAIKANA

Kehittämistyölle asetettiin tavoitteeksi pilotoida erilaisia toimintamalleja ura- ja rekrytointitapahtuman toteuttamiseksi verkossa. Tarve kehittämiselle tunnistettiin, kun totesimme, että perinteiset ura- ja rekrytapahtumat palvelevat Uudellamaalla toimivaa korkeakouluamme huonosti. Yksi yhteinen Laurean tapahtuma ei palvele kuuden kampuksemme opiskelijoita ja alueen toimijoita parhaalla tavalla, puhumattakaan verkko-opiskelijoista. Toisaalta resurssit ovat rajalliset, jotta tapahtumia voitaisiin järjestää alueellisesti.

Suurin haaste on kuitenkin ennen kaikkea siinä, että kohtaaminen ei ole oikea-aikaista opiskelijoiden ja työnantajien näkökulmista. Ura- ja rekrytapahtuman aikaan työnhaussa on vain pieni joukko kohderyhmästä, ja toisaalta rekrytointitarpeet eri aloilla vaihtelevat nopeasti. Kokemustemme mukaan oppilaitosten järjestämät ura- ja rekrytointitapahtumat vaativat lisäksi paljon järjestämisresursseja, sekä usein myös osallistumismaksua yritykseltä. Yritysten edustajien voi olla hankalaa irrottautua tapahtumaan muilta töiltä etenkin, jos tapahtumapaikka ei ole sijainniltaan sopivan matkan päässä. Osallistumismaksu, ständin pystyttämisen

tarve sekä työmahdollisuuksien pienimuotoisuus ovat syitä, jotka johtavat pk-yrittäjien ja järjestötoimijoiden poisjääntiin uratapahtumista. (Sometaduuniin 2017, 9)

Näin ollen haastoimme itseämme kehittääksenne digitaalisia alustoja hyödyntävän toimintamallin, joka voitaisiin vakiinnuttaa osaksi korkeakoulujen toimintaa valtakunnallisesti. Erilaisia pilotteja toteutettiin hyödyntäen jo olemassa olevia digitaalisia alustoja. Toimintamalleja työstettiin Laurean opiskelijoiden, korkeakoulutoimijoiden ja työelämäkumppanien kanssa yhteiskehittäen ja palvelumuotoilun menetelmiä hyödyntäen.

Tuloksina syntyi opiskelijoiden ja työnantajien uudelleen kohtauttamiseen toimintamalleja, joiden käyttöönotto vahvistaisi opiskelijoiden työllistymistä ja digitaalisia urataitoja. Tätä kehitystyötä ja tuloksia on kuvattu tarkemmin Sometaduuniin – Digitaaliset urataidot korkeakoulujen uraohjauksessa -hankejulkaisussa (Someta Duuniin 2019).

OPISKELIJAT JA TYÖNANTAJAT MUKANA VIRTUAALISTEN KOHTAAMISTEN YHTEISKEHITTÄMISESSÄ

Virtuaalisten kohtaamisten osalta olemme olleet kehittämässä jotain aivan uutta. Lähtökohtana virtuaalisten kohtaamisten suunnittelulle oli tarjota paikkaan sitomaton virtuaalinen foorumi, jossa työnantajat voisivat kertoa tulevaisuuden osaajatarpeistaan sekä avoimista työ- ja harjoittelupaikoista ja opinnäytetyö-aiheista. Edellä mainittuihin tilaisuuksiin tarttumiseksi opiskelijoille puolestaan haluttiin tarjota mahdollisuus esittäytyä työnantajille ja luoda suoria kontakteja kiinnostavien yritysten edustajiin.

Jo alusta saakka oli selvää, ettei kohtaamisten pilotteja voitaisi rakentaa ainoastaan hankehenkilöstön ja korkeakoulutoimijoiden tiedon ja oletusten varaan, vaan mukaan kehittämiseen olisi osallistettava joukko työnantajia ja opiskelijoita. Yhteiskehittämisellä pyrittiin varmistamaan se, että toteutettavat pilotit vastaisivat mahdollisimman hyvin työnantajien ja opiskelijoiden tarpeita. Tuleva palvelun käyttäjä on aina oman kokemuksensa ja mielipiteidensä paras asiantuntija.

Yhteiskehittäminen mahdollistui eri toimintamuotoja yhdistäen

Hankeessa pilotoitujen virtuaalisten kohtaamisten kohderyhmien ääntä pyrittiin tuomaan esille opiskelijaprojektien ja yhteiskehittämisen työpajojen kautta (ks. Gröhn 2019). Laurean toimintamallit mahdollistavat opiskelijoiden mukaan ottamisen hanketyöhön monin tavoin heti hankkeen alusta asti. Tässä hankkeessa kehittämistehtäviä tarjottiin opintojaksoille, projektiopintoina toteutettaviin liiketalouden opintoihin, erillisprojekteina sekä opinnäytetyön aiheena.

Kaikki edellä mainitut tavat ovat itsessään tuoneet mukaan opiskelijan näkökulman. Myös osassa tehtävänäntoja opiskelijoita on ohjeistettu hyödyntämään esimerkiksi palvelumuotoilun menetelmiä, joiden avulla eri osapuolten näkemykset saadaan tuotua näkyviksi. Lisäksi hankkeessa järjestettiin avoimia työpajoja, joihin osallistui niin kehittämistehtävissä mukana olevia opiskelijoita, kuin myös muita opiskelijoita, henkilöstöä sekä työnantajia. Tärkeä toimintatapa osana yhteiskehittämistä olivat myös säännölliset hankekokoukset, joihin kehittämistyötä tekevät opiskelijat osallistuivat yhdessä hankeväen kanssa.

Kehittämistehtävät vaativat monialaista osaamista

Opiskelijat osallistuivat kehittämiseen monipuolisesti erilaisissa tehtävissä, kuten työpajojen suunnittelijoina ja osallistujina, pilottikonseptien kehittäjinä sekä tapahtumasuunnittelussa ja -markkinoinnissa. Työnantajat taas osallistuivat palvelumuotoilun työpajoihin, joissa toimintakonsepteja ideoitiin yhdessä, sekä vastaajina opinnäytetyönä toteutetussa kyselyssä (Ritmala ym. 2019). Näiden pääkohderyhmien edustajien lisäksi myös korkeakoululhenkilöstön panos kehittämistyölle on tärkeä ja henkilöstöä onkin ollut mukana useissa työpajoissa tuomassa mukaan omaa asiantuntijuuttaan eri aloilta.

Hankkeen alussa oli vaikea tunnistaa, mitä kaikkea osaamista Sometaduuniin-hankkeen virtuaalisten kohtaamisten kehittämistehtävässä tarvitaan, ja millaisilla toimintamodoilla työtä voidaan edistää. Kun hankkeen lopulla pohdimme mahdollisuuksia jatkaa virtuaalisia kohtaamisia siten, että niitä toteutettaisiin opiskelijaprojekteina toimintamalla jatkuvasti kehittäen, saatoimme tunnistaa, että tarjolla olisi jatkossakin monia oppimismahdollisuuksia. Kehitystyössä ja toteutuksessa tarvitaan markkinoinnin, tapahtumajärjestämisen, liiketoiminnan, asiakkuuksien hoitamisen, palvelumuotoilun, digivälineiden käytön hallinnan, tietoturvan ja HR-osaamista, sekä ymmärrystä ura- ja työllistymistaidoista (kuva 1). Näitä kaikkia osaamisia on harvalla yksilöllä – siksi hankkeessakin tarvittiin monialaista yhteistyötä.



Kuvio 1. Virtuaalisten kohtaamisten kehittäminen vaatii monialaista osaamista. (Kuva: Anna Nykänen)

SOMETADUUNIIN-HANKE OPPIMISYMPÄRISTÖNÄ OPISKELIJOILLE

Lisäarvo, jonka tapahtumien kohderyhmien edustajien mukanaolo hankkeeseen toi, oli mittava. Tehty työmäärä oli suuri ja sisällöllinen anti kehittämistyölle korvaamaton. Virtuaalisten kohtaamisten kehittämiseksi tarvittiin niin asiakasymmärrystä, jossa palvelumuotoilu nousee keskiöön, kuin tietoa soveltuvista alustoista ja niiden tietoturvallisesta käytöstä. Tarvittiin myös osaamista tapahtumien suunnitteluun ja markkinointiin. Niinpä opinnäytteitä sekä yksilö- ja ryhmäprojekteja tehtiin hankkeessa virtuaalisten kohtaamisten osalta hyvin eri näkökulmista. Eri alojen opiskelijoiden osallistaminen toi hanketyöhön tietoa ja osaamista, jota hankehenkilöstöllä ei itsellään ollut. Lisäksi hanketuloksia on saatu aikaan enemmän ja korkealaatuisemmin, kun mukana on ollut laaja joukko niitä tuottamassa.

Hanke tarjosi opiskelijoille hyvät puitteet oppia ja kehittää kokeilemalla aidossa työelämäyhteydessä. Hyöty oli ehdottomasti molemminpuolinen, sillä konkreettisten tulosten lisäksi opiskelijoiden kanssa yhdessä toimiminen avasi aina uudenlaisia näkökulmia arkeen ja opetti myös meitä heitä ohjaavana henkilöstönä. Seuraavassa kuvataan, miten opiskelijat olivat osallisena hankkeen kehittämistehtävissä.

Opiskelijat tekivät kehittämistyötä monista eri näkökulmista

Kehitettäviä virtuaalisia tapahtumakonsepteja ja sosiaalisen median hyödyntämistä rekrytoinnissa käsiteltiin muun muassa tietoturvan (Savolainen 2017), käytettävien digitaalisten alustojen (Prohorov 2018) ja työoikeudellisista (Jutila 2018) näkökulmista. Lisäksi Soininen koosti kattavan oppaan virtuaalisten kohtaamisten järjestäjälle kokousmuistoihin ja kirjallisuuteen perustuen (Soininen & Sometaduuniin 2018) ja Riihonen (2019) osallistui syksyn 2018 virtuaalisten kohtaamisten arviointiin ja sisällöntuotantoon tuottaen työskentelystään prosessiportfolion.

Vehmanen (2018) puolestaan syventyi omassa tutkimuksessaan kohtaamisten työantajanäkökulmaan. Työnantajien panosta ja palvelumuotoilun menetelmiä konseptien kehittämisessä hyödynsivät erityisesti Korhonen (Sometaduuniin 2018) ja Barck (2019).

Virtuaalisten kohtaamisten tapahtumamarkkinointia ja liiketoimintamalleja pohti useampi projekti-ryhmä Laureasta. Keväällä 2018 markkinoinnin ja toiminnan jatkuvuuden sekä tapahtumien toteuttamisen projektia työsti kaksi eri tiimiä. Yksi projektitiimi pohti syksyllä 2018 markkinoinnin lisäksi yrityskumppanien hankintaa sekä liiketoimintasuunnitelmaa, jos toimintamallia jatkettaisiin hankkeen jälkeen. Myös keväällä 2019 tapahtuman viestintään ja markkinoinnin toimenpiteisiin saatiin tukea liiketalouden opiskelijoilta. Tiimin tekemät mediatiedotteet tuottivat tuloksena kaksi uutista Aamupostiin, jotka ovat esimerkki opiskelija-projektien korvaamattomasta lisäarvosta. Lisäksi yksi opiskelijatiimi hyödynsi blogia mediana markkinoinnissa ja opinnäytetyön verran aiheeseen paneutuivat Hurskainen ja Sairanen (2019).

Opiskelijoiden mukaanotto hanketyöhön huomioitava työtavoissa

Opintojaksoille integroituvaa hanketyötä ja projektiopintojen tarjoamista opiskelijoille pidetään korkeakouluissa tavoiteltavana. Yhteiskehittämistä yhdessä opiskelijoiden, työelämäkumppanien ja oppilaitosten henkilöstön kanssa saatetaan pitää jopa itsestään selvänä, vaikka se ei sitä aina ole. Jos osallistaminen toteutetaan vain näennäisesti ja esimerkiksi työpajoja järjestetään vain niiden järjestämisen ilosta, ei tilaa yhteisille keskusteluille ja oivalluksille pääse syntymään. Joskus omien näkemysten tai ratkaisujen kyseenalaistaminen on epämiellyttävää ja eriäviltä mielipiteiltä halutaan sulkea korvat. Ajatusten tuulettaminen ja ratkaisujen tarkastelu eri näkökulmista yhteisesti on kuitenkin tärkeää.

Vaikka Sometaduuniin-hankkeen kohdalla opiskelijaintegraation ja osallistamisen tavoitteiden toteutusta voidaan pitää hyvin toteutuneina, mielestämme resepti onnistuneeseen yhteistyöhön ja tuloksiin on pohdinnan arvoinen asia. Huomiota kannattaa kiinnittää erityisesti työtappoihin.

Ensinnäkin pidämme tärkeänä sitä, että halu tehdä yhteistyötä on molemminpuolista ja motivaatio sekä uskallus hypätä kehittämistehtävän kimppuun kohdillaan. Tämä toteutuu toki useimmiten itsestään, sillä projektit tuodaan tarjolle usein vapaasti valittavina opintoina. Aina yhteistyö ei kuitenkaan sujukaan niin kuin osapuolet odottavat tai tehtävä ei vastaakaan omia odotuksia. On hyvä muistaa ja ymmärtää, että sekin on täysin hyväksyttävää ja niistäkin tilaisuuksista voi oppia aina jotakin.

Toiseksi hankkeen johtamisen näkökulmasta on tärkeää, että opiskelijoilla on helposti saatavilla tieto hankkeen tavoitteista, etenemisestä sekä keskeisistä dokumenteista, kuten esimerkiksi viestintäohjeista, joita virtuaalisten kohtaamisten markkinoinnissa tarvittiin. Tässä hyödynsimme prosessiportfoliota, josta kerromme toisessa artikkelissamme tässä julkaisussa tarkemmin (ks. Gröhn & Nykänen).

Kolmanneksi ajattelemme, että projektin tavoitteiden ja molempien osapuolten odotusten tulisi olla alusta saakka ja läpi projektin selviä. Punainen lanka tekemisestä voi kadota joskus matkan varrella. Yhteis-

ymmärrys ja sitoutuminen yhteiseen toimintaan ja tavoitteisiin saavutetaan meidän kokemustemme mukaan parhaiten tasavertaisuuden kautta. On tärkeää ottaa opiskelijat aidosti mukaan osaksi hankkeen toimintaa. Meillä tätä on toteutettu paitsi kutsumalla opiskelijat mukaan prosessiportfolioon, myös siten että opiskelijat ovat olleet projektinsa aikana mukana hankkeen tiimikokouksissa, kun se on tarkoituksenmukaista. Opiskelijat eivät ole olleet mukana pelkästään raportoimassa etenemistään, vaan myös keskustelulle ja yhteiselle ongelmanratkaisulle on haluttu tarjota säännöllinen foorumi. Säännöllisesti opiskelijoiden tehtäviä seuraamalla ja niistä keskustelemalla olemme hyötynneet myös niistä kehittämistehtävistä, jotka eivät valmistuneet tarpeidemme näkökulmasta aikataulussaan.

LOPUKSI

Oman kokemuksemme mukaan yhteiskehittäminen Laurean TKI-toiminnassa toteutuu luontevasti ja tarkoituksenmukaisesti, kun työelämän edustajien ja oman henkilöstön lisäksi hanketoimijat uskaltavat avata hankkeen oppimis- ja kehittämisympäristöksi myös opiskelijoille.

Kun opiskelijoille antaa rohkeasti vastuuta projektin toteuttamisessa ja osoittaa heille luottamusta ja tukea, on tulos usein paras. Kun on into tehdä, se usein innostaa muitakin. Opiskelijat ovat rohkeita kokeilemaan uusia asioita ja tekemään niitä eri tavalla. Myös epäonnistumisista tulisi tehdä luonnollinen osa oppimiskokemuksista ja rohkaista opiskelijoita iloitsemaan ja oppimaan niistä.

