Understanding of Customers' Competencies and Resources as a Base for Innovation of Inclusive Digital Social Services

Eeva Honkala

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Eeva Honkala
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Laurea University of Applied Sciences **Abstract**
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Eeva Honkala

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The purpose of this research-oriented development work was to develop a model to identify and utilize the customers' own and external competencies and resources as a base for social innovation. The objective was to provide DigiIN project of Laurea UAS and a Finnish case organization with understanding of socially marginalized young adults to be used to develop the service culture of the case organization and innovate inclusive, digital social services.

The theoretical framework is based on the realization that in service-dominant and customer-dominant logics, social innovation, design thinking and service design, the customer competencies and resources are seen as the source of value as well as raw material for co-design, co-creation, and innovation. This is combined with theory of social and digital inclusion and service design. By using customers' competencies and resources or supporting them, the organization can create services that fit in to their customers' life and offer value.

Mobile probing and interviews with an additional focus group were used to understand the life of eight customers, define existing competencies and resources, and determine expectations for the co-creation of digital services. The data were used to design three personas, empathy maps, customer ecosystem maps, resource integration maps and a resource availability table. Additionally, a recommendation for how to utilize these resources to develop new, digital social services in the further steps of the DigiIN and the case organization's development was presented.

The work revealed that young, socially marginalized adults have diverse competencies and resources that can be utilized in the development of new digital services: customer groups' own expectations for the participation in co-design and development must be considered. Visualizations allow the transfer of insight to the DigiIN project and the case organization. The development of less laborious and commitment-demanding research methods offering diverse ways to participate and testing of the recommended customer's competence- and resource -based approach to service development need further research.

Keywords: Social innovation, customer competencies and resources, service design, digital inclusion

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1 Introduction

Digitalization of services is an ongoing global trend, that has been further escalated by the requisites of social distancing because of the current COVID-19 pandemic. The importance of socially inclusive digital healthcare and social services has rapidly increased and understanding of how to increase participation of socially marginalized in the designing of digital services is paramount for the future success and inclusion (e.g., Dufva 2020, 9). Successful design of new, socially sustainable services requires understanding of the competencies and resources that the socially marginalized young people have.

During past years digitalization of social welfare and health care services has already increased in Finland, and 68 percent of Finnish citizens had used public services in this sector during 2017 (Hyppönen & Ilmarinen 2019, 179, Hyppönen & al. 2018, 4). Big driver behind this shift to digital social welfare and healthcare services has been the "Socially sustainable Finland 2020" strategy that promotes social inclusion and participation as well as support for health, wellbeing, and life management as essential to reaching it. (Sosiaali- ja terveysministeriö & Kuntaliitto 2014, 7).

Studies show that majority of Finnish population already has good digital skills, and skill level decreases with age (Hyppönen & Ilmarinen 2019, 287). Despite the wide adoption of digital social welfare and healthcare services by the Finnish population, there is a raising concern of digital divide between socially marginalized groups and general population (Heponiemi & al. 2020, 9) and emerging need to include also marginalized population in the design and use of digital services. Also, Sustainable Development Goals introduced in the Agenda for Sustainable Development 2030 of United Nations highlight the need to both provide heathy lives and advance wellbeing of all, i.e., goal 3, through access to health care and prevention and treatment of substance abuse and mental health wellbeing (United Nations a), as well as reduce inequality, i.e., goal 10, through empowerment and promotion of social inclusion (United Nations b).

Service Dominant Logic, that emerged as business logic challenging the prior product (good) focused perspective, proposes, that the value of a service is always co-created with the customer (Vargo & Lusch 2014, 15) suggesting that deep understanding of the customers' resources is required to develop valuable service. Co-creation requires the customer to integrate their resources with the resources that the organization is offering through their service to create value (Vargo & Lusch 2014, 70-71). Value is also built during interactions between customer and the company and a whole network of peer communities and other companies (Prahalad & Ramaswamy 2004, 10; Vargo & Lusch 2014, 15-16). Prahalad & Ramaswamy (2004, 23) have developed DART (dialogue, access, risk management and transparency) model that describes the elements needed to cocreate with the customers.

Tommasetti and other (2015) have identified eight customer value-creation behaviour dimensions that help evaluate the customers' capabilities to co-create value with an organization. To succeed in the co-creation of value, companies need to utilize diverse methods to gather deeper customer insight than before and to create solutions that help their customers create value from the company's offering (Chesbourg 2011, 21-23). Though the theory in Service Dominant Logic is centred around the companies instead of not-for-profit organizations and government, similar principles of value are likely to occur in their customers' value creation.

More recently, Customer Dominant Logic has challenged Service Dominant Logic and shifted the focus from company's own process toward customer-centric view of value creation. Customer Dominant Logic suggests that the company must understand the customer logic, i.e., how the customer perceives the process of value creation in their life, and adjust their service offering and process to support customer's existing logic and not the other way around (Heinonen & al. 2010.). Designing customer-centric services therefore requires thorough understanding of the resources and capabilities that the customers use, and the contexts where the company could help the customer create value directly through organization's own services or jointly with other actors.

Additionally, design thinking and service design approaches innovation by gathering insight about the customer and using this customer understanding as the core for co-creating and developing new services (Stickdorn 2012, 29, 31; Curedale 2019, 41; Liedtka & Ogilvie 2011, 4). Service design offers many tools to visualize the key insights related to customer needs, challenges, context of use and the service ecosystems; personas, empathy maps, customer journeys and stakeholder maps are all tools used to communicate the results of research and define the problem to be solved through service innovation (e.g., Stickdorn 2012, 143-210; Liedtka & Ogilvie 2011, 50, 56; Tschimmel 2012, 12-13; Curedale 2019, 331-434). Service design tools are focused on identifying gaps between what is offered by a company and what the customer needs or has challenges with, and ideation is often based on how to fill the gap with company's resources and offering.

Social innovation design theory expands traditional, challenge and need based service design view of customer understanding to include knowledge about existing resources and networks of the customers that could be utilized and recombined to create novel solutions and improve existing services (Mulgan 2003, Manzini 2015, 98). Mulgan (2007, 21) states, that social innovation is based in the confidence that individuals, also those who are vulnerable or marginalized, possess the resources and capabilities to help themselves which is in line with recovery orientation that is the basis of many social welfare organizations and aims to strengthen existing resources and base the recovery of the customers on strengthening their

existing capabilities and resources instead of emphasizing what is missing due to customer's circumstances (see Manzini 2014, 98).

How can social service organizations develop inclusive digital services through service design? Unfortunately, customer resource-based service design tools are near non-existent, though Takeyama, Tsukui and Shibata (2014, 346) have introduced service ideation framework ROSI (resource-oriented service innovation) along with resource integration map, and resource availability table which aim to fill the gap between Service-Dominant Logic and its practical application to service design, but it does not provide indications on how to research the customers. In addition to this, different forms of stakeholder and ecosystem maps can be seen as tools to highlight existing networks, that could be utilized for value creation and service offering.

Prior research has focused on understanding the role of customer's competencies and resources in the value creation and value-in-use in different service logics, as well as the theoretical base for social innovation. This has created a gap between theory and practice: there is very little research on practical presentations and models on how the customers' capabilities and resources can be researched, defined, and used to design and develop new, inclusive digital services collaboratively. To fill this identified gap for its part, this thesis aims to create a model for this through a case that provides understanding of the resources and capabilities socially marginalized young adults in need of increased support have and that can be used to develop usable, inclusive digital services in social welfare and healthcare.

This thesis is a qualitative case study in the form of research-oriented development work, that is based on the framework of social innovation, service logics, design thinking and service design. It also utilizes information about social and digital inclusion to build on the customer competencies and resources. Service design methods and tools are used to provide the process and empathic methods for data collection.

1.1 Purpose and aim of the research, research questions, and methods

The purpose of this thesis is to develop a model for identifying and utilizing the customers' own and external competencies and resources as a base for social innovation in the context of digital services. The objective of this thesis is to provide DigiIN-project and case organization customer understanding of young, socially marginalized adults between the ages of 19-29 by identifying customer needs and resources as well participating customers in the creation of new digital services. This information can then be used to identify opportunities for new digital services in the following phases of the project.

The practical goal of this thesis is to define existing resources, abilities and strengths of young, socially marginalized adults and solutions these people already use that can be

utilized to develop digital, inclusive services. The thesis also aims to map the ecosystem young people in need of increased support interact with. Furthermore, this thesis defines expectations young people with increased need for support have for the co-creation of digital services and how the knowledge of all this can be utilized in the development of new services in the next steps of the DigiIN project which are outside the scope of this thesis.

The main research problem of this thesis is: How the resources and competencies of customers, in this case young adults in need of increased support, can be identified and used as a base for social innovation? More detailed research questions this thesis will answer to are:

- Research question 1: What strengths, abilities, and resources young people in need of increased support have that can be utilized to co-create value in digital services?
- Research question 2: What type of digital solutions (or other resources e.g., networks) do the young adults already use to solve problems related to social welfare?
- Research question 3: How does the ecosystem look like from the perspective of the socially marginalized young adults?
- Research question 4: What expectations do these people have for inclusion in development of digital services?
- Research question 5: How customer resources and existing ecosystem can be utilized in the development of new services?

In this thesis, the customer competencies and resources and networks are examined through the lens of social innovation and design, Customer Dominant Logic and Service Dominant Logic. The process and qualitative methods of development come from the field of service design: the research will be conducted using mobile probes together with semi-structured interviews based on the mobile probes. In addition to this, a focus group workshop is used to provide additional information from the participants that could not be recruited for the probe due to new COVID-19 restrictions. Furthermore, data from a quantitative study that was conducted simultaneously with the probes and interviews on similar themes as part of the DigiIN-project, will be used to evaluate the representativeness of the qualitative data.

Because of the vulnerable nature of the socially marginalized target group and prior research ethical evaluation, this thesis will not cover any health or social welfare related information, nor will it use it to describe the challenges. Though detailed understanding of the health and

social challenges of the target group might provide interesting surface for social welfare expert ideation, it is not the within the competencies of the writer.

1.2 Context of the development work

Laurea University of Applied Science is part of Towards Socially Inclusive Digital Society – DigiIN -research project that is funded by Strategic Research Council (SRC), which operates under Academy of Finland. The research aims at improving the service culture in social and healthcare sector and creating solutions that ensure everyone is included and can access the digital healthcare and social services. Co-operation in development of practical services and processes with service providers in the field is crucial part of the research. This requires the communication of the results to decision-makers and other actors in a manner that makes the utilization of the information effortless. The project focuses on promoting socially inclusive digital society through 1) the development of digital services that are usable to socially marginalized, 2) development of the organizational service culture, and 3) competence development of the personnel. (DigiIN)

Laurea UAS takes part in the several different development cases related to socially marginalized people. The development work of this thesis is related to a sub-research focusing on people in need of increased support. In this sub-research the aim is to find out how the inclusion of people in need of increased support can be supported: the main means have been identified to be the same as in the overall project, i.e. 1) organizational culture through development of service culture and skills of the personnel and co-development, 2) skills of the personnel through identifying needs for skills training, to enable support to customers, and gathering of development ideas, and 3) usability of services through understanding users' need and co-design of the services with users (Laurea UAS Presentation to case organization 2020).

The first phase of the project is conducted between 2019-2022 and second between 2023-2025. This thesis is part of the first phase, and the end-results will be utilized in the following phase by the project team. The first phase of the project covers the first diamond (Discover and Define) of the Double Diamond model that represents service design process. The second phase will focus on the second diamond (Develop and Deliver). The goal of the Discover phase of the process is to define what the main goal for the project is, and gather information through for example probes, interviews, and questionnaires: this thesis focuses on this stage on gathering information about the customers, and especially their capabilities and resources to support the further inclusive digital service development and innovation in the field of social welfare. In Define stage the project aims at increased understanding of the customer, context, and problems by interpretation of the data, definition of core problem and opportunities and selection of design drivers. This thesis contributes to this process phase by

information in the form of customer personas, empathy maps, customer ecosystem maps, resource integration maps, and a resource availability table. From the perspective of the schedule, fall 2020 will focus on generating information about the customer needs and tacit capabilities and resources in digital services through probe, interviews and focus group related to this thesis and customer questionnaire, and spring 2021 will focus on the skills of the personnel. The organizational culture will be the focus of fall 2021. (Laurea UAS Presentation to case organization 2020)

In the second phase of the project, the service design process continues to ideation of solutions and building and testing of prototypes, which will be co-developed in workshops. This is followed by using the feedback of prototypes to build final solutions, plan of the launch, and actual launch of pilot projects and gathering of feedback. As stated before, this stage is outside of the scope of this thesis, but the information produced in this thesis can be utilized in the Develop and Deliver phases of the service design process.

The case organization of this thesis and the research project is a Finnish private corporation that offers social services. They operate in the metropolitan area of Helsinki and focus on providing services and assistance to people in need of increased support during the current stage of their life: for example, people recovering from mental health challenges, unemployed and/or homeless. Case organization's services cover assisted living and housing, support for domestic living and coping as well as promoting employment and inclusion in society of their customers. (Case organization's website.)

The case organization operates in three domains: 1) assisted living services in their own housing unit together with supported domestic living services to customers who stay in their own homes outside case organization's premises, 2) practical work training, rehabilitative work activities, social rehabilitation, and career coaching and 3) activity centre that offers courses and other group activities in addition to common-good projects such as food aid (Case organization's website). Customer-centricity is at the core of the case organization and they follow-up on the customer satisfaction in each domain of their operation through surveys.

At the fall 2020, the case organization offered only very limited digital services: they naturally had a website offering information on their services as well as some social media presence. The case organization had also piloted offering work training services online: after COVID-19 pandemic broke out, they had moved many of the activities to be operated over either MS Teams or WhatsApp. In case organization's home related services, i.e., assisted living and services offered at customers' homes, the social service professionals assist customers take care of their digital needs: they offer support with applications, reservations for appointments, and similar. If the customer does not have their own devices, personnel have computers that can be used. (Contact person of the case organization, 2020.)

The need for customer-centric, inclusive social and healthcare services has risen at case organization along with the pandemic and societal change: as the recovery orientation and individually planned support methods used in all domains of the case organization's services suggests, there is a lot of interest in possibilities to co-create new services together with the customers to ensure they fit customers' needs and capabilities. Though the case organization has some service design experience and is well networked with other organizations in the similar field, lack of internal resources has slowed down the adoption and creation of digital services: the organization has also recognized a possible need for internal knowledge and skill development that might rise with new service channels. (Contact person of the case organization, 2020.) DigiIN project will develop the case organization's understanding on current challenges and possibilities and help them develop a digital service as a solution, skills of personnel, and services culture.

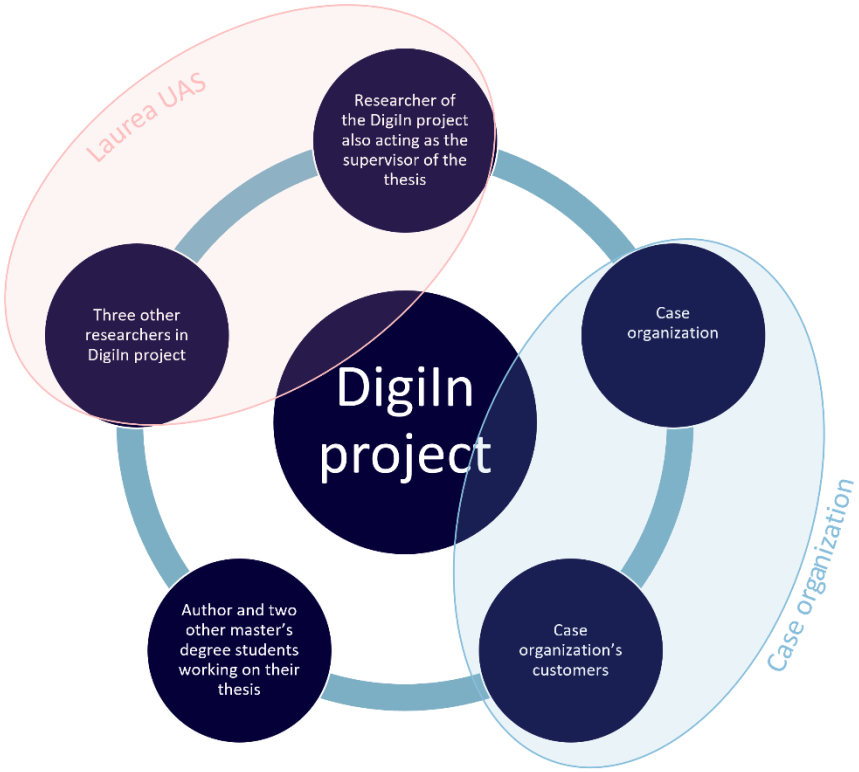

Figure 1. Stakeholders of the thesis.

The stakeholders of this thesis can be seen in Figure 1. The research-oriented development work related to gathering customer data and understanding for this thesis in the context of the case organization was done in co-operation with two other master's degree students: first one (later master's student 2) focusing on the needs and challenges of the target group, and the other (later master's student 1) on probes as a tool in this target group. The author and the other master's students planned, co-designed, implemented and analyzed the research

together, and co-created the visualizations for the case organization combining the information to comprehensive customer visualisations such as personas and empathy maps.

In addition to the students, also two of the DigiIN researchers had significant role in the research: the other one had access to the case organization's premises and therefore helped in recruiting the informants for the probe study, and to the focus group. She also helped with practicalities related to research phone to be used in the probe, and conference camera and microphone for the focus group. Another DigiIN researcher, who also is the supervisor of this thesis, participated in the planning and design of the research as well as took notes in the focus group. The researchers were also valuable contacts and guides in the overall development work in the case organization, and the customers for the end-results of this thesis in the sense they are to use them in the further development work.

The case organization was the focal point for the development work: the main contact person provided background information on the services, processes, and culture of the organization, and acted as a coordinator between the master's students and the management and personnel of the case organization. The informants were gathered from the sphere of the case organization, and were therefore all, in one sense or another, customers of the case organization.

1.3 Structure of the report

In chapter 2, the theoretical framework of the thesis will be presented: Service Dominant Logic (SDL) of Vargo and Lusch together with Prahalad and Ramaswamy, Customer Dominant Logic (CDL) of Heinonen and Voima, social innovation from Mulgan and Manzini among other and service design focusing on their implications on customer resources and capabilities will be described. Then the thesis will move on to describing methodological choices including the analysis methods in Chapter 3. The actual development process and work will be gone through in detail in Chapter 4. The key findings will be provided in Chapter 5. The thesis will conclude with discussion of findings, answers to the research questions, learnings, assessment of development work and methods and future research opportunities in Chapter 6.

2 Resource- and competence -oriented customer understanding and social innovation

Next, the knowledge base for the thesis will be presented. It starts by introduction of digital inclusion and existing digital services in social and healthcare services in Finland to offer initial introduction to what currently exists and is known about the inclusion. This is followed by introduction to how service-dominant logic and customer dominant-logic see customer resources and value creation in services, and how social innovation approaches customer resources and innovation. Before closing the chapter, design thinking and services design as

an approach and form of thinking is described. The chapter ends with a synthesis of aforementioned to provide a theoretical framework for this development work and using customer understanding of resources and competencies to innovate new services.

2.1 Digital inclusion and existing digital services in Finnish social and healthcare services

Digital inclusion means accessibility to all relevant services regardless of person's limitations, disabilities, and special characteristics. Person should have access to digital services regardless of where they live, what language they speak, and what time they need to use services, and whether they have or have not their own digital devices. Social exclusion on the other hand refers to the person not having access to the basic social and economic activities that are typical in the society the person lives in (Bossert & al. 2007, 1). Helsper (2012, 404) states that digital inclusion is deeply rooted in the offline situation in which a person is, and therefore it is salient to understand how the person's overall situation affects his/her ability to participate in digital services: this is paramount for the overall objective of the DigiIN project, but also important aspect of understanding how the skills and resources an individual has affect their inclusion in digital services.

Helsper (2012, 420) has studied how social and digital exclusion are connected and formed corresponding fields model seen in Figure 2 to visualize this. She argues that social and digital exclusion are mainly related to each other through economic, social, personal, and cultural resources, and matching fields affect each other (Helsper 2012, 404, 412). Additionally, lack of resources in an offline field will affect the engagement in corresponding digital field: the more resources individual has in certain digital field, the more advantage they will get from using it (Helsper 2012, 417). The model also assumes that inclusion in all fields inside context (digital/offline) is similarly important for the wellbeing and participation of an individual in the society (Helsper 2012, 410). Selwyn (2004, 353-354) adds to this, that the level of economic, cultural, and social resources affects the person's IT access and use.

Partly similar division of resources related to digital inclusion of young people with disabilities, is presented by Newman & al. (2017, 579): in their model, they divide economic, cultural, and social capital to three levels they call basic "offline" capital, digital capital, and digital capitals specific for the disability. To be digitally included requires the individual to first have the basic level social, cultural, and economic capital such as income, literacy, and ability to socialize. This can then in turn be utilized to digital capital of each category mentioned previously: possibility to buy and maintenance digital hardware, take care of cybersecurity, and network of people to connect with online. Digital capital then relates to the disability related capital that the young people need: access to assistive technology needed and for example awareness of disability related networking groups in social media. (Newman & al 2017, 579.) Thus, Newman & others (2017, 579) add additional, disability

related layer to understanding digital inclusion, which, can be seen as a special layer related to what makes person vulnerable in their life situation, such as in the case of young adults in need of increased support possible mental health challenges.

Economic offline resources are income, employment and educational, and correspondingly in digital context financial (e.g., banking) and commercial (e.g., online shopping) uses as well as informational (e.g., information search) and educational (e.g., online learning) digital resources. (Helsper 2012, 404-405.)

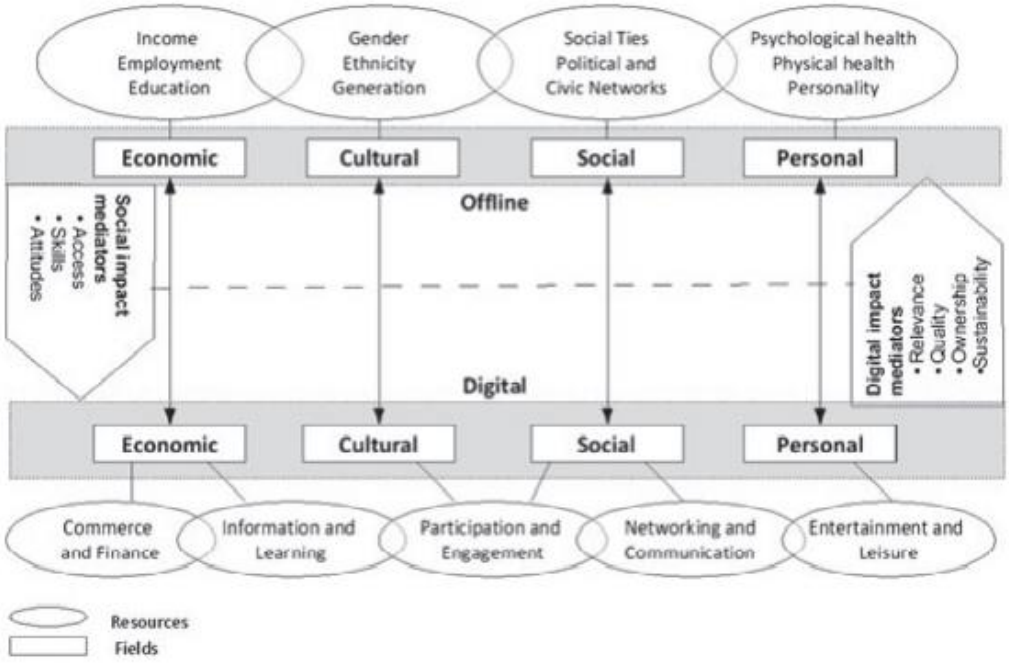

Figure 2. Corresponding fields model visualizing the connections between offline and digital inclusion as presented by Helsper (2012, 418).

Cultural offline resources, such as gender, ethnic and age group, are all related to the norms and cultural identity and can through this limit individual capabilities of seizing opportunities and controlling their life (Helsper 2012, 407-408). In addition to this, cultural resources such as socialization of a child growing up in certain context affect what and how person interprets different opportunities and information, and roles they feel are possible for them (Alvi & al. 2007, 28). In digital context, these resources are matched with participation and engagement on different platforms, which is also in some cases a digital social resource: if the person for example uses certain sites, for example sports community, for identity building. In addition to participation and engagement also networking and communication are digital social resources. (Helsper 2012, 414.) In offline world this links to social ties which offer individual different levels of support, encouragement, help and access to knowledge, and more formal political and civic networks that allow the individual's opinions to be heard

in the wider community through voting and positions offering power to influence others: these social resources are prone to change with time. (Helsper 2012, 408; Alvi & al. 2007, 29.)

Personal, offline resources comprise of psychological and physical health, and personality traits, and reflect individual's ability to manage their daily life and take up opportunities regardless of their cultural, economic, and social background. Intelligence and skills are part of this field. (Helsper 2012, 409.) In digital context, leisure and entertainment resources are connected to personal offline resources. These can act as social digital resource as well: if the person for example uses multiplayer gaming platforms to build a network. (Helsper 2012, 414.)

Helsper's model (2012, 405-406) also establishes two mediators: social impact mediators to explain how offline exclusion can liaise digital exclusion and digital impact mediators to explain how digital inclusion can decrease social exclusion. Social impact mediators are access, skills, and attitudes. Access does not mean just direct access to IT, but also the quality, mobility and ubiquity are important: home access, possibility to access using wireless, broadband or 3G connections, and possibility to access using multiple different devices such as laptop, smart phone and game consoles increase the quality, mobility, and ubiquity of access. (Helsper 2012, 411.) Different types of skills are needed to use digital services and internet: skills to use devices and extensive use of applications and platforms is needed, but not enough (Helsper 2012, 412). As Samsudin and Hasan (2016) emphasize, that the youth need to learn to use digital services beyond basic messaging and down- and uploading of material to gain digital literacy. Technical and operational skills as well as critical and social skills are needed: the user needs to be able to evaluate how trustworthy or accurate content and different sources are as well as be able to perform different type of tasks independently. Level of self-efficacy and agency overall affects the willingness to use digital services. (Helsper 2012, 412.) If individual possess digital skills, they acquire at the same time essential cultural capital: the skills offer the individual access to additional sources of information and social networks and help also gain financial benefits when the person can buy cheaper goods and services online (Alvi & al. 2007, 47). When it comes to attitudes, there is a variety of perspectives to consider: for example, individual's opinion of how available, appropriate, or regulated content is, or whether the digital services improve productivity, effectiveness, or change social interaction, affect how much the individual uses digital services and how interested they are in the technology. (Helsper 2012, 412.)

Digital impact mediators, as stated above, explains which factors increase the positive effects of digital inclusion on the overall wellbeing of people. Helsper (2012, 415) suggests these factors to be control, power, and authority over the use of digital resources, relevance and usefulness of the resources, easiness, and good experience of using the resources, and how

sustainable the resources are both socially and financially. This means, that offline resources will only be affected by the digital resources if the individual feels, that these characteristics have a positive influence on his/her life (Helsper 2012, 415).

Studies show that majority of Finnish population already has good digital skills, and skill level has a negative correlation with age: 96% of people under 55 years old state they can use at least basic services independently and only 3% in the same age group need external support for using them when over 75-year-old people feel less skilled and need more support (Hyppönen & Ilmarinen 2019, 287). Despite the wide adoption of digital social welfare and healthcare services by the Finnish population, there is a raising concern of digital divide between socially marginalized groups and general population (Heponiemi & al. 2020, 9) and emerging need to include also marginalized population in the design and use of digital services.

Earlier research has evidenced that people who are socially isolated, have health challenges or socio-economical disadvantages are at higher risk of exclusion from digital health services and perceive less benefits from their use (Heponiemi & al. 2020, 9). Since there is a connection between skills and access to online services and benefits of using digital services, increased education and support for socially marginalized and vulnerable groups is the most commonly suggested solution to increase digital inclusion both in Finland and abroad (Heponiemi & al. 2020, 9; Samsudin & al. 2016, 77; Helsper 2012, 411). Yet, as stated before, among the young adults the level of digital skills may already be adequate (Hyppönen & Ilmarinen 2019, 287).

More than half of people experience challenges in using digital public health care and social welfare services due to lack of skills, equipment, and interest of using them, bad usability design, and because the digital services inadequately replace in person service (Hyppönen & Ilmarinen 2019, 179). Additionally, 54 percent of the respondents faced challenges due to difficult terms of use in the social welfare and health care services in 2017 (Hyppönen & al. 2018, 5). According to Ikävalko (2020), in addition to third sector support, young adults help each other directly in multiple ways: they help with bureaucracy related to applying benefits, clean each other's homes, or offer to act as a support person in meetings with officials or at hobbies. This matches with Helsper's corresponding fields model introduced earlier.

During past years digitalization of social welfare and health care services has already increased in Finland, and 68 percent of Finnish citizens had used public services in this sector during 2017 (Hyppönen & Ilmarinen 2019, 179, Hyppönen & al. 2018, 4). Big driver behind this shift to digital social welfare and healthcare services has been the "Socially sustainable Finland 2020" strategy that promotes social inclusion and participation as well as support for health, wellbeing, and life management as essential to reaching it (Sosiaali- ja

terveysministeriö & Kuntaliitto 2014, 7). Sub-strategy for national healthcare and social welfare services between 2014-2020 aimed to support this by reforming public health care and social welfare services and promoting citizens' active participation in managing their own wellbeing by improving data management and increased offering of digital services (Sosiaali- ja terveysministeriö & Kuntaliitto 2014, 5).

Finland's Ministry of Social Affairs and Health has defined in their digitalization policy for 2025 that services under its jurisdiction should be digitalized according to a set of general principles. In relation to this thesis most important sectors in the policy are preventive promotion of health and wellbeing and social and healthcare services which are connected to each other. The general principles emphasize the need to digitalize services in user-oriented manner: services must aim to provide additional value to the end-users, be easy to access and use, and support equal access of all groups to the social and healthcare services while decreasing inequality (STM 2016, 5-6, 26).

The equal access can be achieved for example by considering special characteristics, such as functioning or communication skills, of different customer groups, co-designing the services together with different customer groups and utilizing service design. The policy highlights the need to meet the customer as an entirety and serving his/her needs instead of fixing single problems, and regarding the overall customer experience. Development of digital services that do not genuinely meet the needs of the customers and create additional benefit and value should be averted: not all needs to be digitalized. (STM 2016, 26.)

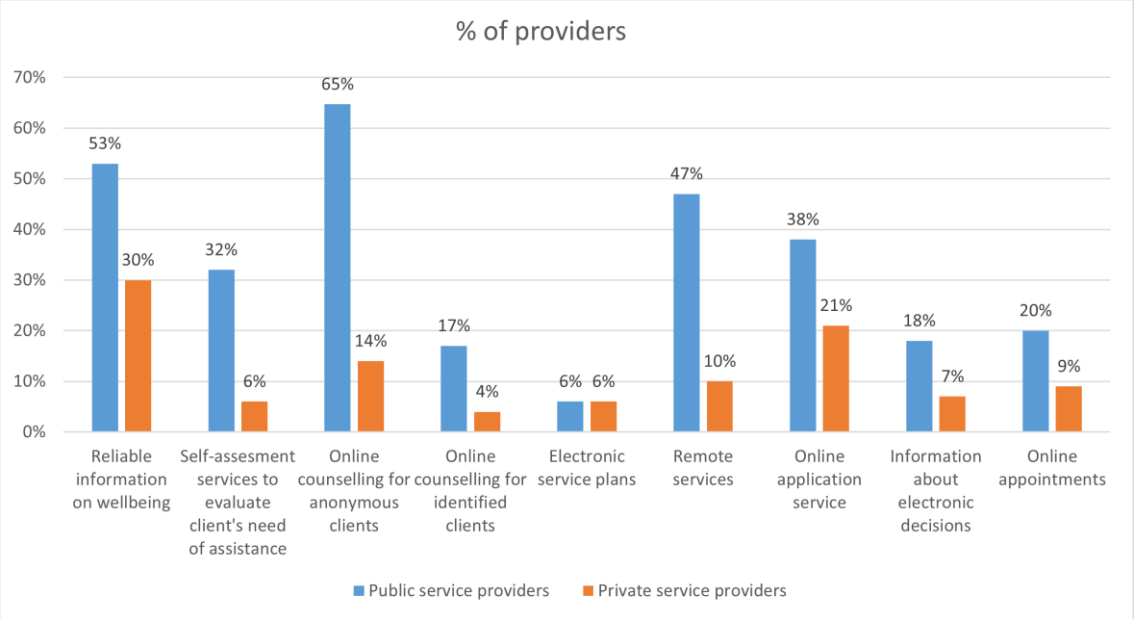

Figure 3. Digital services offered to customers (Kuusisto-Niemi & al. 2018, 29-30, 58-59).

In 2017 Ministry of Social Affairs and Health together with Finnish Institute of Health and Welfare and University of Eastern Finland made a national situation report of digital social services, client data systems of social welfare services used and data management of public and private social service organizations that were available in Finland. The material covered 114 public and 724 private social service providers. (Kuusisto-Niemi & al. 2018, 11.) Majority of organizations, which participated, offered services for elderly or disabled; if services for families with children and child welfare services are combined, they are close to the number of organizations offering services to elderly. (Kuusisto-Niemi & al. 2018, 57.) Respondents do also cover services most likely related to the target group of this thesis, i.e., services to people of working age, social work with intoxicant users, and assisted living services or mental health rehabilitation services. Results on what digital services are offered to customers can be found in Figure 3. Public sector organizations are ahead of private social welfare organizations in most of the digital services, though adoption of electronic service plans in both sectors was not common. Most offered digital services differ depending whether the service organization is public or private: public sector offers online counseling to anonymous customers (65 % of organizations), reliable information on wellbeing (53 % of organizations) and remote services such as video conferencing (47 % of organizations). Private sectors most typical digital services are reliable information on wellbeing (30 % of organizations), online application service (21 % of organizations) and online counseling for anonymous clients (14 % of organizations). (Kuusisto-Niemi & al. 2018, 29-30, 58-59.)

2.2 Logics of service

The roles of service providers and customers, and the perspective through which the value creation of a service is seen are conceptualized through different logics of service which are Service-Dominant Logic and Customer-Dominant Logic (Grönroos 2011, 280). The service logic frameworks help to understand the economic and social exchange (Vargo & Lusch 2014, 11) and provide a viewpoint to marketing and business (Heinonen & Strandvik 2015, 473): Service-Dominant Logic explains value creation through exchanges of services among actors (Vargo & Lusch 2014, 15-17) and how the customers are involve in service provider's systems and processes (Heinonen & Strandvik 2015, 473) and Customer-Dominant Logic focuses on value formation and value-in-use, and which service providers customers choose to interact with in their own customer ecosystems (Heinonen & Strandvik 2015, 473, 476).

Understanding of the service logic provides a framework for service innovation: the role of stakeholders affects how the service is innovated, who is involved in the innovation, and what understanding is used to identify opportunities and design solutions that create value. Service logic also affects what type of solutions are seen feasible for the company, desirable for the customer and what type of solutions are sustainable. Since this thesis aims at understanding customers' competencies and resources and how they can be utilized in service innovation,

service logics provide lenses through which the co-creation and value creation can be seen and operationalized.

Service Dominant Logic (SDL) emerged as a response to prior goods dominant logic. In service business, value is always co-created: company offers value proposition and customers' actions affect the value they get (Vargo & Lusch 2014, 70-71). It could be stated that co-creation is at a core of every service-logic based strategic management model: Chesbrough (2011, 21-23) states in Open Services Innovation that companies need to utilize different methods than before to gather deeper customer insight and to create solutions that help their customers and end-customers create value from their offering. Companies also need to utilize their customers' knowledge in innovation (Chesbrough 2011, 21-23). Though the theory in Service Dominant Logic is centred around the companies instead of not-for-profit organizations and government, similar principles of value and co-creation are likely to occur in their customers' value creation.

Co-creation of value makes customers an important part of the value chain and service delivery. It also makes customer relationships stronger and therefore harder to copy by competitors. Well managed tacit knowledge is one key contributor to competitive advantage in co-creation: if companies learn how to utilize the tacit information their customers provide them at different stages of interaction, they can answer customer needs better than their competitors and create innovative solutions based on the collected data. (Chesbrough 2011, 54-57.) To create value, the customer uses his/her resources to co-create value from service providers offering. Vargo and Lusch (2014, 57) define resources as anything that supports the actor. They divide resources to two types: operand resources are tangible and static and need the actor to know how to utilize them for their benefit whereas operant resources like skills can be used to utilize the operand resources (Vargo & Lusch 2014, 57).

Value is built during interactions between customer and the company and a whole network of peer communities and other companies (Prahalad & Ramaswamy 2004, 10). This service system is multi-layered and complex and includes varying social and cultural contexts and is constantly co-constructed through the interactions of the actors (Akaka & al. 2014, 213). Goods and services can act as delivery methods of value proposition (Vargo, Lusch 2014, 90).

Arnaud and others (2006) present a cultural-resource-based customer theory, which is based on Lusch and Vargo's SDL. They present the consumers' resources as a set of authoritative/operant and allocative/operand capabilities that the consumer uses to reach his/her life goals using different social roles (see Figure 4). On the left, consumer's social, cultural, and physical operant resources such as relationships or specialized knowledge are listed. These capabilities can be used in various contexts and adapted to new situations: each of the resources are also linked to cultural schemas, i. e. to ways of speaking, habits and

tradition. These resources define what operant and operand resources of an organization customer is willing to utilize and how customer uses their own operand resources to fill their life goal. Operant resources define the life goal of a consumer, and the type, quality, and quantity of consumer's operant resources affects the value co-creation process with on organization: also the roles the consumer sets for herself and the organization are dictated by the operant resources consumer has. (Arnaud & al. 2006, 5-9.)

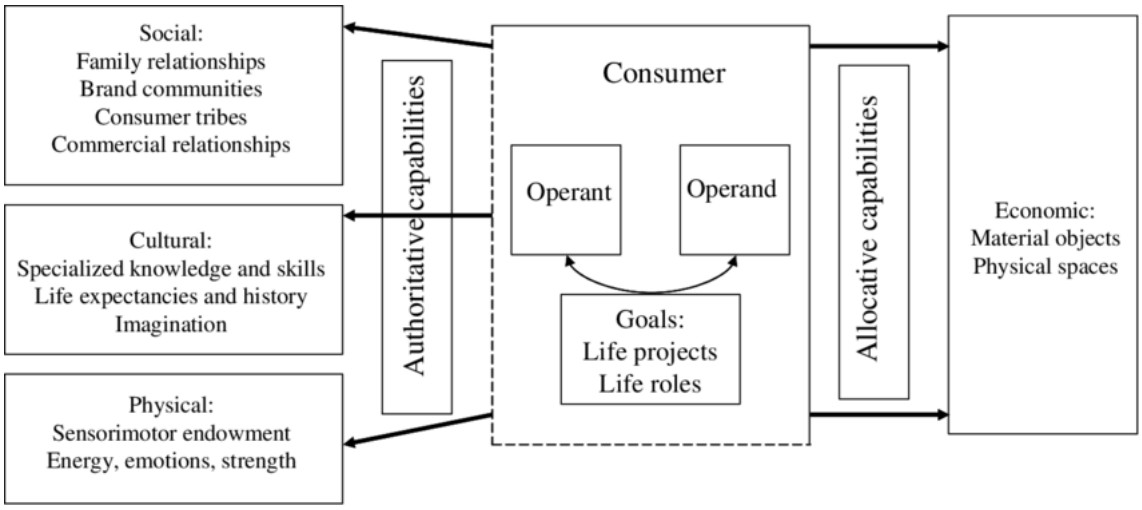

Figure 4. The Consumer's Operant and Operand Resources (Arnaud & al. 2006, 3.)

On the right side, consumer's operand resources, that is mainly economic resources such as salary, other income, or benefits, the consumer can make use of, are defined. Physical spaces cover for example home or accommodation, and workplace. Economic resources the consumer has affect the resource-integration with organizations: the life goals of people with less economic resources differ qualitatively from the goals of those better off, and therefore the use of organization's operant resources is different. Arnaud and others (2006, 4) give an example of an immigrant, who uses money transfer services to reach the goal of providing for the family left behind, whereas wealthy customers may prefer personal relationship with a bank offering wide array of services that enable them to reach their financial goals such as home ownership. (Arnaud & al. 2006, 3-4.)

Prahalad and Ramaswamy (2000, 81-84; 2004, 23) introduce DART model to describe the elements needed to co-create with customers and manage customer competencies. DART model consists of four elements: dialogue, access, risk management and transparency. Dialogue not only means the interaction: it also requires company to understand the context of feelings, society, and culture where co-creation happens. It also proposes that company and customer are equal in this problem solving and learning. To have dialogue in co-creation there needs to be a forum for interaction, issues that are meaningful for both parties and rules that help to keep the interaction productive. (Prahalad & Ramaswamy 2004, 23.)

Customers need to have access to information, tools, resources, and a lifestyle that is proposed: it doesn't only mean owning a certain product or license but can be also mean being able to rent or use a service for certain interaction. There also needs to be risk management for both the customer and company: the customer needs to be able to assess the risks related to co-creation and benefits and make informed decisions and companies need to provide means and methodologies for this. As the information is freely accessible to everyone, companies need to understand, that customers know more than before, and they can no longer benefit from having more information than their customers. (Prahalad & Ramaswamy 2004, 25-31.)

Apart from DART model as means of describing the characteristics needed for co-creation, Vargo and Lusch describe six elements that affect how deeply customer is willing to participate in co-creation and co-production: expertise, control, tangible capital, risk taking, psychological benefits and economic benefits. The more expert knowledge customer has in the field, the more willing they are to take part. Same applies if the customer wants to manage the service process or have tangible capital like tools or devices needed in the process. Co-production always involves some risks and therefore, how risky the customer sees the co-creation process to be affects how willing they are to participate. Benefits that the customer receives affect the willingness to contribute; self-assembling furniture can be an enjoyable experience and perceived economic value of using one's own time instead of buying the time of external expert increase the motivation to engage in co-operation. (Vargo, Lusch 2014, 146-147.)

In addition to DART and Vargo & Lusch's (2014, 146-147) six elements, Tommasetti, Troisi and Vesci (2015) have proposed a framework on customer value co-creation based on SDL, that includes eight dimensions (see Figure 5). All dimensions have underlying sub-dimensions, that affect the value creation (Tommasetti & al. 2015, 6-19). These sub-dimensions can be seen to relate to customer's capabilities and resources that are needed to co-create value, and therefore are important aspects to consider also in service innovation.

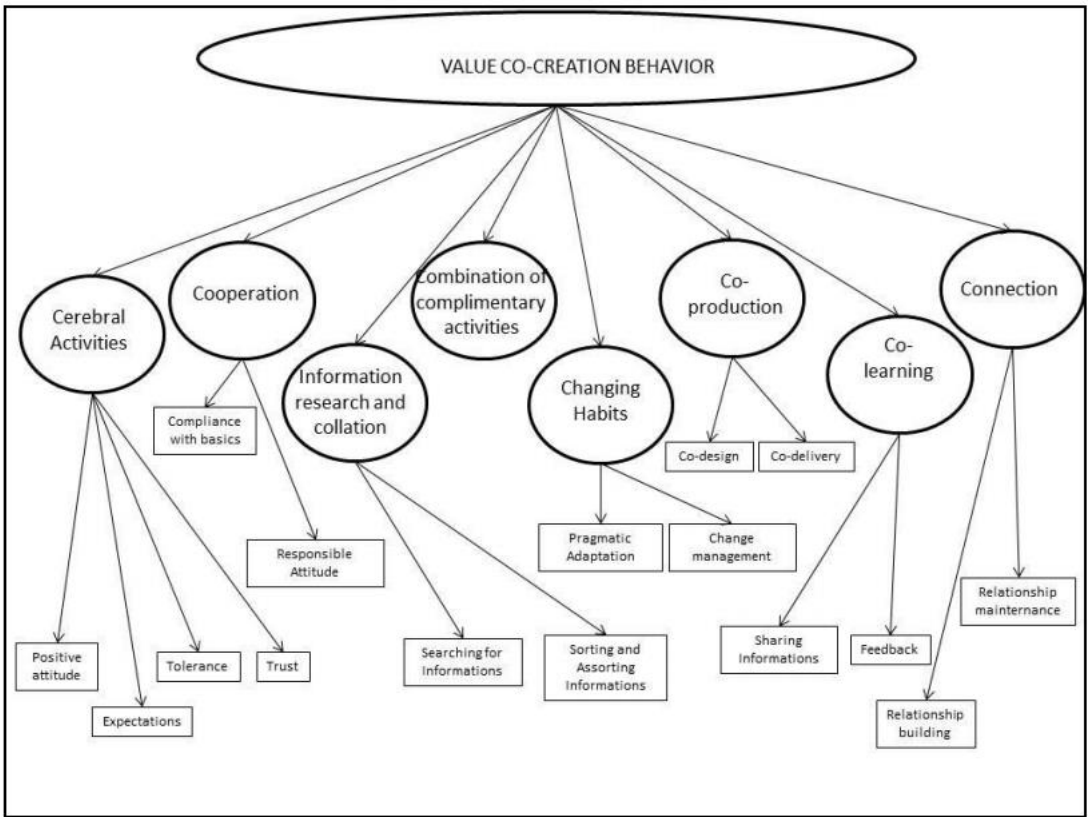

Figure 5. Conceptual framework for value creation as presented by Tommasetti & al. (Tommasetti & al. 2015, 7.)

Increased participation of external stakeholders makes the integration of knowledge essential: when a company invites other companies and organizations as well as customers to experiment and innovate together, preferably through a platform they provide, it makes innovation faster and benefits all parties. Companies can use their own knowledge to focus on areas where they have a winning edge, and at the same time benefit from the knowledge and findings of outside actors. (Chesbrough 2011, 82-86.)

In SDL, innovation is still vastly seen as something company itself creates, through the resources and understanding they have. Chesbrough arguments that companies need to utilize different methods than before to gather deeper customer insight and to create solutions that help their customers and end-customers create value from their offering. This also means creating value together with customers. Good example of creating value together with the customer and sharing implicit knowledge is delivery tracking systems FedEx uses, where customer can look where the delivery they are expecting/sending is going. Co-creation can thus enhance the customer experience. (Chesbrough 2011, 21-23.)

Customer Dominant Logic (CDL) challenges SDL by arguing, that SDL is only seemingly customer-oriented, and in reality, focused on company's own processes and needs with very

little regard to understanding customer's value creation process and context (Heinonen & al. 2010, 3). In CDL, the customer is put to the centre, and customer creates value in multiple contexts: this creates a need for the companies to understand not just visible interaction with the customer, but also what happens in customer's life overall (Voima & al. 2010, 1; Heinonen & al. 2015, 474; Heinonen & al. 2010, 3). Heinonen and Strandvik (2015, 475) add that CDL does not valuate goods and services differently but sees both as vehicles of value.

In addition, Customer Dominant Logic differs from earlier concept of customer orientation because of its perspective: customer orientation is also seen to be provider dominant, and mainly focused on how to involve customers in the provider's processes, and only information about customer's opinions on issues the provider finds important are used. On the opposite, CDL focuses on understanding why the customer chooses to interact with certain service providers, patterns in customers' processes, and decision logic behind customers' actions to reach their goals in their everyday life. (Heinonen & al. 2015, 479.)

Voima, Heinonen and Strandvik (2010, 4) argue, that there is a lack of research and understanding of the value creation, especially in relation to multiple contexts and customer's resources, and service system from the customer's point of view. They add that the customer's value creation is not always active, but instead emerges through customer's interpretations of the interactions which rise from the emotional, mental, and cognitive processes, and accumulate to a new customer reality that has value entrenched in it (Voima & al. 2010, 6). This means, that value is formed both in tangible, visible situations but also in mental and social situations of the customer (Voima & al. 2010, 7; Heinonen & al. 2013, 2). As value emerges in the life of the customer, it is not only formed during the use of a service but before, during and after an experience (Voima & al. 2010, 7). Understanding of customer's life, i. e. interests, motivations, social contexts, and activities, is essential for comprehending what the customer would value and how they would perceive solutions in the context of their life: the aim of companies and services should be to fit their offering to the life of the customer instead of just filling needs, wants and expectations of the customer (Voima & al. 2010, 11; Heinonen & al. 2015, 473, 493; Heinonen & al. 2010, 5). More precisely, the service providers need to think how they can support the customer's existing processes, resources, and skills with their inputs (Heinonen & al. 2010, 545; Grönroos 2008, 303).

From customer's perspective, CDL argues that service consists of results from service provider's internal processes, and results and processes of co-creation between customer and service provider, as well as customer's own actions and results of these actions. Co-creation does not necessarily result in value creation: it can merely mean customer's participation in the production of a service. Also, customer's willingness to participate may be linked to the size of the role the service provider plays in customer's life: if the role is insignificant,

customer may not be willing to actively participate or co-operate in the service and its production. According to CDL principles, the roles in co-creation and co-production are turned in relation to SDL: in CDL service provider takes part in customer's life in service production and value-creation. (Heinonen & al. 2010, 10.) Co-creation is not always directed and controlled by the service provider either: service provider can influence the value creation of the customer, but inherently customer is in control of their own value creation the same way service provider controls their value-creation and co-creation process (Heinonen & al. 2010, 11; Grönroos 2008, 303, 305).

Awareness of the dominant logic of a business is important because it guides the perspective which is used to interpret and design environment, market, and offerings: the logic may be so deeply adopted to the operations of both customer and service provider, that it is partly unconscious and difficult to change and therefore results in misinterpretations (Heinonen & al. 2015, 475).

According to CDL, to be successful in business, service providers need to continuously increase their understanding of customers' life world; the goals, jobs to be done and decision logic the customer uses. These then need to be supported with provider's matching business models and services and products, that bring excellent value-in-use to both the provider and the customer. It is essential to constantly monitor and position the processes to adapt to changes. (Heinonen & al. 2015, 484.) Though each customer has their own logic, service providers can address and match the customer logic by grouping customers under usable amount of customer logics (Heinonen & al. 2015, 485).

Companies should consider what capabilities and resources they have when designing the offering that matches what customer aims to achieve with their actions (Heinonen & al. 2015, 486). Customer also needs to have right skills and other resources to utilize company's capabilities and resources: if the customer cannot use the company's offering, it also does not offer any value to the customer (Grönroos 2008, 303). Therefore, customer's value is based on her own capabilities and access to additional resources to complement them, needed to use the resources a company is offering (Grönroos 2008, 304).

Understanding of their role and power to influence in the customer ecosystem, which means customer's view of how different elements and actors such as service providers and other customers are related to them and a specific service, is paramount for the service provider (Heinonen & al. 2015, 489-490). Customer ecosystem describes the different actors and circles the customer is engaged with in her life. It therefore differs from the service systems which map out service providers and their network. (Heinonen & al. 2013, 4.).

Chiscano & Darcy (2020) have studied customer-to-customer (C2C) practices in relation to CDL and servicescape from the perspective of social inclusion of disabled customers in heritage

sites. Social inclusion requires sense of belonging and well-being: social exclusion in servicescape on the other hand results from lack of possibilities to interact with other people (Chiscano & Darcy 2020, 3). When it comes to the use of digital services and technology, CDL suggests, that the service providers need to understand customers' requirements and perception of technology: the technology is usually available to other actors such as competitors as well, and any decision made by the service provider regarding technological solution must align with what the customers are willing to use (Heinonen & al. 2018, 8).

Biggest challenge caused by CDL to service providers is the implementation of the insight of customers' logic into their own internal processes and offerings: this may cause internal conflicts due to the necessity of alignment of different functions and their capabilities to serve different customers. In the end, application of CDL as a business logic requires shift in mindset of the whole organization: customers' perspective dominates all development, interpretation of customer insight, and business, customers decide whether they interact with the provider or not, and customers' logic guides all value formation processes and offerings of an organization. (Heinonen & al. 2015, 492.)

2.3 Social Innovation

Social innovation means new ideas aimed to solve social challenges with the will to increase equality, justice, and empowerment with similar results (Anderson & al. 2014, 28): thus, it provides an overall framework to how to innovate digital social services which aim to include also the socially marginalized young adults that are in the focus of this thesis. What characterizes social innovations is that they prioritize social mission over possibly greater profits from operating like a regular enterprise (Goldberg 2013, 3). Thus, social innovations should offer sustainable and lasting solutions to social needs and problems that benefit the whole society instead of individuals (Phills Jr. &al. 2008, 36). Social innovation, and social design, are linked together as social design's main motivation is to cause positive change to the society (Resnick 2019, 3).

Social innovations often provide services that traditional for-profit companies would not be interested in because of big risk and lack of profit: soup kitchen operated by a non-profit is an example of this (Goldberg 2013, 2). Typically, social challenges that social innovation addresses are problems that are global, though may have local manifestations, like climate change, aging population, and poverty (Anderson & al. 2014, 28): the development work done in this thesis addresses digital inclusion and services ensuring it from a very local perspective around the case organization. The role of social innovation in economic growth is increasing since it is needed to solve and remove obstacles of growth like climate change and gender inequality in all sectors (Mulgan 2007, 5). Social innovations often promote new and more sustainable ways of living and doing, therefore combining individual interest with

environmental and social ones, and introducing new values and definition of well-being that is sustainable to produce (Manzini 2015b, 405).

Social innovations usually generate new fruitful relationships that help produce more social innovation on top of what was already accomplished between different individuals and organizations. Therefore, organizations and individuals that link together different types of actors such as funding, legal expertise and non-profits are necessary to accelerate social innovation. (Mulgan 2007, 5.) In fact, some social innovation definitions emphasize the co-operative, co-creative and social way of working as part of the process (Mulgan 2007, 9), and stress, just like Customer Dominant Logic and service design, the user's and beneficiaries' role in the innovation process and the design and development of services (Mulgan 2007, 43). As Manzini (2015a, 98) puts it, capability approach to design means changing the perception of users or customers as passive actors to users as actors wanting to increase their own capabilities and actively taking part in value creation. This requires the designers to position themselves as facilitators of valuable lives of the users: they need to co-design and collaborate with beneficiaries to create supportive conditions which enable the beneficiaries to discover and materialize ways of living and acting that they value and that let them decide what is best for them. (Manzini 2015, 98a.) It has also been realized that social innovation can stem from unused human capital that can be used to provide services that are needed (Margolin 2015, 27). This can be anything from social capital to historical heritage and traditional craftmanship and advanced technology: the re-combination of what exits is the key (Manzini 2015b, 404).

Social innovation process usually starts like any other innovation process: by understanding and spotting a need that is currently unmet. New social ideas are usually not totally new: they are in fact often combinations of existing ideas like animal rights or homeless people selling Big Number magazine (Mulgan 2007, 22) or new way of utilising existing resources and capabilities of socially marginalized groups to improve their lives (Alvord & al. 2003, 270, Manzini 2014, 57) or finding ways to encourage beneficiaries help themselves or others for example through peer-to-peer networks (Leadbeater 2007, 4; Manzini 2015, 13). Piloting and prototyping usually happens early in the process in case of social innovation: learnings from experiments help develop and sell the idea to other actors like funders and larger organizations (Mulgan 2007, 23.). Though ideation and prototyping of social innovation is usually fast, the whole process and implementation tend to take more time than other type of innovation. Building network and securing funding result in complex network that takes time and resources to coordinate. (Mulgan 2007, 27.)

Social innovation design process can start either from top-down or bottom-up meaning either from decision makers' and experts' strategic perspective or from grassroot level and the perspective of people directly involved (Manzini 2014, 57.). Top-down approach consists of

three interconnected steps: 1) understanding the problem and identifying resources like people and organizations who can solve it, 2) suggesting ways to organize and engage these resources in a way that enables lasting impact and reproduces the process and 3) coordinating local actors and activities through a clear vision (Manzini 2014, 60.). This thesis covers the first step by aiming to understand the resources and capabilities of the young adults in need of increased support, and how these resources and capabilities can be used to develop digital social services.

Bottom-up approach where innovations start from local communities requires the people to understand the power cooperation brings to act. They also need to reconnect existing resources like places, products, services, skills, and knowledge in a creative way to create a solution. In the end, they use the existing resources they have access to, to make the change happen without waiting for external help or changes in politics or legislation. Example of this type of local community-initiated innovation is NYC Community Gardens, which is a group of volunteers taking care of public gardens. The idea was born when following a financial crisis urban land was left unoccupied and group of local people started planting and growing trees on plots. (Manzini 2014, 60-62.) Also, transformation design and community action research in particular emphasize co-creation of solutions that are based on community strengths and the willingness of the community members to maintain and grow (Sangiorgi 2010, 269). It is important to note, that many innovations involve both approaches in different phases of the idea development, testing and implementation and peer to peer collaboration with other similar organizations (Manzini 2014, 63; Manzini 2015b, 406).

Both top-down and bottom-up approaches of social innovation require a firm belief in the competency of the beneficiaries: there needs to be an understanding, that the beneficiaries can explain and share their own experiences and life as well as take care of their own issues. For innovation, this may mean finding out how people experiencing a certain challenge are solving it currently, or by researching people who have deviated a challenge that many others have not and gathering insights on what might be scalable to the whole group of beneficiaries. (Mulgan 2007, 22.) To be successful in the long run, social innovations need to be supported by community that actively participate in them (Manzini 2015b, 407).

Collaborative organizations can take many forms: they can be collaborative services where final users act as service co-designers and co-producers, collaborative enterprises that facilitate new models of local production and service initiatives that promote direct interaction and co-production with users and customers, or collaborative associations where problems are solved or new possibilities are identified by a group of local people (Manzini 2015b, 406). The evolution of these local solutions to lasting organizations requires an environment that favors and tolerates initiatives that deviate from the current norm and regulations and supporting services such as digital platforms that enable collaboration and

typical functions such as booking or payment systems, flexible spaces that are open for gatherings of the community, information services giving advice and co-design methodologies. This is essential, since the resources, especially time, the community has and needs to participate are scarce, and thus requires the collaborative organization to be easy to access, operate effectively to reduce the effort needed to reach results, as well as attract and motivate people to participate. (Manzini 2015b, 409-410.) In addition to this, communities need to believe, that they can realize the visions they have for the future: they need to possess the competencies, resources and power needed (Sangiorgi 2010, 270).

Social innovation can mean designing both situations and objects to reach the change: when the objective is to change the whole social environment, structures, or system, it is situation-centered, whereas more traditional, human-centered design revolves around changing tangible solutions. Janzer and Weinstein (2014, 363-364) argue, that though design thinking and human-centered design has gained wide popularity in the realm of social design, both methodologies lack important perspective: the involvement and thorough understanding of the end-user or beneficiary. In practice, this means that a) the research methods suggested are too simplified to capture the context of the problem, b) they lack process and methods to ensure the suggested solution is suitable in the context it is aimed for, and c) the empowerment and perspective on life of the end-users is forgotten while designer's own agenda and creativity is emphasized. Sustainability of the social innovations requires the end-user's involvement and empowerment. (Janzer & al. 2014, 363-364.)

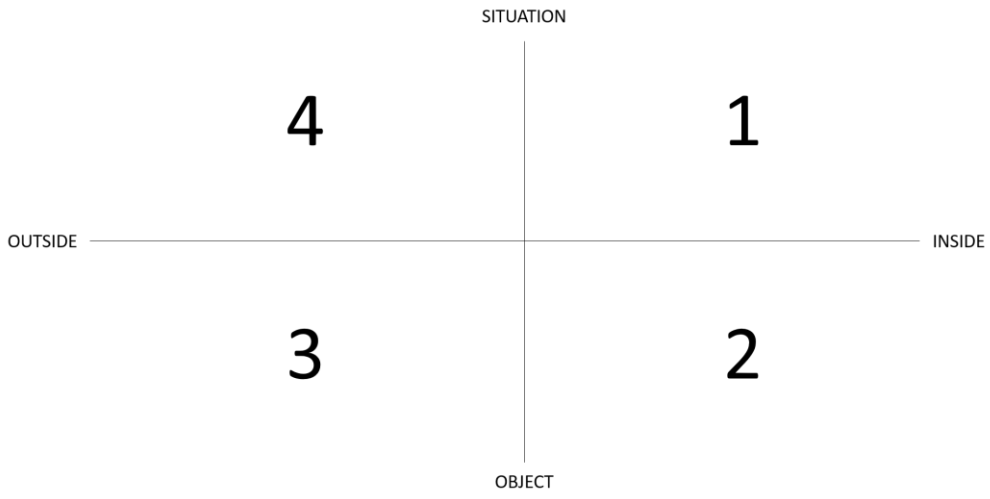

Figure 6. A Social Design Action Matrix (Janzer & al. 2014, 365)

Selection of right design tools for social innovation must be made with understanding of scope and capability of different methods to ensure effective application. Janzer and Weinstein

(2014, 365-367) have developed a matrix visualizing the different audiences, characteristics and research needs in social design (see Figure 6), and list of methods applicable in different contexts to solve the problem in each quadrant (see Table 1). The social design matrix has two axes: the y-axis presents the range of design interventions from object (tangible) to situation (intangible) while the x-axis presents the designer's involvement in the community to which the solution is designed to and with: inside refers to situations where the designer has developed a strong relationship with the community and outside to situations where the designer is not part of the community. Biggest social change can be reached in quadrant one, where the designer is strongly part of the community and the aim is to create situational solutions. (Janzer & al. 2014, 366.)

Quadrant	**1**	**2**	**3**	**4**
Approach Objective	Gather extensive situational and social understanding. Develop honest relationships.	Gather extensive research on the end-user, beneficiary, and their use experience.	Gather creative, innovative ideas.	Research methods not suggested, as work in this quadrant is not recommended.
Possible Research Methods and Approaches	Ethnographic Research, Participant Observation, Literature Review, Case Studies, Interviews, Problem Driven Iterative Adaption, Preliminary Desktop Research, Surveys, Social work Intervention Process, Community Organizing, Invention Process, Praxis Model, Participatory Action Research	Human-Centered Design, Design Thinking, Probes, Diaries, Design Ethnography, Case Studies, User Personas, User Testing, Desirability Testing, Experience Sampling, Generative Research, Participatory Design Research, Interviews, Picture Cards, Surveys and Questionnaires.	Design Thinking, Creative Processes Collage, Thinking Wrong, Design Charette, Image Boards, Role Playing	As the priority quadrant four projects is one's own beliefs derived from personal experience, research is usually less often embraced. It is not suggested that projects operate with quadrant four perspectives. No methods are recommended.

Table 1. Selected appropriate research methods for each matrix quadrant (Janzer & al. 2014, 367).

Since the thesis is related to a research perspective pictured by quadrant two, i. e. the goal is to design digital services with strong emphasis on end-users and gaining deep understanding of the users and their life as well as participate the end-users in the development work that uses deliverables from this thesis, it is suggested to use human-centered design and design thinking methods to design objects that are relevant to the end-user. Typically, inventions in this sphere produce positive social change albeit not as extensive as the quadrant one. (Janzer & al. 2014, 368.)

Furthermore, designers should transfer design knowledge to the community to help ideate new solutions through the use of different design methods and tools and facilitate the scaling of solutions by identifying and supporting the development with technologies. (Manzini 2015b, 413-415.) This transformation design, which does not only aim at educating and providing tools for the community of both professionals and end-users to change the society, also affects the roles, responsibilities, and interaction: for example, in public services there is ongoing movement of collaborative services that support societal and economic change, and where the citizens take part in service development and production which then affects the roles inside organizations (Sangiorgi 2011, 258). Cottam and Leadbeater (2004, 15-22) propose in their co-creation model for British public health care sector, that the resources such as money, technological tools, advice and know-how, effort and expertise should be distributed from healthcare practitioners to wider group of people from peer support groups to collaborative organizations along with increased co-creation of healthcare and wellbeing together among front line workers and other professionals and users.

2.4 Design Thinking and service design

As Tschimmel (2012, 1) puts it “Design Thinking… leads to transformation, evolution and innovation, to new forms of living and to new ways of managing business”. Design Thinking brings the processes and toolkit of design to be utilized in all creative problem-solving settings by diverse teams (Tschimmel 2012, 2). Design Thinking and service design approaches innovation by gathering insight about the customer and using this customer understanding as the core for co-creating and developing new services (Stickdorn 2012, 29, 31; Curedale 2019, 41; Liedtka & Ogilvie 2011, 4; Polaine & al. 38). Therefore, design thinking and service design can provide methods and tools to gather and create customer insight and understanding which are the core of the development work of this thesis.

Design Thinking combines tangible world with theoretical understanding in a way that leads to innovation: in practice, this means connecting the observations that lead to problem ideation and solutions to solve the problems identified together with exploring the problem through frameworks and reframing of the problem through imperatives (Price & Wrigley 2016, 93). In addition, Design Thinking can be described as a way of combining rational, data-based

thinking with intuitive knowledge to form insight into business opportunities. It is also a way of analyzing business models, networks, behavior, emotions and peoples' interaction with each other and the product or service company provides. (Mootee. 2013, 39.) Design thinking combines analytical and creative thinking (Curedale 2013, 14). Furthermore, emerging field of service design and service innovation, transformational design, suggests, that the primary goal of service design and innovation should be to make services systems more human: this means improving the well-being and decreasing inequality in the whole humankind (Patrício & al. 2018, 11).

Service design means translating user needs to innovative, usable, and efficient solutions that customers desire (Design Council, 4). It can also mean using the networks of technology and people to find ways to simplify service and thus help customers get better value and understand not only single customers but the relationships they have with a whole network of other people and what way a service might utilize and operate in these networks (Polaine & al. 2013, 18, 37). Brown (2019, 24) explains this as a triangle of constraints for solution: desirability, i.e., what is wanted by the end-users, viability, what will fit the business model and be financially sustainable, and feasibility, i.e., what can be actualized in the near future functionality wise. All of these need to be balanced for overall sustainability of a project (Brown 2019, 25). Curedale (2013, 14) adds to this by stating, that not only business, empathy with people and technological solutions need to be considered, but also there needs to be consideration for the environment. This means meeting the needs of the user, organization, and its stakeholders by using human-centered research methods, prototyping and other service design tools (Stickdorn & al. 2018b).

At the core of service design thinking lays focus on humans, co-creation at all stages of the process, holistic perspective that considers the whole environment where the service takes place, sequential approach that allows for iterations, and aim to create visual and sometimes even physical artifacts of intangible services (Stickdorn & al. 2013, 34; Stickdorn & al. 2018b). Though design thinking is iterative in nature, it is also a project with start and finish, with checkpoints along the way to allow for adjustment of course (Brown 2019, 27). Service design can also be used to redesign existing services (Design council, 4). Service design makes complex ecosystems and problems simpler and makes sure the designed service brings value to the customer (Polaine, Løvlie, Reason 2013, 18). Different stakeholders related to the service should be brought together as early as possible in the process of designing a service to ensure it matches the needs of all and utilizes the resources and capabilities in optimal way (Stickdorn & al. 2013, 64). Additionally, service design means the design of the experience, and co-production of services, where the customer participates to create value, and which is the most often missed opportunity for organizations: organizations fail to recognize their customers as valuable assets in the production of a service (Polaine & al. 2013, 24).

Yu and Sangiorgi (2018, 53) have created a framework for combining new service (NSD) process with service design approach from the customer centric value-creation perspective. They argue that service design can provide empathic, customer centric and customer involving approaches and tools, which enable the customers better integrate their resources to value-creation, generate customer understanding that helps companies create value-propositions that match customer's value-in-use and facilitate customers' engagement in the service by optimizing their processes and resources. Service design aids the alignment of different actors in the system to support the customer value creation and offer organization's personnel valuable capabilities in understanding and supporting customer's value creation process. (Yu & Sangiorgi 2018, 50-52.) Furthermore, service design can help to identify resources and strengths and find solutions even in situations where lack of resources acts as a constrain for solutions to social issues (Alkire & al. 2019, 34-35).

Design Thinking and service design tools can help think more broadly and come up with divergent ideas, and on the other hand narrow down the ideas: research is crucial to this (Stickdorn & al. 2018b). Most of the service design research methods are empathic and have background in ethnography (Segelström & al. 2009, 1). Service design offers many tools to visualize the key insights related to customer needs, challenges, context of use and the service ecosystems; personas, empathy maps, customer journeys and stakeholder maps are all tools used to communicate the results of research and define the problem to be solved through service innovation (e.g., Stickdorn 2012, 143-210; Liedtka & Ogilvie 2011, 50, 56; Tschimmel 2012, 12-13; Curdale 2019, 331-434).

To ensure customer centricity, service design tools aim to increase the empathy for the customers: statistical or empirical insight is refined to visualizations that allow the designers and other co-creators empathize with the customer. These artifacts are also a way to establish shared language to ensure everyone who is involved in the innovation process understands the user's world, which is why these visualizations are important in transferring the insight gained during the development work of this thesis to the DigiIN project and the case organization. (Stickdorn & Schneider 2013, 29.) Service design tools are focused on identifying gaps between what is offered by a company and what the customer needs or has challenges with, and ideation is often based on how to fill the gap with company's resources and offering. Service design tools applicable to this thesis are presented in more detail in Chapter 3.3.

2.5 Customer resources and ecosystem as a base for innovation

The theoretical framework for this thesis that combines social innovation, design thinking and service design as well as service-dominant and customer-dominant logics is presented in this chapter and visualized in Figure 7. Customer competencies and resources play slightly

different, yet important role in Service Dominant Logic, Customer Dominant Logic, social innovation, design thinking, and service design: customer's competencies and resources are seen in all of these as the source of value as well as raw material for co-design, co-creation, and innovation (Vargo & Lusch 2014; Heinonen & al. 2010, 545; Grönroos 2008, 303; Manzini 2015a, 98; Alvord & al. 2003, 270, Manzini 2014, 57; Polaine & al. 2013, 18, 24, 37; Yu & Sangiorgi 2018, 50-52). This view is adopted in this thesis as the foundation on which to base both identification of customer's competencies and resources and the opportunities for using the identified competencies and resources in innovation.

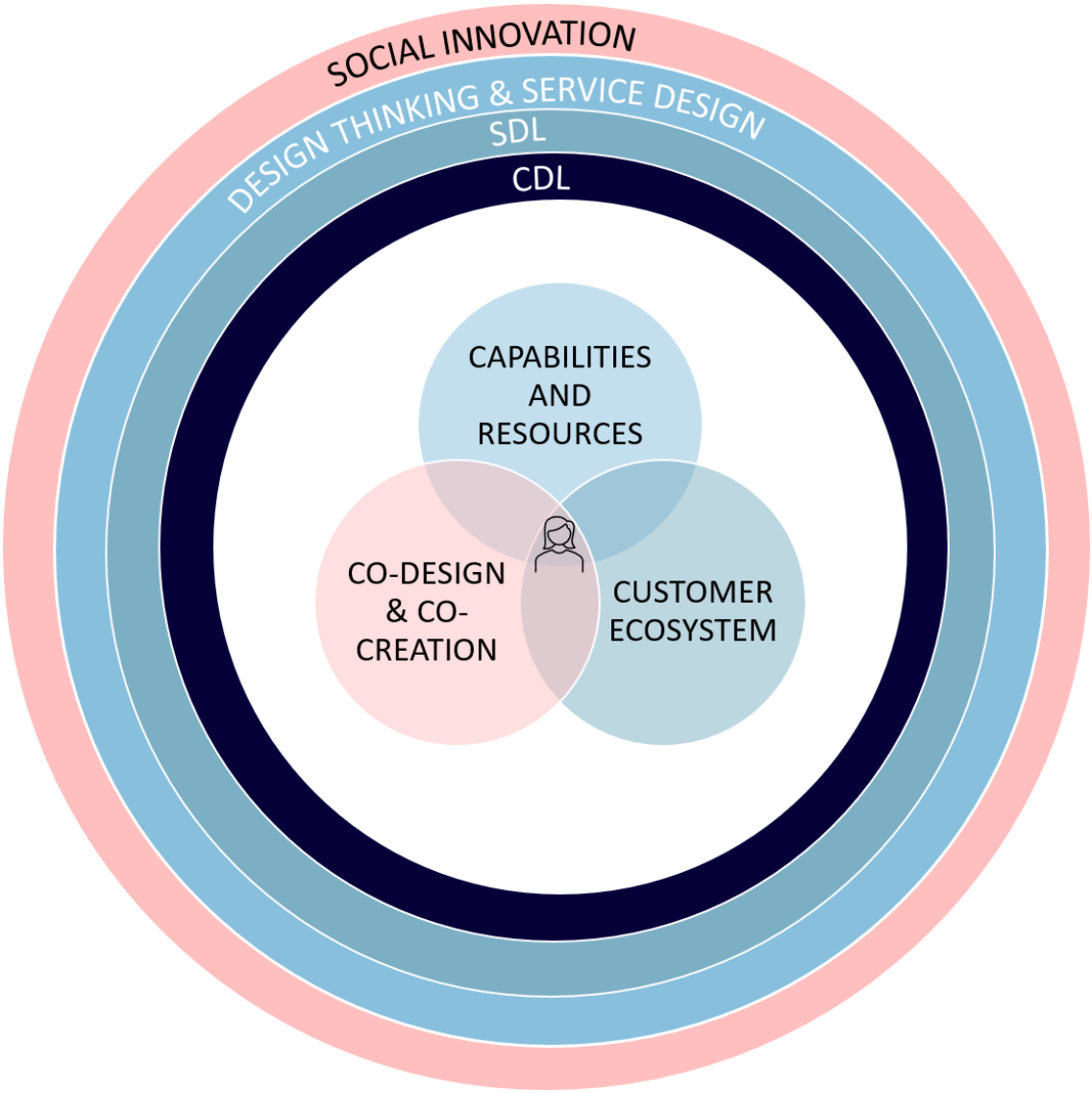

Figure 7. Theoretical framework of the thesis.

Individual's capabilities and resources are also seen as important factor from the perspective of social and digital inclusion: as described earlier in chapter 2.1, Helsper (2012) has recognized social, cultural, economic, and personal resources that affect exclusion or

inclusion together with mediators that describe factors that affect the impact of offline resource to digital resources and vice versa, and by Newman & others (2017, 579) have both challenged and completed Helsper's model by dividing some of the resources, i. e. economic, social and cultural to three levels that emphasize the specific resources and competencies needed because of the vulnerabilities of an individual.

These categorizations of fields, competencies and resources can be matched to Arnaud and others' (2006) categorization of operant and operand resources in SDL: Takeyama and others (2014) have introduced customer resource integration map and resource availability table which can be synthesized with Helsper's (2012) and Arnaud and others' (2006) models to help to identify the customer's own competencies and resources and external competencies and resources needed for value creation and inclusion in digital services. Availability of capabilities resources can be utilized as a base for ideation for innovative services that either utilize existing capabilities and resources of the customers or complement them to maximize customer benefits and experience (Takeyama & al. 2014, 348), and if done in a way that takes the perspective of CDL, i.e. fitting the service in the customer's life world instead of the other way around and offering supportive capabilities and resources, should lead to service that offers value-in-use and enhances customer inclusion in the service (Grönroos 2008, 304; Heinonen & al. 2015, 484.).

The information described above about customer's own and external competencies and resources can be utilized to operationalize customer insight through visualization and categorisation of the identified competencies and resources in a way that makes it possible to not only detect the differences between different customer groups, and in this case possible digital skill levels, but also understand how the case organization could best utilize the competencies and resources or support these different groups in value-creation and co-development of services.

Both CDL and social innovation emphasize the need to understand the customer's life world: context, experience, networks, and other resources (Voima & al. 2010, 11; Heinonen & al. 2015, 473, 493; Heinonen & al. 2010, 5; Janzer and Weinstein 2014, 363-364). Customer ecosystem explains the connections and value exchanges between customer and different stakeholders: this knowledge can then be used to innovate services through simplifying the processes and removing touchpoints, creating new partnerships, and filling in gaps in the networks. (Heinonen & al. 2015, 489-490; Heinonen & al. 2013, 4.). Ecosystem maps will be used in this thesis to visualize the findings of the research and transfer the insight to the team developing case organizations digital services.

Design thinking and service design especially in the form of human-centred and transformational design from social innovation provide methods and tools to gather customer

insight and understanding that can be used as a base for innovation that matches the needs and life of the customers (Stickdorn 2012, 29, 31; Curedale 2019, 41; Liedtka & Ogilvie 2011, 4; Polaine & al. 38). Service design process provides a framework for the innovation of digital services: starting from discovering the customer needs and opportunities, to defining and prioritizing what was found in the discovery phase to choose which opportunity is the most feasible and viable from the perspective of organization to developing and testing a solution and finally delivering it to the customers. Design thinking and service design not only emphasize the research and customer understanding throughout the iterative process, but also stress the importance of including the customers through co-design, co-development, and co-creation (Stickdorn & al. 2013, 34; Stickdorn & al. 2018b).

To create inclusive, digital social services, it is important to first understand the customer's lifeworld and needs as well as the resources and capabilities the customer segments currently have. Additionally, to effectively collaborate with the customers during each step of the design process, the organization needs to understand what factors increase customers willingness to participate: especially when the target customers have experience of social marginalization (Prahalad and Ramaswamy 2000, 81-84; Prahalad and Ramaswamy 2004, 23;Vargo, Lusch 2014, 146-147; Heinonen & al. 2010, 10; Manzini 2015b, 409-410; Sangiorgi 2010, 270).

3 Methodological choices

While the research method used in this thesis is a qualitative case study, the development process, methods, and tools used are mainly from service design and will be explored in further detail in the following chapter.

3.1 Research method: qualitative case study

This thesis is a qualitative case study. The research method was chosen, since it is suitable for development work which aims to provide development ideas or suggestions which are based on information gathered about a contemporary phenomenon in real situation and operational environment, which the researcher cannot control (Ojasalo & al. 2014, 52; Yin 2018, 5, 13). Therefore, qualitative case study research is most suitable to research which aims to answer research questions starting with how? or why?, that is explanatory research (Yin 2018, 9). The focus of the study, i. e., case, is typically a company or part of it or a service (Ojasalo & al. 2014, 52; Yin 2018, 5, 13). In this thesis, the case organization is a Finnish private corporation in the field of social services and initially was chosen by the Laurea UAS DigiIN -research project team (see Chapter 1.2): in qualitative case studies it is

common, that the case is chosen simply because there is easy access to it (Silverman 2014, 58), and this applies also here.

Deep and detailed information and comprehensive understanding of the phenomenon are characteristic to qualitative case studies: it therefore ensures that the diversity of the phenomenon is maintained and understood and is thus in line with the principles of service design as well (Ojasalo & al. 2014, 52). A case study is typically based on multiple sources of data which are gathered to adhere to the principles of triangulation (Yin 2018, 15): use of diverse methods, which can be both qualitative and quantitative, to gather evidence in natural situation is common (Ojasalo & al. 2014, 55). Typical forms of inquiry in case studies are different types of interviews, observations, brainstorming workshops, benchmarking and similar: research methods aim at studying human behavior in different situations, where actors explain and describe the phenomena, or what led to the situation (Ojasalo & al. 2014, 55). In this thesis, probe, interviews and focus group are used to gather information.