Toteuttamalla projekteja yhdessä korkeakoulun ja työelämän kanssa opiskelijat pääsevät opettelemaan työelämätaitoja yksin ja yhdessä. Joskus oppimiskokemusten tuottamat hedelmät korjataan saman tien, toisinaan ne tulevat todelliseksi myöhemmin oivalluksina työelämässä.

Saara Gröhn työskentelee Laurea-ammattikorkeakoulussa palvelumuotoilijana TKI-hankkeiden ja liiketoiminnan parissa

Anna Nykänen työskentelee suunnittelijana Laurea-ammattikorkeakoulussa ja toimii Sometaduuniin-hankkeessa Laurean osahankkeen projektipäällikkönä 2016-2019

Avainsanat:

- Yhteiskehittäminen
 - Oppimisympäristöt
 - Portfolio
 - Avoin tiede
-

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28. Innostavaa yhteiskehittämistä elämysalan restonomien ja elinkeinoelämän kesken

Pia Kiviharju, Anikó Lehtinen, Henry Lybäck & Petri Miinalainen

ELÄMYSALAN NOPEA MUUTOS JA SIIHEN VASTAAMINEN

KIRJOITETTU 2.6.2020

Suomalainen elämysalouden on kovassa murroksessa. Yli kolme kuukautta jatkunut koronaepidemia ja sen torjumiseen käytetyt keinot ovat koskettaneet alan yrittäjien taloudellista tilannetta huomattavasti. Voidaankin elämysalan puolella puhua ajasta ennen ja jälkeen koronaepidemiaa, koska tällä hetkellä alaa koskevat säännökset ovat linjaavat liiketaloudellisen toiminnan toteutumista monin rajoituksin myös vuoden 2020 loppupuolelle.

Matkailu- ja ravitsemisala on kärsinyt vallitsevan kriisitilanteen ja siitä johtuvan ravintoloiden, tapahtumien ja matkailun väliaikaisen toiminnan rajoittamisen takia alan vahinkoja ja myynnin menetyksiä niin, että arvioidaan alan liikevaihdon tippuvan 30 prosenttia tämän vuoden loppuun mennessä. Tilanteesta kärsivät kaikki alan toimijat sekä raaka-aineita että muita tuotteita toimittavat. Vaikeimmin tilanne vaikuttaa paikallisiin, pieniin toimijoihin sekä alan työntekijöihin, joista moni tekee työtä niin kutsutulla tuntisopimuksella eli ilman vakituista työsuhdetta. Voidaankin odottaa elämysalan suurta rakennemurrosta tämän vuoden aikana.

Tähän murrokseen myös alan oppilaitosten täytyy osallistua, tarkastelemalla omaa toimintaa ja miettiä niitä keinoja, joilla voidaan mahdollisimman hyvin edistää elämysalan nostamista positiivisempiin kehityslukuihin. Suomessa elämysalaa kannattaa panostaa voimakkaasti koulutuksen ja yritysten välisen yhteistyön kautta, koska toimialalla on paljon hyödynnettäviä mahdollisuuksia, jota voidaan yhdessä elinkeinoelämän ja alan koulujen kanssa edistää.

Kun tarkastelemme alan kehitystä, täytyy nähdä kehitysero ennen ja jälkeen koronaepidemian. Ennen koronaepidemiaa kotimaan matkailu ja Suomeen suuntautuva matkailu oli kasvussa. Nyt koronatilanne tulee kasvattamaan kotimaanmatkailua entisestään sekä lisäämään turvalliseksi miellettyjen matkailukohtaiden vetovoimaa kansainvälisessä matkailussa, kun rajoitustoimia puretaan.

Ravintola-ala on elänyt murrosta jo viimeisen viiden vuoden aikana, ja nyt vallitsevan tilanteen takia, murros kiihtyy. Ravintoloilta haetaan ensisijaisesti elämyksiä, ja se tulee linkittymään voimakkaasti myös ko-

timaanmatkailuun. On tärkeää panostaa opetuksen elämystavoitteisuuteen yhdessä työelämän kanssa, sillä näin turvataan ravintoloiden selviäminen myös tulevaisuudessa.

Elämysalojen painoarvo työllistäjänä on juuri nyt vähentynyt, mutta se nähdään pitkällä tähtäimellä edelleen kasvavana alana. Työmarkkinat ovat olleet rakennemuutoksen kourissa koko 2000-luvun ja sama kehitys jatkuu edelleen. Samaan aikaan kun työpaikkoja on vähentynyt muilta aloilta, palveluihin on tullut niitä lisää. Varsinkin elämystalous on kasvanut viimeisinä vuosina merkittävästi, ja voidaan olettaa kasvun jatkuvan taas vuodesta 2021. Tähän Laurea-ammattikorkeakoulu vastaa edelleen useilla erilaisilla koulutus- ja työelämän yhteisillä projekteilla, jotka edistävät opiskelijoiden käytännön oppimista ja osaamisen kehittymistä.

ELÄMYSALAN HAASTEET JA NIIHIN VAIKUTTAMINEN

Suurimmat alan haasteet liittyvät tällä hetkellä koronaepidemian ja sen torjumiseen käytettyjen tapojen liiketaloudellisten vahinkojen korjaamiseen. Suurin osa henkilökunnasta on lomautettu ja osa vaihtamassa alaa. Useat alan yritykset kamppailevat olemassaolonsa puolesta tai ovat jo lopettaneet toimintansa.

Tässä tilanteessa Laurealla on tärkeä rooli olla mukana luomassa alalle motivoituneita, ammattitaitoisia työntekijöitä yhdessä yhteistyökumppaneiden erilaisissa työelämäprojekteissa. Näin lisätään alan kiinnostavuutta ja pidetään ammattilaiset toimialalla. Laurea ja sen kehittämis- ja oppimisympäristö BarLaurea pitävät tärkeänä mahdollisimman laajaa yhteistyötä alan yritysten ja vaikuttajien kanssa, jotta valmistuvat opiskelijat saadaan pysymään elämystalalla.

Vallitsevan tilanteen ja elämystalan murroksen haasteiden ratkomiseen sekä alan kehittämiseen tarvitaan uusia näkökulmia ja ideoita. Näitä syntyy yhteisissä kehittämisprojekteissa, joihin osallistuvat kumppaneidemme kanssa Laurean ammattitaitoiset lehtorit ja tuoreita ajatuksia omaavat opiskelijat. Pitkäjänteisellä yhteistyöllä pystytään kääntämään alan haasteet myös vahuuksiksi ja uusien innovaatioiden avulla saadaan taas ala nousuun.

LAUREAN RESTONOMIKOULUTUKSEN KEHITTÄMISEN KEINOT YHTEISTYÖSSÄ TYÖELÄMÄN KANSSA

Laurea-ammattikorkeakoulun strateginen tavoite on olla aluetta palveleva, uudistava työelämälähtöinen korkeakoulu. Aktiivinen partneritoiminta on Laurean menestystekijä ja keskeinen toiminnan kohde. Kumppaniyhteistyöllä halutaan varmistaa kumppaneiden kanssa monipuolinen, laaja-alainen ja pitkäaikainen yhteistyö, josta hyötyvät kaikki. Tyypillisiä yhteistyömuotoja ovat työharjoittelut, yritysvierailut, asiantuntijaluennot, tutkimus- ja kehittämistoiminta (TKI), opinnäytetyöt ja projektiyhteistyö, joka voi olla joko kehittämis-yhteistyötä tai toteuttamista. Lähtökohtana kumppanitoiminnassa on kumppanin tarpeet ja Laurean mahdollisuus löytää ratkaisuja heidän tarpeisiinsa. Parhaimmillaan aktiivinen kumppanitoiminta on suunnitelmallista ja systemaattista yhteiskehittämistä, joka perustuu molemminpuoliseen luottamukseen.

Restonomikouluttajien ja majoitus- ja ravitsemisalalan toimijoiden yhteiskehitys on tärkeää koulutuksen kehittämisessä ja elinkeinon elinvoimaisuuden varmistamisessa samalla kun ala painii haasteiden edessä. Ammattikorkeakouluilla on kolme tehtävää: tuottaa koulutusta, tehdä tutkimus- ja kehittämistoimintaa sekä osallistua aluekehitystoimintaan. Alalla toimivat organisaatiot tarvitsevat nyt enemmän kuin koskaan uutta tietoa ja uudenlaisia ratkaisuja tuottavuuteen, toimintaan sekä muuttuviin työelämän tarpeisiin. Restonomien odotetaan olevan palvelu- ja asiakasosaamisen, esimiestyön ja liiketoiminnan moniosaajia. Digita-

lisaatio ja robotiikka tuovat jatkuvasti lisäosaamistarpeita alalle, joten opetussuunnitelmien on pystyttävä vastamaan näihin osaamistarpeisiin.

Opetussuunnitelmatyöskentelyssä huomioidaan kyllä alan tarpeet, mutta on tarpeen luoda systemaattinen, ketterä toimintamalli, joka mahdollistaa koulutuksen ja elinkeinon välisen jatkuvan vuorovaikutuksen, yhteiskehittämisen ja osaamisen jakamisen. Tämä on mahdollista työelämän kanssa yhteistyössä tehtävien oppimiskokonaisuuksien ja case-tapauksien avulla. Laurean oma oppimisympäristö BarLaurea voi osallistua työelämän kanssa innovointiin käyttäen omaa toimintaympäristöään nimenomaan pilottipaikkana uusien erilaisten, alaa auttavien keksintöjen, tuotteiden ja konseptien testauksessa.

Opiskelijoille yhteistyö alan parhaiden osaajien kanssa tuo aitoa työelämäosaamista, tietoa ja taitoja jo opiskelujen aikana. Laurean kumppaneille yhteistyö mahdollistaa uusien ideoiden saamista, toiminnan kehittämistä ja osaavan työvoiman rekrytointia. Halutessaan organisaatiot voivat myös osallistua opetussuunnitelmatyöhön, jolloin he voivat olla vaikuttamassa millaista osaamista restonomit tarvitsevat tulevaisuudessa. TKI-yhteistyön kautta organisaatiot saavat uusinta tietoa ja pääsevät verkostoitumaan sekä kehittämään uusia toimintamalleja alan elinvoimaisuuden varmistamiseksi. Ammattikorkeakoulun henkilöstöä yhteistyö auttaa pysymään alan kehityksessä mukana ja näin kehittämään myös omaa osaamistaan.

UUDENLAINEN RESTONOMIKOULUTUKSEN YHTEISTOIMINTAMALLI – REKEY-HANKE

Elämysalan elinvoimaisuuden lisäämiseksi ja restonomikoulutuksen kehittämiseksi opetusministeriö rahoitti Rekey-hankkeen, jossa olivat mukana kaikki restonomeja kouluttavat ammattikorkeakoulut Suomessa. ReKey-hankkeessa kehitettiin uudenlaista yhteistoimintamallia, jolla vahvistettiin ammattikorkeakoulujen tehtäviä kansallisessa innovaatioekosysteemissä. Ammattikorkeakoulun ja elinkeinoelämän yhteistoimintamallilla pyrittiin vahvistamaan suomalaisen majoitus- ja ravitsemisalalan palvelukehittämisen ja palveluliiketoimintaosaamista ja siten kilpailukykyä kansainvälisessä toimintaympäristössä. Tavoitteena oli kehittää ammattikorkeakoulujen välistä sekä koulutuksen ja työelämän välistä vuorovaikutusta yhteistoimintamallin avulla. (Mäntysaari, Siltanen, Laapio 2019. Mantere 2019)

ReKey-hankkeen työpaketeissa on kehitetty yhteistoimintaa muun muassa seuraavista näkökulmista: oppinollistaminen, Living Lab -toiminta, ketterä kehittäminen sekä projektiyhteistyö yritysten kanssa.

Yhteistoimintamallia ovat olleet suunnittelemassa ja toteuttamassa opiskelijat, henkilöstö ja työelämä. Hankkeessa syntyneitä uusia yhteistyömuotoja ovat esimerkiksi hackathon ja restojamit, jota tässä artikkelissa esitellään. Molemmat tapahtumat olivat valtakunnallisia restonomiopiskelijoiden kisoja, joissa eri ammattikorkeakoulujen opiskelijat kisailevat joukkueina joko fyysisesti tapahtumapaikalla tai digitaalisesti omalta paikkakunnaltaan. Kilpailuissa olennaista oli yritys yhteistyö.

Restojamit on valtakunnallinen ammattikorkeakoulujen välinen, 48 tunnin kilpailu, jossa kehitetään ideasta konseptteja toimeksiantajien esittämään haasteeseen. Restojameissa verkon välityksellä toteutetaan virtuaalinen innovointikilpailu, jossa eri restonomitiimit pääsevät ideoimaan ja kehittämään konseptteja alan toimijoiden kanssa. Restojamit-tapahtumakonseptilla haetaan valtakunnallista näkyvyyttä työelämäläheiselle toiminnalle sekä restonomikoulutukselle. Tavoitteena on, että opiskelijat oppivat uutta kehittämisestä ja palvelumuotoilusta sekä heidän tuottamillaan konseptteilla on hyötyä toimeksiantajille.

Restojameja on toteutettu ReKey-hankkeen aikana kaksi kertaa: Restojamit by Kajaani AMK 8.–10.11.2018 ja Restojamit by Lapin AMK 14.–16.3.2019. Hankkeen päättymisen jälkeen restojameja on jatkettu ja Restojamit 2020 järjesti Lapin ammattikorkeakoulu 19.3.–21.3.2020.

Yhteiskehittämisen tuloksia yhdessä opiskelijoiden ja kumppaneiden kanssa

CASE 1. UUDENLAISIA PALVELUKONSEPTEJA – CASE ANTELL-RAVINTOLAT

Laurea aloitti maaliskuussa 2019 suunnittelemaan Antell-ravintoloiden kanssa yhteiskehittämisprojektia. Tavoitteena oli kehittää palvelukonsepteja Antellin henkilöstöravintoloiden käyttöön liiketoiminnan edistämiseksi ja uudistamiseksi. Aikataulu yhteiskehittämisprojektille määritettiin syyslukukaudelle 2019.

Laurea-ammattikorkeakoulussa palveluelämyksen tuottaminen ja kehittäminen koulutuksessa on palveluinnovaatiot- opintojakso, jonka osaamistavoitteet yhdistyivät yhteiskehittämisprojektiin Antellin kanssa. Opintojakson toteutussuunnitelma tehtiin tarkasti lehtoreiden toimesta toimeksiantajan aikatauluun sopivaksi. Opintojakson tuloksena toimeksiantajalle kehitettiin palvelumuotoilumenetelmien avulla palvelukonsepteja, joista tuotoksena syntyi toimeksiantajalle Service Design-manuaali ja mahdollinen toteutettava palvelu.

Palveluinnovaatiot opintojaksolle osallistui yhteensä 42 opiskelijaa ja heidät jaettiin seitsemään tiimiin, jotka lähtivät kehittämään toimeksiantajan tehtävänannosta palvelukonsepteja. Opintojakson palvelumuotoiluprosessi on selkeästi määritetty ja mahdollistaa eri menetelmien avulla kehittämistä sekä innovointia toimeksiantajan antaman tehtävän ratkaisuksi.

Kehittäessään palvelukonseptejaan opiskelijatiimit käyttivät monia eri menetelmiä palvelumuotoiluprosessin vaiheiden edetessä. Haastattelut, kyselytutkimukset, vertailuanalyysit, trendianalyysit, aivoriivet, ideoiden testaukset ja todennukset esimerkiksi testimainosten avulla tulevat opiskelijoille tutuiksi ennen kuin siirrytään konseptin lanseeraamiseen. Tällöin palvelukonseptin liiketoimintamallin selkeyttäminen, prosessikuvaus ja myyntipuheen harjoittelu ovat tärkeässä roolissa, jotta toimeksiantaja ”ostaa” opiskelijoiden konseptin.