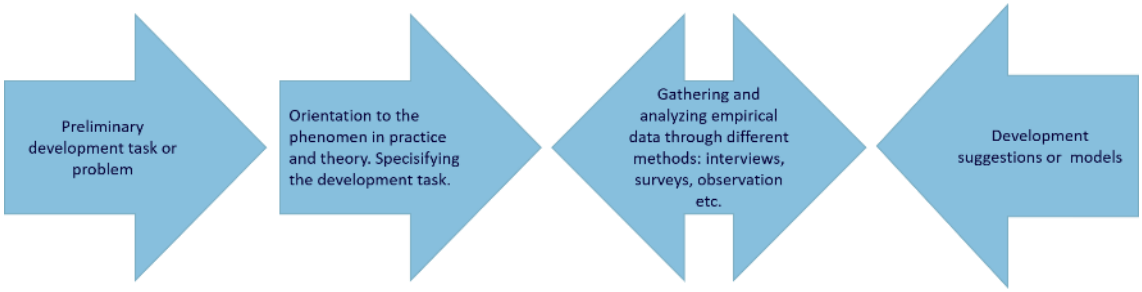

Figure 8. The phases of a case study research as visualized by Ojasalo and others (2014, 54).

The phases of a case study visualized in Figure 8 started by familiarizing with literature relevant to the development task and planning the appropriate approach to research to provide background for the development task of the case organization. In case study research, it is typical to also start the process by the preliminary development task related to the case, and then gather further theoretical background about the phenomena under research. When the development work is conducted, the development task may be changed or adapted due to new knowledge: this is natural part of the development process. (Ojasalo & al. 2014, 54.)

Since case studies are usually related to real world context, the subjects of the study are usually humans. This requires specific ethical considerations to ensure the protection of the human subjects, especially when the research involves vulnerable groups such as in the development work of this thesis the young adults in need of increased support. First, the research plan needs to be approved prior to starting the research: in the case of this thesis, the formal research approval was obtained by the Laurea UAS researchers together with the approval for other development cases of DigiIN project. Secondly, informed consent from all

the persons participating in the study needs to be gathered. Thirdly, participants need to be protected from any harm, and their privacy and confidentiality protected. (Yin 2018, 88.) In this thesis, the consent of all the participants was gathered at the time of recruitment before the probe or focus group discussion, and the principles and content of the research explained by a researcher to ensure the participants understand the nature of the study. To protect the participants, the topics of the research were chosen to reveal as little as possible for example health information or other personal data, and all the material was saved to a highly protected data storage managed by Laurea UAS according to data management protocol the team of students made at the beginning of the research. In addition to this, the material that was saved in the data storage was anonymized, and data protection guidelines of Laurea UAS presented, gone through, and followed during the work.

In contrast to quantitative research methods, random sample is usually not satisfactory mean to reach representativeness in qualitative research: instead, either purposive or theoretical sampling should be used. In the case of this thesis, which aims to find participants for the probe and interview focusing on understanding the capabilities and resources of young adults in need of increases support, the participants with different levels of need for support were sought the case organization. Snowball sampling was used to support this by asking the recruited participants and the personnel at the case organization whether they know someone who would fit the criteria as well. (Silverman 2014, 60-61.)

Analysis of the research data was done using qualitative content analysis which fits well with the qualitative case study. Qualitative content analysis aims at analysing the content and meaning of the data together with the meanings revealed by the data in the context (Eriksson & al. 2016, 119). Typically, the data analysed through qualitative content analysis is in the form of text (e.g., transcripts of interviews or focus groups or written documents) or audio-visual data such as pictures. Qualitative content analysis has two purposes, that can be intwined: first, to provide a factual, holistic overview about the phenomenon, and second, to offer deep and detailed interpretations of the phenomenon and its meaning in certain context. (Eriksson & al. 2018, 120; Tuomi 2018.)

Though not compulsory, qualitative content analysis starts by coding the data: this may mean tagging of parts of data with descriptions derived inductively from the data itself, or if the tags are based on the theory, the tags can be revised based on the data. The categorization using codes can be done on different levels: at word, phrase or sentence level or using actor and action level. To be good, coding categories should be possible to be applied to all content, independent from each other, and be mutually exclusive (Eriksson & al. 2018, 120, 122-123.) Tags are important because they act as notes, help construct what the data is about, aid description of the text and they can be used to test the structure of the data and act as markers (Tuomi 2018).

Analysis should be sequential, systematic, verifiable, and continuous to avoid researchers' bias: commonly data collection and analysis happen simultaneously. The steps of analysis start with data gathering and are followed by familiarization of the data by the researcher which typically means the process of listening to recordings, transcribing, and going through the material several times to understand the big picture. The process continues by writing memos of patterns, insight and other observations that emerge, after which these findings are indexed by highlighting and comparing the insights. Next, the insights are grouped under themes, and finally mapped and interpreted. (Doody & al. 2013.) Tuomi (2018) adds to this, that researcher should start by deciding what they are interested in the data, and then mark the content that is related to that: everything else, that is not related to the topic should be left out.

The data can be either classified, divided to themes, or combined to types. Classification is thought to be quantitative method that has themes from the content: in basic use case, data is classified and then how often each class is presented counted. Division to themes is similar to classification but it focuses on what is said about the theme. Division by type means grouping the data to generalized types in relation to a theme. (Tuomi 2018.) Regardless of how the data is categorized, after it has been done, the researcher should check if the codes are overlapping, or some of them have too little data on their own (Eriksson & al. 2018, 123).

In addition to coding, also interpretation can be used to understand the phenomenon in certain context and location through the relationships between different concepts. The research questions are essential in guiding the interpretation of the content. Interpretation can be used together with coding: then coding would be the first step, which offers the researcher an opportunity to get acquainted with the data. After the coding and round of interpretation, another round of categorization can follow: this time, the focus of the categorization is the relationship between concept, whether they exist or not, and the strength of it. (Eriksson & al. 2018, 124.) At this stage, it is important that the researcher defines whether they are looking for similarities or differences, or if they want to find out information about the logic of actions, typical story or write one typical story from all the answers (Tuomi & al. 2018). In this thesis, the aim is to see if separate personas, that is types of customers which differ through their needs, motivations or challenges can be identified, and then combine individual participants answers accordingly.

Analysis can be either completely inductive and data set based, deductive and theory-based or then abductive where initial analysis can be based on themes emerging from the data and then further analysed within a theory-based framework: the last approach is used in this development work, since it gives space for emerging themes from the research data, but analysis is helped by the theoretical framework (Tuomi & al. 2018).

Analysis of interview and observation data is a mixture of factual knowledge gained through them but also noticing general patterns and phenomena in different contexts. Analysis should be about sensemaking and increasing the understanding of how people experience the research theme at hand through interpretation (Madsbjerg & Rasmussen 2014, 91). It is also about comparison of the findings with the theory (Miles & al. 2020, 7). Human beings have a tendency of avoiding facts that do not align with their world view and might change it so abductive reasoning is needed (Madsbjerg & Rasmussen 2014, 102-105.). Analysis is also important because it combines individual thinking of each researcher with thoughts of other group members and therefore creates shared understanding and enables to record findings in a format that is accessible to everyone. (Heinonen 2016). Mapping patterns visually and discussion about data, patterns and individual thoughts summarize analysis (Madsbjerg & Rasmussen 2014, 115-118.).

Visualization helps the researchers to see the overview of the data, organize complex data, and see if there is data missing. Some forms of visualization also deepen understanding of the topic and increase empathy with the end users: this is very important in the development of the digital social services and distribution of knowledge gained through the customer research related to this thesis to both Laurea UAS researchers and the personnel of the case organization. Different visualization tools fit different goals: for example, a research wall provides easy overview of all the data, personas provide identification of different customer or user groups and their differences, and system maps visualize relationships of different actors. Co-creative approach with peer researchers during synthesis and analysis increases quality and reduces confirmation biases and is easiest way to add peer review to this stage. (Stickdorn & al. 2018b.)

The visualized outcomes are used further in the design process: for example, personas can be used to identify opportunities and spot problems in the current service. They are also common tool used in ideation. (Stickdorn & al. 2018b.) Personas as a method will be introduced in more detail in Chapter 3.3.4..

Affinity diagram, or KJ method, is a tool to recognize patterns and analysis of insight gathered to answer the research questions. Making affinity diagram consist of four phases: 1) label making, 2) label grouping, 3) chart making and 4) crystallizing the analysis results. Label making means individual work to mark down findings, i. e. patterns and themes, on sticky notes for further analysis. Label grouping is the phase where group starts to first spread the labels physically and then categorize them: it is important to look for things that are connected to each other and add new labels if needed. Also labels that don’t go to any group that is recognized should be kept and reviewed later to see if they start to have a meaning through explaining one of the other labels in deeper manner. In chart making, group starts to recognize relationships and contradictions between different groups. Lastly, key insights are

formed in a concise fashion. (Heinonen 2016.) Affinity diagram work is more effective if all relevant stakeholders are present: specially participation of the people who are going to use the insights in their work add value to diagram analysis. Client will know what type of data is important for them. (Chipchase 2017, 382.)

3.2 Service design process applied in the thesis

The most common way to describe the service design process is the double-diamond model. Discover, define, develop, and deliver are the four phases of the double-diamond model (Design Council, 6.). In double diamond model the diamonds present how the model is a combination of divergent phases where thinking should be as broad as possible to notice different possibilities and gain knowledge, and convergent stages where what is known is narrowed down, synthesized and focused on most important aspects related to the task at hand (see Figure 9). At the core of all service design doing is research: whether it is initial research needed to discover opportunities and define the problem, or testing ideas through prototyping and feedback after launch, it is paramount to base decisions and ideation on real world instead of assumptions. (Stickdorn & al. 2018b).

Aim of discover phase is to gather both qualitative and quantitative insight and inspiration to be able to define a problem that should be solved, opportunity to take or customer needs that should be filled (Design Council, 8). It is important to aim to find out how the current and potential clients see the present situation (Stickdorn & Schneider 2013, 128). Qualitative data offers answers to why questions, which is often more actionable and therefore popular in service design than quantitative data (Stickdorn & al. 2018b). During define phase what was found in discover phase is summarized and prioritized and aligned with company's needs and goals to clear problem definition in form of design brief (Design Council, 8). Develop phase focuses on answering the design brief with a product or service design. It usually involves high focus on defining the details of service or product regarding customer's life and surrounding environment and company's limits. Resulting solution is tested with customers through prototyping and other similar actions that aim to develop the solution further. In deliver phase final design is tested and implemented and customer feedback gathered. Learnings from the design process are also communicated to the entire organization. (Design Council, 9.)

There are also other ways to describe service design process (see Figure 9), that align with double diamond model as Yu (2016, 28-29) describes in his reflection. Different processes have slightly different emphasis: some are more focused on the discovery and research where others take stronger perspective in implementation of the service design. As Stickdorn (2013, 124) states, design process has iterative nature, and it is common that the process moves

back and forth between different steps when something new is learned and need for more information rises and this is common to all the process descriptions.

The extent to which the user research is utilized in finetuning problem to be solved through design process, differs between the processes: Curedale (2013, 18-19) introduces a five-step process, which starts by defining what the design team is trying to solve by creating vision and identifying problem to be solved and opportunities related to it. This is followed by research to ensure understanding of the people and the context on a deeper level and exploring ideas through methods like brainstorming and refining of the most suitable ideas. Two last phases include prototyping and iterating the solutions until they are ready to be delivered to the customers. (Curedale 2013, 18-19.) In comparison to Double Diamond model, Curedale's model is divided to smaller phases, and the problem to be solved is defined at the beginning of the process. Meroni and others (2011, 274) derive from several case studies four phases for service design process which are analysing, generalizing, developing and prototyping: though this process aligns fairly well with the Double Diamond model, it has not gained as wide popularity as the Double Diamond. Stickdorn & Schneider's (2011, 120-127) service design process of exploration, creation, reflection, and implementation also follow the Double Diamond, and is somewhere in the middle between Curedale's model and the Double Diamond: the phase reflection means in practice prototyping.

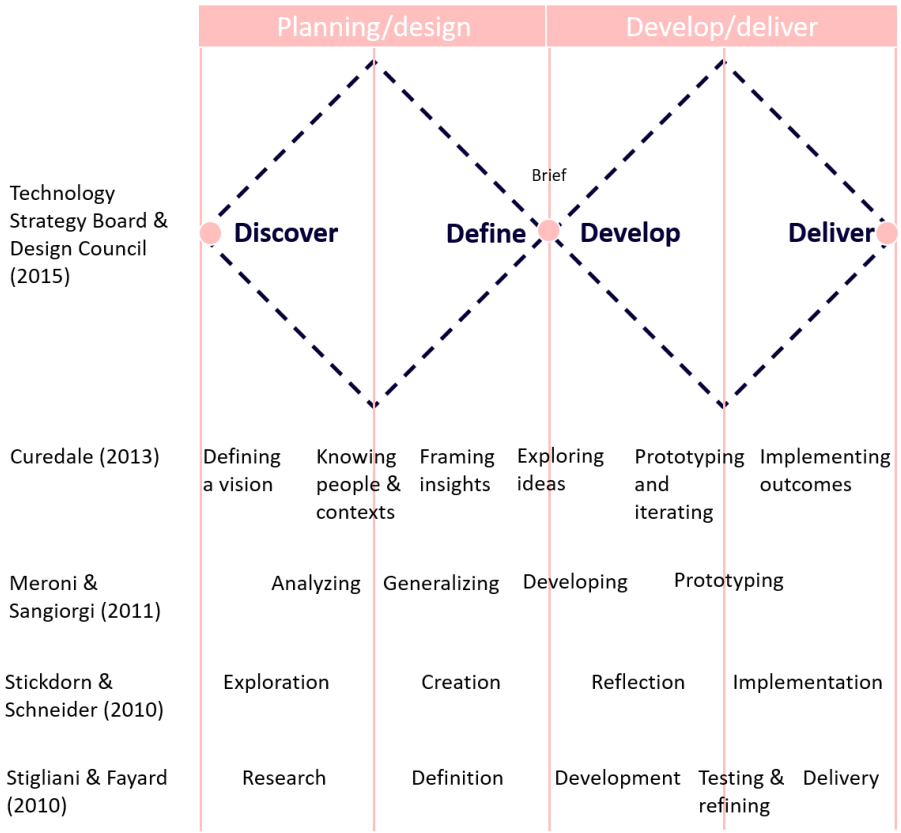

Figure 9. Service design framework comparison adapted from Yu (2016, 28).

As stated before, service design process should be co-creative, and human centred. Han (2010, 16) argues, that since service design is not only user, but also people focused, needs of all stakeholders' who are related to provision, and consumption of a service should be considered before technological or commercial aspects. Stakeholders need to be involved in service design process as early as possible (Stickdorn 2013 & Schneider, 64.). This means engaging not only internal resources like employees but also external stakeholders like partners and most importantly customers, both potential and existing, should be given a say and chance to contribute to the service design process.

Double diamond was chosen as the service design process of this thesis due to its clear, easy to understand structure that emphasizes the divergent and convergent phases of data and knowledge gathering and creation of understanding that form the deliverable of the development work of this thesis. It was also the method, that had been used by the Laurea UAS researchers to present the overall development work done to the case organization.

3.3 Service design methods and tools applied in this thesis

Service design methods aim at producing visual presentations, i. e. artifacts, of ideas and concepts. These artifacts help the stakeholders form shared understanding, plan, and share the idea as well as use as a reference (Stickdorn & al. 2018b): hence, the service design methods are important part of sharing the knowledge and insight of customers and generating deeper understanding of their competencies and resources to the case organization and Laurea's researchers in DigiIN project. The artifacts also allow people to see possibilities for improvement and be inspired. The act of visualizing and creating artifacts itself aids the designers to learn more about what they are working with. (Blomkvist 2014, 53-54.)

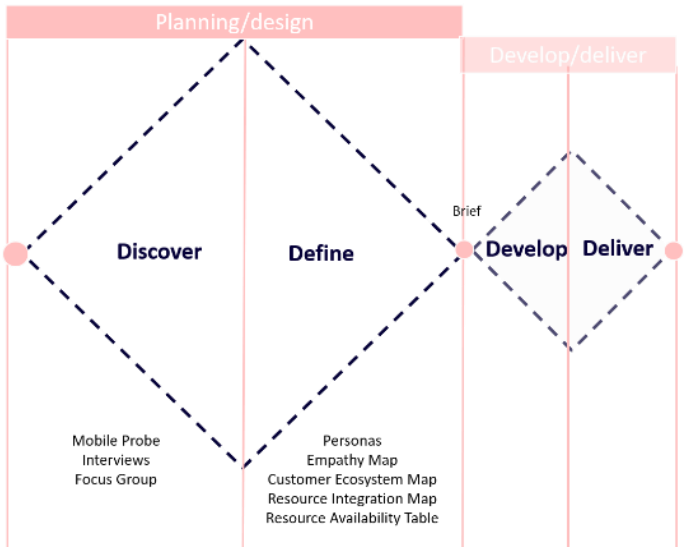

Figure 10. Service design methods used in this the development work of this thesis as related to different phases in Double Diamond model.

Service design tools can be used in multiple ways and most of the tools can also be used during multiple different phases in service design process. Tools need to be chosen to support the aim of the process, which is why in this thesis probe, interviews and focus group along with personas, empathy maps, customer ecosystem maps, resource integration maps and resource availability table were chosen to support the generation and distribution of customer understanding. In Figure 10 the relation of the aforementioned methods to the phase of Double Diamond model are presented.

3.3.1 Probes

The aim of the thesis was to understand the resources and capabilities of young adults in need of increased support during the time when COVID-19 might prevent face to face research and limit the informants' movement. Since the probes can be seen as self-documenting tools allowing the design team to observe the users in their natural habitat (Tschimmel 2012, 12), probe was chosen as a way to collect information from the use of digital services and attitudes, feelings and competencies related to them. Probes are used to promote communication and gather insight on what the users find important in their lives, users' beliefs, and attitudes (Debrah & al. 2018, S2120). Probe data can be used to build personas (Curedale 2019, 277). Probes can be conducted on paper or through mobile phone solutions (Stickdorn & al. 2018b).

Probes are tasks that engage the participants, i. e. users, in their daily life to gather and document their own actions, feelings, ideas and thoughts. Exploration of opportunities is the main goal for the use of probes; probes are usually not a method to find solutions to predetermined problems. (Mattelmäki 2006, 40; Curedale 2019, 613.) Main reasons for using probes are to provide inspiration to design team, to gather information about users, to involve users in ideation of service and to have dialogue with the users (Mattelmäki 2006, 58). What differentiates cultural probes from traditional ethnographic research where the participants also keep diary of their everyday life as it is with as little interruption as possible, is that cultural probes aim to provoke and inspire participants to think about opportunities and new ideas related to the topic of the research (Mattelmäki 2006, 43), which is one of the goals of the development work of this thesis. Without researcher's physical presence participants often record more intimate insights thus resulting in unbiased record of participants' lives and contexts: cultural probes still make it possible for the researcher to guide the process through emails or text messages (Stickdorn &al. 2018a, 51). Morelli (2009, 576) argues, that thought probing does not require researcher's presence, they still interfere with participants processes through the request to document and collect data.

Cultural probes often provide initial insights that need to be deepened through additional research that is conducted using other methods like co-creative workshops or interviews

(Stickdorn & al. 2018a, 51): probes will be supported with semi-structured interviews in this development work. Weaknesses of probe studies are the time and resource consuming analysis of results, difficulty to predict the motivation and intent of the participants to use selected probes and difficulty of recording changes in actions and contexts (Mattelmäki 2006, 43, 57.). In addition, probes require time and effort from the participants, and have therefore been seen as tool best suitable for groups, such as retired people, which have a lot of free time, instead of busy people like employees or business professionals (Morelli 2009, 576). This may be a weakness of probe in the target group of the research of this thesis, young adults with increased need for support.

In practice, probes are a package of different tasks and objects like diary or disposable camera including instructions and designed for the purpose (Mattelmäki 2006, 41; Stickdorn 2013 & Schneider, 168). Design of the package takes time: researcher should allocate at least a day to prepare the probes, but it could take as much as 2 weeks to design it (Stickdorn & Schneider 2013, 50). Participants work on probe assignments for long period of time producing material that is used for inspiration during design process (Stickdorn & Schneider 2013, 168.).

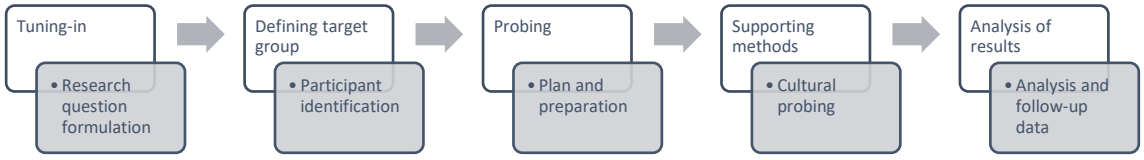

Figure 11. Process of using probes according to Mattelmäki (2006, 65-96) on white background and Stickdorn & Schneider (2018, 52) on gray background.

Mattelmäki (2006, 66) divides the process of using probes to five phases (see Figure 11): tuning-in, definition and selection of target group, probing, use of other methods supporting probing and analysis of results. Stickdorn (2018, 52) presents more streamlined, yet still five step process of research question formulation, participant identification, plan and preparation, cultural probing and analysis and follow-up of data. Both processes are similar in overall content, but Mattelmäki's version emphasises the use of supporting methods, where as Stickdorn's focuses more on planning and preparation of the probe package.

Design of the probes requires the researchers to understand and empathize with the case, users and users' feelings and language, and is especially important when sensitive topics such as health information is studied. This understanding should be used to design the probes that match the subjects of the study and take notice of the contexts of use and research questions. Ambiguous material allows the users express and reflect their emotions and experiences more freely: use of different types of input such as text, images and action make

answering easier. (Mattelmäki & Battarbee. 2002, 267-268.) Sanders (2002) has introduced the do, say, make model that expands traditional design research methods focused on observation of what the users do and say, and traditional market research methods such as interviews that provide information of what the users say, to new methods such as toolkits and diaries provided to users that let the users express their feelings and dreams. Using methods that cover all the three perspectives, the researcher gains emphatic understanding of the user and their system. (Sanders 2002.)

Blomhøj and others (2011, 2) utilized an interview-based probe to study teenagers and quote the ability to follow up answers by either offering help or deepening understanding through additional questions together with the use of personalized messages and using language and messages familiar from face-to-face communication as advantageous for the rigorousness of the study: it helped keep participants motivated and engaged and aided establishing a friendly relationship with participants. The probe was designed to have three text messages sent to participants every day during the seven-day probe period: this allowed them to present the general question to everyone in the morning and at noon and add possible follow-up question at six o'clock in the evening. This approach made it possible to remind the participants who had not reacted to the first two messages. (Blomhøj & al. 2011, 2-3.)

Probes make it possible to study participants, which are difficult to reach, and cover activities which are irregular or happen over longer period of time. Challenge is, that since the probe requires participants to record themselves, they may need support during the probe to persevere. (Curedale 2019, 277.) Hulkko & al. (2004) found that many participants write down their answers and observations afterwards when back at home, which though acceptable, loses the real-time effect of context and actions. Mobile probes may help to gain real-time, contextualized documentation (Hulkko & al. 2004).

3.3.2 Interview

Interviews were chosen as research method since they are a good method to understand the life of the interviewee: they aim for deep understanding of the culture, behaviour, and thoughts of the respondent. Interviews are good at revealing tacit knowledge such as best practices and experiences, and attitudes and emotions which are at the core of the development work (Curedale 2019, 132-133; Polaine & al. 2013, 50; Stickdorn & al. 2018b). Interview is one of the most common qualitative research methods (Silverman 2014, 166), excellent for developing initial understanding and based in ethnography (Curedale 2019, 133). Interviews let the researcher verify the meaning of what the interviewee says (Polaine & al. 2013, 50; Tuomi 2018), and if conducted face to face or online through video connection, to study the body language for clues as well (Stickdorn & al. 2018b). It offers the interviewer flexibility in terms of in which order the questions are presented (Tuomi 2018). Interviews

can also be used in combination with other methods, and therefore they are perfectly suited to deepen the probe data and ensure that the data collected through the probes was interpreted correctly in the development work of this thesis (Mattelmäki & Battarbee 2002, 269).

Sample sizes are often small in interview research (Curedale 2019, 13). When the sample is collected from a special group, it is good to use client's help in finding the right participants: in the research of this thesis, the interviewees are the same people that are recruited to the probe study (Polaine & al. 2013, 54).

Successful interview requires the interviewer to develop rapport with the person interviewed and informal atmosphere which encourages discussion and revelation of deeper thoughts and emotions (Polaine & al. 2013, 50). The rapport is built in stages: during apprehension phase the interviewer should reduce uncertainty caused by unfamiliarity by asking simple, open ended questions that get the interviewee talking. During exploration phase the interviewee is engaged in discussion and sharing of her experiences and thoughts. Following co-operative phase is the level where the interviewee has courage to disagree and confront if needed and start to enjoy the process of the interview. Final stage, that is typically reached through time or due to quickly built rapport, is described by such high level of comfort, that the interviewee starts to teach and guide the interviewer. (DiCicco-Bloom & Crabtree 2006, 316-317.)

Photo-elicitation can be used in the interview to help the interviewee share their story and feelings, remember the situations they sent the images from in a more detailed, truthful manner, and provide the interviewer deeper view inside lives and contexts of the interviewees (Copes & al. 2018, 476, 480). Since the interviews are used to deepen the rich, multiform data gathered from the probes in this development work, it is natural to utilize and adapt the photo-elicitation into the interviews. The image material used in photo-elicitation can be produced by both interviewees and interviewer: the interviewees can comment on the material that the interviewer presents them and offer their opinion and perspective (Copes & al. 476). If the interviewees can select and provide photos they choose, the power balance between the researcher and vulnerable researched is more equal than traditionally and helps to empower the researched (Copes & al. 2018, 482): this is something that is beneficial also in the case of the socially marginalized young adults who may be accustomed to being inspected by authorities and other such parties that have more power in the situation.

Limitations of interview method are for example the time it takes to transcribe the material, and subject's possible refusal of being recorder. It is also exposed to both interviewer and interviewee biases, which affect the quality. Interviews do not typically provide quantitative information. It would be best to conduct the interviews in the use situation or at the

interviewee's own environment. (Curedale 2019, 287.) The photo-elicitation also has some ethical aspects that need to be considered: the material can be emotional to watch, and sometimes even require the interviewee revisit a trauma, and the requires the interviewee's informed consent and that s/he understands the purpose of the photos and what they will be used for (Copes & al. 2018, 488-489).

According to Portigal (2013, 39) field guide is used to align the research and ensure all teams or interviewers know what the research questions are and what themes should be covered in the interview as well as what type of probes or stimuli should be used during the interview. The list of interview questions and teams should not be followed too strictly during the interview to not to lose the discussion like manner of the occasion (Polaine & al. 2013, 54).

3.3.3 Focus group

Focus groups are usually 1-2 hour semi structured discussions with a group of 6-12 people and led by a facilitator or moderator (Curedale 2019, 204), and provide efficient way of gathering insight from several informants and therefore useful research method to supplement information gathered through probe and interview in the development case of this thesis. In smaller group there is a bigger risk of one person dominating the discussion (Escalada & Heong, 3). Typically, 8 to 12 questions can be explored during a focus group. The purpose of focus group is to gather feedback and opinions to understand how the topic under research is seen by the participants. Focus group is best used during discover phase of service design process. (Curedale 2019, 204, 285, 615.)

The process of holding a focus group starts by selecting the facilitator and place, as well as preparation of screening questions and finding incentives for participants. This is followed by recruitment of committed participants. During the focus group, the facilitator should explain the rules of the session, and start the discussion with an easy question that stimulates the audience to talk and participate. Facilitator is in charge of asking the questions and managing turns to answer. Analysis of focus groups should start immediately after to ensure good memory of the data by first summarizing the key insights gathered. Analysis of one focus group is estimated to take on average 4 hours. (Curedale 2019, 286.)

Benefits of a focus group are low cost of conducting it per participant and easiness of managing it in comparison to other methods. (Curedale 2019, 285-286.) The downside of focus group method is that it is typically held in separate place to the actual context of the participant. Additionally, it requires a skilled facilitator, and the participants may affect each other and what is expressed. (Curedale 2019, 286.) Also, each participant gets typically only few minutes to share their views, which is very little compared to individual interview (Polaine & al. 50). Generalization of the results is also an issue, since the results of focus group may not apply to other context: therefore, focus groups are often used to align or find

a range in addition to other methods (Curedale 2019, 286). Group think, observer effect and social desirability bias often affect focus group discussions (Stickdorn & al. 2018b).

3.3.4 Persona and empathy map

Innovation of new services that serve the needs of the customer and support them in their value creation requires the development team to share understanding of them. Personas and empathy maps are a way to synthesize research findings (Curedale 2019, 204) and were thus chosen to act as artifacts visualizing the research findings of this thesis. They offer an easy to understand, interesting way of delivering the findings, and are easy to utilize in the following phases of the DigiIN researchers' development work at the case organization. Creation of personas and empathy maps is a process of trying to clarify and understand users' perspectives, challenges, and needs. Persona is an emphatic presentation of a customer, which helps make a segment based on research more human. (Tschimmel 2012, 13.)

Persona card typically showcases the demographic details, goals, behaviour, experience, and motives (Price & Wrigley 2016, 95). It also provides information on the context. Personas should be realistic and focus on the current state by reflecting patterns that were identified in the research. (Curedale 2019, 430.) Personas should be used to represent the users and their perspective during the whole length of the design process: they support storytelling, which aids communication and adds the element of emotions. (Curedale 2019, 394.) To be successful and usable the personas need to engage the design team, and therefore wide range of visualization and anecdotes should be used: the end result should not be too idealized (Stickdorn & al. 2018a, 172; Curedale 2019, 394).

Personas should be created based on reliable user research and represent user groups that are different based on their goals, attitudes, and behaviours (Curedale 2019, 395), though sometimes it is useful to start from assumption-based personas and then validate them through research (Stickdorn & al. 2018b). Personas help the design team reflect and define how the ideas and solutions align with the needs and challenges of the different user groups (Stickdorn & al. 2018a, 173). Three to seven core personas are usually enough: usage of additional, "extreme" personas helps to test the ideas and prototypes with the perspective of customers from different ends of a spectrum (Stickdorn & al. 2018b).

Empathy map is often a tool used to further reflect on the customer's perspective, needs, fears, feelings, and desires in a group and in relation to the context of the problem being solved: sometimes this can be done in a workshop also involving the customers (Tschimmel 2012, 13). Empathy map (see Figure 12) gives on overall view of customers experience: it helps to visualize and empathize with customer's biggest problems and contexts and overcome them through organization's service or other solution. Each persona should get their own empathy map. (Curedale 2019, 352.) Typically, an empathy map covers 4 senses:

think and feel, see, hear, and say and do, which might be connected to pains and gains. Questions that can be used to cover each section are for example:

- What are they hearing? (hear)
- What is important to them? What do they feel? (think and feel)
- What do they see? Are there obstacles? (see)
- What are the activities? (say and do). (Curedale 2019, 354-355.)

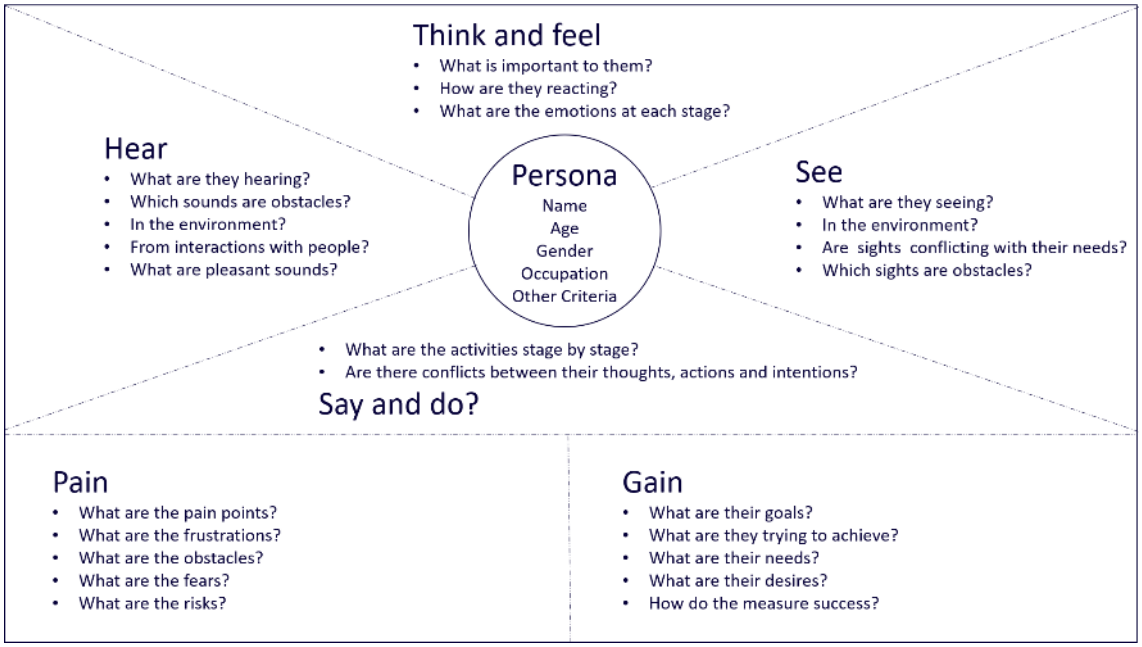

Figure 12. Example of empathy map as presented by Curedale (2019, 355).

Empathy map is less robust than persona, but quicker to make. Usually, the emotions must be interpreted from the data, which slightly weakens their reliability. (Curedale 2019, 354.)

3.3.5 Customer ecosystem map

Mapping is way to organize complex information systematically, communicate it in an easy to understand, visual format, and a process of recognizing patterns and meanings from the vast data gathered (Tschimmel 2012, 12). In this thesis, the customer ecosystem map was chosen due to its ability to visualize important connections and relationships between the customer persona and different stakeholders such as people and organizations from the perspective of the customer therefore emphasizing their role in the value creation (Heinonen & al. 2013, 4; Heinonen & al. 2015, 489-490): ecosystem maps would reveal how the recognized personas see the service ecosystem. As mapping is also synthesizing practice of combining the insights, the visual presentation serves as a new trigger for reflection. Use of colours, different types of lines, images and forms make maps telling and inspiring. (Tschimmel 2012, 12.)

System maps, which a customer ecosystem map is, help understand who are involved and contributing to a service and how they are linked together. Ecology or ecosystem map combines stakeholder map with other actors like channels, apps, and other touchpoints and helps understand underlying relationships (Stickdorn & al. 2018a, 80). It helps broaden the perspective outside of organization and see how it fits the whole environment and contexts (Polaine & al. 2013, 83; Morelli 2009, 573), and in the case of CDL related customer ecosystem map, emphasizes the customer's perspective and understanding of their life world, especially goals and tasks (Lipkin 2015, 691). The customer ecosystem is comprised of customer-related actors and other elements which are relevant to a certain service context, and include other customers, as well physical and virtual service structures (Heinonen & Strandvik 2015, 479; Voima & al. 2011, 1015). This system is in constant change and therefore has effect on how the customer behaves and how s/he experiences service (Heinonen & Strandvik 2018, 5). Understanding the relationships between different stakeholders allows design team also notice possibilities for arranging the network in a new way to solve customer problems more efficiently.

System maps get easily very confusing if all possible stakeholders are added: therefore, it is important to focus them according to the problem, budget, and power to influence (Stickdorn & al. 2018a, 78; Polaine & al. 2013, 83). System maps usually visualize the situation at a given time: the situation is likely to change. Thus, separate maps can be created to explore possible future scenarios. (Stickdorn & al. 2018b.) This is important to remember when using the maps to create new digital social and healthcare solutions.

3.3.6 Resource integration map, resource availability table, and ROSI

As previously stated, most service design tools linked to Discover-phase of the service design process lack the customer competence and resource perspective. To conceptualize the resources and capabilities of the young adults in need of increased support, Takeyama, Tsukui, and Shibata's (2014, 439) resource-oriented service ideation (ROSI) framework, which was developed to help organizations create innovative services and connect SDL to service design, is used as base. The application of ROSI requires the organizations to also use resource integration map together with resource availability table to uncover possibilities for innovation that is based on customer resources in value creation (Takeyama & al. 2014, 347-349). Resource integration map (see Figure 13) is based on inspiration from value constellation map created by Ng (2014, 159-162): it uses the same dimensions (customer's outcome, practices, skills, and provider's offerings) to visualize the context in which the customer is creating value. The resource integration map starts with persona that is based on customer research and that describes the demographics and other information as well as background information on the outcome the persona seeks. The outcome means the goal a customer wants to reach using his/her own resources as well as other resources to which they

have access to through stakeholders. Activities describe the behaviour the customer presents while trying to reach their goal. Competencies focus on what knowledge and skills the customer needs to own to use the outsourced resources to create value and reach the outcome. Outsourced resources refer to what the customer needs to acquire from other actors to reach their goal: these include knowledge, information, objects, and actions. (Takeyama & al. 2014, 347.)

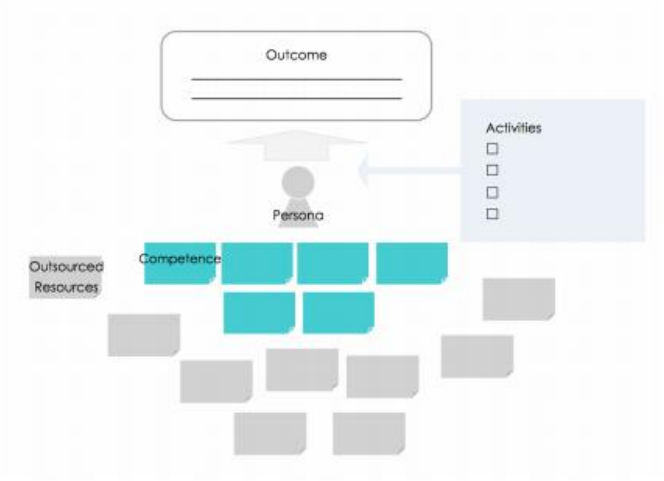

Figure 13. Resource integration map as presented by Takeyama, Tsukui and Shibata (2014, 345).

Resource availability table in Figure 14 requires the organization to have access to information on lead, or experienced, customers as well as information on average users to detect differences between the resources used by these two groups. The resources are divided to two categories, customer's own competencies and outsourced resources, and identified for both groups. The top left corner (marked with I) will be filled with the competencies that both user groups have developed well, while the top right corner will be used to define competencies that the lead user has, but the average customer lacks. The bottom row about the outsourced resources is filled similarly: on the bottom left, the resources that are easy obtained by both customer groups are listed, and on the bottom right the resources that are hard to obtain by the average users are filled in. This information can then be used to develop new services through the understanding of which resources are difficult to obtain by the targeted user but essential for the successful outcome. (Takeyama & al. 2014, 348.)

	Developed/ Easy to obtain	Not developed / Difficult to obtain
Competencies	I	II
Resources	III	IV

Figure 14. Resource availability table (Takeyama & al. 2014, 348).