Opiskelijoiden palvelukonsepti esitykset olivat 4.12.2019 ja toimeksiantaja oli erittäin tyytyväinen tiimien toimintaan ja esitettyihin palvelukonsepteihin. Jokaisesta palvelukonseptista annettiin selkeä palaute opiskelijoille. Seitsemästä palvelukonseptista toimeksiantaja valitsi kaksi esitettäväksi Antellin esimiespäiville 11.1.2020. Ensimmäinen valituista palvelukonsepteista PAJA oli helposti monistettavissa Antellin toimipisteisiin vähin resurssein. Toinen palvelukonsepti oli ”FODMAP-ruokavalio osaksi arkea”.

Toimeksianto tarjosi opiskelijoille aidon mahdollisuuden tutustua lounasruokailuun ja liiketoimintaan sen ympärillä pääkaupunkiseudulla. Opiskelijoiden palautteiden kautta opintojaksoa pidettiin opettavaisena. Opettajan näkökulmasta opintojakso tarjosi pedagogisesti uuden oppimista ja vahvisti omaa osaamista yri-tysyhteistyössä ja palvelumuotoilussa.

CASE 2. RAVINTOLAPALVELUIDEN KEHITTÄMINEN VIINI JA RUOKA 2020 TAPAHTUMASSA – CASE ELO-SÄÄTIÖ

Toukokuussa 2019 yhdessä yhteistyökumppani ELO-Suomalaisen ruokakulttuurin edistämissäatiön kanssa sovittiin ravintolapalveluiden kehitys yhdessä alan sidosryhmien sekä restonomiopiskelijoiden kanssa Suomen Bocuse d'Or kilpailu-alueella Suomen suurimmassa viiniin ja ruokaan keskittyvä tapahtumassa Helsingin Messukeskuksessa 24.–27.10.2019.

Laurea-ammattikorkeakoulussa palveluelämysten tuottamisen ja kehittämisen koulutuksessa foodservice-opinnoissa on valittavana ruoka- ja juomakulttuuri -opintojakso, jonka osaamistavoitteet yhdistyivät erinomaisesti yhteistyöprojektiin. Opintojakso organisoitiin toteutussuunnitelman avulla yhteiskumppanin aikatauluihin jo hyvissä ajoin, jotta prosessista saatiin mahdollisimman selkeä kaikille osapuolille. Opintojaksolla yhteistyökumppaneina toteutuksessa olivat Messukeskus, Metos Finland Oy, HKScan Finland Oy, Viinilehti Oy, E.Ahlström Oy, Metos, Arvo Kokkonen Oy ja BarLaurea.

Ruoka- ja juomakulttuuri opintojakson vastuulla oli järjestää kolmeksi päiväksi kolme pop up-ravintolaa messujen asiakkaille Bocuse d'Or kilpailu-alueella. Pop up -ravintoloiden tavoitteena oli valmistaa messuvieraille myytäväksi pieniä annoksia, joissa käytettiin Bocuse d'Or kilpailun pääraaka-aineita siikaa, possun kylkeä ja merirapua. Toisena vastuualueena oli järjestää kilpailupäivänä Vip-alueen tapahtumakonseptointi tarjoiluineen. Tavoitteena oli tarjota kilpailun pääraaka-aineista tehtyjä annoksia juomasuosituksen kanssa kutsuvieraille.



Kuva 1. Bocuse d'Or -kilpailu, lehtorit Anikó Lehtinen ja Henry Lybäck. (Kuva: Anikó Lehtinen)

Opiskelijoita osallistui opintojaksolle yhteensä 36 viidessä tiimissä ja heistä kolme toimi projektipäälliköinä. Kolme tiimiä alkoi kehittää pop up-ravintoloita messualueelle. Yksi tiimi otti vastuun vip-alueen tapahtumakonseptoinnista ja yksi tiimi toimi logistiikkatiiminä.

Opintojakson teoriaosuudessa keskityttiin asiantuntijaluentoihin, ruokakulttuurin tutkimiseen, tuotekehittämiseen sekä ruoan ja juoman yhdistämiseen. Opiskelijoiden käytännön osaamisen kehittämisessä suunniteltiin tuotteita ja testattiin niiden toimivuutta BarLaurean keittiössä. Tämä osuus oli tärkeässä osassa, jotta opiskelijat oppivat tuntemaan raaka-aineet, esivalmistuksen ja annoksen tekemisen parhaalla mahdollisella tavalla.

Opiskelijat kirjoittivat oppimispäiväkirjan oman osaamisen kehittymisen näkökulmasta sekä vertaisarvioivat tiimensä jäsenenä viiden eri kriteerin mukaan. ELO-Suomalaisen ruokakulttuurin edistämissäätien kanssa tapahtuman jälkeen pidettiin palauteiltapäivä, jossa käytiin läpi toimeksiantajan, ohjaavien lehtorien ja opiskelijoiden kanssa opintojakson ja tapahtuman tavoitteiden toteutuminen eri näkökulmista. Palauteiltapäivä yhdessä toimeksiantajan eli ELO-säätiön oli antoisa ja selkeennytti monesta eri näkökulmista opintojakson osaamistavoitteiden toteutumista sekä toimeksiantajan saamaa hyötyä yhteiskehittämissä projektissa.

”Yhdessä onnistuimme luomaan monipuolisemman ja haastavan palvelukokonaisuuden hienolla lopputuloksella saaden kiitosta asiakkailta, kumppaneilta ja opiskelijoilta. Näistä kokemuksista ponnistamme seuraavaan yhteistyöhön Laurean kanssa palvelumuotoiluhankkeen muodossa.”

Bettina Lindfors, johtaja, ELO-säätiö

CASE 3. VILLIYRTTIOLUTTA RAVINTOLAAN – CASE BAR LAUREA

BarLaurea ja Laurea-ammattikorkeakoulun villiruokaa koskeva, Suomen 4H ry:n kanssa yhteistyössä tekemä Ruokaa Luonnosta-hanke pyrkii kehittämään villiyrttiliiketoimintaa ja rakentaa ammattimaista toimitusketjua luonnosta lautaselle opiskelijoiden kanssa. Laurea onkin mukana kehittämässä villiyrttejä kaupalliseen tarkoitukseen: Ammattikeittiöihin, juomateollisuuteen ja elintarvikejalostajille.

Osana tätä toteutettiin villiyrtteillä maustettu, amerikkalaistyylinen pale ale -olut opetusympäristö BarLaureaan. Tämä vuohenputkella, maitohorsmalla ja siankärsämöllä maustettu olut toteutettiin yhteistyönä Perhon panimon kanssa osana Villiyrtteillä elämystä -opintojakson kanssa. Olut on myynnissä talon oluena BarLaurean Flow-ravintolassa ja sitä varten on tehty tuotekehitysversioita yhdessä Laurean restonomiopiskelijoiden kanssa hankkeeseen räätälöidyllä villiyrttikurssilla.



Kuva 2. Villiyrttiolut. (Kuva: Anikó Lehtinen)

Kaikki vihaavat kokouskuolemaa. Sen haitat on tunnettu, mutta uudenlaisia ratkaisuja kokouspalvelujen tuotteistamiseksi on hotellialalla toistaiseksi vähän.

Pääkaupunkiseudun on vallannut hotellibuumi. Alueelle on valmistunut tai suunnitteilla useita hotelleja. Kun määrään lasketaan hotellien laajennukset ja peruskorjaukset, ovat investoinnit ja työllisyysvaikutukset mittavia.

Trendi kertoo kahdesta asiasta. Suomen vetovoimaan turvallisenä matkailukohteena ja matkailun kasvuun uskotaan. Vaikka alueelliset erot ovat suuria, pääkaupunkiseudun merkitys yhtenä matkailun veturina on kiistaton. Toisin kuin Lapissa, ulkomaalaisten matkailijoiden kysyntä jakautuu pääkaupunkiseudulla lähes puoliksi vapaa-ajan ja työhön liittyvästä matkustuksesta.

Pääkaupunkiseudun hotellien täytyy siis uudistua. Pelkkä majoituskapasiteetin nostaminen ei riitä palvelemaan vapaa-ajan matkustusta vaan tarvitaan uusia kokouskonsepteja, jotka palvelevat kasvavaa kysyntää työhön liittyvään matkustamiseen. Kilpailuedun luominen kokouskonseptoinnissa on kuitenkin kaikkea muuta kuin itsestään selvyys.

Mistä kokouskonseptoinnissa on kysymys? Lähtökohtana on ihmeellinen idea. Vaikka elämme muuttuvassa maailmassa, on olemassa asioita, jotka ovat pysyviä. Ideointi edellyttää rohkeutta nähdä ohi muuttuvan maailman. Yksi pysyvä asia on kuolema. Kokouskuolema tulee lähes aina yllättäen, ja kaikki vihaavat puuduttavia kokouksia. Ensi askel ideoinnissa on kokouskuoleman yleisyyden myöntäminen.

Kokouskonseptointi edellyttää teemoitusta. Mielen rajat ovat ajattelun rajat ja teemoituksen mahdollisuudet rajattomat. Fyysiset puitteet eivät ole koskaan teemoituksen este vaan mahdollisuus. Erityisen tärkeää on kokonaisvaltainen toiminta mielikuvituksen ja aistimusten sekä odotusten ja todellisuuden välillä. Teeman omaperäisyys, tunnistettavuus ja esteettinen harmonia ovat ratkaisevassa asemassa, kun luodaan kilpailukentässä erottuva kokouskonsepti.

Kokouskonseptointi vaatii yllätyksellisyyttä. Yllätyksellisyydessä on kaksi ulottuvuutta. Spontaani yllätyksellisyys on kaikista tärkein. Se tarkoittaa ylisuunnittelun välttämistä ja pelisilmää asiakaspalvelussa. Sitä ei tarvitse kontrolloida, koska kontrolli tappaa spontaaniuden. Vastaavasti suunniteltuun yllätykseen liittyy usein pieni, mutta asiakaskokemuksen kannalta merkittävä tapahtuma asiakkaan aistimaailmassa. Molemmat yllätyksen ulottuvuudet ovat tärkeitä arvaamattomassa asiakaskokemuksessa.

Hotellin kokouskonsepti ei synny koskaan yksin. Asiakkaan osallistaminen on selviö, mutta sen merkitystä ei voi vähätellä. Kuinka pystymme osallistamaan asiakkaan ja hyödyntämään teknologian tuotteistuksessa, ratkaisee asiakaskokemuksen syvyyden. Olisi sääli, jos ottaisimme vain pieniä askelia yhtenä Euroopan jätti-maana digitalisaaton hyödyntämisessä.

Yritysasiakkaan kannalta tuotto-odotukset hotellin kokouspalveluita kohtaan ovat suuret. Hankinta tarkoittaa usein siirtymistä pois omista kokoustiloista, eikä päätös synny sattumalta. Vaikka hankinta ei välttämättä tarkoita hotellin majoituspalvelujen käyttöä, kokouksissa hyödynnetään monia muita hotellin palveluita – ruuasta ja juomasta puhumattakaan.

Palataan vielä kuolemaan. Kokouskuolema on monelle vaikea paikka. Kuinka moni kokouskuoleman saanut uskaltaa kävellä pois palaverista. On selvää, että hotellit ovat avainasemassa, kun suunnitellaan palveluita, joissa kokouskuolema loistaa poissaolollaan.

Kestävä kilpailuetu vaatii rohkeutta ja uudistumista. Kokouskonseptin valinta ja muokkaus todelliseksi muutosprojekteiksi ovat usein haasteellisimpia asioita. Kilpailuedun kannalta tarvitaan tiivistä yhteistyötä, paikallisia päätöksiä ja vertailukelpoista tutkimustietoa asiakaskokemuksesta. Sen jälkeen on tehtävä oikeita asioita ja asiat oikein.

On ollut ilo huomata, että hotellit ovat tunnistaneet yhteistyön merkityksen palvelujen tuotteistuksessa. Paras esimerkki kokouskonseptoinnista on yhteistyö Helsingin ydinkeskustaan rakennetun Hotel U14 kanssa. Hotel U14 on ensimmäinen Marriott Autograph Collection -ketjuun kuuluva hotelli Pohjoismaissa. Se on oman brändin hotelli, kuten muutkin ketjuun kuuluvat hotellit. Yhteistyön tavoitteena on ollut suunnitella kilpailukentässä erottuva kokouskonsepti. Suunnittelutyön keskiössä olivat tarkoin valitut brändin ominaisuudet ja innovatiivisuus, joihin opiskelijat kiinnittivät erityistä huomiota.

Yhteistyöstä hyötyvät kaikki. Voiko opiskelija saavuttaa mitään sen tärkeämpää, kun on eturivissä luomassa uudenlaista kokouskonseptia arvostetulle yritykselle. Se voi parhaimmillaan tarkoittaa harjoittelupaikkaa ja mahdollisuutta ammatillisen unelman toteuttamiseen. Hotellin kannalta yhteistyö ammattikorkeakoulun kanssa sisältää aina kansainvälisen opiskelijatiimin, useita vaihtoehtoisia konseptiehdotuksia ja mahdollisuuden pitkäjänteiseen kehittämiseen.

Matka huipulle onnistuu yhdessä. Yksin emme ole mitään. Yhdessä olemme enemmän.

Henry Lybäck toimii lehtorina ja kehittää elämysalaa yhdessä opiskelijoiden, kollegoiden ja sidosryhmien kanssa Laurea-ammattikorkeakoulussa

Anikó Lehtinen toimii lehtorina Laurea-ammattikorkeakoulussa

Pia Kiviharju toimii aluepalvelupäällikkönä Laurea-ammattikorkeakoulussa

Petri Miinalainen toimii matkailu- ja palveluliiketoiminnan lehtorina Laurea-ammattikorkeakoulussa

Avainsanat:

- BarLaurea
- ReKey-project
- Co-operation in hospitality management
- Co-creation with working life in hospitality

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29. Yhteistyöllä Espoo turvallisemmaksi – Turvallisuuden tunteen kehittäminen espoolaisissa lähiöissä

Minna Fred, Seija Tiainen & Satu Laukkanen

Espoon parhaat voimavarat ovat sen asukkaat, yhteisöt ja yritykset. Espoon kaupungin strategia on kirjoitettu Espoo-tarinaksi, jonka mukaan asukkaiden aktiivinen osallistuminen palvelujen kehittämiseen ja yhteistyö kumppaneiden kanssa takaavat tulokselliset ja asukkaiden tarpeisiin vastaavat palvelut. (Espoo-tarina) Espoossa on tärkeää, että arki sujuu turvallisesti. Espoon kaupungin turvallisuusohjelmassa esitetään Espoossa tehtävän turvallisuusyhteistyön päätoimintalinjat ja keskeiset valtuustokauden tavoitteet, mittarit, keinot ja seuranta. Tässä artikkelissa kuvataan onnistunutta, Laurea-ammattikorkeakoulun kanssa toteutettua yhteiskehittämisprojektia, jonka avulla Espoo jalkautti Espoo-tarinaa ja turvallisuusohjelmaa yhteistyökumppaneille ja asukkaille. Projektissa yhteiskehittäjinä toimivat niin Espoon kaupungin eri toimijat, sen asukkaat ja palvelujen käyttäjät kuin Laurean opiskelijat ja lehtoritkin.

Laurean kumppanina kehittämisprojektissa toimi Espoon kaupungin kaksi yksikköä: konsernihallinto ja ympäristötoimi. Espoon kaupungin konsernihallinnon turvallisuus ja valmius -vastuualue ohjaa paikallisen turvallisuussuunnittelun, tieto- ja kyberturvallisuuden, tietosuojan ja varautumisen kaupunkitasoista valmistelua, kehittämistä sekä toimeenpanoa ja valvoo niiden toteutumista. Kaupunkiympäristön turvallisuuskävelyt tukevat turvallisuussuunnittelua osallistamalla yhteistyöhön sekä kuntalaiset että muut sidosryhmät, jotka käyvät ryhmittäin läpi asuinalueensa riskit ja vaaranpaikat. Kaupungilta turvallisuuskävelyiden suunnitteluun osallistuu kaikkien toimialojen edustajia. Mukana on lisäksi Länsi-Uudenmaan pelastuslaitoksen edustaja.

”Turvallisuuden tunteen kehittäminen espoolaisissa lähiöissä” -kehittämisprojekti päätettiin toteuttaa Laurea-ammattikorkeakoulussa kehitetyn innovatiivisen kehittämispohjaisen oppimisen Learning by Developing (LbD) –toimintamallin mukaisesti integroiden se opintojaksoon. LbD:n kautta oppiminen on mahdollista nivoa yhteen koulutuksen, aluekehityksen ja tutkimus-, kehittämis- ja innovaatio -toiminnan kanssa, koska siinä kehitetään aitoa kohdetta. Seuraavaksi kuvataan sitä, miten yhteiskehittäminen toteutui suunnittelusta toteutukseen niin Laurean kuin Espoon kaupunginkin näkökulmasta.

AITOYHTEISTYÖ MAHDOLLISTI KEHITTÄMISPROJEKTIN FOKUKSEN UDELLEENMUOTOILUN

Yhteistyö turvallisuuteen liittyvän projektin osalta alkoi jo keväällä 2018. Yhdellä opintojaksolla opiskelijat olivat jo tehneet muutaman projektiraportin Espoole aihepiiriä sivuten, mutta toiveena oli saada enemmän tuloksia ja laajempaa vaikuttavuutta. Espoon kaupungin alkuperäisenä odotuksena oli kehittää kaupunkilaisille järjestettyjä turvallisuuskävelyitä ja saada asukkaita osallistumaan enemmän niihin. Teemaa pohdittaessa kävi ilmi, että turvallisuuskävelyille osallistuu yleensä keskenään hyvin samanlaisia, muutenkin aktiivisia kaupunkilaisia. Ongelmana oli tavoittaa ne, jotka eivät osallistu. Syitä osallistumattomuuteen saattoi olla monenlaisia: ehkeivät kaupunkilaiset tiedä, tai heitä ei kiinnosta koko aihe, tai jospa perinteinen tapa ei jaksaa innostaa osallistumaan.

Syksyn projektin suunnittelu käynnistyi monialaisessa tiimissä, johon kuuluivat Espoon kaupungin turvallisuuskoordinaattori, Espoon kaupungin teknisen ja ympäristötoimen projektipäällikkö, Laurean turvallisuuden ja riskienhallinnan lehtori ja palveluliiketoiminnan lehtori. Espoo toimitti taustamateriaaliksi tietoja aiemmista turvallisuuskävelyistä sekä aihetta sivuvasta tutkimuksista. Keskustelujen pohjalta kehittämisen kohde muutettiin näkökulman laajentamiseksi turvallisuuskävelyistä turvallisuudentunteeseen ja menetelmiä päätettiin hakea yhdeltä Laurealle tärkeältä alueelta, palvelumuotoilusta. Yhdessä muotoilun fokuksen taustalla oli myös opintojakson Service Design osaamistavoitteiden saavuttaminen projektin kautta. Osaamistavoitteissa korostetaan sitä, että opiskelijan tulee osata suunnitella, toteuttaa ja arvioida palvelumuotoiluprosjektia käyttäen palvelumuotoilun menetelmiä. Palvelumuotoilu perustuu asiakkaiden ja toimintaympäristön syvälliseen, empaattiseen ymmärrykseen, jota kautta vasta nk. suunnitteluajuri eli kehittämisen kohde valitaan. Tulevassa projektissa päätettiin keskittyä Länsimetron asemien, jo olemassa olevien sekä tulevien, ympäristöön. Ajatuksena oli, että muutokset lisäävät alueella liikkumista ja uusia asukkaita. Tämä saattaa aiheuttaa pelkoa ja heikentää turvallisuudentunnetta näillä alueilla.

Syksyllä 2018 toteutettavista Service Design opintojaksoista yksi oli suunnattu turvallisuuden ja riskienhallinnan monimuoto-opiskelijoille. Oli luontevaa, että suunniteltu projekti otettiin tälle opintojakson toteutukselle. Uusi, laajempi näkökulma "Turvallisuuden tunteen kehittäminen espoolaisissa lähiöissä" sallisi opiskelijoiden luovuuden prosessin aikana ja heidän asiantuntijuutensa hyödyntämisen ratkaisuja kehitettäessä. Opiskelijat toimivat jo nyt turvallisuusalan eri tehtävissä ja suuri ammattiryhmä turvallisuus ja riskienhallinta-koulutuksessa ovat ammatissaan toimivat poliisit.

Projektin aiheena turvallisuudentunteen kehittäminen Espoossa sopi toteutukselle hyvin. Turvallisuusalan opiskelijoilla on välillä vaikeuksia motivoitua palvelumuotoiluun, mutta tuomalla projektiksi selvästi turvallisuusalaa kehittävä aihe, pyrittiin lisäämään kiinnostusta myös palvelumuotoiluun. Syksyn alkaessa opintojaksolle oli ilmoittautunut 38 turvallisuuden ja riskienhallinnan opiskelijaa ja yksi vahvistus tietojenkäsittelyn puolelta.

YHTEISKEHITTÄMINEN VAATII YMMÄRRYSTÄ KEHITETTÄVÄSTÄ KOHTEESTA

Opintojakso toteutettiin tutkintokoulutuksen näkökulmasta yhteisopettajuutena, jossa molemmilla opettajilla on saman tasoinen palvelumuotoilun asiantuntijarooli. Yhteisopettajuus tarkoitti sitä, että suunnittelu, opetusmateriaalien tuotanto, ohjaus ja tuotosten arviointi tehtiin dialogisessa vuorovaikutuksessa.

Yhteistoimijuus jatkui ohjauksellisesti koko prosessin ajan: kaksi lehtoria ohjasivat ensisijaisesti opiskelijoiden palvelumuotoiluprosessia, kun taas sisällöllinen ohjaus tuli Espoon kaupungilta. Espoon kaupunki tuki

opiskelijoita varsinaisen palautteen ja ohjauksen lisäksi jakamalla avoimesti aikaisempia tutkimuksia, kehittämisraportteja ja tulevaisuuden visioitaan. Espoon edustajat kehottivat opiskelijoita hyödyntämään avointa dataa tutkimustensa pohjalle. Lehtorien palvelumuotoiluprosessiin liittyvä ohjaus toteutettiin lähinnä lähipäivinä, joita oli joka toinen viikko prosessin vaiheesta riippuen joko puoli päivää tai koko päivä. Lähipäivien välisenä aikana annettiin palautetta raportin osista ja vastattiin esille nousseisiin kysymyksiin.

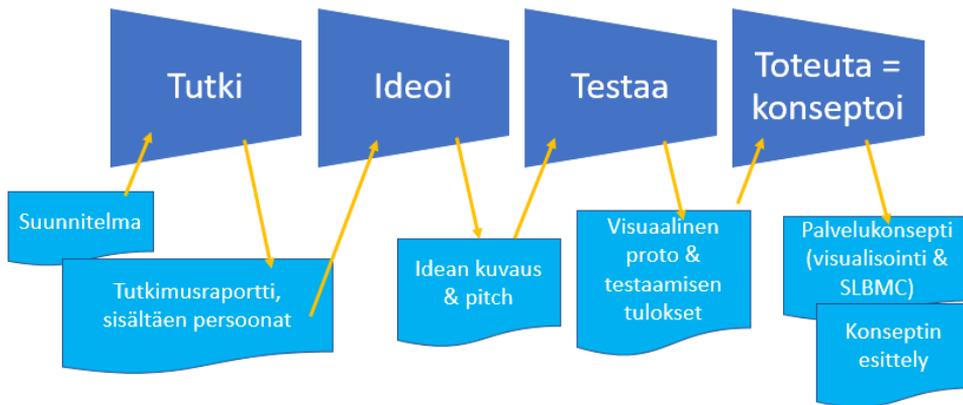
Projektien varsinainen kick-off pidettiin ensimmäisenä lähipäivänä Leppävaaran kampuksella. Lehtorit kertoivat ensin palvelumuotoiluprosessista yleisellä tasolla, jonka jälkeen Espoon kaupungin edustajat kävivät läpi projektin taustoittaen sitä turvallisuuskävelyjen kokemuksilla ja Espoon turvallisuuskatselmuksella. Näiden taustatietojen jälkeen esiteltiin varsinainen projektien varsinainen tavoite: *Kehittää Espoon kaupunkiympäristön ”turvallisuuskävelyiden” konseptia digitalisaatiota hyödyntämällä ja uusia toimintamalleja luomalla.* Toteutuksen tuli tukea kuntalaisten osallistamista ja kuulemistä sekä Espoon tavoitetta olla Suomen turvallisimman kaupunki. Tueksi Espoo oli koonnut runsaan materiaalipankin OneDriveen, jota tuli hyödyntää kehitettävän kohteen ymmärtämiseksi. Hyödynnettävää materiaalia olivat niin dokumentit turvallisuuskävelyistä, Espoon turvallisuussivusto, tietoa Espoosta ja sen kaupunginosista sekä tietoa niiden asukastoiminnasta. Espoon kaupungin edustajat antoivat myös yhteystietonsa, puhelinnumeron ja sähköpostiosoitteen kysymyksiä ja ohjausta varten. Sovittiin myös, että opintojaksolla käytetyssä oppimisympäristössä Optimassa voi myös kysyä kysymyksiä, koska Espoolla oli pääsy Optimaan ja koko opintojakson materiaaleihin. Kysymyksiä tuli muutamia sekä Optiman että sähköpostin kautta. Ne olivat lähinnä tarkentavia kysymyksiä kaupungin toimintoista. Lisäksi muutamat opiskelijat kysyivät harjoittelumahdollisuuksista Espoon kaupungilla projektin jälkeen.

Tehtävänannon avoimuus merkitsi sitä, että opiskelijat kohdealueen ja kohderyhmän valittuaan havainnoivat aluetta, haastattelivat erilaisia asukasryhmiä omissa konteksteissaan ja sitä kautta löysivät varsinaisen ongelman, jota lähtivät ratkaisemaan tutkimustietoon perustuen ja omaa osaamistaan hyödyntäen.

PALVELUMUOTOILUPROSESSI MAHDOLLISTAA YHTEISKEHITTÄMISEN

Opintojakson opiskelijat jakautuivat kymmeneen nelihenkkiseen tiimiin ja valitsivat tutkittavan alueensa Länsimetron asemien joukosta (Aalto/Otaniemi, Tapiola, Matinkylä, Soukka, Espoonlahti ja Kivenlahti). Evästyksenä tiimeille oli tutkia alueita avoimin mielin, etsiä käyttäjäryhmiä, joita perinteiset turvallisuuskävelyt eivät yleensä tavoita sekä miettiä uudenlaisia, innovatiivisia tapoja näiden tavoittamiseksi. Koska neljään alueeseen tuli kaksi tiimiä kuhunkin, neuvoteltiin tiimien kanssa kohderyhmistä, jotteivat ne olisi samoja. Kohderyhmät saatiin sovittua opiskelijoiden kanssa hyvässä yhteishengessä.

Projektien vaiheistus ja työskentelymenetelmät haettiin Stickdorn & Schneiderin (2011) palvelumuotoiluprosessista, joka vaiheistaa prosessin tutkimukseen, ideointiin, prototyypointiin ja konseptointiin (kuvio 1). Opintojakson orientaatiovaiheen osana, kuukauden sisällä kick-off -tilaisuudesta, opiskelijat tenttivät kirjan, millä haluttiin varmistaa yleinen ymmärrys palvelumuotoilusta ja siihen liittyvästä prosessista.



Kuvio 1. *Opintojakso toteutuminen palvelumuotoiluprosessin (Stickdorn & Schneider 2011) mukaisesti.*

Jokainen tiimi aloitti tutkimuksensa tutustumalla kohdealueeseen paikan päällä ja tilastojen kautta. Monet tiimeistä ottivat toiveen luovuudesta ja innovatiivisuudesta hyvin vastaan. Esimerkiksi Soukkaa tutkinut tiimi käänsi idean turvallisuudentunteen tutkimisesta turvattomuutta aiheuttavien ilmiöiden tutkimiseen – ja jalkautui lähipubeihin siellä aikaansa viettäviä ihmisiä haastattelemaan ja havainnoimaan. Tiimi haki ratkaisuja turvallisuudentunteen kehittämiseen siitä, miten saisi näissä pubissa aikaansa viettäviä ihmisiä osallistettua paremmin yhteiskuntaan ja siten vähemmän pelottaviksi muille alueen asukkaille.

Toisen Soukkaan keskittyvän tiimin kohteena olivat koululaiset, joiden turvallisuudentunnetta huomattiin heikentävän erilaiset asiat kuin aikuisten ihmisten. Koululaiset osoittivat haastattelututkimuksen osana paikkoja, jotka aiheuttivat heille pelkoa ympäristössään. Tiimi päätyi suunnittelemaan konseptia, jolla turvallisuuskävely voitaisi liittää osaksi koulun opetusohjelmaa Laurean opiskelijoiden tukemana.

Toinen Kivenlahden tiimeistä otti tutkittavakseen seniorikansalaiset. Tiimi kävi useaan otteeseen alueen palvelutaloissa tekemässä kontekstuaalisia haastatteluja ja pohtimassa asukkaiden kanssa turvallisuudentunnetta ja siihen vaikuttavia asioita. Yhdessä tarkasteltiin myös keinoja saada mukaan myös ihmisiä, jotka eivät esimerkiksi fyysisten rajoitteiden takia pysty perinteisiin turvakävelyihin osallistumaan.

Opintojakson palvelumuotoiluprosessissa tärkeää oli asukkaiden empaattinen ymmärtäminen tutkimusmenetelmien avulla. Aineiston analyysiin perustuen kukin tiimi muodosti kaksi ideaa, jotka he esittivät Espoon kaupungille pitchaamalla. Tässä vaiheessa opiskelijat saivat palautetta ideoistaan, joista he Espoon kaupungin avustuksella valitsivat yhden, jota lähtivät työstämään eteenpäin. Idean testaamiseen rakennettiin visuaalinen prototyyppi, jota testattiin kohderyhmällä. Testausvaihe osoitti, että prototyypit oli tehty ymmärtäen asukkaiden todellisia tarpeita. Prototyypistä saatujen palautteiden jälkeen ryhmät muodostivat palvelukonseptit asiakas- ja palvelulogiikkaan perustuvan liiketoimintamallin kautta. Kehitetyt konseptit liittyivät turvallisuuskävelyiden kehittämisen lisäksi mm. kaupungin ilmoituskanavien käytettävyyden parantamiseen ilmoitusten helpottamiseksi, Pop-up –pisteiden perustamiseen kauppakeskuksiin turvallisuusasioiden käsittelemiseksi ja valaistuksen parantamiseen.

Projektin päätöstilaisuuden Espoo oli järjestänyt Entressen kirjastoon ja paikalle oli kutsuttu osallistujia Espoon eri toimintoista, pelastuslaitokselta sekä myös Oikeusministeriön rikostorjuntaneuvostosta. Tilaisuudessa opiskelijat esittelivät havaintojaan ja ehdotuksiaan yleisölle ja saivat aikaan paljon hyvää keskustelua. Opiskelijat löysivät monta kehityskohdetta. Tärkeimmät havainnot olivat, että tarvitaan entistä enemmän kohdennettuja turvallisuuskävelyitä. Käytössä tulee olla toimintamalleja ja työkaluja eri ryhmille. Nykyisen

turvallisuuskävelyn toimintamalleja voidaan hyödyntää soveltuviissa osin uusiin toimintamalleihin. Yhteistyötä oppilaitosten, kuten Laurean kanssa, tulisi vahvistaa edelleen tekemällä siitä suunnitelmallista ja jatkuvaa.