ROSI, resource-oriented service ideation, uses the Resource availability table together with three categories of value creation innovation developed by Michel, Brown, and Gallen: 1) knowledge can be transferred from company to customer through objects, 2) resource integration and division happens both in relation to customers and inside the company and 3) all the actors involved in value creation share knowledge and resources. In practice, questions related to the three categories are posed in relation to the different sections in the table. For example, for the competencies in the cell II in Resource availability table, it can be asked how the company can help the customer either through a service that provides the competence the average customer is lacking, or by helping them gain the competence needed. Or company can use the information of resources in cells III and IV, by pondering whether the company could do the resource integration for the customer and that way ease the resource integrations that are currently lacking. It is also possible to ask if the company could give the customer bigger and more active role in resource (cell I) or competence integration (cell IV). (Takeyama & al. 2014, 349.)

4 Implementation of development work

The development work of this thesis aims to create a model for identifying and utilizing the customers' competencies and resources as a base for social innovation. This is done by finding out what competencies and resources young people in need of increased support have that can be utilized to co-create value and co-design digital services. In addition to this, the digital solutions the young adults currently use to solve social welfare related problems, and the ecosystem from the perspective of these customers and their expectations for participation in the development of and inclusion in the social services will be researched. The development work should provide DigiIN project and the case organization with visualizations that can be used to ideate, develop, and deliver new digital social services to the socially marginalized young adults and improve the service culture of the organization. Next chapters will describe the empirical part of this thesis.

4.1 Service design process in practice

The process of the development work done in this thesis is focused on Define and Develop stages of the Double Diamond model of service design. The development work was done between October 2020 and January 2021 as can be seen in Figure 15 below. Since the development work, especially the research and analysis, was done in collaboration with two other master's students, one focusing on the needs and challenges of the target group, and the other on probe as a tool in this target group, the research was designed to offer material and data for all three topics and the overall DigiIN project. As previously explained, the development work at the case organization is going forward by the Laurea UAS DigiIN researchers with the focus on the personnel at the case organization and will be followed by Develop and Deliver phases in 2023-2025 that this thesis does not cover.

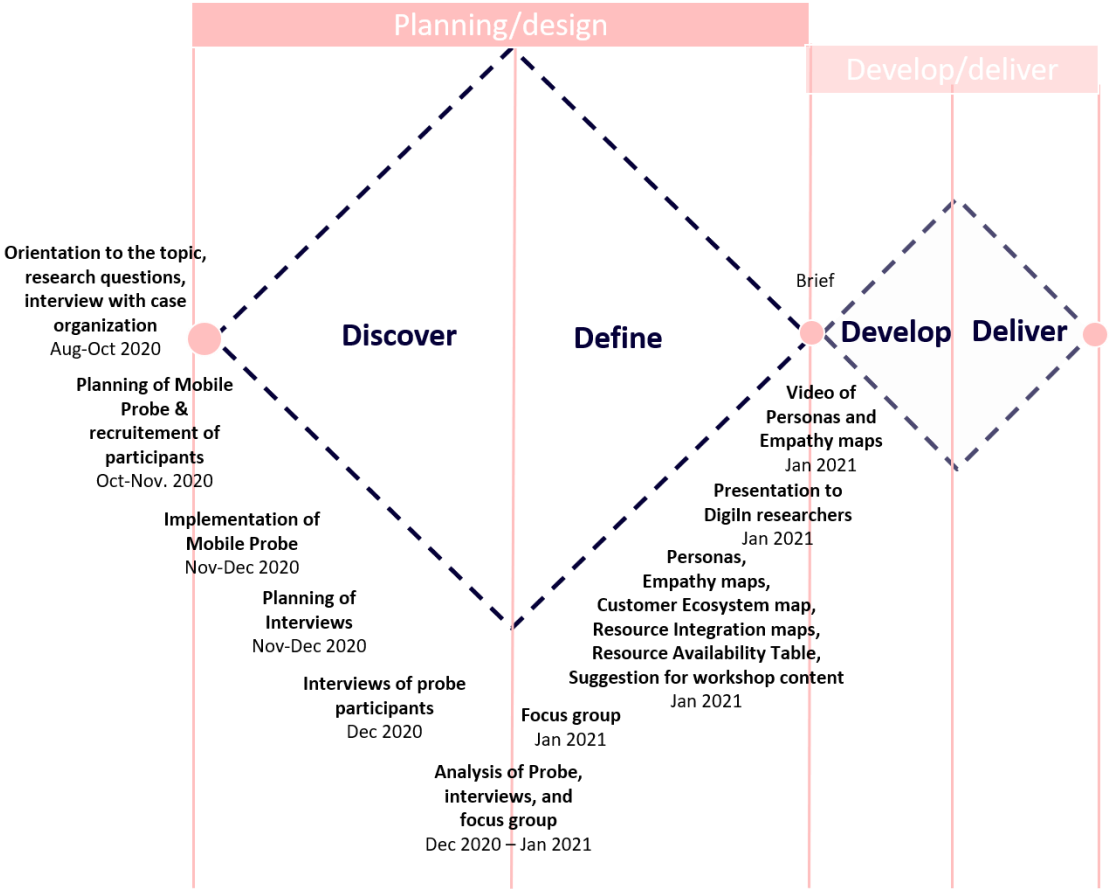

Figure 15. Process and schedule of the development work.

At the beginning, author made some preparatory, secondary desktop research by finding academic articles and other data about digital inclusion of socially marginalized people, and capability and resource approach to (digital) services to gain initial understanding of the topic and familiarize with possible themes and research questions (Stickdorn & al. 2018b). Results of this can mainly be found in Chapter 2. As can be seen in Figure 15, after initial orientation

to the topic and interview of the contact person of the case organization (interview questions can be found in Appendix 1) to familiarize with the context of the case organization, the process consisted of planning and implementation of a mobile probe, interviews of probe participants, analysis of the probe and interview data as well as focus group to complement the insight from mobile probe and interviews. This is typical of service design process: the need for additional information emerges as the process goes forward, and the process is iterative.

After the focus group, the data was analyzed further in co-creative workshops among the master's students., and insight used to design personas, empathy maps and customer ecosystem maps in a workshop. In addition to this, resource integration maps and resource availability maps were made by the author to support the competence and resource-based ideation and innovation approach suggested for the following phases in the digital service design process. After the artifacts were finalized, the group of master's students doing their thesis project in the same case, presented the end results to the researchers of the DigiIN project related to the case organization. During the presentation, the researchers expressed a need for a video shortly explaining what the personas, empathy maps and customer ecosystem maps are, and the results, which is why the author together with another master's student created the video that the researchers could use in personnel focus groups and workshops for the case organization. In the following chapters each step of the development process and choices made are explained in greater detail.

4.2 Discovering current capabilities and resources of young adults

To discover current capabilities and resources of young adults in need of increased support, qualitative research methods (a mobile probe, interviews, and a focus group workshop) were used to understand the needs, motivations, life world and resources and competencies of the socially marginalized customers of the case organization. Mix of different research methods, and collaborative ways of working weaken the effects of biases, increase the confidence of findings if supported by several methods, and ensure comprehensive and rich data set (Stickdorn & al. 2018b). These together with the recruitment of participants is described in more detail in the following subchapters.

4.2.1 Sample and recruitment of participants

At the beginning of the research project, the aims of the Laurea UAS DigiIN- project group were discussed together with the needs of the case organization revealed in the initial interview with the contact persons and discussions which DigiIN researchers had had with the case organization, and it was agreed that the main target group of the research would be young adults between the ages of 19-29 who need increased support due to mental health, substance abuse, or similar challenges. Due to the COVID19-pandemic, it was uncertain

whether the research team would have access to premises of the case organization or possibility to be in the same physical space with the research participants.

Since the target group was young, and there was evidence that majority of this age group use WhatsApp, it was decided that the probe would be done using WhatsApp: access to a mobile phone with WhatsApp then came a prerequisite for taking part in the research. Additional requirements were also possibility to take part in the probe study either during week 48 or 49 and participate in the interview during week 50 or 51 of year 2020. These criteria were approved at the case organization, and then initial information on the probe study was sent to heads of different service departments at the case organization with the aim of the sample covering all three services (work training, supported living, and assisted living) of the case organization. Heads of departments were asked for help to find the suitable participants and gather research consents from the recruited participants. Therefore, the sample of the probe and interviews was purposeful, convenience sample meaning that the sample was gathered from the group which the research problem concerns within the case organization's operations because of easy access (Silverman 2014, 60-61; Stickdorn & al. 2018b).

Prerequisites for the particpants	Initial target for sample	Actual sample
• young adult (18-29 years old) • in need of increased support due to mental health, substance abuse or similar challenge • has a phone with possibility to install WhatsApp • has access to internet connection at least once a day • is willing to participate • has time to participate during week 48 or 49 and interview on week 50 or 51	• 4 persons using case organization's work training services • 4 persons using supported living services of the case organization • 4 persons using assisted living services of the case organization	• 6 persons using case organization's work training services: probe and interview • 4 persons using case organization's assisted living services: of which one was not reached for research, one took part in both probe & interview and focus group and two participated only focus group

Figure 16. Prerequisites for the participants, initial target sample and actual sample.

By the time of the recruitment, COVID19 related precautions limited the access to the case organization's premises, and therefore only one of the DigiIN project's researchers was given permission to visit the premises while doing the questionnaire research for DigiIN project. Recruitment of probe participants was thus also delegated to her. She asked volunteer participants while people matching the probe criteria participated in the questionnaire research as well as by snowballing, i.e., by asking the personnel of the case organization and

already recruited participants to point out possible participants. She gathered contact details (mainly phone number and email address) of participants and either set appointment for the participants to provide a written research consent or gathered the written research consents through the personnel of the case organization. The researcher also provided the phone numbers and email addresses of the participants to the author and other master's students conducting the probe study.

The goal was to find 12 participants from the case organization's customers, of which four from work training, four from supported living services and four from assisted living services, for the probe and interview to have balanced, purposive sample covering different types of services of the case organization: due to tight schedule and COVID19 restrictions and precautions the first group had four participants. The second group started late due to tightened COVID19 restrictions affecting the collection of research consent forms: this group had also four participants. It proved to be difficult to find willing participants, and the main motive for participation seemed to be interest in the topic of digital services and possibility to affect the development of digital services. The goal for sample was adjusted along the way: since the access to supported living services proved challenging, the sample was decided to skew to work training service customers and assisted living customers. In the end, the final sample consisted of 3 assisted living customers and 8 work training customers. Some contact details of participants, who were customers of supported living services, were delivered to the research group only after completing both probe weeks, which affected the size of the sample, and therefore the sample may not be representable of this group.

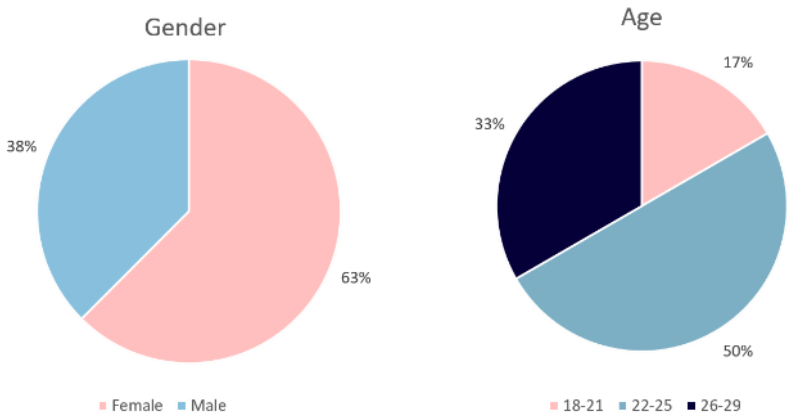

Figure 17. Age and gender of the participants.

To better cover the assisted living service customers, it was decided with the DigiIN researchers of Laurea and author and another master's student in the research group, that three to four participants for a focus group workshop would be recruited with the help of the service head of the case organization. This would allow balanced sample of two of the main

customer groups of the case organization, and therefore help to confirm or debunk a hypothesis that had formed during the initial analysis of the probe data that there might be differences in the level of competencies and abilities between work training and assisted living customers. Emergence like this is typical in sampling of qualitative research: sample is affected by the review, analysis, and preliminary hypotheses that are formed along the way, and this causes serial decision in sampling (Silverman 2014, 66). In the end, the sample covered more females than males, and most of the informants were 22-25 years old (see Figure 17).

4.2.2 Implementation of the mobile probe

Use of a probe had already been decided as the main research method for case organization's development work by DigiIN project researchers during the planning phase of the research project. Main reason for choosing probe as a method would have been the possibility to observe and collect experiences from the target group of the study to remotely: additionally, probes offer rich information that can take many forms. Therefore, the group of master's students focused on deciding the final form of the probe (paper or mobile probe) that would suit the target group of socially marginalized young adults. The aim of the probe was to produce material and initial understanding of the target group to be used as a base for the following interviews.

The group of students also discussed about the possibility of triple triangulation in the research to ensure trustworthiness of the findings. Firstly, that meant the use of 2-3 research methods, which the initial plan of probe and interview already covered. Second, different data types like written fieldnotes, videos, audio, and sketches, would be used. Data types also seemed to be easy to cover since the probe would provide self-reported data, and interviews both transcripts and recordings, and notes from the interview could be used. Lastly, the use of multiple researchers since it makes it easier to have multiple viewpoints and interpretations on same subject. Group decided to do the interviews in pairs, and all master's students would participate in the analysis and interpretation of the data. Since all these three aspects were together, group felt assured that the qualitative research can be validated through quantitative research. (Stickdorn & al. 2018b.)

The probe was designed and conducted as presented in Table 2 as a team effort of author and two other master's students. All informants were contacted prior to the start of probing to build trust: they received a WhatsApp message from the dedicated research phone from master's student 1 (week 48 probe) or master's student 2 (week 49 probe) suggesting a time for a start call. During the start call made by the master's student 1 (week 48 probe) and master's student 2 (week 49-50 probe) the practicalities of the probe were covered, and possible questions related to the research, research topic, or technical issues were answered:

most of the informants were satisfied with the information and did not have additional questions or concerns at this point. Interestingly, the first group of participants, i.e., informants 1-4, were all ready to set a date for the interview during start call, whereas the group 2, i.e., informants 5-8, wanted to postpone this after the probe. The draft for the start call which was planned together by the students, can be found in Appendix 2 and was followed loosely in the call.

Time	**Participants**	**Additional information**	**Responsibilities of researchers**
Week 48: 23.-29.11.2020	Informant 1 Informant 2 Informant 3 Informant 4		Research phone & initial phone calls, messaging and guiding the participants on WhatsApp: master's student 1, anonymization, and initial analysis of the research material: author
Week 49-50: 2.-7.12.2020	Informant 5 Informant 6 Informant 7 Informant 8	Informant 6 was not reached before the beginning of the research nor during it. Informant 7 finished participating after start call and second day. The research period was shortened due to new COVID-19 restrictions.	Research phone & initial phone calls, messaging and guiding the participants on WhatsApp: master's student 2, anonymization, and initial analysis of the research material: author

Table 2. Probe schedule and responsibilities.

The plan for the probe questions was semi-structured: the outline of themes and tasks/questions as well as example messages were made together with two other master's students to cover different research needs of all (see Appendix 2). There were several discussions about the form of the probe tasks: it was important to allow for multiple methods of answering, and therefore the participants were encouraged to use text, images, GIFs and emojis, videos or voice messages as they liked (Mattelmäki & Battarbee 2002, 268). Initial aim was also to allow for information of what the informants do, say and make: to understand doing and saying possibilities to send images or verbal description of what the participants do or think were provided, but making part was decided to rely on the way participants form their answers, since the idea of asking participants to create collages either on the phone or on paper seemed too laborious, and even possibly difficult skills vice to the target group (Sanders 2002). All the messages and other correspondence with the informants was done in Finnish, and the material presented here is a translation from the Finnish version.

The messages were tested prior to the research among acquaintances of author and the two other master's students, who fit the same age group as the participants and had some special needs possibly affecting the ability to read, perceive or interpret the questions to gain insight

on possible needs to adjust the wording of the messages and structure of the tasks. Minor adjustments were made: some of the questions were significantly shortened to increase the readability on mobile screen and make them appear less laborious to answer, and one of the questions was changed from a picture of a digital service that is impossible to use to three biggest annoyances in using digital services to increase easiness of answering and to avoid emphasizing possible digital incompetence of informants while still gathering information on the pain points of using digital services.

Additionally, the probe plan (see Appendix 2) that was done in collaboration between the three master's students included message drafts to counter risks that were identified during the planning: for example, messages for situations where a concern of the wellbeing of the informant would rise, and information on where to guide the informant for help were gathered and confirmed. Similarly, due to the possible lack of boundaries and life management skills of the informants, the team discussed how to handle situations where sensitive information might be sent, the informant might seek help in his life challenges, or 24/7 messaging would occur. The team set a schedule of sending and answering the messages between the office hours (from 9 to 17) that was communicated to the participants, and strategies for notifying the informant on the sensitive information and how to answer as well as how the sensitive material would be handled in anonymisation and storing of the data. None of these messages were needed.

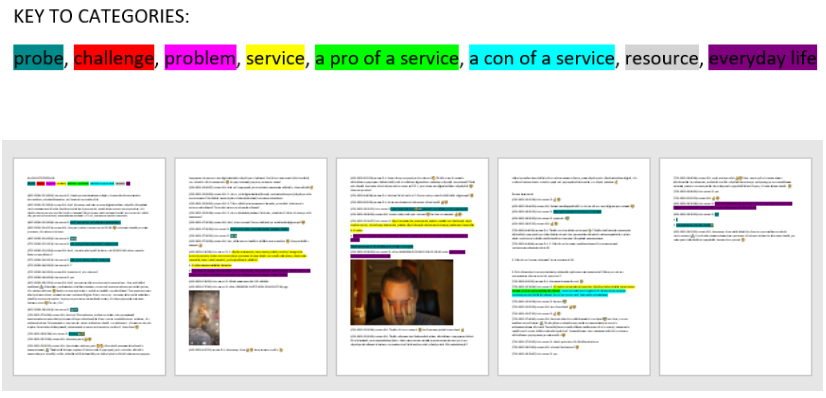

Figure 18. Key to different categories and example of categorized information from the probe.

The informants received messages from either master's student 1 or 2 every day during the probe study week. The messages and material received from the informants was downloaded from WhatsApp daily by the person in charge off the research phone, and then anonymised and uploaded by the author to secure data storage, CollabRoom, provided for the research. The author went through all the raw material prior to upload paying attention to possible sensitive or personal data, and if they were found, either changed the data to less

identifiable (e.g., possible family member to something else), or covered the content in the images in Windows Photos. All location and other data from the images and GIFs were also deleted. Anonymised data was then categorized by the author to recognized top themes related to research questions of all the master's students using highlighting with matching colours (see Figure 18) and adding the same data in snippets to a MS Excel spreadsheet for easier handling and sorting during analysis. This formed the body of initial analysis, that was deepened after the interviews in collaboration with the other master's students.

Week	Participant	Total text material (pages, incl. researcher's messages)	Text messages (number)	Images	GIFs
48	Informant 1	22	10	19	1
48	Informant 2	11	10	8	1
48	Informant 3	6	26	1	1
48	Informant 4	6	31	1	1
TOTAL WEEK 48	**4**	**45**	**77**	**29**	**4**
49-50	Informant 5	5	25	1	1
49-50	Informant 6 (dropped out before probe)	0	0	0	0
49-50	Informant 7 (dropped out after second day)	1	2	0	0
49-50	Informant 8	7	22	1	1
TOTAL WEEK 49-50	**3**	**13**	**49**	**2**	**2**
TOTAL WEEKS 48-50	**7**	**58**	**126**	**31**	**6**

Table 3. Summary of data from the probe by informant and type.

The probe was designed to last from Monday to Sunday, but the second research group started few days late due to difficulties in gathering the written research consents: COVID19 restrictions had obligated the closure of physical work training and community spaces. In the end, the probe for group 1 was from Monday to Sunday and group 2 from Wednesday to Monday. In group 1 all participants remained active for the whole period of study, but in group 2, one of the participants could not be reached at all, and one of the participants finished active participation after the second day. Summary of the material gathered through the probe can be seen in Table 3: in total the material consisted of 58 Word-document pages

which include also researcher's messages, 126 text messages from the informants, 31 images and 6 GIF-animations.

4.2.3 Interviews to deepen the data gathered through the probe

Semi-structured interviews were used to deepen customer understanding and material gained through the mobile probe. It is important to gather deep understanding of the customers when designing new services, and interviews let the participants share their thoughts and guide the interpretation of the material, for example what the images or GIF-animations presenting them as digital service users they sent during the probe talk about them. Each informant was informed of the two-hour interview at the time of recruitment, during start call and at the end of the probe period either by master's student 1 or 2 who were handling the research phone; informants also received reminder messages through WhatsApp in addition to email invitation to the interview from the person the team of master's students had assigned as an observer in the interview. Initial thought was to hold the interviews in person, but the COVID-19 pandemic and tightening restrictions around the time of the research imposed the need to revise the plan to ensure the safety of people involved. Therefore, the interviews were to be held online through MS Teams, since it was a tool of preference for the case organization, and all informants were therefore familiar with the tool through their interaction with the case organization.

Initially, there was a concern of whether all participants would have access to MS Teams, internet service and a computer, and a back-up plan on how to perform the interviews on mobile phone with restricted access to see the screen and without the video camera on was outlined, but this was quickly erased by the feedback from the participants: they all had access to a computer, and all but one participant also had a web camera available in their computer. All interviewees were asked for permission to record the interview at the beginning of it, and all of them granted it: the recordings were used to transcribe the interviews. The recordings were downloaded from the student's Sharepoint that Laurea UAS offers to its students where the MS Teams recordings are stored straight after the interview ended, and permanently deleted from Sharepoint after this.

Since the interviews were designed and conducted by the same master's student group as the probe, the group had already an initial view on the most important themes and they were also familiar with the content produced through the mobile probe. The main themes recognized were the life of the customer, digital services, future digital social welfare and healthcare services, experience from the probe and interview, and participation in development of services. The interview questions can be seen in Appendix 3 in the form of interview canvas. Author together with the two other master's students created an interview guide to ensure shared practices and content before, during and after the interview. The

group also discussed how to best address the possible power inequality between the interviewers and interviewees and considered the ethical instructions: all interviewers would dress casually, and the role as students interested in the life of the interviewee stated. Also, the procedure of confidentiality, information security, and anonymization was discussed together with reminder of consent form. The responsibilities in the actual interviews were shared equally between students as presented in Table 4.

Time	Participant	Additional information	Responsibilities of researchers
7.12.2020 at 9-11	Informant 1		Interviewer: master's student 2, observer/transcriber: author
8.12.2020 at 12-14	Informant 4		Interviewer: master's student 1, observer/transcriber: master's student 2
10.12.2020 at 10-12	Informant 8		Interviewer: master's student 1, observer/transcriber: master's student 2
10.12.2020 at 13-15	Informant 3		Interviewer: master's student 2, observer/transcriber: author
14.12.2020 at 12-14	Informant 5	Was rescheduled once from 11.12. due to other commitments of the informant.	Interviewer: author, observer/transcriber: master's student 1
15.12.2020 at 15.00-16.30	Informant 2	Was postponed after the informant failed to attend the initial time (10.30-12.30).	Interviewer: author, observer/transcriber: master's student 1

Table 4. Interview schedule and responsibilities.

Main responsibility for interviewing was on interviewer, but the observer had also possibility to deepen and ask questions if needed. The interviewer also prepared a stimuli material based on the probe data according to template that had been decided on together among the master's students beforehand prior to the interview. This stimuli material had messages about the day in the life of participants according to their words, digital services they had mentioned using, GIF or image presenting participant as a digital services user as well as information on what the participants find annoying in services and what they thought about the probe as a method and experience.

The interview practices were adjusted from the learnings gained in the interviews according to service design principles: for example, it was noticed that it was hard for the participants to talk about the services they had used without actual access to it, so the students started asking informants to navigate to the social welfare and healthcare service that was most

important to them through the device of their choice and explain what they see and think (DiCicco-Bloom & Crabtree 2006, 316). This practice that resembled participatory observation proved to be a good tactic: it provoked more detailed and vivid description of the experiences and contexts as well as development ideas since the use of services was for many interviewees a regular routine (Polaine & al. 2013, 54).

As stated in the previous chapter, some of the informants scheduled the interview in the start call, while some scheduled the time for the interview at the end of the probe study. There was about a week's time between the finishing of the probe and the interview. One participant rescheduled his/her interview well ahead of time, while one informant did not show up at the initial time regardless of tries to reach them through phone: the informant then suggested another time later that day since they had been sleeping during the initial interview time. This may reflect the increased need for support and challenges in the target group, and why this type of participation may be too heavy. The interview schedule can be found in Table 4.

	Participant	**Transcribed material (pages)**
	Informant 1	11
	Informant 2	32
	Informant 3	19
	Informant 4	12
	Informant 5	21
	Informant 6 (dropped out before probe)	0
	Informant 7 (dropped out after second day)	0
	Informant 8	24
TOTAL	**6**	**119**

Table 5. Summary of data from the interviews by informant.

The observer made notes of the interview while listening and used the recording of the interview to transcribe the material using MS Word. After the material was transcribed, the observer checked it by listening and watching the recording while simultaneously reading the transcript and stopping and correcting possible errors. The transcript was then stored in the secure shared file service of the research project to let other researchers and students access and review it. The interviewer and observer also had short meeting after each interview to go through initial findings and observations, and these were also shared in the chat of the group or when possible, in the frequent meetings among the master's students. Summary of the amount of data gathered through interviews can be seen in Table 5 above: the transcribed

material consisted of 119 Word-document pages from six informants. Shortest interview, the first one, lasted about 25 minutes, and the longest about 1 h 50 minutes.

4.2.4 Additional insight through focus group

Since the number of informants in the probe study and interviews was smaller than initially sought after, and initial insights gathered raised a question whether the gathered data would be representative and accurate also in the group that needs 24/7 support and which was represented by only one informant in the probe and interview, it was decided between the author, master's student 2 and researchers at Laurea UAS that additional online focus group workshop would be suggested to case organization's assisted living services. The idea was, that the contact person from case organization responsible for assisted living services would gather a group of three participants to a workshop where a supervisor from the case organization and researcher of Laurea UAS, who is also the supervisor of this thesis from would be present and which would be facilitated by the author and master's student 2. Since the researcher who conducted the survey questionnaire already had communication with the contact person, she suggested the meeting to the contact person and set a date for online workshop. The schedule and responsibilities can be found in Table 6.

What	**When**	**Who?**
Agreeing the schedule, getting approval, and tasking the recruitment for focus group from case organization	Start of December	Researcher responsible of the survey
Start of focus group plan	15.12.2020 at 9-10	Researcher of Laurea UAS, who is supervising this thesis, master's student 2 and author
Plan for the focus group	17.12.2020 at 9.30-14	Author and master's student 2
Finalization of the focus group plan	12.1.2021 at 10-11	Researcher of Laurea UAS, who is supervising this thesis, master's student 2 and author
Focus group workshop	14.1.2021 at 10-12	Researcher of Laurea UAS, who is supervising this thesis, master's student 2 and author: author facilitated the first half of the workshop, master's student 2 the final half of the workshop and main contact researcher made notes on the discussion.
Transcript of the workshop	14.1.2021	First 55 minutes: master's student 2 Second 55 minutes: author

Table 6. Focus group interview process, schedule, and responsibilities.

Focus group was planned as co-operation of the author, master's student 2 and the researcher of Laurea UAS supervising this thesis: in initial meeting the main themes to be explored were discussed and set, after which master's student 2 and the author designed the content of the workshop including questions and stimuli. The plan was semi-structured and included the main themes, questions, and materials: the facilitator was then in the position to ask additional questions to deepen the answers and share turns to participants. The main themes of the workshop were digital services, current digital social services, future digital social services, and the everyday life of participants (see the workshop content in Appendix 4).

During the workshop the first half of the workshop was facilitated by the author while the DigiIN researcher and master's student 2 made notes; the second half was then facilitated by master's student 2, and author moved on to making notes with the aforementioned researcher. Hence, it was also agreed that the transcription would be done in collaboration: each facilitator would transcribe the section that was led by the other facilitator, and resulting transcriptions combined, and the notes made by the researcher used as a base for transcript.

	Transcribed material (pages)	Length of interview recording
TOTAL	**8**	**114 min.**

Table 7. Summary of data from the focus group.

The focus group participants were asked for permission to record the interview, and all agreed to this: the recording was promised to be kept in secure data storage, have access limited to the researchers in Laurea UAS's DigiIN project, and be deleted after completion of the study. Focus group lasted 1 hour 54 minutes and two short breaks were held during the interview to allow participants to unwind. The case organization had been provided with camera and conference microphone week before focus group by the researcher in the project, and the researcher had given instructions while delivering the equipment. Some technical difficulties with the internet connection at the case organization made it necessary for the focus group participants and their supervisor to leave and re-enter the meeting in MS Teams couple of times. Focus group showed that a saturation limit had been reached: it only provided information that validated the hypothesis and insights that had been recovered from the analysis of probe and interview data (Stickdorn & al. 2018b). Summary of the material from the focus group can be found in Table 7: transcribed material from the focus groups consists of 8 Word-document pages.

4.3 Analysis of the research data and development of visualizations

Analysis of the research data was started right at the beginning of the mobile probe by categorizing the probe data in Word and Excel to initial categories to increase the validity (Doody & al. 2013): this data was first used to finetune the probe, and then to plan the follow-up interview. After the interviews, the group of the same master's degree students which the author was part of, held a meeting to begin the analysis of the data collected through the probe and interviews, and decide the final analysis procedure: due to the qualitative methods used in the research, also the analysis was done with qualitative measures.

Creation of analysis procedure makes it easier to create a trail of evidence. It also increases the extent of dependability, consistency, and conformability of the research (Doody & al. 2013). In the meeting, it was decided that the online tool Miro would be used for the analysis, since it provided easy, shared access to something resembling a physical research wall during the time when COVID-19 restrictions advised to avoid contact with people outside one's household. Additional benefit of Miro was possibility to easily copy the data and rearrange it if agreed necessary.

The group then defined initial categories that the data would be sorted to answer the research questions of all students involved: these categories were services, wishes, goals, demography, needs, probe as a tool, attitudes, participation, skills, resources, devices, everyday life, challenges, participant as a digital services user, stakeholders, motivation, and success. This stage can be described to be abductive in nature: some of the categories were deducted from the theory, while new themes were also inductive, i.e., they emerged from the insight from the probe, interviews and focus group (Stickdorn & al. 2018b). Each of the categories was assigned their own frame in Miro, and sub-categories were added in the form of black sticky notes as they emerged. Unsurprisingly, the number of categories caused later some challenges while categorizing the data, since it was difficult to remember where exactly some of the data had been categorized, but group work helped. To start categorizing the data, it was decided, that the data would be handled in the order of informants running number while assigning each informant's data a unique color: the probe data from the Excel sheet was added to the frames while the group discussed in which of the categories the data was seen to fit. Sometimes a piece of information fit more than one category: then appropriate number of sticky notes was made and added to categories of choice.

Figure 19. Initial round of probe and interview data analysis in Miro.

After the probe data, the group moved on to the interview data. It was decided that the transcriber would present the data from the interview while the two other master's students would write the data snippets on sticky notes and categorize them: everyone had read the transcripts before the analysis workshop. Sometimes the discussion revealed the data would belong to several categories when examined through different perspectives, or the interpretation of individual snippet was different when probe and interview data of an informant was looked at as an entity. As is common in probe studies, the amount of data that had been gathered was huge: Miro board contained over 1600 sticky notes after the probe and interview data had been added (see Figure 19).

Figure 20. Overview of the analysis at the second round.

After the first round, the group continued the analysis by examining the rough categorizing and grouping of the data and continued adjusting the themes and sub-themes under each category and discussing the patterns and thoughts that started emerging. The group decided to combine some of the initial categories to other categories, since they had not gathered many sticky notes, and seemed to better align with the other category. Some of the sticky notes were moved to the side, if they were deemed to be outside the scope of the different thesis. As can be seen in Figure 20, the number of black sticky notes marking a category or sub-categories increased at the second round, and some of the frames were deleted.

Figure 21. Example of a cluster in Miro.

Some of the data was also organized to a more visually fathomable form: for example, in the everyday life section the sticky notes of different informants were organized on a timeline and stakeholders in a bull's eye diagram to indicate the frequency of the contact (see overview in Figure 20). Use of labels and clustering of the data also helped form entities, that were visually easy to understand as can be seen in Figure 21. The group also checked they had used different types of data, several methods, and worked together to ensure triple triangulation. Also, the material from the focus group was added at this point. Total amount of data that was analyzed can be seen by type in Table 8: material from 9 informants meant 153 Word-document pages worth of data together with 31 images and 6 GIFs.

Participants	**9**
Total text material (pages, incl. researcher's messages)	**153**
Text messages (number)	**126**
Images	**31**
GIFs	**6**

Table 8. Summary of all the data gathered from probe, interviews and focus group.

The analysis proved, that the informants formed three separate groups in most of the themes, that is similar colored sticky notes formed groups under the themes and subthemes, though one of the informants belonged to all the groups depending on the theme: this realization was used to define three customer personas and create persona cards. Since author's interest in this thesis was to provide customer understanding of the customers' resources and competencies, information about these was also added to the persona card on top of regular need, challenge, and goal-based information that master's student 2 needed for her thesis. The persona cards and empathy maps were decided to be done together, since it would be confusing for the researchers of Laurea UAS's DigiIN project as well as to the case organization to have two sets of end-results.

The persona cards were created in co-creative workshop: the author and master's student 2 utilized Miro as a platform to create initial draft of the cards. This meant mainly gathering, synthesizing, interpreting, and writing the key findings of each identified persona under categories which were agreed on together. Master's student 2 was responsible for the final visualization of the persona cards. Empathy maps were created in similar fashion: author and master's student 2 had a workshop, to first decide the categories and initial layout of the empathy map which was followed by discussion and selection of key points under each category. This map could be created using one of Miro's readymade templates, and then master's student 2 finalized it by adjusting it to fit one Power Point slide and adding pictures of the personas. The final cards were then first reviewed in the meeting with master's student 1.

During and after the visualization individual, deeper analysis of the data from the perspective of this thesis was done by the author. This also included translation of the deliverables from Finnish to English. At this stage, author also made customer ecosystem maps for each

persona, which were based on the bull's eye diagram of stakeholder and service use that had already been defined together with the two other master's students. Ecosystem maps were reviewed together with the two master's students, after which the author made some adjustments to simplify the maps. The author also created Resource Integration Maps for each persona and used them as a base for Resource availability table. The images of the personas are from free image bank: images of Samuel, Veera and Emilia are from Pixabay.

The results of the analysis, i.e., the personas, empathy maps, ecosystem maps, suggestion for competence and resource based ideation and usefulness of the mobile probe in the target group, were presented to the Laurea's DigiIN research personnel of the sub-research related to case organization in MS Teams meeting: head researcher of the DigiIN sub-research of the case organization, head of service design research in DigiIN, who at the same time acts as a supervisor of this thesis, and another researcher were all present. They were satisfied and even slightly surprised by the richness of data. They found the idea of competence and resource-based ideation fresh and especially interesting for the future use. To increase the usefulness of the insights in the following step in the overall DigiIN project, i.e., focus group discussions with the personnel of the case organization, the author and master's student 2 made a video presenting two of the personas on request from two of DigiIN researchers, who were about to start focus groups with the personnel of the case organization.

5 Findings

The findings and results of the service design process will be introduced in following chapters. First, the competencies and resources of young adults in need of increased support identified in the process will be presented through customer personas. Second, existing social services and solutions the young people utilize currently are reviewed. Third, customer ecosystems from the perspective of personas will be introduced. Fourth, the willingness to participate to co-design and co-development and expectations for inclusion in the digital social services will be covered. Fifth, a suggestion for how to utilize understanding of the competencies and resources can be utilized in the co-design and development of digital social services in the case company, will be explained. Lastly, the key findings will be summarized to answer the research questions.

5.1 Young adults in need of increased support have resources that could be utilized for social innovation of new digital services

After all data from probes, interviews and focus group had been gathered, clustered, and analyzed on the Miro board, three clear groups that were different in relation to the level of digital skills, functioning, access to help, ability to deal with social and healthcare matters

independently and willingness to participate in service development were detected. There was one informant, that was in different groups depending on the topic, but still when analyzing the main needs, challenges, attitudes, and resources clearly in only one of the groups. The groups were developed into three personas which are utilized to analyze the data:

- Samuel, the persona with most digital skills and ability to solve social and healthcare matters independently and highest level of functioning, but least access to help,
- Veera, the persona most willing to participate in service development, and with almost as good digital skills, functioning and independent ability to solve social matters as Samuel, and
- Emilia, the persona with easiest access to help due to the assisted living service, and low ability to deal with social and health care matters independently.

A diagram visualizing the differences between the personas can be seen in Figure 22 below.

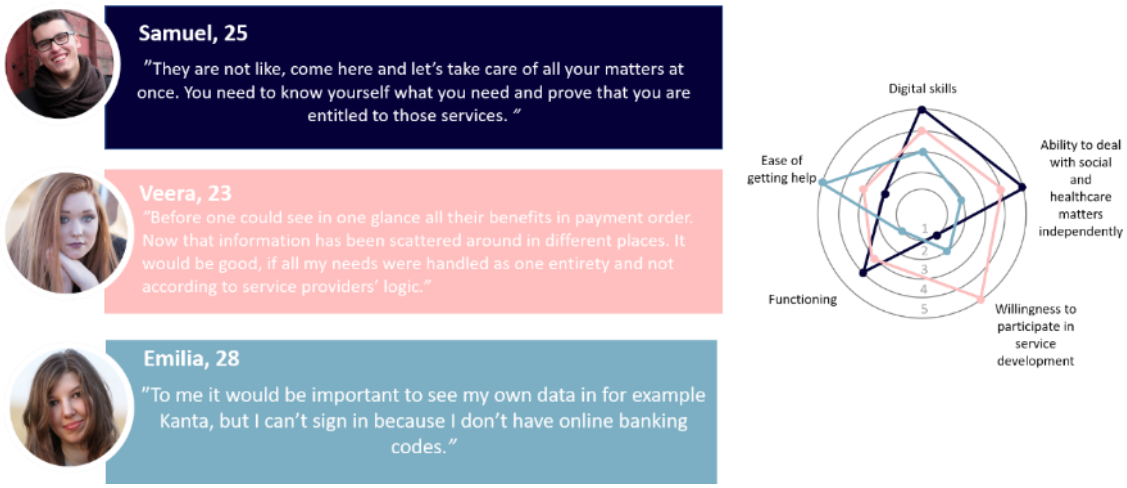

Figure 22. Summary of personas.

The main need for each persona is different from one another: for example, Samuel needs social services that meet him as a human and are willing to help him take care of the matters without him excessively needing to proof his entitlement to use a certain service. Veera on the other hand uses wide range of social services, and due to her financial dependency on the benefits needs clear access to see what payments she is due to get and when. Finally, Emilia would like to access her health data but needs identification measures that do not require e.g., banking codes which she does not have. Lack of appropriate identification measures also prevents her from e.g., making appointments online. Overall, it could be argued, that none of the personas feels that the current digital social services are designed their unique situation in mind though they are rather pleased with the services: some of the answers from the informants even display that the informant does not even realize they could expect that.