YHTEISTYÖN ARVIOINTI JA TULEVAISUUS

Laurealle tiivis yhteistyö Espoon kanssa tuotti aivan uudenlaista osaamista niin opiskelijoille kuin lehtoreillekin. Opintojaksolla käytetty monitoimijainen yhteistoimintamalli hyödytti sen kaikkia osapuolia. Espoon edustajien osallistuminen jaksolle oli aktiivista alkaen kehittämiskohteen esittelystä ja taustamateriaalien tarjoamisesta, jatkuen opiskelijoiden ohjaamisena ja päättyen näyttävään loppuesitystilaisuuteen Entressen kirjastossa. LbD-toimintamallin ja palvelumuotoiluprosessin kautta opiskelijoiden innovaatiokompetenssit kehittyivät kehittämällä palveluja Espoossa, Uudellamaalla. Työskentelemällä yhdessä opiskelijoiden ja lehtoreiden kanssa Espoon kaupunki jalkautti strategiaansa, Espoo-tarinaa, jonka mukaan Espoo on asukas- ja asiakaslähtöinen vastuullinen edelläkävijä. Palveluja kehitettiin aidosti yhdessä espoolaisten asukkaiden kanssa avoimessa ilmapiirissä avoimia materiaaleja hyödyntäen. Tuloksena projektista Espoo sai konkreettisia ehdotuksia turvallisuuskävelyiden toteutustavoista, joista esimerkkinä mm. turvallisuuskävely-konseptin nivominen peruskoulujen opetussuunnitelmiin, turvallisuuskävelyiden vieminen palvelutaloihin sekä uudenlaisia ideoita kuten pop-up -tyyppisen mallin hyödyntäminen turvallisuussuunnittelussa.

Projekteissa esiintuodut ideat eivät suinkaan ole unohtuneet. Koululaisten turvallisuudentunne koettiin Espoossa tärkeäksi alueeksi. Keväällä 2020 aloitettiin yhteistyöprojekti, jossa kaksi laureaista turvallisuuden ja riskienhallinnan opiskelijaa tekee opinnäytetyön tutkien kahden koulun yläasteikäisiä koululaisia ja kehittää sen tuloksena turvallisuuskävelykonseptia, jota voitaisi hyödyntää myös laajemmin Espoon kouluissa. Mukana tässä projektissa on Espoon turvallisuus ja valmius -vastuualueen lisäksi myös opetustoimen edustajia.

Yhteistyöprojektiä esiteltiin kaupungilla myös sisäisesti ja erityisesti siitä kiinnostui työsuojeluorganisaatio. Espoon kaupungissa on vuosina 2019 - 2020 teemana "Turvallisuus työssä". Lähtökohtana tälle on ollut Kunta10-tutkimus, vakuutusyhtiöön tehdyt tapaturmailmoitukset ja työsuojelulle tehdyt väkivalta- ja uhkatilanneilmoitukset, joiden kaikkien määrä on lisääntynyt aiempaan verrattuna. Tavoitteena on tehdä Espoon kaupungin työpaikoista turvallisia ja väkivallattomia. Yhteistyö kaupungin työsuojelun sekä Laurean kanssa käynnistyi alkuvuodesta 2020. Yhtenä Turvallisuus työssä -teeman toimenpiteenä on etsiä keinoja väkivaltilanteiden hallintaan yhteistyössä Lauren opiskelijoiden kanssa palvelumuotoilun keinoin. Tavoitteena on löytää ratkaisuja siihen, miten työtä ja arkea tarkastelemalla tunnistetaan väkivallan uhkaa aiheuttavia tilanteita ja miten niitä voidaan oppia hallitsemaan.

Hyväksi koettu yhteiskehittämisen malli toteutetaan Service Design -opintojaksolla käytetyn kehittämisprosessin mukaisesti. Opiskelijat tavattiin tammikuussa 2020 opintojakson alussa, jolloin heille kerrottiin kehittämistyön lähtökohdista ja Espoon kaupungin palvelupisteiden tarpeista turvallisuuden kehittämiseen liittyen. Opiskelijoille kerrottiin Espoon kaupungin tapaturma- ja väkivaltatietoja sekä esiteltiin palvelupisteiden toimintaa. Opiskelijat saivat esittää myös tarkentavia kysymyksiä. Paikalla Espoon kaupungin puolelta olivat kaupungin työsuojelupäällikkö ja palveluneuvoja. Tämän jälkeen opiskelijat kävivät tutustumassa kohteisiin, haastattelivat palvelupisteiden työntekijöitä ja laativat kehittämissuositukset. Toiveena on, että kehittämissuositusten pohjalta palvelupisteet pystyvät kehittämään turvallisuuttaan ja että sieltä saadaan hyviä käytäntöjä myös laajemmin Espoon kaupungin työpaikoille.

Opintojaksolle integroitu "Turvallisuuden tunteen kehittäminen espoolaisissa lähiöissä" -kehittämissuositusprojekti nivoi yhteen koulutuksen, aluekehityksen sekä tutkimus-, kehittämis- ja innovaatio -toiminnan. Sen alueellinen vaikuttavuus näyttäisi olevan merkittävä Suomen toiseksi suurimman kaupungin jopa

opetussuunnitelmatasolle ulottuvana kehittämiskohteena. Yhteistyön tiiviys on nähtävissä pitkään jatkuneessa aidossa kumppanuudessa, jossa ratkotaan tosielämän aitoja ongelmia luovasti ja tutkimukseen perustuen. Voidaan ajatella, että LbD toteutuu tässä kumppanuudessa syklisenä jatkumona, jossa kunkin yhteiskehittämishankkeen tietoa hyödynnetään tulevissa projekteissa niin Laureassa kuin Espoossakin. Hyväksi koetut kehittämisprojektit tuovat uusia, sisäisiä, yhteistyökumppaneita verkostoon. Yhteistyöllä Espoo tehdään turvallisemmaksi meille kaikille.

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Seija Tiainen, lehtori (Turvallisuus ja riskienhallinta), Laurea-ammattikorkeakoulu

Satu Laukkanen, turvallisuuskoordinaattori, Espoon kaupungin konsernihallinnon turvallisuus ja valmius -vastuualue

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- Safety collaboration
 - Security collaboration
 - Co-creation
 - Service Design
-

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V

**Universities Taking a Role of an Orchestrator
of Local and Regional Innovation Ecosystems**

30. The view from the region: Opportunities and challenges for innovation and co-orchestration

Johanna Juselius

Helsinki-Uusimaa was rated the most innovative region in the European Union from among 238 regions (European Commission Innovation Scoreboard 2019). Innovation results in future jobs and growth, and we can see general progress in the EU. However, to stay ahead in the global race, both the EU and its member states need to continue investing in and developing the key policies for innovation to flourish.

The identified key success factors in the Helsinki-Uusimaa innovation ecosystem, with particular attention paid to the University of Helsinki, Aalto University and universities of applied sciences, namely Laurea, present an example of research institutions that have a strong role in the quadruple helix, according to which the Helsinki-Uusimaa innovation ecosystem is developed. The smart specialisation strategy of the Helsinki-Uusimaa region and its implementation policies aim to strengthen the existing place-based innovation ecosystem in the region (Aalto University & Helsinki-Uusimaa Regional Council 2015).

SMART SPECIALISATION AS A TOOL FOR INNOVATION AND REGIONAL DEVELOPMENT

In addition to highlighting key enabling factors and catalysers, smart specialisation describes the main quadruple helix actors and explains their roles in facilitating and driving the emergence of this innovation ecosystem. The current smart specialisation strategy for the Helsinki-Uusimaa region, approved in 2020, outlines research and innovation priorities as well as the direction to be taken for sustainable funding to support research and development. Smart specialisation is a policy tool applied by European regions and promotes innovation-led territorial development. The Universities of Applied Sciences (UAS) act as natural actors in the heart of this innovation process (Heininiemi-Pulkkinen & Juselius 2020).

ECOSYSTEMS BUILD ON A STRONG KNOWLEDGE BASE

The Helsinki-Uusimaa innovation ecosystem builds on a strong knowledge base. Decades of government and private investments in research- and development-intensive activities have resulted in a high concentration of human scientific and technological capital and important research infrastructures. These R&D investments have diminished in recent years, but the new government is committed to increasing public R&D spending, which is likely to boost universities and UAS.

The participation of all actors (including students and citizens) is seen as crucial by leading organisations in local contexts. This view has been actively supported and facilitated by universities, the regional and city governments, and the ecosystem orchestration of smart specialisation by the Helsinki Smart Region, which is managed by the Helsinki-Uusimaa Regional Council.

Co-creation with citizens/users is increasingly being cultivated through open-innovation and open-science methodologies and open-innovation spaces. Shared activities and large-scale endeavours bring together all parties involved to collaborate in an entrepreneurial discovery process of experimenting, responsible risk-taking and learning. Innovation brokers have, at the same time, been mandated to develop public-private partnership networks and multi-stakeholder collaboration.

When identifying the context in which Helsinki-Uusimaa has become an innovation leader, it should be emphasised that the territorial dimension of innovation by focusing on place-based innovation ecosystems matters. How it matters can only be fully grasped by examining the smart specialisation concept. Smart specialisation is operationalised in Europe through regional research and innovation strategies and builds on the economic strengths, collective intelligence and assets of a certain area and, through an entrepreneurial discovery process involving a diversity of stakeholders, identifies the strategic areas of intervention to make innovation flourish (Foray 2015). In short, smart specialisation calls for multi-level stakeholder interaction, such as the quadruple helix model. The quadruple helix model puts a strong emphasis on collaboration between the different innovation players, which makes it very useful for regional policy-makers. In the quadruple helix model of innovation the main actors are usually seen as science, policy, industry, and society. The groups interact with more network-like dynamics and bottom-up ways than in traditional policymaking. An increasing tendency is with the involvement of the public and human-centricity (European Commission, 2013; Kortessalmi and Hirvikoski (Eds.), 2018).

As Oksanen and Hautamäki (2014) point out, an innovation ecosystem “can refer to local hubs, global networks, or technology platforms. It also has roots in industry and business clusters” (Porter 1998; Estrin 2008). These authors place an emphasis on local and regional ecosystems, particularly on places that nurture a culture of innovation and make an innovation ecosystem grow.

Key factors in a regional innovation ecosystem include a (relatively) harmonic business sector where large established companies and new start-ups specialise and cooperate under value chains and clusters, local markets permeable to product innovation and connected to global networks, and a risk-taking entrepreneurial culture that accepts major challenges and is open to both more drastic change and evolution which is based on existing strengths.

Other enabling factors include the continuous movement of ideas and people and fluid interaction and “cross-fertilisation” between business and academia, academia and government, government and business, and organisations and individuals. Dynamic companies play a pivotal role in the ecosystem, but services that support the commercialisation of products and develop innovation networks are equally needed. The latter is

precisely the role played by intermediary organisations such as technology centres, enterprise incubators and a vast range of territorial innovation agents rooted in the local, grass-root society.

When most or all of those conditions are met, place-based innovation ecosystems usually emerge and consolidate over time. Developing hand-in-hand with the community, such ecosystems foster a sense of success and belonging in local actors. Top businesses and start-ups across sectors have started to develop MyData-based services and thus require new infrastructure and interoperability principles. Research institutes, government agencies and other organisations support such development. Together they have established the MyData Finland Alliance, an open community that advances MyData pilots and shares knowledge and resources. The aim is to develop a national and internationally scalable interoperability model for personal data management (Mydata.org, 2020).

At the same time, open science is crucial for researchers. Open science started as a movement which aims to make scientific research (including publications, data, physical samples, and software) and its dissemination accessible to all. It is recognised with increasing clarity that open access to research articles plays a central part in the societal impact of higher education institutions.

THE REGIONAL COUNCIL AND THE ROLE OF SMART SPECIALISATION

One of the main actors in regional innovation ecosystem is the regional government. The Helsinki-Uusimaa Regional Council is the regional authority for the Helsinki-Uusimaa Region, which consists of 26 municipalities. Its main mission is to support sustained wellbeing and economic growth by means of regional development and land-use planning, and the promotion of local and regional interests. As a council, it plays a coordinating and consensus-building role among the smaller territorial units, articulating common regional needs and long-term development goals and conditions for sustainable development. The Regional Council works in close cooperation with member municipalities, the government, universities and research institutions, the business sector and civic organisations. As I have argued, the Regional Council has been a key enabler of the Helsinki-Uusimaa innovation ecosystem. The Helsinki Smart Region brand is a brainchild of the Helsinki-Uusimaa Regional Council. With project funding, the council aims to bring together different actors. With available funding, the council has required larger consortiums and partnerships, and a number of them have led to closer collaboration between organisations.

Regional smart specialisation enables different regions to find partners around Europe and across Finland, which strengthens regional development and co-orchestration within and between a larger pool of stakeholders, thus increasing the impact of their actions. This applies to a mix of funding instruments where smart specialisation has “unexpected” importance.

For example, a project undertaken with Tampere University received funding from NordForsk, a newly-founded funding instrument in the application of smart specialisation. In this case, the Helsinki Smart Region brought researchers together with Helsinki airport region development.

PLATFORM COLLABORATION IN THE EUROPEAN CONTEXT

The European context is an important platform for regional development in the multi-stakeholder model. One example is S3 platform collaboration, which is enabled by the Regional Council. The European Commission established the S3 platform to give advice to EU countries and regions for the design and implementation of their Smart Specialisation Strategy (S3). It is managed by the Joint Research Centre (JRC). In particular, the

platform train policy-makers, gives access to materials and data, organizes peer-reviews and mutual learning, advice on strategy and policy-making (European Commission, S3 Platform, 2020). The Regional Council works with the EC and with the other regions on smart specialization strategies and implement the learnings on an operative level through projects, funding and by sharing information.

In the Helsinki-Uusimaa, which is the capital region of Finland, a particular interest is in the future of transport. For example, smart and sustainable mobility and the possibilities it opens up as a collaborative gateway for everyone from regional players to international partnerships seems to offer great potential for innovation in the capital region (Helsinki-Uusimaa Regional Council 2019).

THE FINNISH SYSTEM

Finland has a binary university system, distinguishing between research universities, such as Aalto University and the University of Helsinki, and the UAS, such as Laurea University of Applied Sciences, which operates throughout the Helsinki Smart Region. The UAS have been only in recent years expected to play an active role in carrying out research and innovation-related activities. However, as suppliers of graduates, they have also contributed to the vibrant innovation ecosystem that is home to several higher education institutions of applied sciences – namely, the Metropolia University of Applied Sciences, Haaga-Helia University of Applied Sciences, Laurea University of Applied Sciences and Omnia Institute (vocational education and informal adult education). The mission of universities of applied sciences is to train professionals with an emphasis on labour market needs and to conduct research and development that supports instruction and promotes regional development in particular. The universities of applied sciences have considerably tightened their R&D collaboration in recent years to outstanding results that have benefited regional development and the R&D functions of regional players. The Regional Council has had a coordinating role and welcomed this development as beneficial to the region and its institutions as a whole. The education offered by a UAS emphasises co-operation with business, industry and service sectors at the regional level in particular. Because they are mandated by law to develop the region, the UAS are particularly involved with the regional innovation ecosystem and smart specialisation development.

It is a strategic choice to be a part of an ecosystem. In an open ecosystem, the innovation, entrepreneurial and business ecosystems all play a crucial role. The innovation ecosystem, which includes academia, feeds know-how and research into the ecosystem, while businesses deliver the workforce and the entrepreneurial aspect feeds the start-ups and ideas essential to the development in this context.

INNOVATIVE MULTI-STAKEHOLDER CO-CREATION INITIATIVES IN THE REGION

Laurea initiatives such as Co-creation Orchestration build a model that helps companies, the public sector, academia and citizens to co-create better health and wellbeing services in the most innovative region in Europe, the Helsinki-Uusimaa. Its aim is to make innovation more open, inclusive and collaborative and to contribute to sustainable growth by co-creating better and more customer-oriented health and wellbeing products and services faster and at reduced costs; inclusive growth by promoting an inclusive and equal future through open science and open innovation, thus enhancing people's trust in research and science; growth through collaboration by increasing cross-border and inter-stakeholder collaboration, innovation, and research; and becoming a pioneer by aiming to become a leading developer of co-creation orchestration services globally and to produce benchmark scientific research papers and manuals on co-creation.