“Well, I wouldn’t say they were [designed] for me! Generally, to all people hopefully.” Informant 3

” Not in any way specially. But I also do not experience that they would be designed for a completely different person. Like, they are in my own mother tongue. And they don’t require the type of IT skills that I don’t have. But then again, I am a bit undecisive, or insecure, for example whether it can be said the pain is slicing or more like throbbing, well those have clear difference but similarly. I don’t think they have been able to consider that so well. But, overall, they somewhat are [designed for me]” Informant 8

” I think they have been designed so, that they are fairly clear and almost everyone knows how to use them, they are fairly easy. Fit many people, and many can use them.” Informant 2

” They are not designed precisely for me. I feel they have been designed for as many as possible to use. […] There is a lot of services, that I personally do not need for anything, for example pension services are not current for me yet.” Informant 10

” Yes, maybe so, but there are challenges occasionally, but they work quite well for me. […] if at Kela they in some way assume, that I understand all those questions and somehow that, one needs to be super self-initiative, if there is something that you don’t understand and you need to clarify it. It feels like, that especially Kela, if you try to take care of something for the first time online, it is very, very difficult. […] Maybe the language. I am now 20, but maybe couple of years ago I would have thought that the questions were formed in a very difficult way. I guess, that is most challenging in it, and age group. Maybe a little older people understand better, because they have more life experience, and they know more about things. Maybe there are terms, that people my age don’t always understand – or especially people little younger than me.” Informant 5

Next, the personas will be introduced in a bit more detail after which the focus will move more deeply into the capabilities and resources young people in need of increased support have that can be utilized to co-design and co-create value in digital social services. For all the personas, a persona card and an empathy map were co-created with master’s student 2. The persona cards explain the customer group’s needs, challenges and frustrations, hopes, behavior, motivation and goals, resources and days in life in detail (see Figure 23, Figure 25 and Figure 27); the empathy maps are more concise presentations of what the persona says, thinks, does, and feels (see Figure 24, Figure 26 and Figure 28). These can be used as

artifacts that help develop shared understanding and language about the users and can be utilized as base for ideation and development of solutions to the problems and challenges. A video introducing two of the personas, Veera and Emilia, was produced by author and master's student 2 at the request of the head researcher and another researcher responsible of gathering insight from the personnel of the case organization in the next step of Laurea's DigiIN project. The video is meant to be used as a stimulus in the interviews with the case organization's stakeholders to discuss the needs of the customers, and potential solutions.

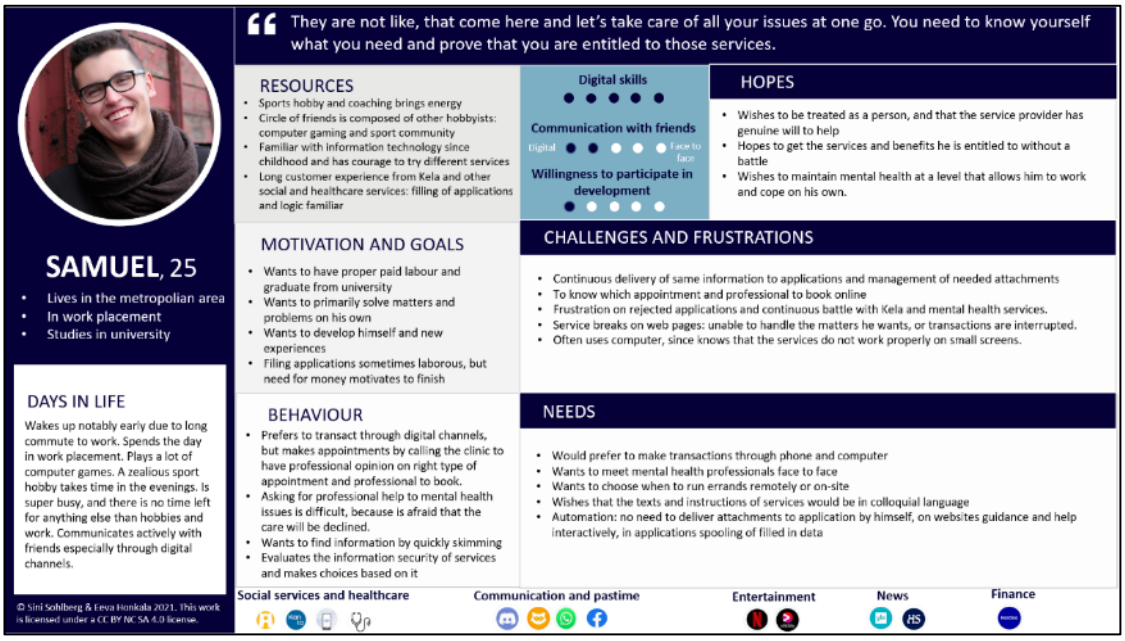

Figure 23. Persona card: Samuel (see full-sized version in Appendix 5).

As explained before, Samuel is the most experienced and skillful digital services user (see Figure 23). His functioning is good enough for him to have been studying in university and working in work placement. When it comes to social and healthcare services, his needs for the service channel vary depending on what the goal of his activity is: when it comes to routine applications, he would prefer to use his smart phone to access the services, and might consider online peer support groups, but on the other hand, mental health services such as therapy and guidance services he prefers to attend face to face to separate them from the home through transition.

> *"It just feels better to me… The discussion, in my opinion is a bit… easier and natural or so, that it is indeed face to face and not like this "face to face" [refers to the interview in MS Teams video meeting]" Informant 3*

> *" I find it important, that in addition to having it online, I mean that community and interaction, that it is also possible to meet live and connect with human being in same space. […] It was very important for me, that the*

mental health services were organized at the policlinic and not through online therapy, which was suggested to me. […] That was not something I would want, because I don't want to handle all those at home. Home is such a safe and good place, where I can be at peace and just take it easy. And then I can think those horrible things in life there (laughs) at the nurse's room then." Informant 8

Samuel is frustrated when he gets repeated requests to add additional attachments and extensions, and overall finds the management of attachments and filling of same information repeatedly laborious: he thinks automation could be used to ease this and has opted to using computer to handle matters that require a lot of attachments because finds it easier than on smart phone. Though the guidelines for digital social and healthcare services clearly suggest that customer would need to give his information only once, based on these findings it has not been reached yet (STM 2016, 6).

"… Sometimes, or like we all know, sometimes with Kela it is a little bit of battle with the paperwork, and it feels sometimes like such, that you are looking like a darn high mountain and you're like "when will this end?!" (laughs) […] And sometimes they need like… or like sometimes they need so many attachments from many different places, that it is bit like, that you must run around million different places. […] And sometimes one is like "what do you want from me?", like "What do you still need so that this thing passes"." Informant 3

Figure 24. Empathy map: Samuel (see full-sized version in Appendix 6).

The language used in the services causes problems to Samuel.

> *" Kela's language is such, that though I have been to high school and a good writer and got in there and graduated, and one could imagine, since I study in university, one could imagine that my Finnish language skills are pretty good. But still I have in Kela matters such, that I wonder what they mean, that I don't really understand. And I am also familiar with social services. And one could imagine, that would be easy for me, but it is not always. (laughs)" Informant 8*

Figure 25. Persona: Veera (see full-sized version in Appendix 5).

Veera on the other hand, is most willing of all personas to participate in the development since she loves to help others and finds it meaningful (see Figure 25). She also recommends services she finds helpful to people around her and helps her family members and friends use services. She is also not very confident in her own digital skills, though she already does use various services.

> *" Well, it's for me such, that since I know already, so when I help other who don't know how to, it is quite nice to help…" Informant 2*

> *" Helping other people is very important to me, if I can be of help even little bit then I want to do it." Informant 5*

> *" Many times I like listening to peoples sorrows, I don't know what's in it, but, and help if I can… because it is always such a joy for myself if can help even a little bit." Informant 1*

In social and healthcare services, Veera wants that she is treated as a one and the same customer when she interacts with a service provider of which she uses several services: in addition to her own use, she also takes care of her child's matters and therefore needs the access to the child's information.

> *"In OmaKanta, I don't always get to check my child's matters, and I have to go through the loops to do it, I find it difficult. […] For example, if I know there has been some medical examinations and similar for my child, it would be easier if all those would show there and not need to start calling for them." Informant 1*

Up to date financial information is very important to Veera: she needs to know if and when she will get benefits and have access to her mobile bank to pay bills and plan her spending. One of the informants also mentioned, that sometimes there are differences between months what is paid, but she does not have the energy to start following it up: this might be an indication that Veera sometimes does not get all the benefits she is entitled to. Yle's MOT-editorial staff found out in their interviews of Kela's personnel, that sometimes the mistakes, which are said to be in 20% of the decisions on basic social assistance, have cost the beneficiary hundreds of euros without the beneficiary even realizing there was a mistake, and there for not even asking for the decision to be corrected (Yle uutiset 2020).

> *" At Nordea quite often [service break]. This weekend too, the accounts or card payments could not be made during certain time. There is also quite often that accounts can't be shown. Then one is a bit like, okey, there's some problems again. […] If it is so, that the cards can't be used and the information comes ahead of time, one has to anticipate and grocery shop. And if the accounts cannot be seen, then it is a bit difficult to plan what to buy, since you don't know how much [money] is there." Informant 2*

> *" For example, in Kela they used to be clearly shown, and then they were moved so, that they are shown one at a time, when before they all were shown at once. Maybe it becomes a little fuzzier. And then before, it was next payments and paid. Now it was all in one list there. No real spaces or anything, where you can see the previous payments but instead all in one list. […] For example, here there are the next payments and so, before there was the date, what will be paid and how much. Now it's much more disorganized here. […] There was the payment date and what – for example basic social*

assistance – and how much will be paid. It was all organized one below another, now they are here separately." Informant 2

" Banking I need every day. When there are those [service breaks] that last the whole day, it is very frustrating, one doesn't have access to do anything, see one's own account information, or anything else. Transfer money to someone or…" Informant 1

" Sometime, occasionally it has been a bit difficult and sometimes one doesn't quite understand the decisions made by Kela and why in some months they pay less than in the previous months, so then one wonders. […] Usually, I don't have the energy to start sorting it out, if I have received little less money in some month, so usually I just let it be or I read the decision that is sent in mail, I then read that. There has never been that big differences that I have to contact them." Informant 5

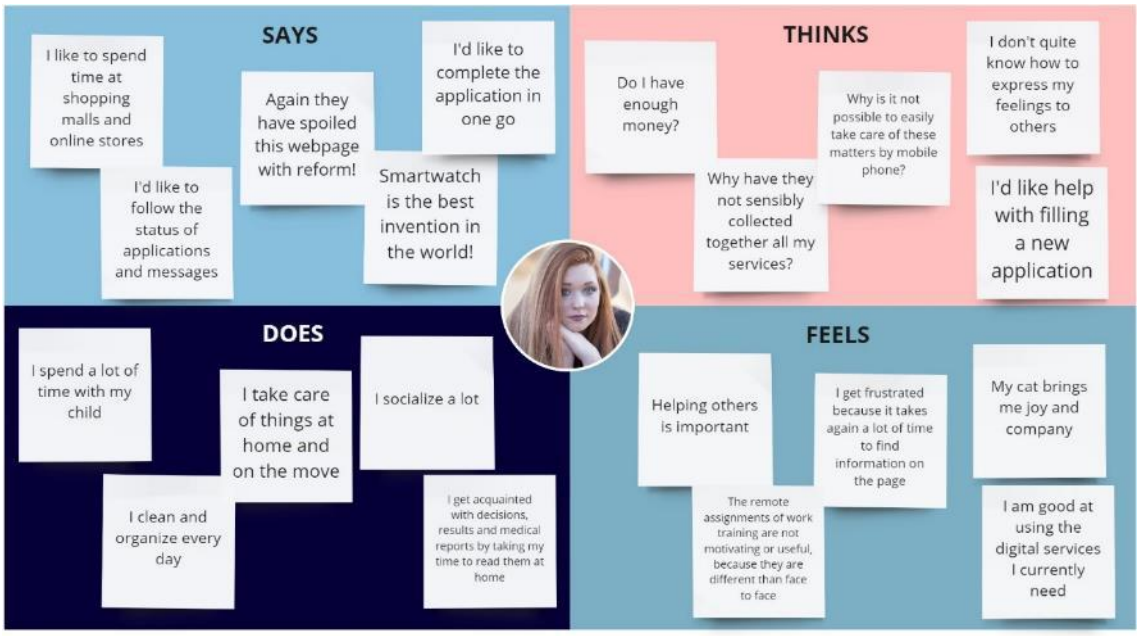

Figure 26. Empathy map: Veera (see full-sized version in Appendix 6).

Veera has experience of using digital social services, but when she is filling a new application, she would like to have help: preferably right there and then at her chosen time and in person. Regular call would not be suitable, since then it is more difficult to communicate which part is being talked about than face to face: video call might work.

" If you think of something, that is not differently due to COVID-19, so if one needed to fill in on application with Kela, that I haven't filled in ever before,

so I would maybe rather sort it out by going on the spot and filling it together with someone." Informant 5

" If you have some completely new application, for which you need something, so they could show [face to face], that there you put that and there you don't necessarily have to put anything. If she explains it on the phone, and you don't understand where she is going. […] [If not face to face], It could work online or through video, if she showed that to this place you put that. That could also work." Informant 2

Though Veera has learned digital skills from the young people around her, and uses fairly many digital services, she faces problems when using social services on her preferred device, smart phone.

" When I have applied social assistance from the city, on smart phone not all same things can be viewed as with computer. I don't know why not as much is shown on smart phone as on computer. […] It says here that the browser you are using is not supported. All features of the page may not function. […] If I know that there should be some sort of decision or rejected decision, I will sign in using computer to see it. " Informant 2

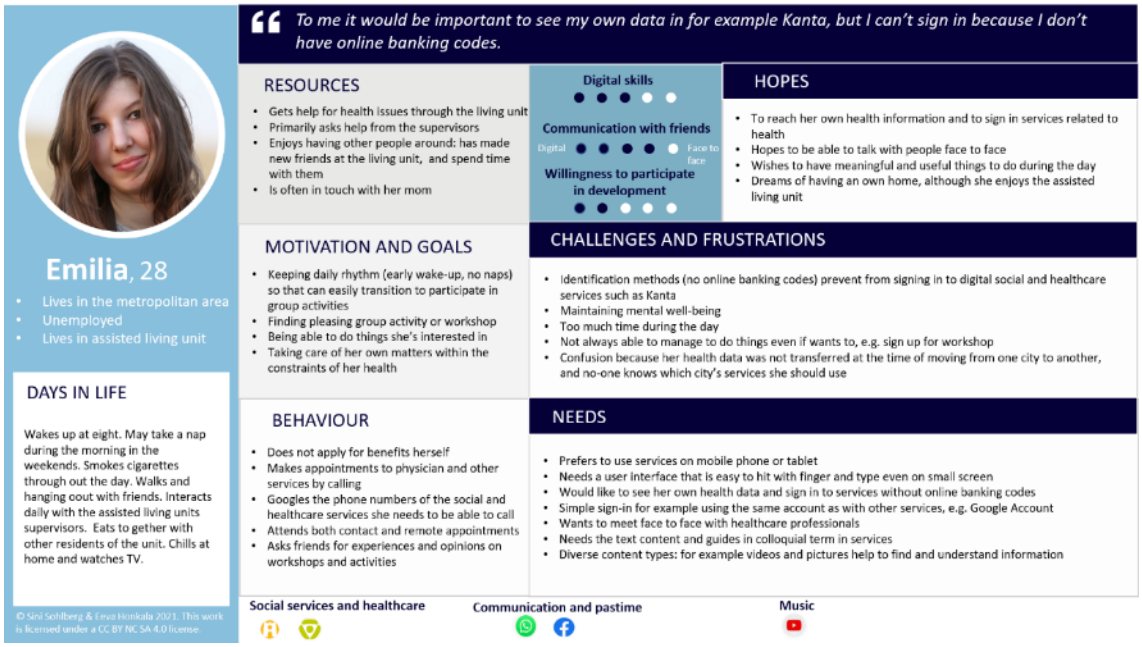

Figure 27. Persona: Emilia (see full-sized version in Appendix 5).

Emilia (see Figure 27 and Figure 28) has the lowest level of functioning of the three personas, and thus lives in assisted living unit. Biggest challenges for her regarding digital social and healthcare services is that the current identification methods, e.g., online banking codes

which she does not have, prevent her from entering services such as OmaKanta. Therefore, simple sign-in would be useful.

> *“ I cannot use OmaKanta because I don’t have online banking codes. […] Would it be possible to access OmaKanta using Google-account, so I wouldn’t need online banking codes which might be difficult to get. […] It would be important to have access to own information.” Informant 9*

Digital services should have interfaces, that are easy to use even on small screens. Also, the information in digital services should be in different formats: video and image content are preferred in addition to text by Emilia.

> *“ It [tablet] is nicer to use, because in phone the keyboard buttons are so small.” Informant 4*

> *“On the webpage of activity center, there are small pictures of workshops and other activities, it gives you more understanding than just text, gives additional information. For example, a series of images about the activity would be interesting to see, it would be then easier to understand what happens there.” Informant 10*

> *” It would be better, if they told in a video what one can do in each group. […] Both participants and leader should be on the video: leader tells the facts and participants experiences. It would be nice to hear what others say about it.” Informant 9*

> *“ [For information searching] images and videos, because reading of long texts is difficult due to my dyslexia.” Informant 9*

> *” It depends what information I am looking for, almost any media is ok. On activities picture material or video is best, when I want to know what it consists of. At least pictures if not video. Usually I am interested, because sometimes the text gives you different impression, and pictures let you see the environment where the activity happens and what it is in practice. For example, case organization’s activity center’s page had a picture of workshop that displayed components of a computer, and it instantly made me interested and made me understand a little what the activity consists of.” Informant 10*

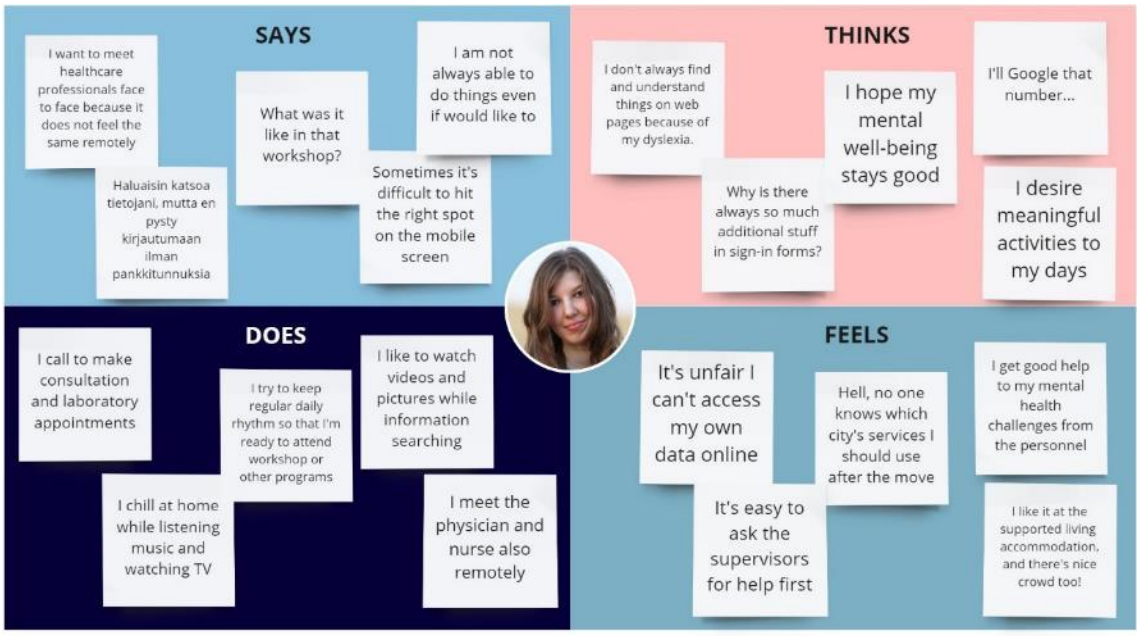

Figure 28. Empathy map: Emilia (see full-sized version in Appendix 6).

Interestingly, Emilia is the persona which most stated using the case organization's digital services: she has used these to find meaningful activities to her days. This might be due to her existing everyday connection with the personnel of the case organization, since couple of the informants mentioned getting information and encouragement to go and sign-up for group activities and workshops.

> *" I looked at day center's pages and signed up to group activity. It worked well, I just sent my details and they replied with email and WhatsApp message. It was easy to find what I was looking for, I had gotten some information before hand before going to the web page, so it was easy to find where I wanted to sign up." Informant 10*

> *" I checked the groups on the webpage but didn't sign up yet because wasn't able to yet. Couple of groups might be interesting so I would get something to do to my days. […] Webpages were very clear, and I found what I was looking for even though I haven't used the internet that much. It wasn't difficult at all. It took only couple of clicks and the place to write your details and which groups you want sign up to came up." Informant 9*

> *" I have signed up to activity center's services online and participated in Zoom and MS Teams group meetings which were held online due to COVID-19. It has been quite nice, a bit different." Informant 4*

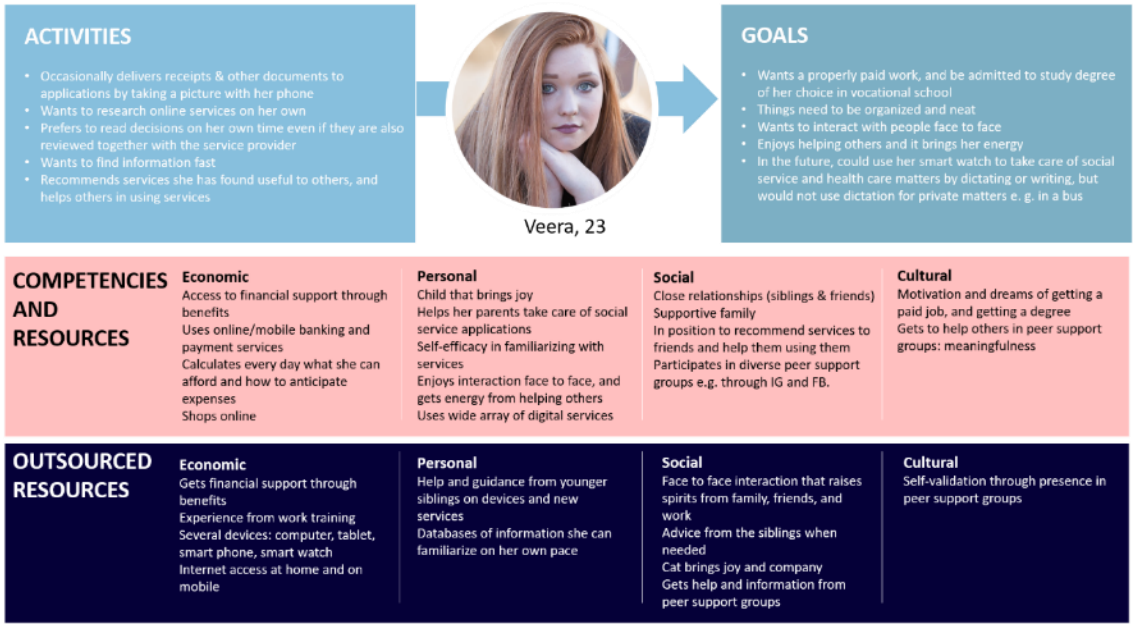

Figure 29. Resource integration map of Veera (see full-sized version in Appendix along with other resource integration maps 7).

Next, the resources and capabilities of these personas will be explained. Persona cards and empathy maps present the most important strengths, abilities, and resources of each persona to enable the use of them as a single artifact in the ideation and development of new digital services of the case organization. To further analyze the resources, resource integration maps introduced by Takeyama & al. (2014, 345) that were adapted to contain categories of offline and digital resources important for digital and social inclusion (Helsper 2012, 418) were created for each persona. Tommasetti and others' (2015, 7) conceptual framework for value creation as well as Arnaud and others' (2006, 3) The Consumer's Operant and Operand Resources can be synthesized to Helsper's overall categories of economic, personal, social, and cultural resources as presented in chapter 2.5. An example of the resource integration map can be seen above in Figure 29, and resource integration maps for each persona in Appendix 7. As can be seen, resource integration map has similar components as personas, but focuses more on customer's behavior as activities, goals, persona's competencies and resources, and outsourced resources.

5.1.1 Economic competencies and resources

All the personas have some economic competencies and resources, which are presented in the Figure 30. All the personas use benefits from Kela and possibly from the city's social services: Veera and Samuel have the skills and devices to apply them themselves either through online services or by visiting the service providers customer service, but Emilia has a support person who applies the benefits for her. These are mainly digital resources, and the money is the outsourced resource.

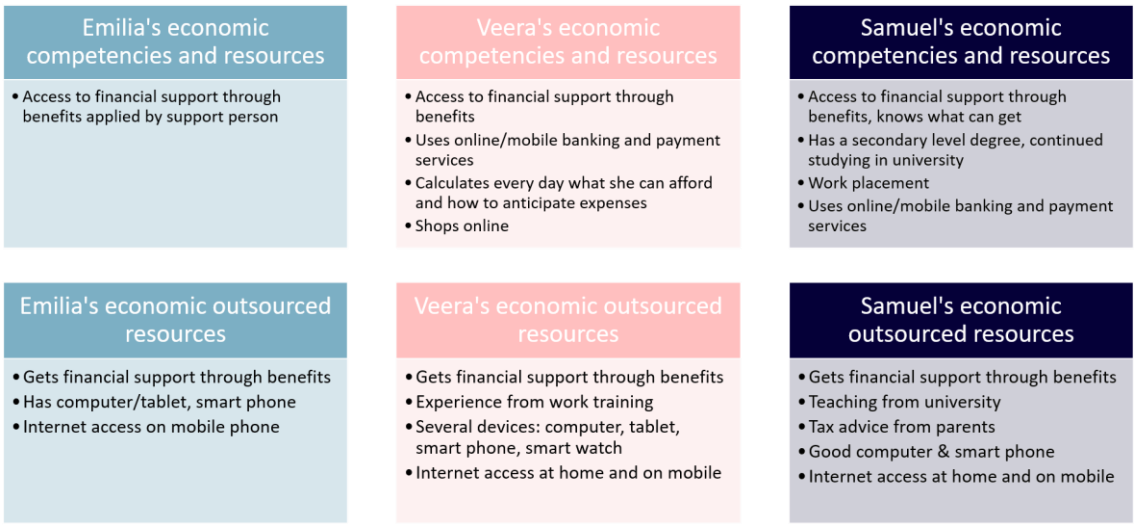

Figure 30. Summary of economic competencies and resources.

Emilia's only economic resource in addition to benefits is that she has a smart phone and computer or tablet available and can use mobile internet for access to digital services.

Veera uses online banking and payment services every day and calculates what she can afford and how to anticipate expenses. When it comes to outsourced resources, Veera gets more experience from work training, which not only gives her something to do during the days but might help find a permanent work position or study place of her choice. She also has several devices she uses; computer, tablet, smart phone, and smart watch are all something she uses with digital services. She also has internet access both at home and through mobile phone.

> *"If it is so that cards cannot be used and that information come in time, one has to prepare and do grocery shopping. And if the accounts cannot be viewed, then it is pretty challenging to plan what to buy when I don't know how much [money] there is." Informant 2*

> *" Mobile banking app [one of the most important digital services]. Banking things are needed every day." Informant 1*

> *" So I will probably do that [practical nursing degree] and then continue from there. Nevertheless, I believe that I would get to study practical nursing fairly easily, because I have per se good position, since I have completed high school and would think it would be fairly easy to get in then." Informant 5*

> *"I have dropped out of two vocational degrees and now I'm in the work training and I am planning to continue my studies. […]" Informant 2*

> *"… I use my phone all the time and that [smart] watch in my hand almost all the time. However, at home I have used the tablet to watch those series, because it's a little bit bigger and then I also have a laptop computer in use. At least a lot of devices to be found." Informant 2*

> *" I have camera and two computers… Now I have three computers that I use… And of course, phone." Informant 1*

In addition to knowing how to apply for financial benefits, Samuel also has quite extensive knowledge of what type of benefits he would be entitled to and understands the services, and due to his level of functioning, he also would have the energy to file complaints if needed. Samuel also has graduated from vocational school, and is currently studying at the university, and is in work placement. Samuel uses online banking services and when compared to other two personas more diverse online payment services such as PayPal. Through the studies Samuel gets additional resources like teaching from the university and utilizes his parent's knowledge and advice if needed in for example tax issues. Samuel also has good devices: because of his gaming hobby, he has an efficient computer and a smart phone.

> *" I don't find Kela that difficult anymore, because I have used Kela for quite many years, so it has become familiar to me." Informant 3*

> *" Very rarely use some other channel than online [in Kela services], because I think it is easier to handle them through the internet. […] I have gotten used to it, I learned it back then, so now it's easy, but in the beginning, it was a bit…" Informant 8*

> *" Usually if I have needed to ask Kela for some help, so that for example my family has not been able to tell, so then I have marched to the spot. I think that is the way to get most clear and best answer." Informant 4.*

5.1.2 Personal competencies and resources

Personal competencies and resources are related to physical and psychological health, personality, intelligence, and skills as well as in digital context to leisure and entertainment person uses. Personal competencies and resources demonstrate person's ability to manage their daily life and seize possibilities without the influence of their cultural, economic, and social background.

Personas differ in their personal resources (see Figure 31): biggest difference is related to their level of functioning due to where they are in their rehabilitation from possible mental health or substance abuse challenges. Samuel already has tools to support his own mental health and lives independently and can work and study, whereas on the other end of the

spectrum Emilia needs support almost around the clock. Luckily, Emilia has easy access to help through the living unit, who also guide her in whatever needs arise. Veera is somewhere in the middle: she does need some support but is able to do work training.

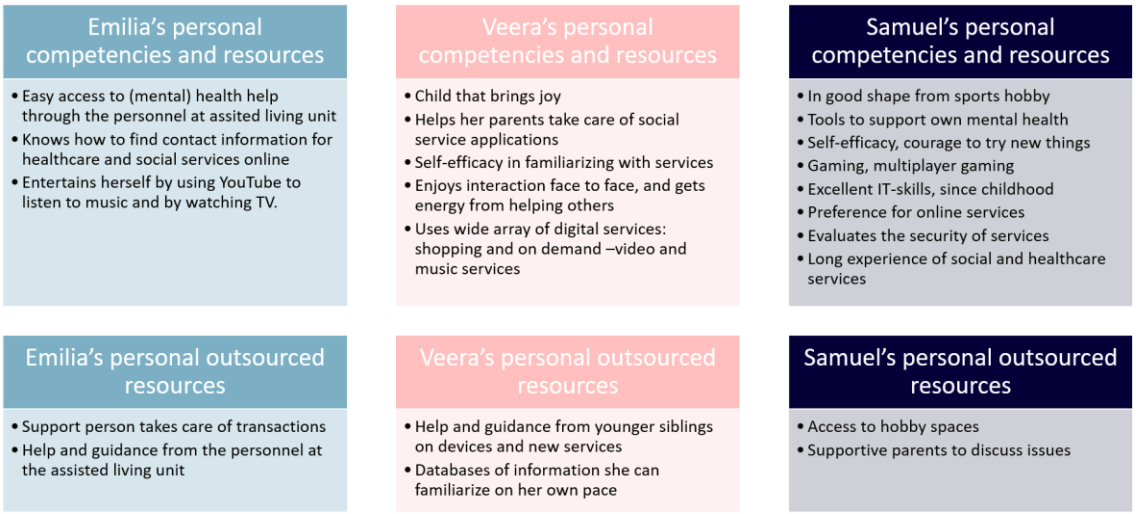

Figure 31. Summary of personal competencies and resources.

Emilia has enough skills to search contact information for healthcare and social services online to call them. As an outsourced resource, Emilia gets help from a support person for example for applying for benefits or using money to buy something in addition to the help at the assisted living unit.

> *"I search for the phone number for making an appointment or specialist physician online if need it, and then call." Informant 9*

> *" I enjoy my friends and music, which I listen almost all the time. […] I usually listen to it through my phone, I download music from YouTube or internet. I listen to music while going for a walk if I am alone, but now I usually walk with a friend." Informant 9*

> *" A challenge I have is deterioration of psychological wellbeing, but I get help for if I need. It is easy get help at the case organization if I'm feeling bad." Informant 9*

Veera's biggest sources of everyday happiness are her child and cat, as well as face to face interaction with others such as other people in the work training. Helping others is also big source of energy, and it gives her the sense of recognition and respect when people she helped thank her. Veera also knows how to use wide array of digital services and apps: for example, she makes her shopping lists online, listens to music from Spotify, and entertains herself and her child by watching series and movies from on demand platforms.

> *"Child brightens up the day, no matter how bad the day. Same goes for the cat." Informant 2*

> *" Well, often I like to listen to people's sorrows, I don't know what it is, but, and trying to help if I just can… Because it is always such a joy to me if I can help even a little bit." Informant 1*

> *"The type of job, where I can help other people would definitely be a dream." Informant 5*

> *" Anyway, I'm in my circle of friends – I have fairly young friends – so I can be of help in quite many things, which is very nice. […] And helping people is very important to me, so if I can be even a bit of help, I want to do it. […] [I receive] Mainly thanks. One doesn't get any big reward from it, but to me it is very nice, that if I notice that someone is very thankful, it is wonderful." Informant 5*

> *"I plan a bit which shops I go to and make lists of food I need to buy online. […] Foodie, it can be used to create a shopping list and when you go to the store, you know a bit where you can find everything. " Informant 2*

Samuel has a lot of personal resources: he is in good physical health because of his sports hobby, has the will to try and handle whatever challenges come his way on his own, but also strength to ask help if needed.

> *" I always try to take care of it on my own, but if there is a situation where I honestly don't know, then I also ask for help. Like, I don't stay spinning with the problem on my own and leave it undone, but instead ask for help." Informant 4*

He has used computers since childhood, and thus has excellent IT skills that give him the courage to try new things and skills to evaluate the information security of services. He prefers online services and has long experience and routine for using social and health care services, both face-to-face and digital. For leisure entertainment, when he is not engaged in his ambitious sports hobby, he plays games on his computer: he plays the games both alone and with other people online. Through his hobby organization he has access to hobby spaces, and his parents are the main source for guidance and help when needed.

> *"I can use digital services. Not perfectly, sometimes I don't know what to do. And for example, social media, with that I'm probably on basic level. But with computers solving of problems or so, I am in that better than average, because*

it is a bit like a hobby to me. […] I am interested in computers and working with them. I can for example build a computer." Informant 8

" I use social media, and digital services fairly lot, of course because I'm part of this… generation and so. I have been in charge of electronics and other digital things since I was quite little." Informant 3

" I use phone to all messaging, Facebook and such…social medias. And then computer to take care of all the official stuff and such." Informant 3

" I always try to solve and take care of things by myself, but when the situation is such, that I honestly don't know, then I also ask for help. […] [I ask help from] my family, they are the ones I ask first, whatever it is about, whether it's some Kela things or bills or some tax things for example, which are little unclear to me, because my parents know them very well." Informant 3

" The sports hobby, which I do actively, almost every day more or less practices, because I aim to compete, so now we train fairly hard." Informant 3

" I am a lot on the computer during the weekends. […] This sounds like I don't have any social life, but I keep in touch with other people through computer. I play with them and talk with them for example in Discord." Informant 8

5.1.3 Social competencies and resources

Social competencies and resources refer to offline social ties and powerful civic and political networks as well as digital networking and communication and participation and engagement. All the personas have friends and at least one relative they have a close relationship with (see Figure 32): the strength of ties may differ and can be affected both by COVID-19 situation and changes in life in general. Also, all personas interact with a network in digital channels: social media and WhatsApp play biggest role for Emilia and Veera, whereas Samuel is not so actively contributing to social media, but communicating with the gaming community through Discord, and other friends through WhatsApp.

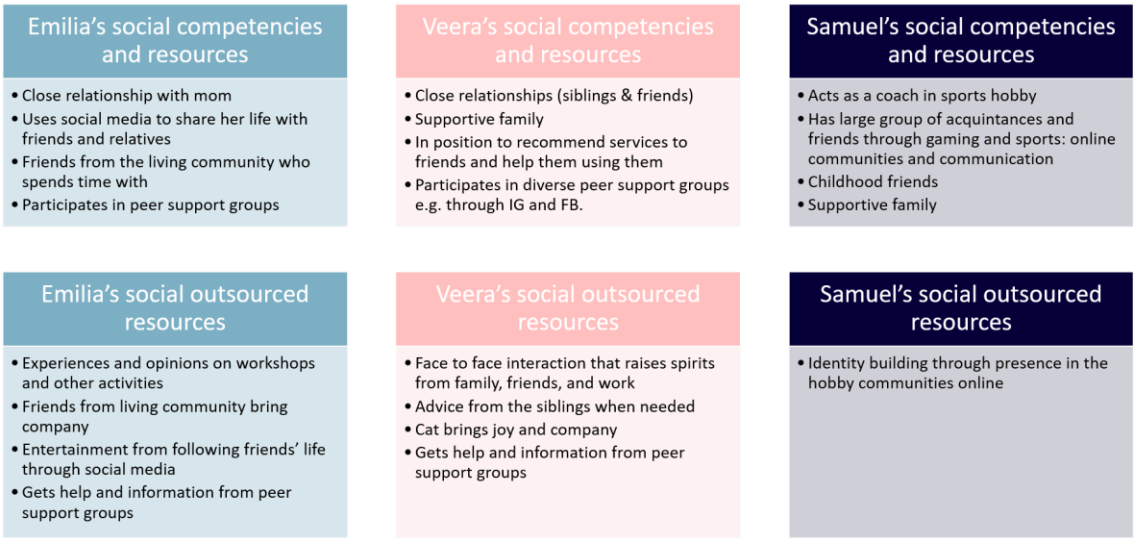

Figure 32. Summary of social competencies and resources.

Emilia has a network of friends and professional help from the assisted living unit she spends time with watching TV, playing, and taking walks: these ties might be most related to the current stage in her life, and the significance of this network might lessen after she moves out. This network also offers her valuable source of information on the service offerings of the case organization: she asks for experiences and opinions from her friends when considering different workshops and activities.

> *" Now it hasn't been possible to ask opinions from others, because COVID-19 has prevented moving in elsewhere than inside my own unit. Without COVID-19 I would ask for experiences, and I have asked friends' experiences before." Informant 9*

She also entertains herself by sharing her life to her "outside" friends in Facebook through pictures and status updates: she also follows the lives of people important to her through it. Emilia takes part in peer support groups, which provide her help and information.

> *"I use my phone a lot, I call and use internet. […] I use everything possible one can download to the phone: Facebook, YouTube, and music players. I follow others and share my own life. I have been in Facebook since I was 14-15, friends used it and showed it to me, and I also wanted a phone and use these." Informant 9*

> *" On my mobile phone I use WhatsApp and Instagram. On the tablet I use Facebook and Instagram. "Informant 4*

> *" I do all the basic stuff that one does in for example Facebook. I post my things and follow what others do." Informant 4*

Veera has supportive family and friends, who actively help each other: she helps her parents and friends, and her friends and siblings help her. She holds a trusted position in her family and friend circle, and recommends services she finds helpful to others, and even helps in using them. Some of the friends are also unemployed, which is why she has recommended the case organizations services too. Peer support groups in for example Facebook and Instagram are places where she goes to seek help and information, and possibly share her own knowledge: though she uses also online groups, more personal and intimate topics she prefers to talk about in face-to-face meetings.

> *"I have checked their Facebook page […] There's for example that video, where they introduce all those workshops and what they have. And then there was a text, where it's explained what is done in it and what is included. […] I have shown it to a couple of my friends. […] If they have been unemployed or so. […] I have tried to show them if they also got in there." Informant 2*

> *"For example, […] I am in diet group in Facebook, and there I read how people have told about what has happened or if they feel bad about some food and could someone tell if they have similar experiences and what it means. I like to read different things from those groups, for example recipes, like here's the original one and this is the one I modified to my liking, I find those quite well. " Informant 2*

> *"At the moment, I'm in one group which I participate in. […] It has now been held remotely, and that would be something which I'd prefer to attend face to face. […] That's something I would prefer to handle on-site. […] Maybe because […] you see the people you talk to about your own pretty private things live, it is kind of like trustworthiness thing. It would feel trustier when you see people physically, to whom you talk about things." Informant 5*

Overall, face-to-face communication brings Veera energy and raises her spirits: the fun, relaxed social interaction at work training is particularly important to her, and something she expects from her future workplaces too. She has a strong tie to her cat as well: watching and interacting with the cat brings her joy.

> *"Nice crowd there [workplace] That there would not be very tame ones, and no-one talks to anyone." Informant 2*

Samuel holds a position of power in his hobby, and he enjoys social recognition through it: he coaches others on top of his own training and is well networked with the hobby organizations decision-makers. He enjoys encouraging and seeing the people he coaches succeed and overcome their fears. He has a large group of acquaintances, and close friends through online

gaming and sports hobby: the loose online gaming community is partly abroad. The communities help Samuel build his identity.

> *" …Actually it's coaching, that I've been able to do […]… It's been like, even though I don't get any real salary, it has felt super good every time. It's definitely something I want to get to do. […] I guess it is when one gets to see people overcome fear. For example, we have done some things, that 'I can't do that' or 'I will never have courage' but then you see them do it, you see instantly that success, that's like best thing ever." Informant 3*

> *"I keep in touch with other people particularly with computer. I play something with people, chat with them for example in Discord. […] Often my friends live far away because I have met many of them online." Informant 8*

> *" I hang out more in like sports crowd. And then… Well old school friends and such, more with them [than people from work placement]. […] I have quite a lot of friends abroad and such, and of course I keep in touch with them whenever it's possible." Informant 3*

5.1.4 Cultural competencies and resources

Cultural competencies and resources are related to gender, ethnicity, generation, specialized knowledge and skills, expectancies for life, history, and imagination together with digital participation and engagement. Cultural competencies and resources were not widely identified for the personas through probe, interviews and focus group (see Figure 33). This may be partly because the vulnerability of the target group and ethical considerations made author and the two other master's students to be cautious of asking questions related to health, minority groups etc.: also, the target group was selected so they all spoke Finnish, which therefore may have affected the diversity of cultural competencies and resources.

Figure 33. Summary of cultural competencies and resources.

Emilia has dreams of living a meaningful life and having own home in the future: these can be seen to align to general, western dream. Emilia is also tightly embedded in the community of the assisted living unit, which may affect her choices and behavior.

> *"I wish to have something meaningful to do during the days, but not just for the sake of doing. For example, it was nice to help take down Christmas tree from the dining room the other day, it was practical doing." Informant 10*

Veera aims at getting a paid job that makes it possible for her not to worry about money all the time: to reach this, she is motivated to complete a degree. She finds meaningfulness to her life from helping others, especially in peer support groups: it could be stated that she gains self-validation through the peer support engagement.

Samuel builds her identity strongly through the online hobby communities. He also sees himself to be part of digital natives, and therefore, well included in the digital society. Samuel presents most detailed, and biggest dreams of these three personas: he has the motivation to work toward having a good job, completing university level degree, and reaching high level expertise in his hobby.

5.2 Existing social services and solutions young adults in need of increased support use

Overall, Kela, OmaKanta, and doctor's office seem to be the social and healthcare services, that are most commonly used by the young adults in need of increased support: eight out of the nine informants mentioned using them. This is supported by the findings from the questionnaire that was conducted simultaneously in the case organizations premises. It also might be, that these three services are easy to talk about: they do not reveal that much about personal details, since many young people and especially unemployed people and students apply for benefits at Kela, and OmaKanta is commonly used by anyone who has some laboratory tests or medicine prescriptions.

On top of aforementioned, the informants mentioned using city's social and healthcare services, FSHS (Finnish Student Health Service), Huslab, Omaolo (digital service for finding right social and healthcare service) and Koronavilkku mobile app. These were not part of the most important social services the informants used. Some of the informants had experience of having a designated support person to help them apply benefits and find the help they needed: for example, there might have been a social worker, or named Kela contact person.

When it comes to the use of services, all personas would prefer to use the digital social services through mobile phone, but currently it is not always possible or feasible: though mobile first has been the anthem for private digital services for years, it seems it has not yet gained wide popularity in the social and health care services. Also lack of support for

browsers available to the informants, was an issue that sometimes prevented them to access the services on mobile phones: since the informants use many of the services regularly, they are used to these sorts of issues, and therefore predict the problems and change their behavior, i.e., which device they use based on their experiences.

> *"Well, at least for example when I'm filling some information in Kela, it is little bit more difficult on phone, so I have somehow experienced it to be little bit easier on computer." Informant 3*

> *" [Prefers to use Kela] On phone, but if I am filing an application and I need to put some attachments, then I don't know how to search from the phone where I save them." Informant 2*

> *" I rather prefer to take care of Kela matters online, but it is partially because it costs to call there and there is very long queue. And I don't like to pay for it. So, if there was an easy phone service, then I would rather call, because I would get quickest answer for there. But since it's now usually easy experience, it is then easier to look up online or put to their forum, if it is such a matter, that it's now very current or personal question. I have put a message to the forum once." Informant 8*

Interestingly, the services of the case organization did not rise in the answers of all the informants, though they were recruited through it, and therefore most of the informants have used them in some form. It might be, that some of the work training and placement related services are not so clearly seen as social services. This is backed by the fact, that TE services were mentioned only twice.

> *" I have looked at their Facebook page. They have made updates also there. […] There is for example that video where they introduced different workshops and what there is. And then there was text explaining what is done and included in it. For instance, for that workshop I attend, what is done in there. I have shown it to couple of my friends." Informant 2*

Informants who were the base for Emilia, who is living in the assisted living unit, was the group who mentioned case organization's digital services the most. The main use for the case organization's digital services was researching and signing up to different activities and workshops. The service itself seemed easy to the informants, but they gave suggestions for improvement: especially diverse content about the workshops was hoped for in the form of both videos, pictures, and text.

Main source for help and advice is very similar for young adults in need of increased support: all the personas turn to their family and other people close to them for help and advice, though they do Google for initial answers. For Emilia, the main source of advice and help is the personnel at the assisted living unit, though she also uses her network of family and friends.

> *"First of all, I would ask my parents, but then I would put the issue on Google and depending on what it is related to, but my parents can… - they are very close to me and I can tell them anything and they will help in everything." Informant 5*

Though there is evidence, that young people in need of increased support often receive informal help from their friends (Ikävalko 2020), this did not come up in the answers of the informants. Few of them, mainly the informants related to Veera, did mention helping their friends apply benefits or recommending the services of the case organization, but only one of the informants talked about the role of her friends in helping her. This was mainly related to the COVID-19 situations, that has decreased the amount and possibilities for face-to-face social interactions leading to feelings of loneliness and melancholy: opportunity to stay with a friend's family has helped the informant to have access to social interaction she craves for.

> *"I don't usually visit her this much, that I have been visiting them maybe two to three times a week, and I have stayed the night even on weekdays, that brings the social interaction." Informant 5*

5.3 Ecosystem from the eyes of young adults in need of increased support

Customer ecosystem maps provide information of stakeholders and services and value creation between them and the customer. The connections between actors on the map provide visual, easy to track information on how the system works from the perspective of the customer. Similar information can be found in the persona cards through examples of services the persona uses, and therefore ecosystem map is merely an alternative way of visualizing and examining the persona's relationships with different stakeholders.

Overall, it could be said, that the social services in Finland, e.g., Kela, seem to the customers presented by our sample, to be designed to match the needs of "majority of people". When it comes to themselves, especially Veera and Samuel, the services seem to have been organized from the organization's own viewpoint and silos, and not considering how the customers actually use the services throughout these silos, and they consider the experience as one which matches Polaine and others (2013, 22) views of perfectly designed single services inside silos and no design for the overall service which affects the overall value the customer gets.

More detailed customer ecosystem maps for each persona were created to highlight the most important social and healthcare services together with the main stakeholders and other digital services the personas use. The customer ecosystem maps also describe the relationship between the persona and the service/stakeholder, and the value or challenge the relationship brings to persona's life.

5.3.1 Ecosystem from Samuel's perspective

Samuel's ecosystem (see Figure 34) highlight the gaming and sports communities that he frequently interacts with and who bring the support and entertainment. Work placement organization and university provide another important social circle. Since Samuel's level of functioning and health is good, his interaction with social services is mainly restricted to monthly routine transactions, and even less frequent use of healthcare services.

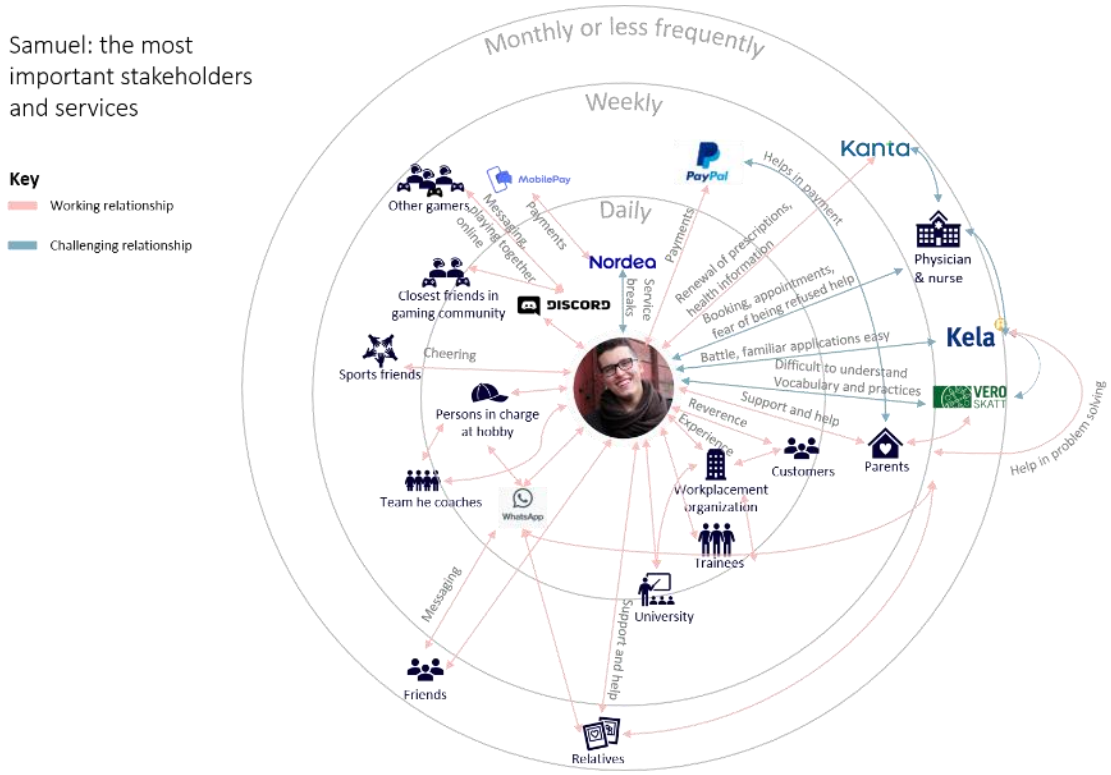

Figure 34. Samuel's ecosystem map (see full-sized version in Appendix 9).

Samuel is also in contact with his parents, who are the main source of support and help, and less frequently with his relatives, who he gets help from if needed, and if they would wish so, he would help in return. Childhood friends Samuel mainly interacts with by messaging on WhatsApp, since the more active gaming and sports community takes up most of his free time.

5.3.2 Ecosystem from Veera's point of view

Veera, with her social personality, uses big part of her day interacting with her child, friends, parents, and siblings, and this is done through diverse social media tools as can be seen in Figure 35. She also spends time with these people face-to-face when possible, and this can mean hanging out in shopping centers or going to movies.

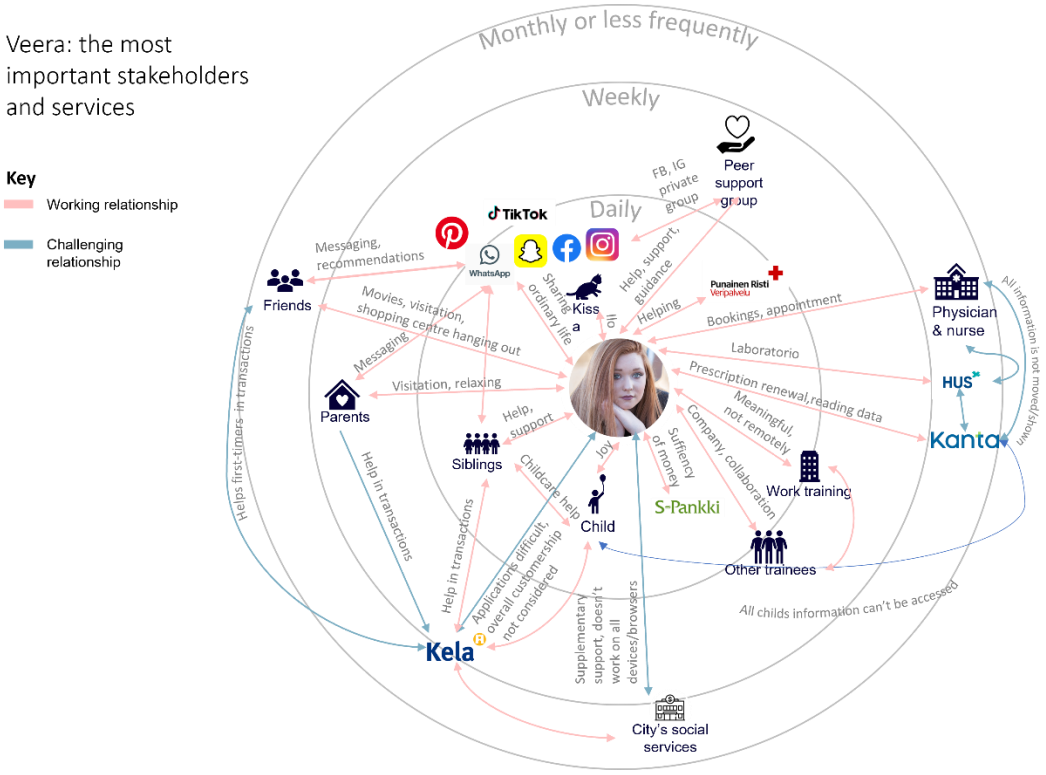

Figure 35. Veera's ecosystem map (see full-sized version in Appendix 9).

She, like Samuel, is not interacting with healthcare services weekly, but monthly or even less frequently. In contrast to Samuel, Veera's interactions with Kela and city's social services might be weekly, when she has more bills or is entitled to more benefits. Veera also interacts with both social and healthcare services to take care of her child's needs, which poses its own difficulties at times. Online banking is especially important to Veera since she follows her spending and income streams daily.

Work training and other trainees provide Veera meaningful things to do, and at the same time energizing social interaction. Veera also uses social media to access peer support groups.

5.3.3 Ecosystem from Emilia's standpoint

Emilia's most frequent contacts are the residents at the assisted living unit, and supervisors at the same unit (see Figure 36). Other residents are important factor on how pleasant the experience at the unit is, and offer company when Emilia wants it. Emilia and her friends/co-residents spend time listening to music and watching videos from YouTube. As described in the previous chapter about resources, Emilia gets help and support from the personnel of the unit and has several contacts with them every day. The personnel also give information on possible other social and health care providers, and help Emilia find the help she needs. Emilia makes appointments by calling the health center, HUS or HusLab, which she typically needs mostly monthly or even less.

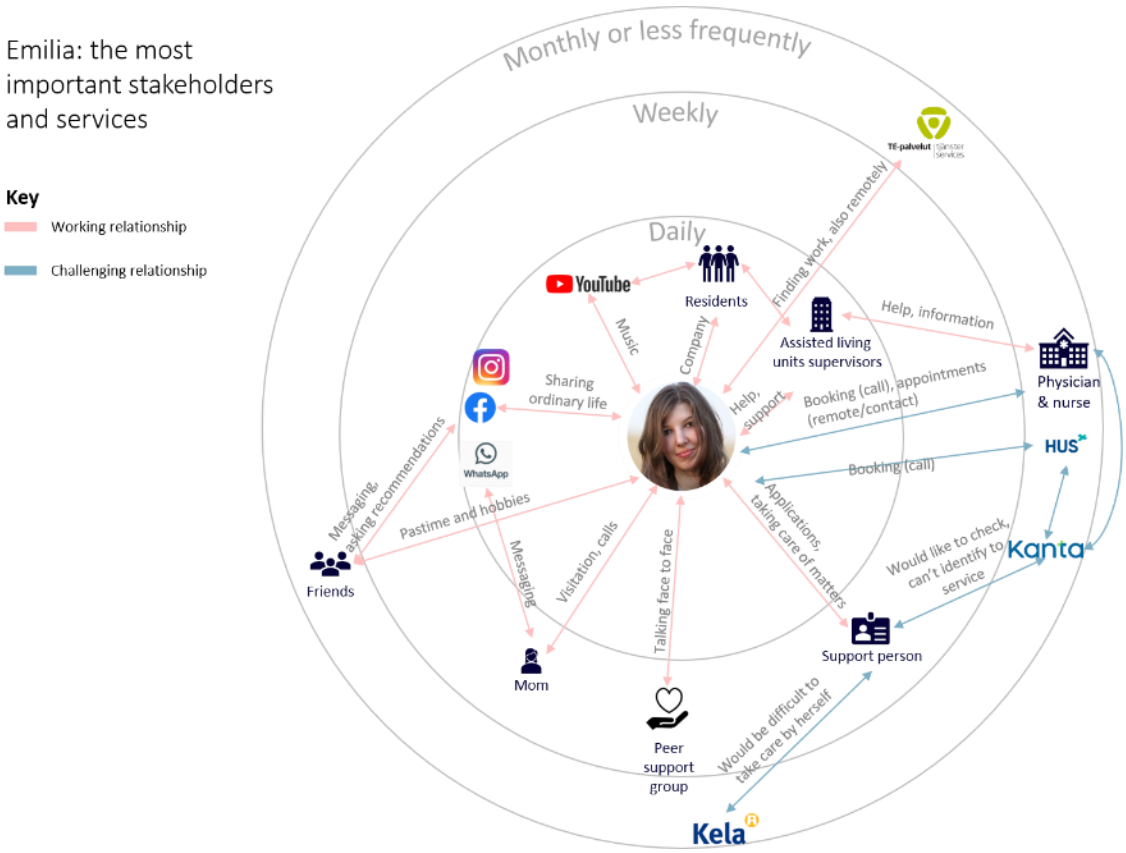

Figure 36. Emilia's ecosystem map (see full-sized version in Appendix 9).

Some of the services are not so easily accessed by Emilia: she would like to use OmaKanta to check her own information and maybe renew prescriptions, but she cannot do it due to not having online banking codes, and she either is not aware of alternative ways to identify like Mobile Id. She has a support person, who for example manages the applications for benefits to Kela: Emilia finds, that taking care of transactions with Kela might be too difficult to her, and that is why she feels pleased it is taken care of by someone else.

In addition to prior mentioned, Emilia takes part in peer support group, where she discusses with other face to face. She calls and visits with her mom weekly and uses WhatsApp and social media (Facebook and Instagram) to share her life with her relatives and friends. She also attends hobbies with her friends and asks them for recommendations. COVID-19 situation most likely is seen in the activities mentioned, since Emilia has had to restrict her interaction with other outside the unit.

5.4 Willingness to participate in the development and expectations for inclusion in digital services

As mentioned in chapter , customers willingness to co-develop, co-design, and co-create services is related to myriad of things. According to DART model, dialogue, access, risk, and transparency are paramount (Prahalad & Ramaswamy 2004, 11). The personas representing the young adults in need of increased support have different perceptions on participation in the development of services together with the social and health care providers, and in addition to this, different expectations for inclusion.

Figure 37 summarizes the personas' willingness to participate in co-design, mode of implementation preferred by them as well as their views on helping. On a scale, Veera is most willing to participate and Emilia least: Samuel is somewhere in between, since he feels too busy to participate, and prioritizes other activities in his life.

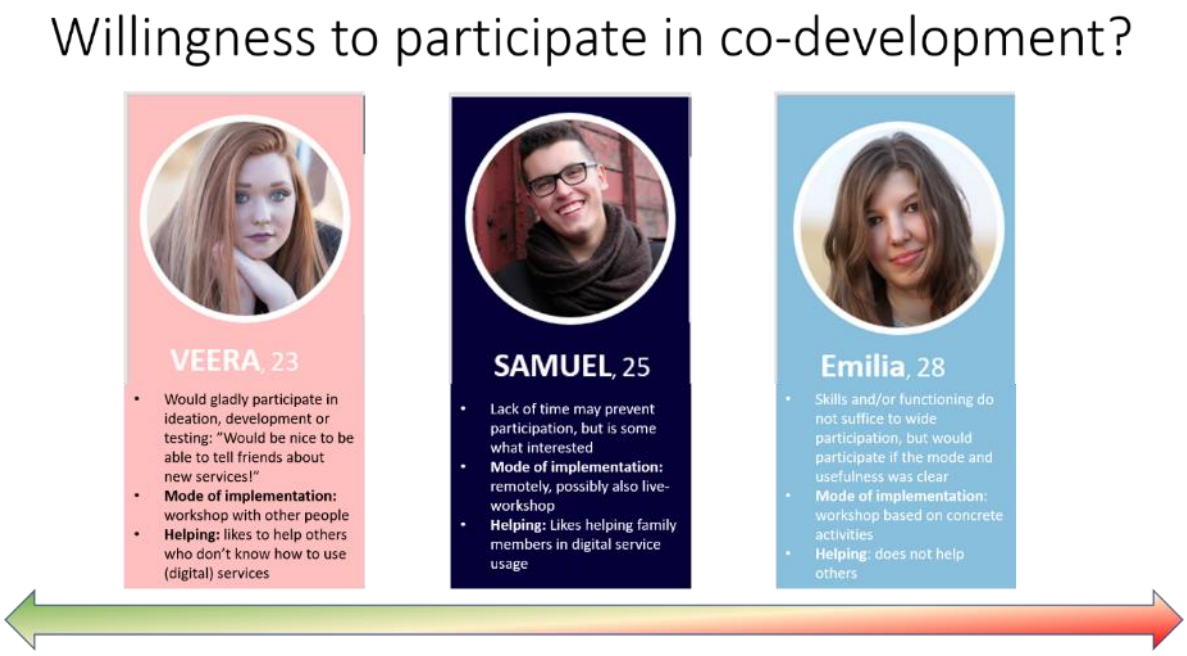

Figure 37. Willingness to participate in co-design.

Main motivator for Veera's participation is her general wish to help others, but the informants behind Veera also stated they find the idea of being able to tell friends about new services and therefore gain forerunner status as appealing to them. Samuel is slightly interested, but there the motivation comes mainly from being able to have better services for themselves. Emilia is quite indifferent to the idea but would like to participate if the usefulness of participation for them would be clear.

The mode of participation that the informants preferred reflects the life situation and level of functioning of the participants: Veera would prefer to participate in a workshop with nice people and support around, and the social setting is important to her. She would be willing to for example test a prototype on her own, if there was possibility to ask questions and help from someone if needed. Samuel with his busy schedule would take part through questionnaire or possibly in online workshop. Informants behind Emilia could not identify specific modes, but after asking additional questions said, they could participate in a workshop if the content of the workshop was concrete and not too straining energy-wise.

Most of the informants stated, that the services are not designed particularly to fit their needs, but rather for everyone, which might in some cases reduce the level in which the services match their needs. For example, one of the informants mentioned, that on the front page of Kela, some of the services such as pension do not match his current situation and brought up the possibility to personalize the services shown based on the user's information: this would help knowing about and applying all the benefits or other services that are related to their situation. Many informants mentioned that there are other groups of people, who are more vulnerable than themselves when it comes to digital service: for example, older or younger people were mentioned as beneficiaries, who the services providers should keep in mind when designing the digital services. Answers of many of the informants behind Samuel and Veera also implied, that they are already helping people close to them in the use of the digital social services that fit these more vulnerable groups: for example, one the informant behind Veera told how she frequently helps her younger friends with Kela services when they move to their own home or start studying.

All the personas want to be included in the digital services, though some of the informants stated there are forms of services that they wish not to use digitally: for example, therapy services are such, that many prefer to attend them in person in a physical space where the professional and they are in the same place, and same applied with peer support groups. One of the informants behind Emilia did mention, that since they are introverted, it might lower the threshold of attending if one could choose when to use digital or offline service. For Emilia, lack of banking codes is major barrier for the use of digital services, and she would like to access the information about her in services such as OmaKanta.

Informant behind Samuel and Veera brought up the fact that they find it difficult the get help when needed, especially in mental health issues, and feel that they need to justify their right to have help and benefits. Samuel even described this as a constant battle. Also, the social services feel inviting to Samuel: they don't feel the service providers have the motivation to help them handle all their applications at one go, but rather focus on small details in the service, that the person is at that moment having problems with: this might mean certain part of an application, and therefore lead to the need to ask again, when the overall situation for which Samuel is seeking help for requires different information.

5.5 Suggestion for using customer competencies and resources as a base for service design for social innovation

Since the development work of the case organization will proceed to identification of opportunities and ideation of solutions only after the thesis process is finished, it was not possible to prototype or experiment with how to use the customer competence- and resource -based design tools in the scope of this thesis. To increase to usefulness of the material on customer competence and resources, author designed a suggestion for the use of the information in a workshop further in the design process of the case organization. The approach is based on Takeyama and others (2014) Research Oriented Service Innovation (ROSI) model.

Digital inclusion can be promoted by combining existing resources and competencies in new ways as a part of digital social services that cater to customers' needs according to social innovation principles. Thus, it is possible to learn from the more advanced customers and copy their success factors to solutions that support other customers.

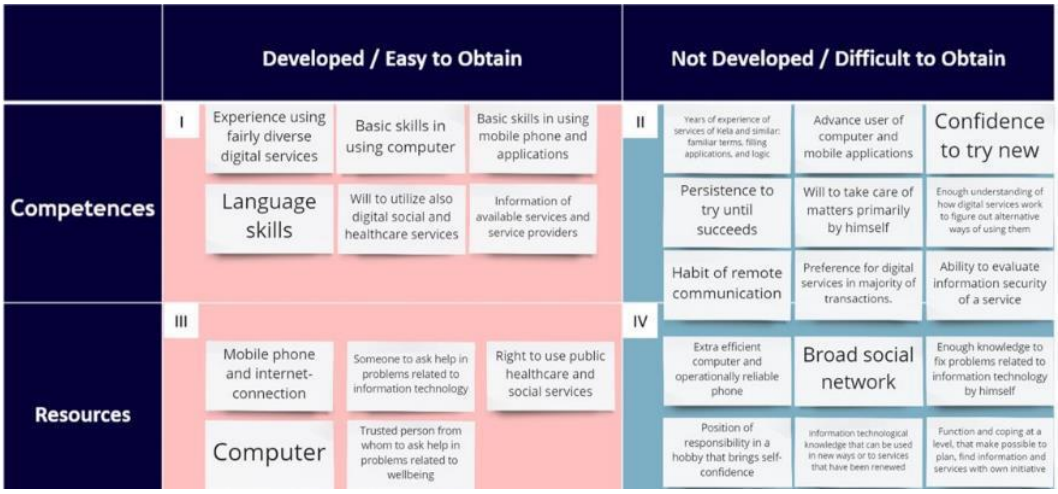

Figure 38. Resource Availability Table (full-sized version in Appendix 8) of young adults in the risk of digital exclusion: Not developed / Hard to Acquire column presents a competent end-user (Samuel) and Developed / Easy to acquire average user (Veera and Emilia).

It is suggested, that among other ways of ideating solutions to design problem, the design team together with case organization's personnel and customers would explore how the existing competencies, networks and other resources of the personas could be utilized to fulfill their needs through digital services. This can be done by using Resource Availability table (see Figure 38) together with questions that help identify how the knowledge about advanced users' competencies and resources could be used to in the case of specific personas. Here, Samuel was recognized as the most advanced customer when it came to overall competencies and resources related to digital social services, and Emilia and Veera as personas who could benefit from additional support the most: of course, Samuel has his own challenges related to access to certain services, for example mental health, that the other personas might be in better position to receive.

Example questions used in the workshop could be the following:

1. How would it be possible to offer Emilia and Veera an empowering service or training that would give them the competencies mentioned in the cell II of Resource Availability Table? For example: How can digital services be made more reasonable? How can their boldness to try a new/reformed service be supported?

2. How digital service could replace the need for resources mentioned in the cells III and IV? For example, what type of service would not require user like Emilia self-initiative and would ease taking action? How could the service connect Veera to a wider social network?

3. What user empowering resources or competencies could be included in the service by for example utilizing partners or collaboration with other actors?

4. How could the interaction of different customers be utilized so that the competencies or resources of one customer group (persona) could support other customers?

The outline of possible ideation workshop and how the ROSI approach could fit in it:

- Start of the workshop: general introduction.
- Familiarization of the persona cards
- Possible other, need based ideation methods.
- Creation of Resource Availability Table based on Resource Integration Tables in Appendix 7, or introduction to readymade Resource Availability Table (Appendix 8). The aim of this phase is to familiarize the group with the resources and competencies of different customer groups.

- Resource Oriented Service Innovation:
    - Ideation based on Difficult to Obtain Competencies with the aid of questions mentioned in the previous list at 1.
    - Ideation based on Developed/Easy to Obtain Resource and Non-Developed / Hard to obtain Resources with the aid of questions mentioned in the previous list at 2.
    - Ideation of resources or competencies that could be obtained from partners or through collaboration with other actors to complement the customers' current competencies and resources and the ones they lack (question 3 in the previous list).
    - Ideation of how the customers and interaction between them could be used as a part of service in a way that is beneficial to all parties.
- Categorization of the ideas.
- Prioritization of the ideas based on their feasibility, viability, and desirability.
- Closing of the workshop.

The customer competence and resource integration maps could be utilized also further along the design process, either as artifacts or to plan the development work: for example, they could be used to plan the exercises or prototyping modes so that they support or utilize the target groups competencies and resources. This might mean planning more active and concrete actions for people likely representing Emilia: for example, desktop walkthroughs and Lego Serious Play might be something, that feels both fun and interesting to do, allow the participants to share their views more fully than using only language.

6 Discussion and conclusions

This thesis set out to provide the case organization and the DigiIN research project customer insight and understanding of young adults in need of increased support in the context of development of inclusive, digital social and healthcare services. The results presented in the previous chapter and summarized in the form of personas, empathy maps, customer ecosystem maps, resource integration maps and resource availability table provide firm package of artifacts that can be shared and used in the further stages of the development work at the case organization and further stages of DigiIN research.

In fact, the DigiIN researchers, who continued their research among the personnel of the case organization, asked for and received a video explaining two of the personas, and empathy maps and customer ecosystem maps related to the personas and utilized it as a stimulus to talk about the customers. Use of personas as the corner stone of analysis of differences between the customer groups has some complications: though Curedale (2019, 394)

emphasizes that the personas need to be about the current situation, there is slight possibility, that when the persona is based on the current level of functioning, in practice, an individual customer may shift from one persona to another that represents them when they move forward in their road to recovery: for example from Veera to Samuel.

Similarly, to how Blomhøj and others (2011, 4) found that the way teenagers stated using their smartphones and other devices in their ordinary life could be adapted to mobile learning, the skills, and ways of using services of socially marginalized young adults studied in this thesis can be used to enhance existing and create new digital social services, applying relevant caution on when the context might be disadvantageous: for example, Blomhøj and others noted that small one player games might not be suitable to learning, when the teenagers typically used them to kill time, and fast while waiting. All the personas use apps and online services for their free time uses, and some even for work and school: all this knowledge and skills might not be relevant in the context of digital social services. For some resources, the usability in the context of case organizations services, on the other hand is a possibility: the willingness to help and knowledge, understanding and motivation to establish a forerunner identity, could be used for peer support or content of digital services of the case organization.

More specifically, this thesis aimed at uncovering customers' competencies and resources that could be utilized and supported in the development of digital services. Probe, interviews, and focus group proved to be suitable methods to uncover the competencies and resources with couple of exceptions. Firstly, these methods, especially probe and interview, may be too laborious for people who are currently going through or are recovering from mental or other health issues. Though most of the informants participated well, or even if they were not that active in the probe, were very informative in the interview, some participants dropped out from the research early on. Secondly, more participatory methods than interview-like focus group might be more meaningful especially to participants with challenges in functioning or ability to concentrate. In our focus group, especially one participant got slightly frustrated with repeated why-questions, and questions he thought to be stupid. If the approach would have been less language-centered and involved use of material to build or draw answers to some of the questions, for example characteristics of future digital social services, they may have experienced the situation better, and produced even deeper data. Also, other embodied methods, that would have allowed the participants move or use their body language to describe things may have been effective and interesting.

Questions and probe tasks, that provided most information about the competencies and resources of the customers were related to their every day, how they became the type of digital service users they are, what brings the joy and how they use services and tackle challenges that come their way. Though the research did produce rich data about the

competences and resources of the customers and the questions were broad, the process may have been more robust if the focus of the interviews and such could have been tied more to this single theme: now there were two other master's students' research questions to think about, which left less space for individual themes. Also, if the COVID-19 situation would have allowed it, the use of more observation methods such as service safari or participant observations may have deepened the insight about the competencies and resources of the customer along with of course adding more information about the contexts of use, needs and challenges.

There is evidence, that the reason for social exclusion could be lack of digital skills, and therefore the solution to digital inclusion would be education and training (Heponiemi & al. 2020, 9; Samsudin & al. 2016, 77), though on the other hand Hyppönen and Ilmarinen (2019, 287) have revealed in their research the level of digital skills among the young adults might in fact already be adequate. The informants used in the development work proved, that the latter is likely to be true: all the informants from assisted living unit and work training services of the case organization were using digital services daily and were accustomed to use them in various ways regardless of their current situation. Yet, the informants still stated that the use of many of the Finnish digital social services were difficult to use or had required a learning process. Reasons for this mentioned by the informants were for example difficult language and terminology used in services such as Kela, lack of proper, personalized fit for their life situation, services that were not functioning in the devices preferred by the informant, and, as a biggest challenge, lack of banking codes or knowledge of alternative ways to access social and health information in the social services.

This may suggest that the target group currently lack of certain economic, personal, cultural, and social as presented by Helsper (2012), Arnaud and others (2006) and Tommasetti and others (2015, 7) is preventing the young adults from accessing the digital social and healthcare services and could therefore be supported by the case organization in form of new service. When Newman and others (2017, 580) researched barriers for increasing IT use of disabled children, they found out, that the main reason for now using IT, was not the health condition but the lack of proper support for economic, social and cultural capital: this capital was increased through intervention from an organization, and the increased use of IT required the children and their parents to know enough of IT to adjust and gather equipment needed to adapt it to their circumstances. Usually, parents lacked this knowledge, and therefore could not transfer their ability to consider and adjust to disability-related needs in offline world to internet usage: this, together with the findings from this development work contrast with Helsper's view of transferability of offline resources to digital (Newman & al. 2017, 580).

There is evidence, that participation of regular customers in the innovation process of a company can produce more valuable and creative ideas through their action, and because

their presence encourages the professional team look for more unique and creative ideas (Kristensson & al. 2004, 11; Roberts & al. 2005, 425). Co-creation of new services does not require the customer to have expert knowledge of the field in which the service operates, but they do need to express interest on the task (Füller & al. 2012). Since Veera and Emilia stated that they felt unsure whether they would have enough knowledge or skills to participate in the development of the services, and especially in the ideation of them, service providers should encourage the young people in need of increased support to participate and offer forms of participation that feel safe and rewarding to decrease perceived risk of participation and motivate them through making them feel they have what is needed to contribute to creation of better services (Sangiorgi 2010, 270). Informants behind both groups could still provide valuable suggestions for improvements in the services: this supports the notion, that if the customers are supported with good methods, their input to service development would be valuable.

This support requires the dialogue Prahalad and Ramaswamy emphasize in DART model. Direct interaction and discussion with the customers are essential for the co-creation in innovation: it offers possibilities to create new knowledge of customer needs as well as possibility better fulfill those needs which then leads to reduced risk of end-users not adopting the new service (Kristensson & al. 2004, 11; Prahalad & Ramaswamy 2004, 11). The informants behind persona Veera suggested that their preferred mode of participation in the development of digital social services would be through workshop where they could interact with others and have expert help at hand: this would provide excellent opportunities for the services provider to have active dialogue through observations and doing together with the customers, while also providing the safe environment. As Chiscano and Darcy (2020, 3) stated, the possibility to social interaction among other customers is important for the feeling of inclusion in a service: the opportunity to work with other customers in co-development of services provides additional opportunity to increase the feeling of inclusion in the digital services and might also increase the possibility of finding opportunities to increase same type of inclusion through co-operation of the customers in service provision and use.

Tommasetti and others (2015, 7) suggest that customer needs to have responsible attitude to co-create value through co-operation: all the informants displayed willingness to take responsibility of their service use, and willingness to have a say in things that impact them. Despite this, the level and mode of co-operation in co-development on the other hand must be adjusted to reflect the participants level of functioning: Emilia needs to be involved in a way that feels concrete, and does not strain too much energy, while Veera wishes to do things independently with the possibility to easily ask for help or assurance if needed. Samuel finds he could participate remotely or through quick surveys or such. This supports Manzini's (2015b, 409-410) notion, that the collaborative organization need to pay attention to easy access and effectiveness of reaching results to attract and motivate people to participate.

When it comes to overall inclusion in the services, it might be that the internalized attitude, that the informants were not welcome to use the services and not the main target group or important customer segment, affected the level of inclusion in the services that the informants stated to expect. As one of the informants related to the Samuel persona put it, social service providers are “not like, come here and let’s handle all your matters at once”, but Samuel must actually “fight” to get the benefits and help he is entitled to. Most of the informants also thought, that the services are not designed particularly to fit their needs, but rather for everyone, which might in some cases reduce the level in which the services match their needs, for example, in case of Veera, the silos between services provider’s different services might prevent comprehensive service. Many of the informants presenting all the personas brought up, that the services should be also designed to groups they thought to be even more vulnerable than themselves.

The data gathered during the development work, and the fact that all the informants had used digital social and healthcare services in various modes support the findings, that the use of digital social and healthcare services in Finland is widespread: in 2017, 68 % of the population had used them (Hyppönen & Ilmarinen 2019, 179, Hyppönen & al. 2018, 4). To provide more value, many of the social and healthcare service providers could use one to one real time support in their digital services as suggested by couple of the informants: this would include them in the co-production of the service and support them in the value-creation while also building the relationship with the customer. This should not be left to the level of faceless chat though: the informants suggested for example possibility to have a video call, where the customer service agent of the service provider could for example show what needs to be filled and where in the digital application form. This further along proves that the young adults in need of increased support can provide valuable suggestions and help ideate and improve existing digital services and could be also used to prototype and gather feedback on the solutions. The participation of the customers, and community-based approach to innovation that aims to fix societal challenges and emphasizing the value of the end-users and customers as experts of their own life, and capable of bringing forth the change needed, provide valuable framework for development work in organizations such as the case organization (Manzini 2015a, 98; Mulgan 2007, 22; Sangiorgi 2010, 269).