THE BIG FIVE PARTNERSHIP

The Helsinki-Uusimaa region has recently established the Big Five strategic partnership with the Capital Region of Denmark (Copenhagen), the Free and Hanseatic City of Hamburg in Germany, the Noord-Holland (Amsterdam Metropolitan Region) and Stockholm County in Sweden. To develop the Big Five strategic partnership, the peer regions exchange explain past experiences in how they have implemented their smart specialisation strategies. It is evident that challenges are increasingly global, and the Helsinki-Uusimaa region understands that collaboration enables innovation to flourish. It is essential to identify concrete areas for co-operation in business and regional development with likeminded regions and regions with common strategic challenges. In the Big Five partnership, the peer regions use smart specialisation strategies as a comparison point to discover and take up this new approach to innovation policy. This can be used as an innovative regional policy and co-creation tool, which leads to a shared vision in strategic areas that aim to produce common projects and initiatives (Chang 2019).

THE REGIONAL MANAGEMENT COMMITTEE

The Regional Management Committee in Helsinki-Uusimaa is an exceptional multi-stakeholder and a multidisciplinary network for regional development. It is globally a unique concept, which is an object of benchmarking and bench-learning on a European level as a management tool. The committee brings together decision-makers and experts from municipalities, higher education institutions, research institutes and state administration, as well as labour and business organisations (Helsinki-Uusimaa Regional Council 2020).

From a regional viewpoint, all the aspects discussed on this paper are much needed for innovation. One of the major success factors of businesses is the mentality for collaboration, characterised by the effectiveness of open innovation, according to Markku Markkula, Chairman of the Regional Management Committee of the Helsinki-Uusimaa Region.

The main challenge for the public sectors of European regions is how to speed up societal transformation and create enthusiasm in co-creating so that we can be true leaders in innovation.

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- Smart specialisation
 - Innovation
 - Ecosystem
 - Regional development
 - Co-creation
 - Helsinki-Uusimaa region
 - Quadruple Helix
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31. Links between community engagement, research and curricula in Finland and South Africa

Nickey Janse van Rensburg & Julia Nevmerzhitskaya

INTRODUCTION

Universities are at the centre of regional innovations, which are co-created in complex ecosystems comprising cities, industry, the public sector and the broader community. Often, universities take on the role of orchestrator of these regional innovation ecosystems, turning knowledge gained through research into practical solutions and applications, and taking on the role of facilitator in engaging communities in the innovation process. The ways universities engage in the regional ecosystems vary in different parts of the world. In the Finnish context, the solution for integrating education, research and regional development has been found in the Learning by Developing (LbD) pedagogical model, which not only integrates these main tasks but also places students at the centre of working life co-operation and the overall learning process. LbD emphasises joint action in projects connected to real-life situations. In South Africa, higher educational institutions (HEIs) are tasked with a third mission in a dual economic system with one of the highest levels of inequality in the world. A transformative research paradigm, embedded in knowledge mobilisation processes involving close collaboration between researchers and the community, is called for to optimise resource utilisation in the regional innovation system.

RETHINKING RESEARCH AND EDUCATION IN THE OPEN SCIENCE PARADIGM

European research and development have gone through fundamental changes in recent years. The changes include collaboration between the public and private sectors to address societal challenges in an open innovation ecosystem; active citizen participation in development tasks through public engagement; open science trends and free access to R&D results; and cross-disciplinary partnerships in research projects (The RRI Tools project, 2016). These changes have been translated into the three main goals of the European research and

innovation policy: open innovation, open science and being open to the world (EC, 2016). The so-called O3 goals facilitate market uptake of innovative solutions and help address societal needs such as improvement of employment opportunities and promotion of sustainable development goals. While the 'open innovation – open science – open to the world' approach derives from the European context, it is even more important for countries that face bigger societal challenges (such as inclusivity, poverty and unemployment).

For higher education institutions, these changes call for re-thinking of the role of research, development and innovation functions. Traditionally, universities and universities of applied sciences have concentrated on two major tasks: education and research. But recent changes call for activating the third function of higher education institutions: participation in regional development and contribution to regional innovation ecosystems (Kroll et al., 2012; Espoo Innovation Garden, 2016). In this role, HEIs are not seen as independent producers of new knowledge but as part of an open innovation ecosystem whose aim is to co-develop and implement systemic innovations with societal impact by following a trans-disciplinary, multi-stakeholder and participatory approach.

Furthermore, the social innovation arena is growing rapidly, driven by an agenda for both sustainable and economic development. Social innovation can be defined as new ideas that meet social needs, create social relationships and form new collaborations (European Communities, 2011); it represents new responses to pressing social demands – which affect the process of social interactions – and aims to improve human well-being. Social innovations are social in both ends and means, beneficial not only to society but also in enhancing the individual's capacity to act. Social innovations take place across boundaries between the public sector, private sector, third sector (also called non-profit sector) and households. To address social innovations, HEI should be embedded in society to transform it through innovation and the collaborative pursuit of knowledge.

The issues raised above are equally important to universities and universities of applied sciences. While universities traditionally focused on fundamental research and academic education, universities of applied sciences focused on practice-oriented research and education based on needs stemming from the world of work (Arene, 2014). In a new innovation ecosystem thinking, both types of HEI need to come up with new approaches to research, development and innovation.

THE FINNISH APPROACH: LEARNING BY DEVELOPING IN THE CONTEXT OF RESEARCH, DEVELOPMENT AND INNOVATION (RD&I)

An example of a Finnish approach to RD&I is the work done at Laurea University of Applied Sciences. Laurea's approach to addressing practice-oriented research and education is captured in the learning by developing action model, which tightly integrates research, development and innovation activities with teaching and learning through development projects (Raij, 2014). LbD emphasises joint action in projects connected to real-life situations. The resulting outcomes are individual learning, community learning and produced innovations. In the context of the LbD model, learning is seen as a tool for enabling new competences for work life. This approach is both student-centric and project-oriented.

The five pillars of the LbD model are: partnerships, an experimental nature, creativity, a research-oriented approach and authenticity; they represent the principles that research, development and innovation functions are built upon (Fig. 1). Partnership is at the core of RD&I, as complex societal challenges can only be addressed by working together with industry, the public sector and communities. Partnerships in RD&I are mainly implemented in externally funded R&D projects that are multi-disciplinary by nature and are grounded in real societal

challenges. RD&I partnerships can take different forms, ranging from **university-industry cooperation** to community engagement projects implemented in a **living lab environment**. Laurea living labs are based on the principle of open innovation and the collaboration of different stakeholders who share and integrate their ideas, knowledge and resources (Laurea, 2019). Living lab environments also reflect *the experimental nature, authenticity and creativity* of RD&I. Based on participatory RDI methods, Laurea's living lab research projects systematically create new solutions and services for the public and private sectors, covering all innovation phases, from challenge definition to post-launch development, including ideation, prototyping, testing, validation and scaling.

One of the central ideas of LbD is integration of research, development and innovation into education through a cyclic and iterative process. Such integration goes beyond project integration into study units but includes knowledge transfer between research partnerships and communities, study programs and individuals: teachers, students, and representatives of working life.

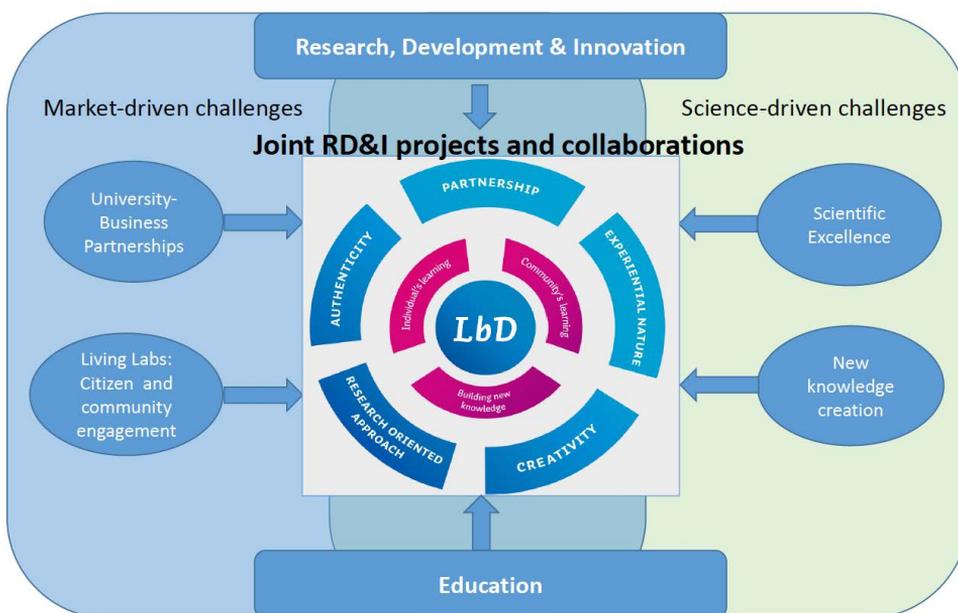


Figure 1. Research, development and innovation as a part of LbD at Laurea UAS. (Figure based on Rajj, 2004)

As illustrated in Figure 1, the role of HEI is to leverage **market needs**, demand and **science-driven** innovations and to produce new knowledge, services, and skills for solving societal challenges. The market or societal challenges are addressed in authentic partnerships between universities and the public and private sectors and with the involvement of citizens and the greater society. At the same time, universities are also tasked with producing **scientific excellence** and addressing **new knowledge creation**. A combination of these two elements creates a niche for RD&I activities within HEI, which are strongly integrated into education. The RD&I activities turn research knowledge into practical solutions and applications.

Practical implementation of the model happens through joint RD&I projects and other forms of collaboration. RDI projects are carried out in accordance with the LbD operating model. In the project planning phase, potential integration with education is assessed. Students are able to participate not only in a funded project but in the proposal-writing stage and can earn credits. The authentic nature of RDI projects and their integra-

tion with education creates new forms of collaborative partnerships; for example, when students represent work life and through their studies at Laurea are able to engage their organisation in an externally funded project as a partner. These partnerships reflect the true nature of an innovation ecosystem in which new forms of learning emerge from research and development activities.

THE SOUTH AFRICAN APPROACH: COMMUNITY-BASED LEARNING AND RD&I

The South-African case is illustrated by the University of Johannesburg approach. A key to the development and implementation of community-based projects in the University of Johannesburg (UJ) was the establishment of the Projects & Research Office at the Faculty of Engineering to manage the projects as community-driven research activities. This function was incorporated into the Technology Station, which focuses on supporting innovation-driven economic development in Africa. The Technology Station Programme (TSP) is a national initiative in South Africa funded by the national Department of Science and Innovation through its Technology Innovation Agency. The TSP was established to enable universities to provide technology development services to small and medium enterprises (SMEs); to drive quadruple helix collaboration (between academia, government, industry/business and community); and to transform and coordinate the National System of Innovation to support inclusive growth and sustainable socio-economic development. The main objective is to contribute to HEI by being more responsive to industry needs and enable industries, and SMEs in particular, to benefit from the specialised knowledge and innovative technologies of the universities. The TSP support institutional learning, technology transfer and industry support by subsidising the services offered to SMEs.

The technology station at UJ (the Process, Energy and Environmental Technology Station) encourages a cross-disciplinary, project-based approach to research and the promotion of community-driven social entrepreneurship through technology innovation, digital enablement, commercialisation and ultimately industrialisation. The technology station at UJ has taken a project-based approach to build on the resources available in and to the university to achieve these goals. Social and commercial projects that connect community-driven, interdisciplinary research across departments in various faculties are selected to enhance students' learning and benefit local communities beyond the gates of the university. The broad themes supported by the projects relate to food resilience, access to clean water, clean and safe smart cities, and sustainable energy resources. These themes are aligned with the global sustainable development goals, with smart city development in mind.

An integrated solution to co-create a system that enables an environment that encourages responsible research and social innovation requires a human-centric approach, which inevitably starts by identifying the community and the stakeholders involved, as illustrated in Fig. 2. Projects are initiated and defined based on the needs of the community as framed by the broad themes identified above. The project is essentially a community engagement initiative, with the research and development project defined to support the initiative. For a project to be eligible, it should be aligned with the institution's strategic objectives, provide value for all stakeholders and deliver measurable impact through ethical research practices. Projects are externally funded, require a high level of relevance and comply with internal and external governance structures. During project initiations, the objectives and key performance indicators are identified and aligned with those of the institution and its employees, with research and teaching deliverables defined with project initiation, thus identifying R&D, teaching and learning and operational requirements to be met in each project, also indicated in Figure 2.

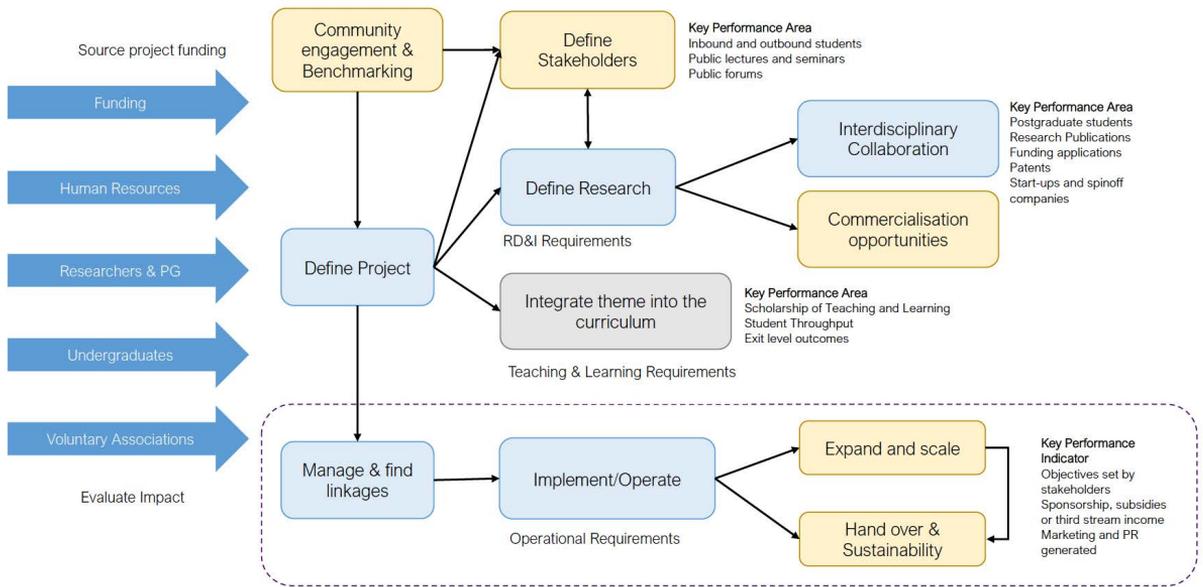


Figure 2. Responsible RD&I and social innovation at the University of Johannesburg. (Figure: Janse van Rensburg)

Defining a research project to support the community engagement initiative allows for investigation beyond the engineering discipline and requires interdisciplinary collaboration across faculties and institutions. Based on the applied nature of research and technology, commercialisation opportunities are continuously evaluated. The key performance indicators identified relate to post-graduate student throughput, publications, funding applications, patents, start-ups and spin-off companies formed in collaboration with the community. Themes relating to the community engagement initiative are integrated into the curriculum, with key performance indicators relating to student throughput and learning experiences, meeting module exit-level outcomes and education research outputs.

The technology station is responsible for implementation and operation, thus allowing for researcher and student participation in the projects. Projects are then either handed back to the community or scaled for impact. The key performance indicators relate to the objectives as defined by the initiative, corporate social responsibility and industry partnerships, and marketing and PR value of the project. This approach has proven to be a value-adding exercise, enhancing research and teaching opportunities to collaborate in achieving the goals identified in the National Development Plan. Exploiting the interdisciplinary research potential of social and commercial projects, the technology station unlocks new opportunities for faculty collaboration with industry, business partners and civil society, which also generates third-stream income for the university via commercialisation opportunities.

TOWARDS AN INTEGRATED APPROACH INVOLVING COMMUNITY, EDUCATION AND RESEARCH

An integrated cross-disciplinary research strategy creates enhanced opportunities to drive social innovation, knowledge transfer and commercialisation activities in universities and universities of applied sciences. Responsible research, development and innovation is enabled by linking community-driven research with the

curriculum, which ultimately brings about community-engaged learning and professional development, as illustrated in Figure 3. The aim is to add to the knowledge base by developing a framework to facilitate co-created solutions connected to both curriculum and community engagement and by building on situational experience and expertise, thus facilitating responsible research and initiating social and market innovations.

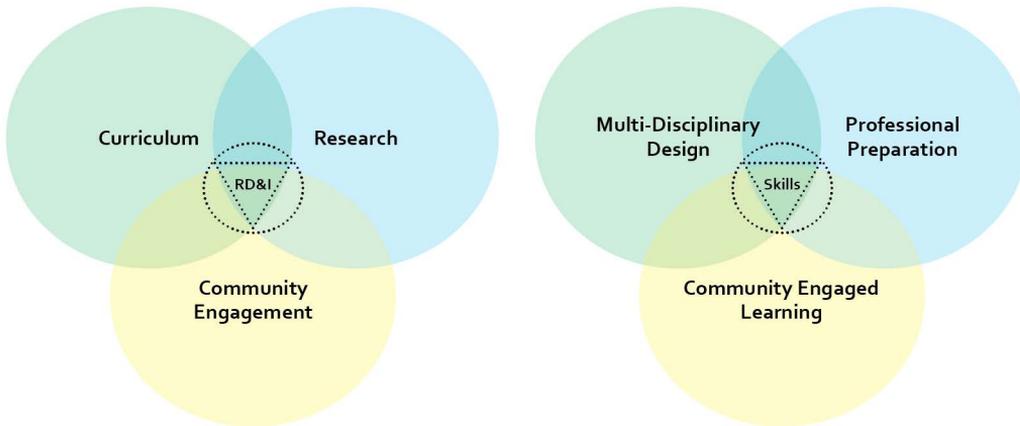


Figure 3. Links between education, research and community engagement: RD&I and education perspectives. (Figure: Janse van Rensburg and Nevmerzhitskaya)

In the Finnish context, the solution for linking education and research has been found in the Learning by Developing (LbD) pedagogical model, which not only integrates these main tasks but also links them to societal needs and challenges. In South Africa, HEI are tasked with a third mission in a dual economic system, with one of the highest levels of inequality in the world. Projects in this context are seen as community engagement initiatives through interdisciplinary collaboration as well as through building partnerships with local government, non-governmental organisations, non-profit organisations, industry, business partners and research institutions.

By combining these two approaches, we propose an integrated research and learning strategy to promote engaged learning and open innovations (presented in Figure 4). The model emphasises a common basis for education and research built on understanding of market drivers, work life challenges and scientific excellence. This understanding is translated into principles of responsible research and innovation, the so-called O3 approach to 'open science, open innovations and open to the world'.

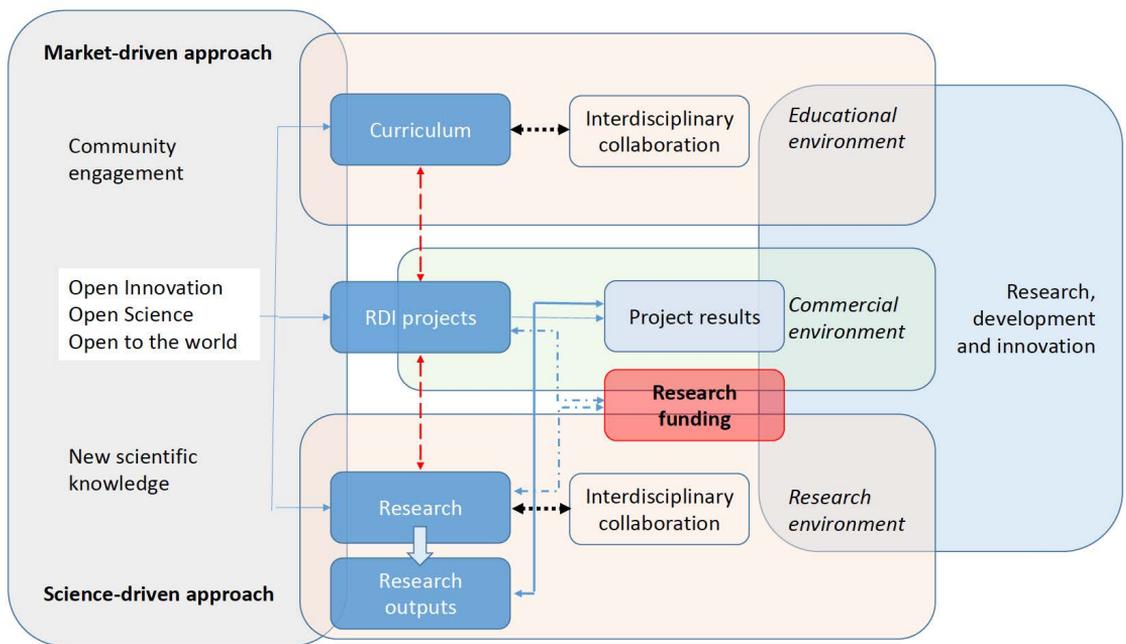


Figure 4. *Integrated research and learning strategy for promoting engaged learning and open innovations.* (Figure: Janse van Rensburg and Nevmerzhitskaya)

An understanding of societal challenges and state-of-the-art scientific developments feeds both development of education and steers research activities towards creating impact. Research, development and innovation environments connects education and research through project-based learning. According to the model, a research environment is a broader set of activities that includes an overall research strategy and ensures that research outputs are consistent with the strategy and are interconnected with the project results. It is important to acknowledge that research is not the same as projects. Research is a broader set of activities targeted at building the scientific and educational excellence and helping the HEI to position itself in an open innovation ecosystem. Projects, on the other hand, are individual cases of research activities and tools to implement research and innovation strategies. The role of the projects is to provide links between education and research and to showcase the RD&I portfolio of an HEI.

In the learning by developing approach, education and individual courses become part of the innovation ecosystem in which research outputs are translated into curriculum learning objectives. Through interdisciplinary research collaboration in projects linked to community engagement, students are able to not only develop skills and competences in their core substance but also understand service design thinking principles, human-centric design approaches and research and innovation methodologies, while also developing products and services for industry partners and the public sector. Positioning RD&I as the orchestrator of an innovation ecosystem creates opportunities to leverage research activities and education and create a continuous, iterative process of engaged learning.

While in the LbD model projects refer to working life projects in cooperation with companies, in the integrated model, the importance of research funding is underlined. To multiply the effects of funding, an HEI should connect the funding strategy with the overall research and learning strategy to ensure that the funding

is in line with strategic RD&I choices and that project goals and results will support the research portfolio and education process. Inter- and multidisciplinary collaborations and partnerships with key stakeholders are a key success factors, in addition to the excellence in the substance and understanding of societal impacts of the funding. An example from South Africa illustrates this cooperation with different stakeholders. Through collaboration with the City of Johannesburg in 2015, in partnership with Resolution Circle to facilitate a Jozi Digital Ambassadors Training Programme, 200 student mentors were employed to train 2,000 entrepreneurs and connect 200,000 local residents to the free Wi-Fi available in the city to provide digital literacy training to communities. This presented a rich opportunity for multidisciplinary research and the development of a youth employment strategy, created directly by the research itself. This engagement led to the Youth AgrInitiative in collaboration with the city of Johannesburg and Harambee, which aimed to establish agroecology business solutions for urban areas. The Youth AgrInitiative was designed to connect and expand an urban food ecosystem to unlock opportunities and advance local economies. Unemployed youths were took part in training related to digital connectivity, co-creating solutions and community-driven research, research ethics, entrepreneurship training, agroecological practices, the food value chain, branding and market research, and online networking, as well as the use of a mobile data management tool, namely ResearchGO. These interventions empowered the unemployed youth to become agroecology ambassadors in the urban farming community, facilitating knowledge transfer and bridging the digital divide in vulnerable communities.

CONCLUSIONS

One foundation of higher university education is that it is based on the most current state of the art research. The learning by developing model connects RD&I and education via innovative multi-stakeholder development projects to create future competences for work life. From the RD&I perspective, the LbD model can be understood as an open innovation ecosystem in which HEI play the role of orchestrator by creating and facilitating partnerships with different stakeholders, including teachers, researches and students in the process of learning and innovations through project-based learning. Project-based learning also helps build impact on society and address grand societal challenges around the world. In order to ensure such impact, HEIs should be able to develop projects deeply rooted in the real needs of companies, cities and citizens. A transformative research paradigm, imbedded in a knowledge mobilisation processes involving close collaboration between researchers and the community, is called for to optimise resource utilisation in regional innovation systems.

HEIs acknowledge the need to enhance their understanding of how they can respond to societal challenges, changing technological capabilities and societies' needs for certain skills. To achieve this understanding, universities should be further integrated into society to transform and serve humanity through innovation and the collaborative pursuit of knowledge. This transformation can be implemented though engaged learning and open innovations, as described in the article; however, it requires continuous project funding and commissioned research. The projects are defined by a high level of relevance to all stakeholders involved and contribution to regional development.

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- Learning by developing
- Open innovations
- Community engaged learning

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32. Experiences with implementing the Living Lab concept in rural Tanzania

Evariste Habiyakare, Sakariina Heikkanen & Kalle Rähkä

The Living Lab (LL) concept is a widely used tool, especially in developed countries. Living Labs are a good way to establishing an open collaborative innovation among different stakeholders in real-life settings. The aim of this paper is to share experiences with a capacity-building project financed by the Finnish Ministry of Foreign Affairs and jointly planned and implemented by four higher-education institutions. It involved Diakonia university of Applied Sciences (DIAK) and Haaga-Helia University of Applied Sciences from Finland and the University of Iringa and Sekomu University in Lushoto. During our joint planning meetings, we decided that the Tanzanian partners could adopt the LL concept in their daily practices. In order for the Living Labs to be established and to function in a sustainable manner, the project actors agreed that local university lecturers and staff should be trained in the Living Lab concept and methodologies from a pedagogical and practical point of view.

INTRODUCTION TO THE CONCEPT OF LIVING LAB AND COLLABORATION FOR CO-CREATION

In today's customer-empowered world, collaboration and co-creation competencies are critical to the future growth of the economy (Bhalla, 2011). In developing countries, it is especially important to build communities sustainably so that all parties are involved in the process. Recently, different African countries have been struggling to invent their own development models. They often tend to adopt practices found to be successful in Western world. In this perspective, the Living Lab concept has been attractive to many.

The Living Lab concept is widely recognised as a powerful tool for co-creation and for developing user-driven services. Living Labs are platforms for open innovation in which co-creation is a method for addressing real-life issues through acknowledgement of information from multi-disciplinary social learning in which representatives from different sectors, as well as communities, may have different values, perceptions and meanings. They are a 'socio-technical platform with shared resources with a collaboration framework, and real-life context, which organises its stakeholders into an innovation network that relies on representation

and diverse activities and methods to gather, create, communicate and deliver new knowledge, validated solutions, professional development and social impact' (Westerlund, M. and S. Leminen, S 2011).

The above definitions provide a rich set of ideas and values for co-creation that may be used for shaping and creating a strategy for community development in a collaborative manner. Living Labs have become a common instrument in many developed countries to increase interaction between parties relevant to innovation processes. However, Almirall et al., (2012) assert that Living Labs are driven by two main ideas: involving users as co-creators on equal grounds, with the rest of the participants in real-world settings. Thus, Living Labs are practice-driven organisations that facilitate collaborative innovation and are real-life environments where processes are studied and new solutions are co-created. Initially, LLs were formed as a platform on which partnerships, public authorities and citizens worked together to create, validate and test new services, businesses, markets and technologies in real-life contexts in cities and rural areas. Later, LLs began to focus on a broader area of open innovation and co-creation of products, services, and societal innovations together with users (Nittamo et al.2012). LLs therefore can work as bridging platforms to support collaboration between different entities such as communities, private and public sector, universities and NGOs. They can also connect endogenous knowledge pools and knowledge from other LLs participants to create new knowledge and apply it in new contexts (Leminen and Westerlund, 2012).

The debate about and practices involved in community development regarding the Global South has shifted its emphasis from top-down directed models towards bottom-up approaches. The assumption is that local stakeholders should self-organise, adapt and adjust to various changes and actively respond to rapid changes in the market, technologies and setbacks from exogenous economic situations (Berkes and Ross, 2013). The new focus emphasises the sustainability and resilience embedded in the adaptative and learning capacities of local communities (Hooli, 2015).

Within the global economy, socio-economic resilience has been particularly challenging for local African communities. Most of the rural people have not participated actively and with full potential in contributing to the expected sustainable development. Until now, the focus of resilience analysis in most African countries puts emphasis on the ability of the community to either recover from or avoid various disturbances. Yet, less attention has been paid to the long-term processes of communities to learn and to adopt new methods and activities in order to fully improve their own livelihoods. (Hooli et al.K. 2016).

Folke (2016) emphasised the fact that resilience depends on the long-term adaptive capacity of communities based on renewal, development and innovation. This raises the discussion about the role of different stakeholders, such as higher educational institutions, to develop appropriate methodologies and instruments to catalyse socio-economic resilience in rural communities. (For a complete literature review, see Hooli et al., 2016.)

Several African countries face similar development challenges: financial market development, equal opportunities, employment rates, infrastructure, quality and equality of education, rural development and lack of ICT – just to name a few. They have adopted the concept of Living Labs in, for instance, Tanzania, Kenya, Ghana and Senegal (IST African meeting report 2012). In their seminal work, Hooli et al. (2016), studied LLs in Tanzania and the knowledge-creation process and their contribution to socio-economic resilience and poverty alleviation. The authors were able to identify seven Living Labs established in Tanzania and were able to depict their development path and could classify these LLs according to technological capability and organisational performance (Hooli et al, 2016, 65).

Our project, Building Sustainable and Resilient Communities through Co-Creation (BUSCO), aimed to build sustainable communities through the co-creation model. We wanted to establish and develop a

co-creative model Living Lab for university and community/business collaboration. From the Finnish partners' perspective, the capacity-building project targeted two local universities. The project aimed at strengthening these local universities' capabilities in order to better deal with their respective communities. Particularly, the faculties of Community Development, Business, Tourism, Law and Psychology/Counselling were targets for capacity building. This was due to the orientation of Diakonia University of Applied Sciences, which acted as a leading partner in BUSCO. The institutional capacity building involved activities such as curricula development, Living Lab integration in curriculum, ICT infrastructure development and development of libraries.

For the local universities, the core activities focused on capacity building for communities. In this regard, local universities aimed at improving entrepreneurial knowledge, counselling services, legal aid, ecotourism services and improving nutrition and environmental conservation for sustainable and resilient communities. By disseminating the results of each output area, other faculties and services of the universities benefitted from the project as well.

Prior to implementing capacity building, we held several planning meetings in Helsinki and Tanzania. The project started with a collection of baseline information. Our local partners used semi-structured interviews with local stakeholders, including municipalities, decision-makers and representatives of organisations and businesses (i.e., shop owners, local restaurants and local producers). In addition, they used surveys and collected data from different villages. In addition, together with our Tanzanian partners, we conducted field visits several times to observe and to conduct focus groups. We met local communities in their natural settings. We conducted numerous workshops and training sessions and collected feedback from these workshops. We analysed data by using a number of techniques such as content and thematic analysis. (We will report the results of this research in separate publications.)