6.1 Answers to research questions

As stated in Chapter 2.5, customer competencies and resources play slightly different, yet important role in Service Dominant Logic, Customer Dominant Logic, social innovation, design thinking, and service design: customer’s competencies and resources are seen in all of these as the source of value as well as raw material for co-design, co-creation, and innovation (Vargo & Lusch 2014; Heinonen & al. 2010, 545; Grönroos 2008, 303; Manzini 2015a, 98; Alvord & al. 2003, 270, Manzini 2014, 57; Polaine & al. 2013, 18, 24, 37; Yu & Sangiorgi 2018,

50-52). It is important that the social service provider understands the customer's life world so that they can design services that fit the customer's life and provide value with the service (Grönroos 2008, 304; Heinonen & al. 2015, 484.).

How can the customer competencies and resources be identified and utilized in social innovation? Service design tools can be combined with the understanding of customers' competencies and resources from both Service and Customer Dominant Logics, social innovation, and other social sciences. As done in the development work of this thesis, the service design process in the form of the Double Diamond model can be followed to first do research, analyze, identify, and visualize the findings, and then be followed to develop the ideas into testable prototypes and finally delivered in the form of new solutions to social problems. The research of customer competencies and resources can be done using empathic service design methods and tools such as mobile probe together with interviews and focus group. The insight can then be simplified and operationalized to help define the opportunities for innovation by using tools that help visualize the data in interesting and easy to use form such as personas, empathy maps, customer ecosystem maps, resource integration maps, and a resource availability table. These artifacts can then be utilized in co-creative workshops to first understand the design problem and identify opportunities as well as for ideation for solutions. Information of the artifacts can also be used to find right forms of participation for the customers and testing and prototyping the solutions.

As Helsper (2012) and Arnaud and others (2006) have identified, customers have competencies and resources that can be divided to social, economic, cultural, and personal competencies and resources. In the development work competencies and resources were analyzed through the three different personas detected from the informants studied, which differ in skills, competence of using digital social and health care services, access to professional social and healthcare help as well as level of functioning.

What competencies and resources young people in need of increased support have that can be utilized to co-create value and co-develop digital services?

Customers can be divided in three groups (personas) based on their skills, competence of using digital social and health care services, access to professional social and healthcare help as well as level of functioning. All the personas are at least fairly competent users of digital services, but limitations in identification methods for accessing digital healthcare and social services excludes one of the personas completely from many of them. More information on the current competencies and resources can be found in Chapter 5.1.

What type of digital solutions (or other resources e.g., networks) do the young adults already use to solve problems related to social welfare?

Young adults use many of the traditional digital social and healthcare services provided: their main network for solving problems that occur while using them or related to the services is their family and close friends, though they do Google answers first. Contrastingly, for Emilia persona (living in assisted home) the main source for help is the personnel at the unit. When it comes to technical resources, all the personas have developed understanding of which device to use to fulfill their task. Deeper presentation of the insight gathered from the research can be found in Chapter 5.2.

How does the ecosystem look like from the perspective of the socially marginalized young adults?

Target group uses diverse digital services and applications, and all would prefer using them with mobile phone: in reality, most social services require the use of computer. Though all personas are skilled users of digital services, using digital social services, e.g., Kela is difficult, and first-time users of any service need help. The target group sees social and healthcare services as uninviting and perceive the likelihood of not getting the help they need high: exception to this is the persona Emilia, who lives in assisted living unit, and perceives she gets good help, and someone else takes care of the applications etc. From the perspective of the young adults in need of increased support, the customer ecosystem can be described as regular interaction with social and healthcare services, social media, and their closest personal networks. The frequency of interaction with different stakeholders varies by persona. More information on the customer ecosystems can be found in Chapter 5.3.

What expectations do these people have for inclusion in development of digital services?

All personas want to be included in the digital social and healthcare services: main obstacle for the inclusion is that the services offered are not customer centric/oriented and are organized in a way that is perceived as uninviting.

When it comes to participation in co-creation or co-design of these services, personas differ; for example, Samuel is too busy to take part, though he already has development ideas, valuable experiences, and perspective, and is confident at trying new things. Emilia on the other hand finds the whole idea confusing, but with proper guidance and easy to access methods might offer valuable perspective as the currently most excluded from the services. Most eager, and ready to participate is Veera, who is driven by wish to help other people, and who is happy to have a say in matters important to her: she would prefer ideation, prototyping and testing methods, that are organized as live workshops with nice interaction with other participants, designers, and facilitator. Detailed information on the expectation and participation can be found in Chapter 5.4.

How customer competences, resources and existing ecosystem can be utilized in the development of new services?

The competencies and skills and other resources of the socially marginalized young adults can be used as a base to ideate new services. Firstly, since two of the personas, Samuel and Emilia represent two ends of a spectrum of current digital service usage, the differences can be used to identify what type of skills and resources could be offered to enhance digital service inclusion of less seasoned users: this can be done for example by using resource availability table. Secondly, each persona presents their own challenge and need regarding digital social and healthcare services, that could be answered by offering support that fills the gap between existing skills and resources and those needed. Thirdly, the competencies and resources of some of the personas could be used to offer the services: for example, Veera is very willing to help and share her knowledge, which could be utilized to help people like Emilia to use digital social services. Detailed plan for the use of competences and resources can be found in Chapter 5.5.

Overall, it can be argued all the customer personas have competencies and resources, that can be supported and utilized in co-design and co-development of digital social services, as well as in value co-creation. The reason for possible digital exclusion of young adults in need of increases support most likely is not the lack of digital skills, but it has more to do with other resources and competencies these young adults lack as well as the way the services of social and healthcare providers have been designed.

6.2 Evaluation of the work and learning

Qualitative research-oriented development work should be evaluated through multiple criteria (Ojasalo & al. 2014, 47). The quality of qualitative research is traditionally evaluated in terms of reliability and validity: this means both evaluating whether the chosen methods were suitable for the studied phenomenon, i.e., reliable, and if the findings are credible and transferable to others, i.e., valid. Reliability also means getting logical, coherent findings through time and methods. (Saaranen-Kauppinen & Puusniekka 2006; Eriksson & Kovalainen 2016, 308). There is debate whether methods such as interviews used in this thesis can be evaluated through classical criteria of reliability and validity (Eriksson & Kovalainen 2016, 305): for one thing, this requires low-inference descriptions of the data such as using concrete wording and direct quotes to describe the findings instead of interpretations of the data, using lists for codes, and careful transcription which the author thinks were accomplished in this case study (Silverman 2014, 88). Last classic evaluation criterion is generalizability, which in qualitative research aims to judge whether the findings can be applied to another or wider context. This can be done by comparison of the findings to the prior theory: this has been done in the discussion above (Eriksson & Kovalainen 2016, 307).

When it comes to the validity, the writer had the intention of giving accurate, truthful description of the research findings (Eriksson & Kovalainen 2016, 305), and it was reached through triangulation of methodologies, methods, data, theories, and researchers (Silverman 2014, 91; Eriksson & Kovalainen 2016, 306). In addition to this, tabulation of the data, comparative method in the form of comparing the informants' answers to each other and comprehensive data treatment were used, which Silverman (2014, 95) states as alternative means for reaching validity in qualitative research.

In terms of reliability, the service design process used in the development work was successful in gathering customer understanding, and it could be replicated in another case due to rigorous attempts to document the steps of the research and analysis process of this thesis (Silverman 2014, 84; Yin 2018, 47). The iterative process also allowed the author and the other master's students to adjust the recruitment of the informants and methods used when needed to ensure reliable data that matched the aims of the research. The guidelines for the probe and interview helped align the research regardless of who of the three master's students was responsible of interviewing or research phone for probe, but it is important to remember that the guidelines were adapted to each interview and probing situation, and therefore can be seen as unique to the informant and that specific situation.

Secondly, the research methods chosen were suitable for gathering deep information about the life of the customers and their resources and competencies to some extent: still, some weaknesses can be detected. The focus group would have been more fruitful if the methods used in it would have been more activating and would have let the participants draw, build, or present something: now all the methods were based in the end in the informants' ability to describe their experiences and come up with abstract ideas. Researcher, who has more experience working with people with health and functioning challenges similar to the informants in the focus group, may have known to utilize ideation methods fitting the remote setting, that let the informants use different types of materials and expressions to ideate. Also, the length of the focus group may have been slightly too long in relation to the level of functioning of the participants.

Additionally, the author recognized the difficulty of leaving enough space for the informants to think and gather their thoughts before giving answers: keeping to asking open-ended questions was challenging, when some of the questions were answered very shortly. One of the participants in the focus group did not find all the why questions meaningful and grew frustrated: since the participants may affect each other's' answer this may have influenced how other participants replied, though it was not recognizable to a person who had not met the participants before, and in fact the participants seemed remarkably able to confidently talk about their own views and experiences even when they were different from others.

Thirdly, the mobile probe, which was the first method for data gathering, provided a lot of information about the use of different services on the top level, but without the semi-structured theme interview, insight of competencies, resources, motivations, behavior, needs and challenges would have been very superficial. Some of the probe participants also mentioned knowing other participants, and some of the data that was gathered and had similarities across the participants suggests that the participants may have been talking about the answers and probe, which might lower the reliability of the data if used on its own. Interviews provided additional information on some of these contexts.

Besides the probe, the interviews were organized 1-2 weeks after the probe week: by this time, many participants had already started to forget some of the experiences they reported about, which proved the tactic of gathering the material from the probe to be used as stimulus in the interview as necessary to refresh participants memory. Still, this may have affected the quality of the data. It is also important to note, that according to Silverman (2014, 93) the information gathered in one context cannot be directly applied to similar situation or used to prove data from another situation: still, the stories informants talked about while seeing the stimuli, provided information that usually gave more depth to what had already been said, though the situation and context was different. After the two first interviews, it was decided, that interviewers would ask the informants access the most important digital social service on their mobile phones and explain what they saw and what they thought about it: this produced much deeper insight on usability and challenges related to digital services, and how the service use was related to their life overall. It was clear all interviewers managed to establish good rapport with the interviewees, except in one of the interviews the interviewee grew frustrated in the end of the interview and the interview was one of the shortest. The level of trust can be seen in the way the informants shared details about their life, though some caution related to health information was evident, and affected how detailed description of manifestations of possible health challenges were shared. The information may have been deeper, if the interviews were done face to face: many of the informants mentioned they prefer face-to-face communication. One of the informants stated she usually hates interviews, and it is possible that due to their social marginalization, other informants have also had bad experiences of being interviewed or questioned, which may have affected what the informants were willing to share and what they felt socially acceptable.

Furthermore, the methods used to visualize the insight were mostly informative and easy to use and useful in the future phases of the DigiIN project and case organization’s development work. The ecosystem map even with effort to simplify it, might still be difficult to understand by people who have not been involved in the research or not familiar with the persona cards. Other end-products such as the personas have higher validity: they are credible, and provide real presentation of the case organization’s customers, and can be used to transfer the

knowledge. Empathy map might be the fastest tool in development of services, though it does not offer such a deep understanding of the customer's life. Empathy maps would be easy to familiarize even in a shorter workshop. The resource integration maps with the categorization of the competencies and resources make it easier to compare the customer groups. What would have increased the value and validity of end-products even further, would have been the possibility to cocreate the end-results together with the personnel of the case organization and DigiIN researchers. This was not possible due multiple reasons such as the schedule of analysis and co-creation of end-results, rush at the case organization and COVID19.

Fourth, the analysis and adjustment of methods provided coherent findings which are important for reliability (Yin 2018, 47). The probe data was categorized every day, which made it possible to adjust the mobile probe questions, and therefore increase the validity: the method also allowed the person responsible of the probe to ask additional questions straight away. The interview data was transcribed straight after the interview and continued in the following day if necessary. Since there were three different transcribers, some differences in the style of transcripts can be detected: they were more on the level of layout in the final transcript and level of reactions marked in the transcript which is why their effect on the quality of the data are likely to be minimal. In two of the recordings short parts of the recording were either impossible to hear, or partly impossible to hear: since the interviews were done in pairs, and transcripts made straight after the interview, it was usually possible to either check the notes or memory to fill in the most important words. These parts were marked in the transcript. The data was gathered using three different methods, the data was in multiple forms such as text, images and video recordings and analyzed in collaboration of three persons allowing triangulation.

In addition to the classic evaluation criteria, there are research strategy and method level criteria to case studies. For example, Yin (2018, 43) presents four tests to evaluate the case study design: construct validity, internal validity, external validity, and reliability. The design of the case study of this thesis offers construct validity in that the data was collected from multiple sources, in means of both informants and methods, but slight weakness is that the discussion of the end-results with customers who belong to the target group to member check them to ensure the correctness of the interpretations from the data they provided during the probe, interview or focus group has not been had except to check the interpretation of the probe data (Eriksson & Kovalainen 2016, 307). Member check does have weaknesses, and Silverman (2014, 93-95) argues it should only be used to provide further data to iterate the results.

Further, in terms of internal validity in the means of finding causal relationship between different conditions through pattern matching and explanation building and acknowledging

rival explanations, the case study is mediocre (Yin 2018, 45): patterns and patterns between the behavior and thoughts and feelings of the informants studied, were detected and matched to understand the general cause and effect, and attempt to detect alternative or additional factors contributing to the relationships of different occurrences was made and aided by the number of master's students analyzing the data. Since the ethics of research and privacy concerns prevented digging deeper into what, possibly health related factors, caused some of the challenges or issues in the lives of the informants, it is possible not all the factors were detected. Not that many critical pieces of evidence were found, which is why the reader may have some doubts whether the judgements made are correct (Eriksson & Kovalainen 2016, 145).

External validity is related to overall reliability and in particular with generalization of the findings: in this development work, some parts are more easily generalizable than others. As Yin (2018, 45) suggests, how-questions such as the main research question of how the competencies and resources be identified and utilized in innovation, generate descriptive information and, such as in the case of this thesis, the model for identifying and utilizing customers' competencies and resources as a base for innovation is transferable outside the field of social and health care services, and even social innovation: similar categorization of the competencies and resources has been used to understand co-creation of value in SDL without regard to the industry the organization is in, and the resource integration map, resource availability table and ROSI of Takeyama & al. (2014) can also be applied regardless of the purpose of the service.

On the other hand, what-questions, which many of the research questions aimed at gathering customer understanding of the current customers of the case organization were, are harder to generalize (Yin 2018, 45-46). In the context of social services, the findings about the young adults in need of increased support can be utilized to develop digital services for similar customer groups, since most of the information is not organization specific. Since the sample of the informants covered only people with fairly high levels of functioning, and speak Finnish, the findings are not directly applicable to people speaking only other languages or having very low levels of functioning. Additionally, the informants do not cover people who are customers of supported living services: the generalization of the findings to them would require further research.

The most important evaluation factor for case study, is the significance of the case in terms of unusualness, uniqueness, general interest, or national importance (Eriksson & Kovalainen 2016, 145; Yin 2018, 243): the topic of using the competences and resources of socially marginalized young adults to develop and innovate inclusive digital services can fairly be stated to be both nationally important and of general interest. Socially marginalized or other way excluded people are often addressed in public discourse through what they lack, and

what public resources they use, and therefore the perspective of what they have, that is both valuable and usable in the development of digital services and in the end the society, provides a fresh, even slightly radical viewpoint.

Overall, the development work process provided many possibilities to learn and reflect starting from familiarizing with social and healthcare industry and social inclusion which are outside the scope or authors previous professional experience to finding ways to adapt the current knowledge and methods on detecting the competencies and resources to a model that could be reused. Remote interviewing and focus group facilitation both gave valuable experience on what to consider in general, and a new perspective on how important it is to consider the possible limitations and strengths of the participants in the forms of participation. The interaction with the informants gave many rewarding experiences and proved yet again the importance of empathy and meeting at the same level when interacting with others, regardless of whether they are colleagues, customers, or informants.

6.3 Ethical aspects

Due to the vulnerable target group and topic of the DigiIN project and its subprojects, the researchers of Laurea UAS had already applied a research permit for the research project from the Human Sciences Ethichs Committee of the universities of applied sciences in Helsinki Metropolitan area, and the content was revised and approved after the research methods and the target group for the research had been agreed.

The author and other master's students signed Non-Disclosure Agreements covering the confidentiality of the data and findings related to individual persons, principles of safe data storage and transfer among the researchers involved in the development work, and special care needed in the handling of the data and anonymization of the data at the beginning of the development work. All the data was therefore handled and stored according to secure data storage instructions of Laurea UAS and data management plan made by the students and approved by the researchers of Laurea UAS.

During the recruitment of the informants, it was emphasized that there needs to be material about the customer research that is easy to understand by the possible informants so that they can make informed decision to participate or not. Also, the informing of the case organization and their personnel about the content and aim of the research was important, since they were asked to point out or find participants, and it was possible, that the customers might ask questions about the research. All informants were asked to sign a consent form to participate in the study, which outlined the content and purpose of the research, the data management, and the rights of the participants to for example, drop out of the research if they at any point wish so.

Author together with the other master's students also discussed the ethics and possible impact of research and methods used on the informants: for example, consideration about good, respectful ways of asking about challenges without going too deep in the possible health issues of the participants, or power balance during the probe, interviews, and focus group between the students and the informants was made. The presentation of the informants in the persona cards and other end-products was also discussed and considered carefully: it was important that the personas are presented in respectful manner, and that the images used to describe the personas are also both presentative of the actual informants and not stereotypical.

6.4 Possibilities for future research

Since the development task of this thesis focused on the first two stages of the Double Diamond model of the service design process, and aimed at providing customer understanding, it was not within the scope of this thesis to proceed to the ideation of possible solution to customer needs, challenges and problems identified during the customer understanding phase. This thesis produced material and a suggestion for how to utilize the customer competence and resource-based approach to ideation and service development, but it was not tested in practice due to that part of the service design process starting after the thesis project is finished. Therefore, it remains to be seen how the competence and resource-based ideation fits in the overall service development framework in practice, and whether the suggested ideation would work as it is. This requires thus further development and testing.

Another, important aspect that would benefit from future research are the ways to co-design, co-develop and co-create the services with the socially marginalized end-customers be it in remote world or face to face. Since there was initial interest in participation to development of services by the target customers of this research-based development work, but the informants also raised questions on how they would like to participate, and whether they would have skills or time to participate, it is important to experiment with practices that make it easy and meaningful for the socially marginalized young adults to participate and collaborate.

Thirdly, the informants used to research the competencies and resources of socially marginalized adults did not cover the customers of supported living service or people who do not speak Finnish: further research is needed to either validate their belonging to the now discovered three personas, or to create one or more additional personas. Also, other age groups might have different resources and competencies which might be interesting to compare through resource availability table and use as a base for innovation of digital social services: this, again, would require research on more customers.

The findings of this thesis bring forth experiences that young adults in need of increased support have of current digital social services in Finland. Some of the young adults, especially the ones whose level of functioning is currently fairly good, describe feeling unwelcome to the services, or having to prove they are entitled to get help. There were also mentions of not feeling the services are designed for the young adults with need for increased support, and that the current services do not always consider the comprehensive need for social services but rather lead to scattered service experience where the customer needs to find help from many different points inside one organization. DigiIN research project is currently working on the development of the service culture of the case organization to be more customer centric. This is important aspect overall, also in other organizations mentioned by the informants, and therefore requires further research. It is especially interesting how the service design methods could be used in the development of the services culture of an organization to more customer centric. Currently, some of the social service organizations such as the case organization already promote recovery orientation that considers the customer's resources, inclusion, and hope: how could the tools be used to understand the customer competencies and resources and develop new ways of working?

References

Printed

Brown, T. 2019. Change by design: How design thinking transforms organizations and inspires innovation. Revised and updated edition. New York: HarperBusiness.

Chesbrough, H. 2011. Open Services Innovation. Rethinking Your Business to Grow and Compete in a New Era. San Francisco: Jossey-Bass.

Chipchase, J. 2017. The Field Study Handbook. San Francisco & Tokyo: Field Institute.

Curedale, R. 2019. Design Thinking. Process & Methods. 5th Edition. Los Angeles: Design Community College Inc.

Curedale, R. 2013. Design Research Methods. 150 Ways to Inform Design. Topanga, California: Design Community College Inc.

Eriksson, P., Kovalainen, A. 2016. Qualitative Methods in Business Research. 2nd Edition. Los Angeles: Sage Publications Ltd.

Janzer, C., Weinstein, L. 2014. Social Design and Neocolonialism. Chapter Thirty Two of Social Design Reader edited by Elizabeth Resnick, 361-373. London: Bloombury Visual Arts. Previously published in Design and Culture, vol. 6. issues 3, 2014, 327-344.

Lusch, R. F., Vargo S. L. 2014. Service-Dominant Logic: Premises, perspectives, possibilities. Cambridge: Cambridge University Press.

Madsbjerg, C. Rasmussen, M.B..2014 The Moment of Clarity. Using the Human Sciences to Solve Your Toughest Business Problems.

Manzini, E. 2015a. Design, When Everybody Designs. An Introduction to Design for Social Innovation. Cambridge, Massachusetts: The MIT Press.

Manzini, E. 2015b. Social Innovation Design: Enabling, Replicating and Synergizing. Chapter Thirty Six of Social Design Reader edited by Elizabeth Resnick, 403-416. London: Bloombury Visual Arts. Previously published in Changing Paradigms: Designing for a Sustainable Future, 1st Cumulus Think Tank Publication, December 2015, Aalto University School of Arts, Design, and Architecture, Finland, pages 336-345.

Margolin, V. 2015. Social Design: From Utopia to the Good Society. Chapter three in Social Design Reader edited by Resnik, E, 2019. London: Bloomsbury Visual Arts.

Miles, M. B., Huberman, A. M., Saldaña, J. 2020. Qualitative Data Analysis. Fourth Edition. Los Angeles: Sage Publications Ltd.

Ng, I.C.L. 2014. Creating New Markets in the Digital Economy. Value and Worth. Cambridge: Cambridge University Press.

Ojasalo, K., Moilanen, T., Ritalahti, J. 2014. Kehittämistyön menetelmät. Uudenlaista osaamista liiketoimintaan. Helsinki: Sanoma Pro. 3rd Edition.

Prahalad, C. K., Ramaswamy, V. 2004. The Future of Competition: the Co-creating of Unique Value with Customers. Boston: Harvard Business School Press.

Resnik, E. 2019. Social Design Reader. London: Bloombury Visual Arts.

Sanders, E. 2002. From User-Centered to Participatory Design Approaches. Design and the Social Sciences: Making connections 1/8 (2002): 1, . Accessed 15.10.2020. https://cpb-us-w2.wpmucdn.com/u.osu.edu/dist/1/8276/files/2015/02/FromUsercenteredtoParticipatory_Sanders_-02-15wjbq1.pdf

Sangiorgi, D. 2011. Transformative Services and Transformation Design. Chapter Twenty Six of Social Design Reader edited by Elizabeth Resnick, 257-275. Previously published in the International Journal of Design, Vol. 5, no. 1, 2010, pages 29-40.

Silverman, D. 2014. Interpreting Qualitative Data. 5th edition. Los Angeles: Sage Publications Ltd.

Stickdorn, M., Schneider, J. 2013. This Is Service Design Thinking. Basics Tools Cases. Amsterdam: BIT Publishers.

Stickdorn, M., Hormess, M., Lawrence, A, Schneider, J. 2018a. This is Service Design Methods: A Companion to This is Service Design Doing. Expanded Service Design Thinking Methods for Real Projects. Canada, O'Reilly Media, Inc.

Yin, R. K. 2018. Case Study Research and Applications. Design and Methods. 6th edition. Los Angeles: Sage Publications Ltd.

Electronic

Akaka, M. A., Vargo, S. L., Schau, H. J. 2014. The context of experience. Journal of Service Management Vol. 26 No. 2, 2015, 206-223. Accessed 15.11.2020. DOI 10.1108/JOSM-10-2014-0270

Alkire, L., Mooney, C., Furkan, G., Kabadayi, S., Renko, M., Vink, J. 2020. Transformative Service Research, Service Design, and Social Entrepreneurship: An Interdisciplinary Framework Advancing Wellbeing and Social Impact. Journal of Service Management, Vol. 31 No. 1, 2020, 24-50, DOI 10.1108/JOSM-05-2019-0139. Accessed 15.8.2020. https://www.emerald.com/insight/content/doi/10.1108/JOSM-05-2019-0139/full/html

Alvi, I., Bradbrook, G., Fisher, J., Lloyd, H., Moore, R., Thompson, V., et al. 2007. Meeting their potential: The role of education and technology in overcoming disadvantage and disaffection in young people. London, England: Becta. Accessed 16.4.2021. https://dera.ioe.ac.uk/1657/1/becta_2008_meetingtheirpotential_report.pdf

Alvord, S. H., Brown, L. D. & Letts, C. W. 2004. Social Entrepreneurship and Societal Transformation: An Exploratory Study. The Journal of applied behavioral science, 40(3), 260-282. Accessed 10.10.2020. doi:10.1177/0021886304266847

Anderson, T., Curtis, A., Wittig, C. 2014. Definition and Theory in Social Innovation. MA. Social Innovation. Danube University, Krems. Accessed 10.4.2020.

Arnaud, E., Price, L., Malshe, A. 2006. Toward a Cultural Resource-Based Theory of the Customer. Eric J. Arnould, Linda L. Price, and Avinash Malshe (2006) in The New Dominant Logic in Marketing, Robert F. Lusch and Stephen L. Vargo, eds., Armonk, NY: M. E. Sharpe, 91-104. Accessed 15.11.2020.

Blomhøj, U., Duvaa, U., Ørngreen, R. 2011. Mobile Probes in Mobile Learning. Working Paper from The Research Rrogram: Media and ICT in a Learning Perspective, The Danish School of Education, Aarhus University, Denmark, 4 pages. Accessed 15.10.2020. Electronic publication found at www.au.dk, ISBN 978-87-7684-993-1

Bossert, W., D'Ambrosio, C., Peragine, V. Deprivation and social exclusion. Economica, 2007, 74.296: 777-803. Accessed 12.12.2020. https://papyrus.bib.umontreal.ca/xmlui/bitstream/handle/1866/514/2004-01.pdf

Chiscano, M., Darcy, S. 2020. C2C co-creation of inclusive tourism experiences for customers with disability in a shared heritage context experience. Current Issues in Tourism. Accessed 15.12.2020. DOI: 10.1080/13683500.2020.1863923

Copes, H., Tchoula, W., Brookman, V., Ragland, J. 2018. Photo-Elicitation Interviews with Vulnerable Populations: Practical and Ethical Considerations. Deviant Behaviour, 39:4, 475-494, DOI: 10.1080/01639625.2017.1407109. Accessed 15.11.2020.

Cottam, H., Leadbeater, C. 2004. RED paper 01: Health: Co-creating Services. Accessed 11.10.2020. https://www.designcouncil.org.uk/sites/default/files/asset/document/red-paper-health.pdf

Design council. Design methods for developing services. Accessed 11.10.2020. https://www.designcouncil.org.uk/resources/guide/design-methods-developing-services

DiCicco-Bloom, B., Crabtree, B. 2006. The Qualitative Research Interview. Medical Education 2006; 40: 314–321. Accessed 10.10.2020. https://onlinelibrary.wiley.com/doi/full/10.1111/j.1365-2929.2006.02418.x

Doody, O., Slevin, E., Taggard, L. 2013. Focus group interviews part 3: Analysis. British Journal of Nursing, 2013, 22.5, 266-269. Accessed 6.12.2020. https://ulir.ul.ie/bitstream/handle/10344/3007/Doody_2013_focus.pdf?sequence=2

Dufva, Mikko. 2020. Megatrendit 2020. Sitran selvityksiä 162. Accessed 11.12.2020. https://media.sitra.fi/2019/12/15143428/megatrendit-2020.pdf

Füller, J., Matzler, K., Hutter, K., & Hautz, J. 2012. Consumers' creative talent: Which characteristics qualify consumers for open innovation projects? An exploration of asymmetrical effects. Creativity and Innovation Management, 21, 247-262. Accessed 10.12.2020. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-8691.2012.00650.x

Goldberg, D. 2013. Social Innovation: What It Is and What It Isn't. Stanford Social Innovation Review. Working paper. Oxford Said Business School. Accessed 10.4.2020. https://ssir.org/articles/entry/social_innovation_what_it_is_and_what_it_isnt

Grönroos, C. 2011. Value co-creation in service logic: A critical analysis. Marketing Theory 11(3), 279-301. Accessed 15.13.2020. DOI: 10.1177/1470593111408177.

Grönroos, C. 2008. Service logic revisited: who creates value? And who co-creates? European Business Review, Vol. 20 No. 4, 2008, 298-314. Accessed 10.5.2020. DOI 10.1108/QRJ-D-17-00055.

Han, Q. 2010. Practices and principles in Service Design: stakeholders, knowledge and Community of Service. PhD. University of Lancaster. Accessed 14.5.2020. https://www.google.com/books?hl=fi&lr=&id=3D1PAwAAQBAJ&oi=fnd&pg=PA1&ots=twwmnEf5qD&sig=nqKjNGGtbClbiC5VxSGC5AyxiAc

Heinonen, T. 2016. How to do analysis? [YouTube video] Accessed 19.12.2019 through Optima.

Helsper, Ellen. 2012. A corresponding fields model for the links between social and digital exclusion. Communication theory, 22 (4). pp. 403-426. ISSN 1050-3293. DOI: 10.1111/j.1468-2885.2012.01416. https://www.dhi.ac.uk/san/waysofbeing/data/economy-crone-helsper-2012a.pdf

Heinonen, K., Strandvik, T. 2018. Reflections on Customers' Primary Role in Markets. European Management Journal, Volume 36, Issue 1, 2018, 1-11. ISSN 0263-2373. https://doi.org/10.1016/j.emj.2017.09.005.

Heinonen, K. and Strandvik, T. 2015. Customer-dominant logic: foundations and implications. Journal of Services Marketing, 29 (6/7), pp. 472 – 484. Accessed 1.9.2020. https://www.emerald.com/insight/content/doi/10.1108/JSM-02-2015-0096/full/html

Heinonen, K., Strandvik, T., Mickelsson, K-J., Edvardsson, B., Sundström, E., and Andersson, P.2010. A Customer Dominant Logic of Service. Journal of Service Management, 21 (4) 531-548. Accessed 1.11.2020. https://www.academia.edu/download/32355784/Heinonen_et_al_2010JOSM.pdf

Heinonen, K., Strandvik, T., and Voima, P. 2013. Customer dominant value formation in service. European Business Review, 25 (2), 104-123. Accessed 10.9.2020. https://www.emerald.com/insight/content/doi/10.1108/09555341311302639/full/html

Heponiemi, T., Jormanainen, V., Leemann, L., Manderbacka, K., Aalto, A-M., Hyppönen, H. 2020. Digital Divide in Perceived Benefits of Online Health Care and Social Welfare Services: National Cross-Sectional Survey Study. Journal of Medical Internet Research, Volume 22, Issue 7, 2020. Accessed 25.10.2020. https://www.jmir.org/2020/7/e17616/

Hulkko, S., Mattelmäki, T., Virtanen, K., & Keinonen, T. 2004. Mobile probes. In Proceedings of the third Nordic conference on Human-computer interaction October 2004, 43-51. Accessed 1.11.2020. https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.102.4069&rep=rep1&type=pdf

Hyppönen, H., Ilmarinen, K. 2019. Sähköisten sosiaali- ja terveyspalvelujen tarjonta, palvelujen käyttö ja esteet. Accessed 27.10.2020. http://urn.fi/URN:ISBN:978-952-343-256-7

Hyppönen, H., Aalto A-M., Reponen, J., Kangas, M., Kuusisto-Niemi, S., Heponiemi, T. Kansalainen – pystyn itse? Kokemuksia sosiaali- ja terveydenhuollon sähköisistä palveluista kansalaisille. Tutkimuksesta tiiviisti 2. Tammikuu 2018. Terveyden ja hyvinvoinnin laitos. Accessed 25.10.2020. http://urn.fi/URN:ISBN:978-952-343-040-2

Ikävalko, Elina. 2020. Nuorille aikuisille suunnattu kolmannen sektorin mielenterveystyö Suomessa. 22.9.2020. Accessed 7.10.2020. https://blogs.helsinki.fi/cosupport/2020/09/22/nuorille-aikuisille-suunnattu-kolmannen-sektorin-mielenterveystyo-suomessa/

Kuusisto-Niemi, S., Ryhänen, M., Hyppönen, H. 2018. Tieto- ja viestintäteknologian käyttö sosiaalihuollossa vuonna 2017. Terveyden ja hyvinvoinnin laitos (THL). Raportti 1/2018, 98 sivua. Helsinki 2018. ISBN 978-952-343-043-3 (painettu); ISBN 978-952-343-044-0. (verkkojulkaisu) http://urn.fi/URN:ISBN:978-952-343-044-0

Leadbeater, C. 2007. Social enterprise and social innovation: Strategies for the next ten years. A social enterprise think piece for the Office of the Third Sector, November 2007. Accessed 10.10.2020. https://community-wealth.org/sites/clone.community-wealth.org/files/downloads/paper-leadbeater.pdf

Liedtka, J., Ogilvie, T. 2011. Designing for Growth : A Design Thinking Tool Kit for Managers. Columbia University Press. Accessed 10.8.2020. ProQuest Ebook Central, https://ebookcentral.proquest.com/lib/laurea/detail.action?docID=908807.

Lipkin, M. 2016. Customer Experience Formation in Today's Service Landscape. Journal of Service Management, Vol. 27 No. 5, 2016, 678-703. DOI 10.1108/JOSM-06-2015-0180. Accessed 14.4.2021. www.emeraldinsight.com/1757-5818.htm

Manzini, E. 2014. Making Things Happen: Social Innovation and Design. DesignIssues: Volume 30, Number 1 Winter 2014, 57-66. Accessed 10.4.2020. https://direct.mit.edu/desi/article/30/1/57/69137/Making-Things-Happen-Social-Innovation-and-Design

Mattelmäki, T. 2006. Design Probes. PhD. University of Art and Design Helsinki. Accessed 1.9.2020. https://aaltodoc.aalto.fi/bitstream/handle/123456789/11829/isbn9515582121.pdf

Mattelmäki, T., Battarbee, K. 2002. Empathy probes. PDC, 2002, 266-271. Accessed 1.11.2020. http://ojs.ruc.dk/index.php/pdc/article/view/265/257

Meroni, A., Sangiorgi, D., Cooper, R. 2011. Design for Services. Taylor & Francis Group. Accessed 20.9.2020. ProQuest Ebook Central, https://ebookcentral.proquest.com/lib/laurea/detail.action?docID=716565.

Mootee, I. 2013. Design Thinking for Strategic Innovation: What they can't teach you at Business or Design School. New Jersey: John Wiley & Sons, Inc. Ebook. Accessed 5.10.2020. https://laurea.finna.fi/Record/nelli01.2550000001111847

Morelli, N. 2009. Service as value co-production: reframing the service design process. Journal of Manufacturing Technology Management, Vol. 20 No. 5, 2009, 568-590. Accessed 15.9.2020. DOI 10.1108/17410380910960993.

Mulgan, G. 2007. Social Innovation: What It Is, Why It Matters and How It Can Be Accelerated. Accessed 10.4.2020. https://www.researchgate.net/publication/277873357_Social_Innovation_What_It_Is_Why_It_Matters_and_How_It_Can_Be_Accelerated

Newman, L., Browne-Yung, K., Raghavendar, P., Wood, D., Grace, E. 2017. Applying a critical approach to investigate barriers to digital inclusion and online social networking among young people with disabilities. Information Systems Journal, 27(5), 559-588. Accessed 12.2.2021. doi:10.1111/isj.12106

Patrício, L., Gustafsson, A., Fisk, R. 2018. Upframing Service Design and Innovation for Research Impact. Journal of Service Research, 2018, Vol. 21(1), 3-16. Accessed 15.12.2020. https://journals.sagepub.com/doi/10.1177/1094670517746780

Phills Jr, J. A., Deiglmeier, K., Miller, D. T. 2008. Rediscovering Social Innovation. Stanford Social Innovation Review Fall 2008, 34-43. Accessed 10.4.2020. https://pdfs.semanticscholar.org/8387/6f6bafdcd11e0fc16c26364d3cfc826af2a3.pdf

Polaine, A., Løvlie, L., Reason, R. 2013. Service Design: From Insight to Implementation. New York, Rosenfeld Media, LLC. Accessed 10.8.2020. ProQuest Ebook Central, https://ebookcentral.proquest.com/lib/Laurea/detail.action?docID=1131102.

Prahalad, C.K., Ramaswamy, V. 2000. Co-opting Customers Competence. Harvard Business Review, January-February 2000, 79-87. Accessed 8.10.2020. https://d1wqtxts1xzle7.cloudfront.net/62235001/032._prahalad-2000-co-opting_customer_competence_copy20200229-51700-abhgpu-with-cover-page.pdf?Expires=1622060517&Signature=Djy7S8hYvURS~mVsoa3EfKH1CjkMB4QJheSH-9iEZrBVSUnf1DjCf0SF9MsX51rUqeLYb3X6ZKAvX-7ODQkVlXxrOdlBIUST760c99EUWyAYCgugGGaSqSuNnw6vrc~weezI-rBvoqaPZUxgHV1-jgsEZbCHxUjVIyoBKIIlfI6YEud1~VvoRTzHnslZDzhT3posAgBorWab5ZrDjv-xaTV1hkPsMowzjEbG4pl6SMG0gT-ugiCPpGVrvloe3q1vAaGIxGno1dMFWHOJKPVshlx0xBrZ9I8d1jLoOHUiCPcfjZHL~qtmRQBHsxkM8o2OHuQjhSoUSBGpwGsfbCgMyg__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA

Prahalad, C.K., Ramaswamy, V. 2004. Co-Creation Experience: The Next Practice in Value Creation. Journal of Interactive Marketing, 18, 2004, 5-14. Accessed 10.12.2020. https://deepblue.lib.umich.edu/bitstream/handle/2027.42/35225/20015_ftp.pdf

Price, R., Wrigley, C. 2016. Design and a Deep Customer Insight Approach to Innovation. Journal of International Consumer Marketing, 28:2, 92-105. Accessed 15.11.2020. DOI:10.1080/08961530.2015.1092405.

Saaranen-Kauppinen, A., Puusniekka, A. 2006. KvaliMOTV - Menetelmäopetuksen tietovaranto [verkkojulkaisu]. Chapter 3.3.1. Validiteetti and Chapter 3.3.2. Reliabiliteetti. Tampere: Yhteiskuntatieteellinen tietoarkisto [ylläpitäjä ja tuottaja]. Accessed 10.4.2021. https://www.fsd.tuni.fi/menetelmaopetus/.