For the sake of space, this paper only shares the experiences of how we introduced the concept of the Living Lab as a part of institutional capacity building. We discuss how our local partners perceived the LL concept and the role higher education institutions could play in order to co-create solutions with surrounding communities. Next, we present the Haaga-Helia case, which was used for benchmarking university, community and stakeholder co-creation.

A CASE OF LIVING LAB AND PEDAGOGICAL PRACTICES AT HAAGA-HELIA

The Haaga-Helia Porvoo campus is one the Finnish universities of applied sciences applying the concept of the Living Lab as a pedagogical approach. At its core, it is a symbiotic co-operation between various external stakeholders. According to Kalle Rähä (one of BUSCO's key experts), from a university perspective, the Living Lab could be illustrated as the following:

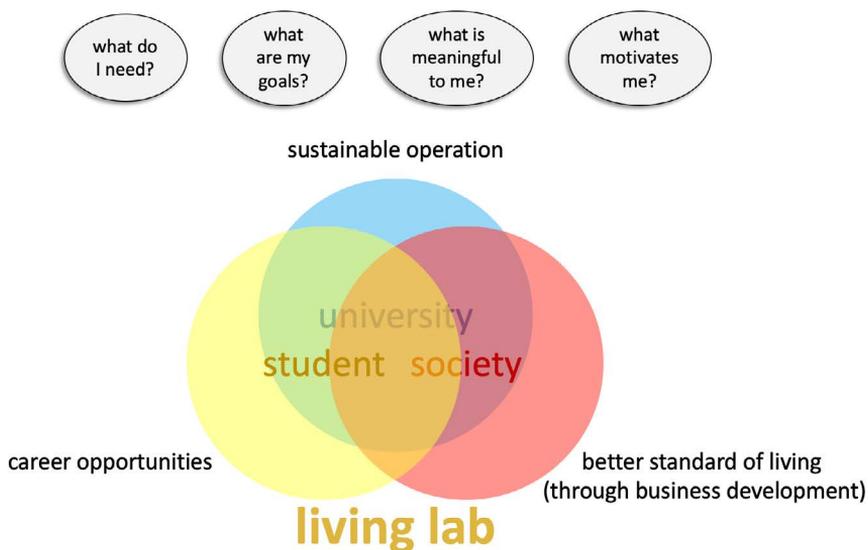


Figure 1. *Living Lab and sustainable operation. (Figure: Kalle Rähä)*

For Haaga-Helia, there is no specific 'Living Lab' within the campus that one could visit. Instead, the semester preparations normally begin by finding suitable partners (called 'project commissioners') who can offer project work, which largely matches the learning objectives of the students' courses (called 'competence modules') in a given semester. Since the LL concept employs a constructivist approach, as students advance, they are also empowered, encouraged and finally even required to find their own project commissioners.

The process starts with a meeting with potential project commissioners to ensure they understand what we expect from them and what type of results and co-operation they can expect from us. In addition, we discuss how much time, effort and money they are able and willing to invest in the project.

As shown in Figure 1, the Living Lab can be a sustainable platform for all parties, each equally benefitting from co-creation. A Living Lab may create new solutions, new knowledge, compelling ways of learning and teaching, networks and unexpected opportunities. If there are learning objectives that we cannot adequately reach through project work, we may support it with traditional teaching methods: cases, assignments, essays, studies, presentations and exams. However, the deliverables from the semester project must have serious weight.

The role of a teacher in LLs may vary from traditional teacher to that of a coach. However, once the projects start, one of the tasks is to offer a theoretical framework to students. Figure 2 illustrates how the project may be a platform for students' professional development and how it offers a practical context in some of the larger concepts and competences. The model is student centric and allows them to be creative and to ask for help when needed.

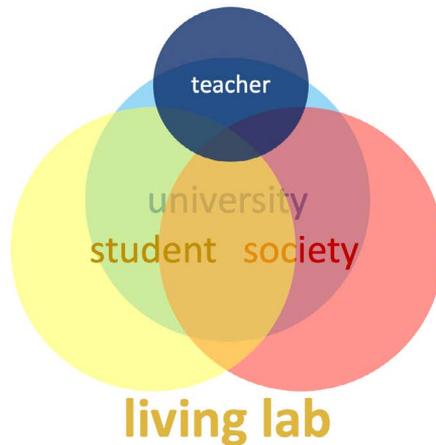


Figure 2. *The Living LabLiving Lab and the role of the teacher. (Figure: Kalle Rähkä)*

In a short, the application of 'co-creation through Living Labs' is, by its nature, a very different job for a teacher. Learning to teach in Living LabLiving Labs in a meaningful way requires a serious rethinking of one's identity as a teacher, even if one can see the benefits and desires to develop the job in such a direction. Furthermore, it often is a challenge, even for students, to understand how working in projects is beneficial for them. Sometimes, learning situations are chaotic.

BENCHMARKING THE LIVING LABLIVING LAB MODEL IN UNIVERSITIES IN TANZANIA

Understanding how universities involved in Living LabLiving Labs support the surrounding community to develop was very easy for the Tanzanian partners. People had an inspired approach to the task and, for instance, the local partners conducted baseline research thoroughly. Different stakeholders spent plenty of time highlighting a variety of fundamental needs in the areas of entrepreneurship and business development, agriculture, ecotourism, women's rights, family consultation and legal aid. Key BUSCO teams of experts also had many ideas on how to respond practically to the needs of the community. The benefits for the society created by the 'development aid' offered by the universities was self-evident. Members from each faculty presented their plans on how they would strengthen the surrounding society with projects commissioned and governed by their very own faculty-based Living LabLiving Labs.

Gradually, the need for actors to leave their comfort zones became more accentuated. We discussed the question of the benefit of co-creation in LLs with the students and the university. Many of the key experts voiced their concerns over the overwhelming bureaucracy connected to an obviously imminent curriculum renewal if the studies were to be completed in a Living LabLiving Lab. However, the experts also understood how the Living Labs would not survive very long outside the scope of funding from the BUSCO project unless the co-operation offered near-equal value to all three stakeholders: society, students and the university. All agreed there should be a major curriculum change before any practical implementation was made. The current curricula need to be flexible enough to enable learning in LL projects with unexpected events. The learning and teaching should become more student centric and the teacher should show how theories can be applied in practical circumstances.

Another local argument was the widely perceived need for proper facilities. First, there would need to be a building that one could call a Living Lab, community resource centre or anything that would provoke interest and symbolise a space for co-creation. Therefore, the next challenge was to convince local key experts that the Living Lab is not a building, nor does it require major changes in the structure of the university but rather in the nature of work. The idea of 'bypassing' was introduced, meaning that if actors want to achieve the results of co-creation but cannot have a new curriculum or a specifically appointed building, how can they bypass these restrictions and still do it on some level? Overall, it seemed easier to open a physical facility and give it a name – instead of bypassing obstacles – and just start working in a Living Lab, thus benefitting all stakeholders: universities, municipalities, companies, locals and end-users.

Yet another issue to solve was the keenness of different faculty members on having their own LLs. Multi-sectoral LLs are common in Europe; thus, we wanted to integrate that concept in LLs in Tanzania as well. Initially, the idea was to have one Living Lab (or community resource centre, as it is called today) that could serve the needs of the community from a variety of angles, especially considering the faculty members' varying needs

It does not stretch the imagination too far to think of a woman who, after her husband's death, is running a small farm by herself and is threatened by the late husband's family to leave the land, while also struggling with crop yield and finding more profitable and fairer channels in which to sell her products. Obviously, this would be a case for Living Labs focused on legal aid, women's rights, agriculture and entrepreneurship. In the worst case – and due to a strong bureaucratic culture – we could face the following scenario: the potential client could approach, say, the entrepreneurship Living Lab but would be turned away because the people in charge might interpret the case as a women's rights issue. She might go to the people running that Living Lab, who would advise her to talk to the people in the legal counselling Living Lab. The reader can probably already guess how this all might end.

Eventually, the Tanzanian partners agreed that perhaps it would be best if each faculty found ways to work together in a centre intended for the co-operation of a variety of stakeholders. Still, it was not an easy idea to adopt. This might partly illustrate how difficult it is for all of us to leave our old conceptions, habits, attitudes and cultures behind. Here also needs to be enough flexibility in any concept to adapt to different environments. Change is usually seen as an obstacle rather than an opportunity. Also worth highlighting is that mistakes may occur. If something does not seem to work out, it is possible to learn from that situation.

MISCONCEPTIONS AND LACK OF READINESS DUE TO HARDSHIP

In the beginning, it seemed that co-creation with the community put more emphasis on students actually doing the work while the community stakeholders enjoyed the benefit. In addition, instead of teacher being responsible for ensuring students' learning, the teachers' role morphed into becoming project managers and/or agents for securing the desired outcomes for external stakeholders. The concept of co-creation between universities, municipalities and business, where the end-user would be always in the centre for co-creation, was not for them to grasp. The main motivation was the funding that enabled the work, rather than the desired outcomes of the project.

Overall, we observed a big challenge related to a general lack of a vibrant private sector. This led to the fact that promoting entrepreneurship became difficult. On the other hand, it was easy to identify the needs on all levels of business. Small businesses tend to be relatively small and disorganised. The needs of the local community are often so elementary that it is difficult to arrange something one might call co-creation, a

mutually beneficial project developing both the capabilities of the community and the skills of the students. The course contents, on a conceptual level, are close to the same as we have in Finland, which can easily lead to a situation in which learning objectives are related to complex corporate issues, while the projects aiming to support the learning are on an extremely basic level.

In addition, the organisation, structures, culture and views on studying, teaching, learning and co-creation may be traditional, and changing the mindset of certain teachers and university administrators and even some students proved difficult. Nevertheless, rural Tanzania offers plenty of opportunities. Since the needs are diverse and often not of very complex nature, any kind of help counts, meaning that students can actually make a huge difference. When the effect of co-operation between universities and local communities accumulate, society might even begin to ascend to new levels. As well, small businesses become more economically viable and the challenges they offer students become more sophisticated and therefore more intriguing, thus educating the students working with, for instance, local entrepreneurs. This, however, will require generations of students and potentially decades of hard and often frustrating work by the university staff.

CONCLUSIONS AND REFLECTIONS

At the end of the project, several themes and clusters related to the Living Labs evolved and different outputs were achieved. For example, we established an ecotourism centre at SEKOMU, which in turn successfully trained ecotourism guides. In addition, SEKOMU, in collaboration with local authorities, were able to draft a regional tourism strategic plan. For both universities, we developed a business and marketing plan and mapped out potential businesses where tourism students could look for internships. Both partner universities organised thematic entrepreneurship trainings for university staff, students and local stakeholders; the training involved themes such as service design, business planning, market analysis, marketing, networking, pricing, safety, hygiene, cold chains and social media.

The University of Iringa was able to develop a counselling service clinic/training facility for students. In addition, counselling outreach services were developed. These services target mostly vulnerable groups such as women, children and the disabled and abused. The University of Iringa organised training for local government authorities on peaceful conflict resolution. The SEKOMU and Iringa Universities were able to develop legal counselling service/paralegal groups and could conduct instructor training. In addition, local partners organised capacity-building workshops for local authorities on human rights. Both universities conducted thematic trainings on different themes such as nutrition, environmental conservation and gender rights and equality.

The project aimed at creating a well-functioning co-creation model that benefited the following: local Living Lab participants, entrepreneurs, people in the communities and villages, vulnerable groups such as youth, women and the disabled and abused, and NGO representatives, local government authorities and representatives of local business associations.

In order to institutionalise these practices, we created a Community Resource Center at the University of Iringa. This centre will still act as a link between the university and the external community and will continue co-operation with existing initiatives such as Kiota Hub, TANZICT. Furthermore, the partner universities were empowered by the improved internet and computer labs, were trained in project-based learning, co-creation and service design methods, and strengthened their online teaching capabilities.

Overall, the project was a stimulating experience for Finnish partners too. There are some areas of development on the African continent, and it would be beneficial for Finnish actors to start gathering more

experiences and knowledge about the continent. Despite foreign aid to Tanzania from different countries (such as Finland), it was discovered that there is still a lack of basic business infrastructure and policy. Big businesses and formal business structures do exist in big cities such as Dar Es Salam, but rural development and sustainability have some space for improvement.

At this stage, a question regarding the level of readiness of our partners to run LLs after this capacity-building is still unanswered. As often is the case in developmental work that requires a potentially significant shift of mindset, it seemed some individuals were convinced, while others still have doubts. For example, the organisations in general did not seem very open to change, and the practices are still bureaucratic. In order for Tanzanian universities to benefit from LLs and co-creation, there is a need for a 'grassroots movement'. Different actors need to understand the expected long-term results as illustrated in Figure 3.

Finally, as a Finnish higher education institution, we need to ensure that when we choose partners, we adapt our means and resources co-creation context in the best possible way.

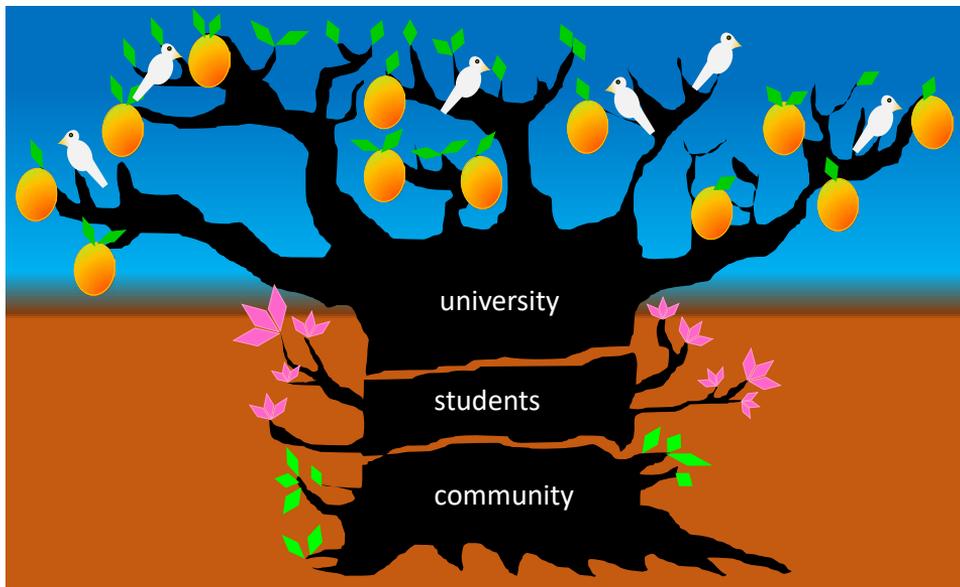


Figure 3. Living Lab in rural areas. (Figure: Kalle Rähä)

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Keywords:

- Living Lab
- Co-creation
- Entrepreneurship
- Sustainability

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WE ARE LIVING in a world that is changing at a rapid pace. Globalization and technological development are bringing about many benefits. However, the challenges we meet are often complex, inter-connected and systemic, so-called *wicked problems*. The challenges are no longer local or one-dimensional.

Addressing wicked problems requires new rules and new ways of thinking that are determined by collaboration, inclusiveness and openness. These global challenges call for updated models that both help to enhance involvement of multiple stakeholders in *co-innovation* and *value co-creation*, and help stakeholders to benefit from them.

The set of articles within this book demonstrate how such concepts as *multi-stakeholder partnership*, *co-production of research* and *participatory Research, Development and Innovation* take place in practice. The articles epitomise how new collaborations, dialogues and partnerships are being formed among academic, public and private partners, and civic society. As the described collaboration is characterised by impactful interdisciplinary and creative methodological experimentation, this publication seeks to engage a wide audience of researchers, educators, policy-makers, practitioners and others with an interest in combining collaborative academic, business and public expertise.

These articles introduce research results, methodological considerations and practitioners' experiences on multi-stakeholder collaboration allowing for and benefiting from open research, innovation and educational processes. They make apparent the wide range of practices, tools and benefits of co-creation in the context of *Open innovation*, *Open science* and *higher education*. The articles shed light on the prerequisites of purposeful multi-stakeholder partnership and collaboration in different thematic and regional contexts.