Debrah, R., de la Harpe, R., M'Rithaa, M. 2017. Design probes and toolkits for healthcare: Identifying information needs in African communities through service design. The Design Journal, 20:sup1, S2120-S2134. Accessed 1.11.2020. DOI:10.1080/14606925.2017.1352730

Roberts, D., Baker, S., Walker, D. 2005. Can We Learn Together? Co-Creating with Consumers. International Journal of Market Research. 47,407-427. Accessed 8.12.2020. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.472.4883&rep=rep1&type=pdf

Samsudin, U. R. , Hasan, H. H. 2017. Digital Engagement: A Preliminary Analysis of Marginalized. Pertanika Journals, Social Sciences & Humanities 25 (S), 77-88, 2017. Accessed 5.10.2020. http://www.pertanika.upm.edu.my/Pertanika%20PAPERS/JSSH%20Vol.%2025%20(S)%20Jun.%202017/07%20JSSH(S)-0294-2016-5thProof.pdf

Segelström, F., Raijmaker, B., Holmlid, S. 2009. Thinking and Doing Ethnography in Service Design. IASDR, Rigor and Relevance in Design. Seoul, 2009. Accessed 17.11.2020. https://www.ida.liu.se/~steho87/iasdr/SegelstromRaijmakersHolmlid.pdf

Selwyn, N. 2004. Reconsidering political and popular understandings of the digital divide. New Media and Society, Vol. 6(3), 341-362. 2 DOI: 10.1177/1461444804042519. Accessed 18.4.2021. http://homes.chass.utoronto.ca/~tkennedy/Courses/2P26/Selwyn2004.pdf

Sosiaali- ja terveysministeriö, Kuntaliitto. 2014. Tieto hyvinvoinnin ja uudistuvien palveluiden tukena. SOTE-tieto hyötykäyttöön -strategia 2020. Accessed 24.10.2020. http://urn.fi/URN:ISBN:978-952-00-3548-8

Sosiaali- ja terveysministeriö. 2016. Digitalisaatio terveyden ja hyvinvoinnin tukena. Sosiaali- ja terveysministeriön digitalisaatiolinjaukset 2025. Accessed 10.8.2020. http://urn.fi/URN:ISBN:978-952-00-3782-6

Stickdorn, M., Lawrence, A., Hormess, M. E. & Schneider, J. 2018b. This Is Service Design Doing: Applying Service Design Thinking in the Real World : a Practitioner's Handbook. First Edition. Sebastopol, CA: O'Reilly Media, Inc. Accessed through Laurea Finna as a digital edition.

Takeyama, M., Tsukui, K., Yoshitaka, S. 2014. Resource Oriented Service Ideation: Integrating S-D Logic with Service Design Techniques. In: ServDes. 2014 Service Future; Proceedings of the fourth Service Design and Service Innovation Conference; Lancaster University; United Kingdom; 9-11 April 2014. Linköping University Electronic Press, 2014. 344-353. Accessed 7.10.2020. https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1065.3106&rep=rep1&type=pdf

Tschimmel, K. 2012. Design Thinking as an effective Toolkit for Innovation. The International Society for Professional Innovation Management (ISPIM) Conference Proceedings 2012:1-20, Manchester. Article from ProQuest Central. Accessed 25.10.2020. https://search-proquest-

com.nelli.laurea.fi/conference-papers-proceedings/design-thinking-as-effective-toolkit-innovation/docview/1368553865/se-2?accountid=12003.

Tommasetti, A., Troisi, O., Vesci, M. 2015. Customer value co-creation: a conceptual measurement model in a Service Dominant Logic perspective. Naples Forum on Service Vol. 15. 2015. https://www.researchgate.net/profile/Aurelio_Tommasetti/publication/282151556_Customer_value_co-creation_a_conceptual_measurement_model_in_a_Service_Dominant_Logic_perspective/links/5605343108ae8e08c08af92d.pdf

United Nations. a. Goals 3 - Ensure healthy lives and promote well-being for all at all ages. Target and indicators. Accessed 10.8.2020. https://sdgs.un.org/goals/goal3

United Nations. b. Goals 10 - Reduce inequality within and among countries. Targets and indicators. Accessed 10.8.2020. https://sdgs.un.org/goals/goal10

Voima, P., Heinonen, K., Strandvik, T. 2010. Exploring Customer Value Formation: A Customer Dominant Logic Perspective. Hanken School of Economics Working Papers. https://helda.helsinki.fi/bitstream/handle/10227/630/552-978-952-232-088-9.pdf

Voima, P., Heinonen, K., Strandvik, T., Mickelsson, K-J. & Arantola-Hattab, J.. 2011.A Customer Ecosystem Perspective on Service. In QUIS 12: Advances in Service Quality, Innovation and Excellence, pp. 1015-1024. Accessed 14.4.2021. https://helda.helsinki.fi/bitstream/handle/10138/39409/QUISVoimaHeinonenStrandvikMickelssonArantola_Hattab.pdf?sequence=2&isAllowed=y

Yle Uutiset. 2021. Kelan toimeentulotuen päätöksissä jatkuvasti virheitä kiireen vuoksi – apulaisoikeuskansleri huolestui kansalaisten oikeusturvasta. 15.2.2021. Accessed 15.2.2021. https://yle.fi/uutiset/3-11784968

Yu, E. 2016. A Reflection on and Suggestion of Service Design Processes: from Activity-Centered Descriptions toward Outcome-Oriented Demonstrations. Archives of Design Research, 30(1), 25-39. Accessed 15.1.2020. http://aodr.org/xml/09770/09770.pdf

Yu E, Sangiorgi D. 2018. Service Design as an Approach to Implement the Value Co-creation Perspective in New Service Development. Journal of Service Research, 2018, 21(1),40-58. Accessed 20.11.2020. doi:10.1177/1094670517709356

Unpublished

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Appendix 1: Interview questions to the contact person of the case organization

Questions to case organization

Case organization

Tell us about your organization.

What digital services does your organization have?

What type of challenges are related to the use of digital services from your organization's point of view? And what about the development of digital services?

Why does your organization want to improve digital services? What is the goal?

How does your organization currently utilize customer understanding? What information do you gather and from where?

How are your customers participating, or have participated lately, in the development of services? What experience do you have from this?

Who from your organization are involved in the service development?

Do you develop service together with other actors? Who? How?

How does recovery orientation (and resource-based approach) show in the planning of services now?

Target group

Which of your serviced does the target group (young adults 19-29 years old) typically use?

What social and healthcare services and digital social and healthcare services does the target group usually use? When are these services used (time and reason)?

What challenges do they face in their lives?

Where do they need help and/or support?

How is their everyday life?

What digital devices (lap top computer, smart phone or something else) do they typically use? Do they generally have internet access? Can your organization offer them devices to use?

What term do they use of digital services and digital social and healthcare services?

Collaboration

Can we hold a two-to-three-hour session for the personnel in January, where we would first introduce the findings of our research and then hold a workshop: prioritization of opportunities based on the findings? Workshop can be attended by those, who have time and it does not involve any preliminary tasks.

Who else should we talk with?

If during the implementation of the probe there are situations, where the participant has personal situation in which day need help, who should we guide them to contact?

Appendix 2: Plan for the probe: information for recruitment, start call and probe message examples

Introduction of the probe to participants, meant to support recruiter:

Hello! Would you like to give your input to development of digital services? Now would be a good chance to get to share your experiences of different digital services and their functionality. By participating in the research you get to influence the development of social and healthcare services that are particularly suitable for you.

Students of Laurea University of Applied Science are carrying out a study for DigiIN-project, which aims at developing and creating new digital social and healthcare services and helping everyone keep up with constantly digitalizing world.

At this stage of the project, we need more understanding of the users of different digital services. We are conducting so called probe study at turn of November and December, where you would share your experiences with us during one week through WhatsApp. You would send messages, pictures, videoclips etc. of your everyday life and situations where you use different types of services. Before the probe week we contact all participants and go through the instructions in more detail.

Everyone participating in the research will report their own experiences by themselves – we researchers will forward you clear instructions and reminders in WhatsApp. In addition to this, we will organize a two-hour interview with each participants, where we will go through and discuss the material gathered through WhatsApp.

How does this sound, would you like to participate? Participation is completely safe. The gathered material can only be accessed by the researchers of the projects, it is confidential and won't be passed on to anyone. The material will be treated so that your privacy won't be at risk and individual participants cannot be identified.

We would appriciate your participation in the study greatly! All participants will receive a reward for their valuable effort to develop digital social and healthcare services.

Best regards,

Students of Laurea University of Applied Science:

[names of the master's students]

Contacting of young adult (master's students will handle)

Start call

Hi! Big thank you to you, that you have decided to participate in this study. We are a group of three students, and we are doing our theses in Laurea UAS.

Our aim is to learn to understand the everyday life of the participants, and especially the moments when you use the different digital services. For example in which situation, why and how you use certain service. We are particularly interested in digital social and healthcare services: for example applications, remote appointments, calculators, booking appointments etc.

The study has two key phases. First, a weeklong so-called probe study. In it you will send daily for one-week answers to predetermined questions through WhatsApp. You can note down answers throughout the day, or all at once at the end of day, whatever suits you best.

You can send messages, images, videos etc. in a way that feels natural to you. Please avoid sending facial images, health information or other information that makes it easier to identify you like detailed personal data.

The questions are the same for every day of the week, and in addition to them you will receive as a simple bonus task. We as the probe moderators will send you reminder messages if needed during the week, and you ask us freely if something is unclear.

We would like you to answer these questions daily:

- Tell us which digital services (apps, web pages etc.) you use and what for? + take a picture of particularly nice / difficult services.
- Did situations, which you would have preferred to take care of digitally, come up during the day? Or which you would not have wanted to manage digitally?
- Tell us about your day in general. What did you do, where did you go? What was fun? What was challenging?

Here is on example of the day task:

What type digital service user you are in your own opinion? Send us an image or FIG that you think best describes you as a user.

You can answer any time that suits you, but we won't bother you during the evenings and at night.

At the end of the probe week, the material you sent to as will be gone through together with you at time that suits you. The discussion is at most two hours long, and it can be done remotely. Do you have access to a computer? The exact time can be chosen right now. You can also set the date at the end of the probe week if we can't find a suitable one right now.

All the information, that you share with us, will be treated so that you cannot be recognized in any situation. The gathered information will be handled and kept with utmost confidentiality.

Whatsapp messages

Start (possible sent the evening before start)

"Hi! Welcome to the study, where we gather information to develop digital social and healthcare services – nice that you chose to participate! 😊 As we spoke on the phone, we wish that you would send images, videos, messages, or voice messages in which you tell about your day and services you use through the internet for a week starting from tomorrow. 💡 Please do avoid sending facial images, health information or other information that makes it easier to identify you such as detailed personal data. If anything occupies your mind, please ask! Your answers are important to us.

Best, [names of the students] 👩‍🔬"

Messages for Monday:

Good morning! Today it starts! 👏 Thank you again, that you are participating in this study. 🙏 In honor of the first day, it would be nice to know what type of digital service user you are in you own opinion? Sen for example image or GIF which best describes you best as a user. 😊

Right after the previous message:

Here to refresh you memory things that would be nice to know daily.

1) Tell what digital services (apps, web pages etc.) you use and what for? + Take pictures of particularly nice / difficult services.

2) Did situations, which you would have preferred to take care of digitally, come up during the day? Or which you would not have wanted to manage digitally?

3) Tell us about your day in general. What did you do, where did you go? What was fun? What was challenging?

If anything occupies your mind, please ask! Your answers are important to us. Have a nice week! 😊

Best, [names of the students]

Tuesday's messages:

If material was sent on Monday:

Hello! 😊 Thank you for the good material you sent yesterday! Keep up the good work! 👍

If no material was sent on Monday:

Hey! How's it going? 😊

Thanks! 👍 It would It would be great, if you sent images, videos, messages or audiomessages telling about you day and digital services you have used today. 🙏 Enjoy your day! 😊

Will be sent on Wednesday: Hello! 😊 Thank you for the yesterday's great materials! Keep up the good work! 👍 In your opinion, what kind of digital service user you are? You send for example an image or GIF that describes you best.

Thursday's messages:

(Will be asked, if hasn't come up before):

It's Thursday and we're halfway through! 👍 KWould you tell as which digital social and healthcare services you have used within the past month? And what matter you took care

of? What feeling was left from using the service? You can tell in what ever way you find suitable (image, text, video, audio message) 😊

Friday's messages:

Friday and weekend! 👏 You have sent us material nicely, thank you! 👍 By the way, what do you find most irritating in digital services? You can send a picture, drawing, video, text, audio message… Form is free, whatever is easiest for you… 😊

Finish on Sunday evening

If participated the whole week:

Yey, the week has come to an end! 🎉 Big thank you that you participated so actively! 👍💎👏 Let's talk more about the messages you sent (if the time has been agreed on at the start: [name of the weekday] XX.XX. at YY.YY. or suggest days) Make sure you have a computer and internet connection, and that you are in a calm place where it is nice to chat. I will send you a link to the meeting the day before! If you have anything to add ora sk, send a message! 😊

(Preliminary feedback questions:

Think about how the study was done in WhatsApp. How do you think WhatsApp fit the study? Give school grade between 4-10.

Did you like participating in the study? Give school grade between 4-10.

Did you like the subject of the study? Give school grade between 4-10.

Feedback questions that were sent:

Did you like participating in the study? Give your answer on the school grade scale of 4-10.

Did you like the subject of the study? Give grade 4-10.

Was WhatsApp messaging a good way to answer in your opinion? Would some other way of implementation would have been better or worse?

If dropped out of participation, survey:

Why did you drop out? Would some other way of implementation have been more meaningful?

Possible additional messages:

Answer to a message/picture/etc.

”Thank you! 👏”

“Keep up the good work! 💎”

Thumbs up 👍 (if the content of the message is positive)

💪 (if it looks like the message required a lot of attempt)

“Hey, we want to take care of your privacy. 💙 In the future, don’t send pictures where you show your own or others’ faces, personal data or something else that makes it easy to recognize you. ⛔ Anyway, you do not have to worry about the picture you already sent: it will be treated so, that you cannot be recognized and the original image will be deleted.” (if delicate material is sent)

” Could you send an emoji that describes your feelings right now?” (if emoji/description is missing)

“What makes you feel this way?” (if no description)

Cheer up / reminder

”Hi! What has your day been like today? 😊”

”It’s Wednesday, we’re half way through! Interesting stuff so far, thanks. Keep up the good work! 🚒”

”What’s up today?”

“Hi, where did you go? 🐶😊" (if no messages for couple of days)

Emergency:

Immediate help (e.g. worry about suicide or threat against researchers or Laurea): researcher/student calls 11, and asks for instructions (phone number and first name of the informant is know).

There is a worry about need for help, e.g. confused behavior, cannot cope at home, crisis in the inner circle (e.g. death or falling ill of some close to the participant) etc.: Now it sound like you would need help. I wish you would talk to your contact person at the case organization or if it is urgent to social and crises emergency services tel. 09 816 42439, so that you can get the help you need.

1. BACKGROUND

1. **Age:** How old are you?
2. **Education:** What type of education do you have?
3. **Työ:** What is your work situation?

2. LIFE

4. **Weekday:** What is your ordinary weekday like? Who do you interact with? Any hobbies?
5. **Weekend:** What is your ordinary day like during weekend? Who do you interact with?
6. **How has COVID-19 affected your life?**
7. **Success:** What brings most joy to your life? Why? Is it related to other people?
8. **Challenges:** M In your experience, what things in you daily life are difficult or challenging? Why? How do you behave when you run in to them? In what would you have needed help? Where did you seek help, and did you receive it? What do you think you need help with?
9. **Dreams:** What do you dream of?

4. FUTURE SOCIAL AND HEALTH CARE SERVICES

24. Good digital service: What things make up a good digital service?
25. Case organization: What type of digital services case organization could offer, that would make your life easier?
26. **Future:** Jos If you imagine time 10 years from now, what would digital service of your dreams that is related to wellbeing, health, benefits etc. (social and health care service) be like? Why? What would you change in current services?

5. EXPERIENCES FROM THE PROBE AND INTERVIEW

27. **Method:** You felt that WhatsApp was/wasn't a good way to share information and participate in the reserch. What made you feel this way? What other way could the research have been done? Why?
28. **Experience from the research:** You mentioned you liked/didn't like participating. Why? What was good and what was bad? What feelings did the participation raise? What was easy? What was difficult? What do you think of the time it took to participate? Did you need help from someone?
29. **Appeal of the topic:** You gave a grade X for the topic of the research. Why do you find the topic interesting/boring?

6. PARTICIPATION IN DEVELOPMENT

30. **Recommendation:** Would you recommend participating to others? Who? What would you tell?/ Why not?
31. **Modes of participation:** Would you be interested in participation to develop social/healtcare services e.g. by ideating or testing? How should this be executed?
32. Interview: How did this interview feel to you?

3. DIGITAL SERVICES

10. **I as a digital user:** You described yourself as a digital service user with a picture, where… Could you tell how this reflects you? Why? How did you become user like this?
11. Devices: When do you use phone and when computer or tablet? Why?
12. **Imporant services:** Laitoit You send us info of these services. Which three of these are most important digital services to you? Why? What is good/bad in these services? Does the research weeks usage reflect the ordinary usage?

SOCIAL AND HEALTHCARE SERVICES:

13. **Experience:** You mentioned using XX digital social and healthcare services. If you think the service you use most of these (or use 12. mentioned if social/health) and choose a picture you think best describes this services. Why did you choose it?
14. **Experience:** Could you describe (the last) time you used the service (why/did you get it done, where you used it, what device, what was difficult, what you liked, why…., does someone help you with it, how often do you use it?)
15. **Interaction:** Is there other ways in which you interact with them? Why?
16. **Overall experience:** How do you see their services over all? Why so?
17. (if not mentioned yet) You also used XX & XX services, how do you feel about them? Did you manage to take care of what you aimed to, and do you interact with them other than digitally? Why?
18. **Primary sources of help:** If you need help related to wellbeing, health, different benefits etc., where do you ask or seek help primarily? Why? Is there challenges related to asking or receiving help? How do you cope with them?
19. **Face to face interaction:** What matters would you prefer to take care of face to face with for example staff of social or health care services? Why?
20. **Online interaction:** What matters would you prefer to take care of online which are not currently possible? Why?
21. **Suitability of the services:** Koetko, Do you feel that the digital social and healthcare services you currently use have been designed to suit you and your needs? Why?

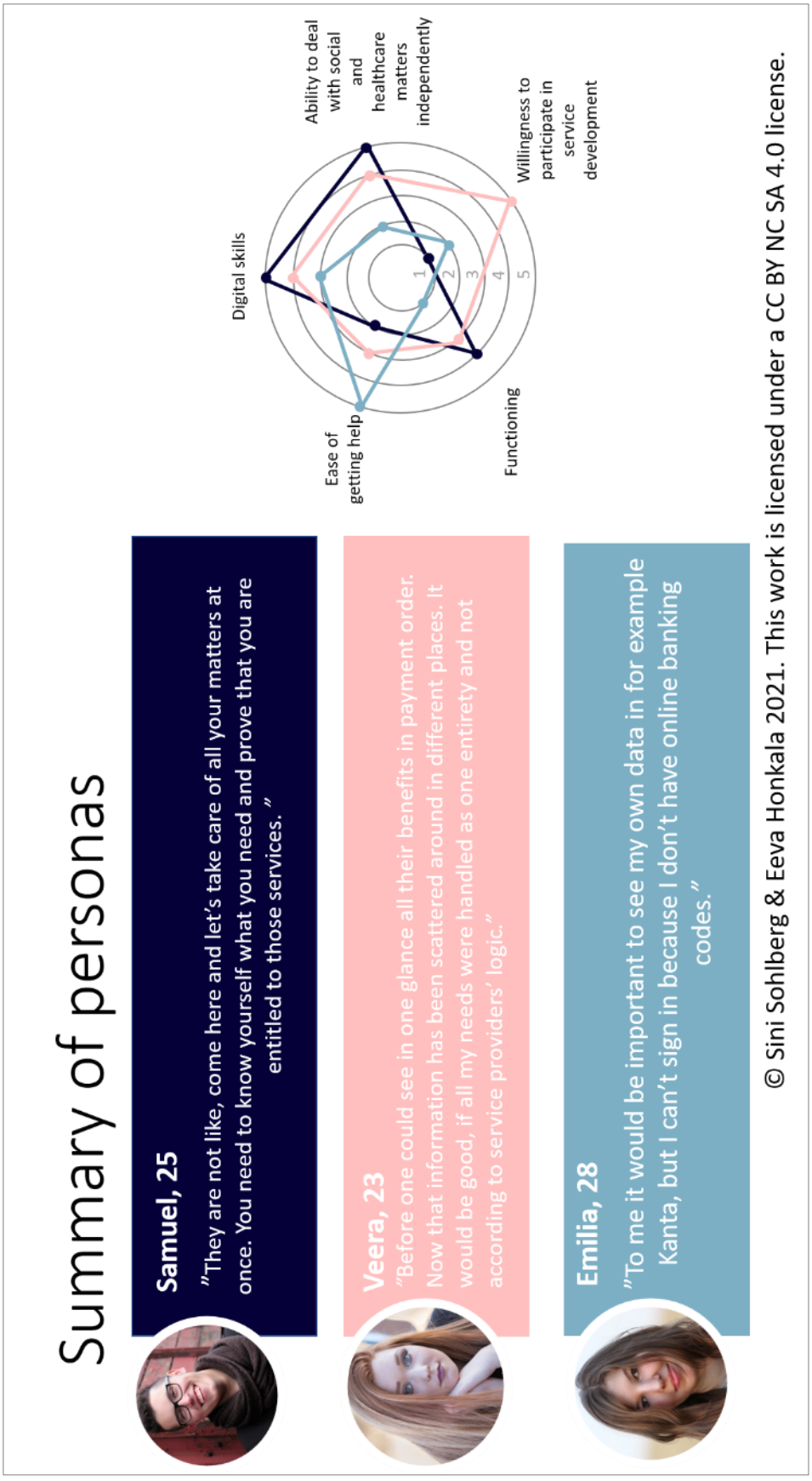
TO END:

22. **COVID-19:** How has COVID-19 affected your use of digital services?
23. **Problems in digital services**: You mentioned that the most irritating in digital services is XX. What makes you feel this way? What is e.g. "complicated webpage/form" like? Could you describe it?

Structure of the focus groups

- Warm-up
- Digital services in general:
  - Me as a digital service user
- Current, digital social and healthcare services:
  - Think about the digital social and healthcare service that you use the most. In your opinion, which of these images best describes your latest experience of using the service?
  - Do you feel, that the social and health care services you currently use have been designed to fit you? Why do you feel the way you do?
- Future digital social and healthcare services:
  - If you imagine what a digital service of your dreams that is related to wellbeing, health, benefits etc. (social and healthcare service) would be like in 10 years, what would it be like?
- If schedule permits:
  - Typical day of the week: with whom, joys, challenges
  - If you need help for your wellbeing, health, different type of benefits and support etc. from where do you primarily get or seek it help?
- End of workshop

Appendix 5: Personas



SAMUEL, 25

- Lives in the metropolian area
- In work placement
- Studies in university

DAYS IN LIFE

Wakes up notably early due to long commute to work. Spends the day in work placement. Plays a lot of computer games. A zealious sport hobby takes time in the evenings. Is super busy, and there is no time left for anything else than hobbies and work. Communicates actively with friends especially through digital channels.

> They are not like, that come here and let's take care of all your issues at one go. You need to know yourself what you need and prove that you are entitled to those services.

RESOURCES

- Sports hobby and coaching brings energy
- Circle of friends is composed of other hobbyists: computer gaming and sport community
- Familiar with information technology since childhood and has courage to try different services
- Long customer experience from Kela and other social and healthcare services: filling of applications and logic familiar

Digital skills

Communication with friends

Digital — Face to face

Willingness to participate in development

HOPES

- Wishes to be treated as a person, and that the service provider has genuine will to help
- Hopes to get the services and benefits he is entitled to without a battle
- Wishes to maintain mental health at a level that allows him to work and cope on his own.

MOTIVATION AND GOALS

- Wants to have proper paid labour and graduate from university
- Wants to primarily solve matters and problems on his own
- Wants to develop himself and new experiences
- Filing applications sometimes laborous, but need for money motivates to finish

CHALLENGES AND FRUSTRATIONS

- Continuous delivery of same information to applications and management of needed attachments
- To know which appointment and professional to book online
- Frustration on rejected applications and continuous battle with Kela and mental health services.
- Service breaks on web pages: unable to handle the matters he wants, or transactions are interrupted.
- Often uses computer, since knows that the services do not work properly on small screens.

BEHAVIOUR

- Prefers to transact through digital channels, but makes appointments by calling the clinic to have professional opinion on right type of appointment and professional to book.
- Asking for professional help to mental health issues is difficult, because is afraid that the care will be declined.
- Wants to find information by quickly skimming
- Evaluates the information security of services and makes choices based on it

NEEDS

- Would prefer to make transactions through phone and computer
- Wants to meet mental health professionals face to face
- Wants to choose when to run errands remotely or on-site
- Wishes that the texts and instructions of services would be in colloquial language
- Automation: no need to deliver attachments to application by himself, on websites guidance and help interactively, in applications spooling of filled in data

Social services and healthcare | **Communication and pastime** | **Entertainment** | **News** | **Finance**

VEERA, 23

- Lives in the metropolitan area
- In work training

DAYS IN LIFE

Wakes up, and immediately grabs her phone to check messages from friends. Taking her child to daycare and back gives rhytm to her day. In the evenings cleans, cooks and watches series with the child. Has couple of close friends, who she meets now and then, and close family with whom she spends a lot of time. During the weekends, she spends time outdoors and hangs out in shopping centers.

> *Before one could see in a glance all their benefits in payment order. Now that information has been scattered around. It would be good, if all my needs would handled as one entirety and not according to service providers' logic.*

RESOURCES

- Has learned digital skills from young people close to her, who help with use and installation of digital services and devices
- Participates in diverse peer support groups e.g. through IG and FB. Seeks help and information from them
- Cat brings joy and company

Digital skills

●●●●○

Communication with friends

Digital ●●●○○ Face to face

Willingness to participate in development

●●●●●

HOPES

- In the future, could use her smart watch to take care of social service and health care matters by dictating or writing, but would not use dictation for private matters e. g. in a bus
- The tasks given in remote work training would be pragmatic and content-wise similar to contact work training
- Hopes, that in the future her salary would enable realizing her dreams without worrying if she can afford it

MOTIVATION AND GOALS

- Wants a properly paid work, and be admitted to study degree of her choice in vocational school
- Things need to be organized and neat
- Wants to interact with people face to face
- Enjoys helping others and it brings her energy

CHALLENGES AND FRUSTRATIONS

- Web site renewals complicate the use, and makes it feel like it would be faster to use paper forms
- Filling a new application form correctly and managing needed attachments is challenging
- Staying up to date of the status, timeline, approval of messages and applications and payment dates.
- Calculates every day what she can afford and how to anticipate expenses
- Taking care of matters online using mobile phone is more difficult than on computer
- Dams her emotions
- All digital services do not function on the browsers that are used in her devices

BEHAVIOUR

- Occasionally delivers receipts & other documents to applications by taking a picture with her phone
- Wants to research online services on her own
- Prefers to read decisions on her own time even if they are also reviewed together with the service provider
- Wants to find information fast
- Recommends services she has found useful to others, and helps others in using services

NEEDS

- Prefers using mobile phone for transactions
- Wants personal, face to face assistance for making new applications, video call would be ok too
- Wants to use services when ever she decides, also on the move
- Wants to complete application in one go
- Description of new apps needs to be clear and assure that she knows how to use it. Does not want to install unnecessary apps, because runs out of space on phone.
- One customership for all the services used from one service provider (e.g. Kela): schedule (payments, applications, appointments), decisions and applications in one view

Social services and healthcare **Communication and pastime** **Entertainment** **News** **Shopping and finance**

Foodie.fi

Emilia, 28

- Lives in the metropolitan area
- Unemployed
- Lives in assisted living unit

DAYS IN LIFE

Wakes up at eight. May take a nap during the morning in the weekends. Smokes cigarettes through out the day. Walks and hanging oout with friends. Interacts daily with the assisted living units supervisors. Eats to gether with other residents of the unit. Chills at home and watches TV.

> *To me it would be important to see my own data in for example Kanta, but I can't sign in because I don't have online banking codes.*

RESOURCES

- Gets help for health issues through the living unit
- Primarily asks help from the supervisors
- Enjoys having other people around: has made new friends at the living unit, and spend time with them
- Is often in touch with her mom

Digital skills

Communication with friends

Digital ● ● ● ● ○ Face to face

Willingness to participate in development

HOPES

- To reach her own health information and to sign in services related to health
- Hopes to be able to talk with people face to face
- Wishes to have meaningful and useful things to do during the day
- Dreams of having an own home, although she enjoys the assisted living unit

MOTIVATION AND GOALS

- Keeping daily rhythm (early wake-up, no naps) so that can easily transition to participate in group activities
- Finding pleasing group activity or workshop
- Being able to do things she's interested in
- Taking care of her own matters within the constraints of her health

CHALLENGES AND FRUSTRATIONS

- Identification methods (no online banking codes) prevent from signing in to digital social and healthcare services such as Kanta
- Maintaining mental well-being
- Too much time during the day
- Not always able to manage to do things even if wants to, e.g. sign up for workshop
- Confusion because her health data was not transferred at the time of moving from one city to another, and no-one knows which city's services she should use

BEHAVIOUR

- Does not apply for benefits herself
- Makes appointments to physician and other services by calling
- Googles the phone numbers of the social and healthcare services she needs to be able to call
- Attends both contact and remote appointments
- Asks friends for experiences and opinions on workshops and activities

NEEDS

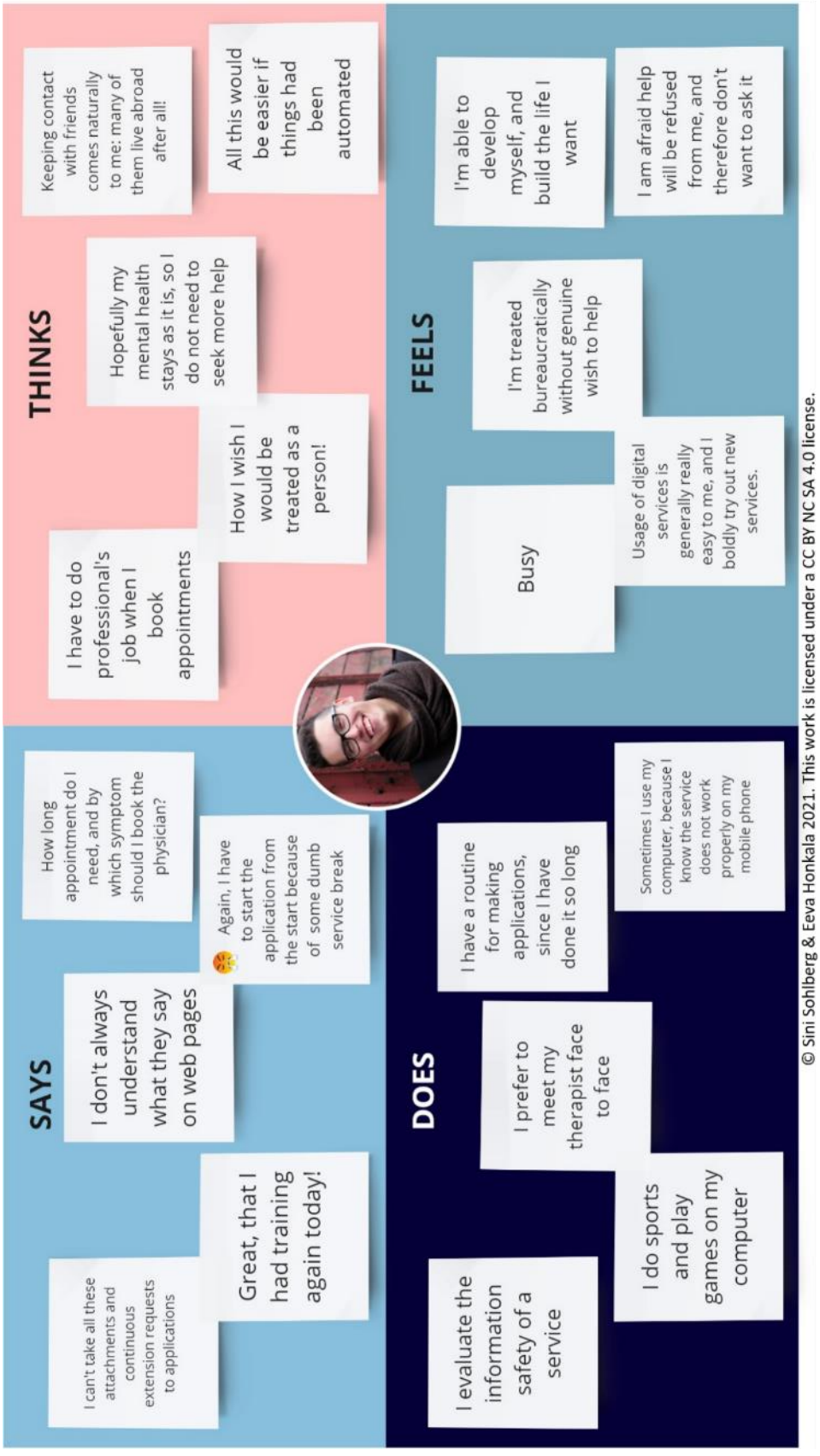
- Prefers to use services on mobile phone or tablet
- Needs a user interface that is easy to hit with finger and type even on small screen
- Would like to see her own health data and sign in to services without online banking codes
- Simple sign-in for example using the same account as with other services, e.g. Google Account
- Wants to meet face to face with healthcare professionals
- Needs the text content and guides in colloquial term in services
- Diverse content types: for example videos and pictures help to find and understand information

Social services and healthcare

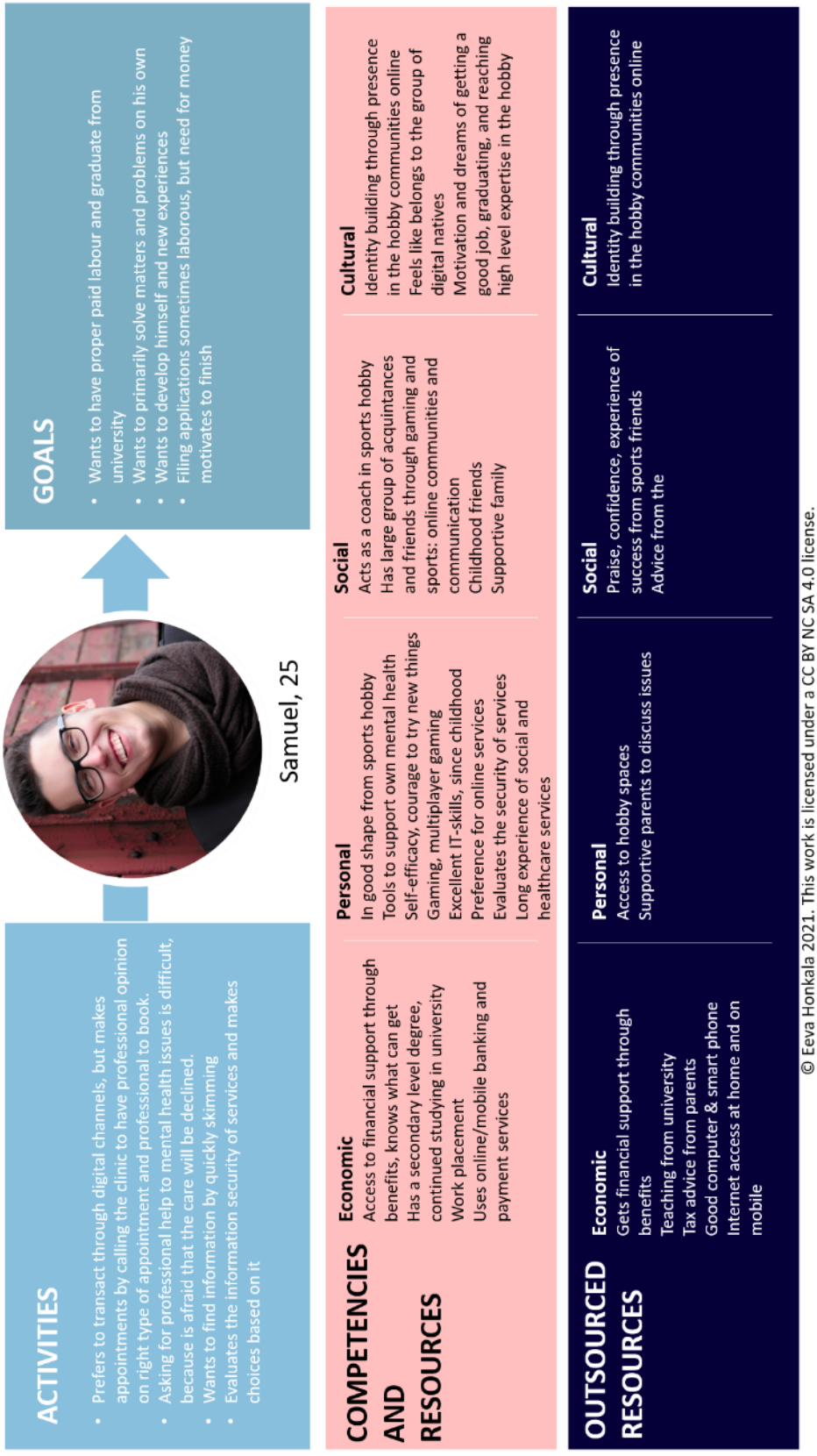
Communication and pastime

Music

Appendix 6: Empathy maps



Appendix 7: Customer competencies and resources (resource integration maps)



ACTIVITIES

- Occasionally delivers receipts & other documents to applications by taking a picture with her phone
- Wants to research online services on her own
- Prefers to read decisions on her own time even if they are also reviewed together with the service provider
- Wants to find information fast
- Recommends services she has found useful to others, and helps others in using services

Veera, 23

GOALS

- Wants a properly paid work, and be admitted to study degree of her choice in vocational school
- Things need to be organized and neat
- Wants to interact with people face to face
- Enjoys helping others and it brings her energy
- In the future, could use her smart watch to take care of social service and health care matters by dictating or writing, but would not use dictation for private matters e. g. in a bus

COMPETENCIES AND RESOURCES

Economic
Access to financial support through benefits
Uses online/mobile banking and payment services
Calculates every day what she can afford and how to anticipate expenses
Shops online

Personal
Child that brings joy
Helps her parents take care of social service applications
Self-efficacy in familiarizing with services
Enjoys interaction face to face, and gets energy from helping others
Uses wide array of digital services

Social
Close relationships (siblings & friends)
Supportive family
In position to recommend services to friends and help them using them
Participates in diverse peer support groups e.g. through IG and FB.

Cultural
Motivation and dreams of getting a paid job, and getting a degree
Gets to help others in peer support groups: meaningfulness

OUTSOURCED RESOURCES

Economic
Gets financial support through benefits
Experience from work training
Several devices: computer, tablet, smart phone, smart watch
Internet access at home and on mobile

Personal
Help and guidance from younger siblings on devices and new services
Databases of information she can familiarize on her own pace

Social
Face to face interaction that raises spirits from family, friends, and work
Advice from the siblings when needed
Cat brings joy and company
Gets help and information from peer support groups

Cultural
Self-validation through presence in peer support groups

ACTIVITIES

- Does not apply for benefits herself
- Makes appointments to physician and other services by calling
- Googles the phone numbers of the social and healthcare services she needs to be able to call
- Attends both contact and remote appointments
- Asks friends for experiences and opinions on workshops and activities

Emilia, 28

GOALS

- Keeping daily rhythm (early wake-up, no naps) so that can easily transition to participate in group activities
- Finding pleasing group activity or workshop
- Being able to do things she's interested in
- Taking care of her own matters within the constraints of her health
- To reach her own health information and to sign in services related to health
- Dreams of having an own home, although she enjoys the assisted living unit

COMPETENCIES AND RESOURCES

Economic
Access to financial support through benefits applied by support person

Personal
Easy access to (mental) health help through the personnel at assited living unit
Knows how to find contact information for healthcare and social services online

Social
Close relationship with mom
Uses social media to share her life with friends and relatives
Friends from the living community who spends time with
Participates in peer support groups

Cultural
Motivation and dreams of living a meaningful life and having own home

OUTSOURCED RESOURCES

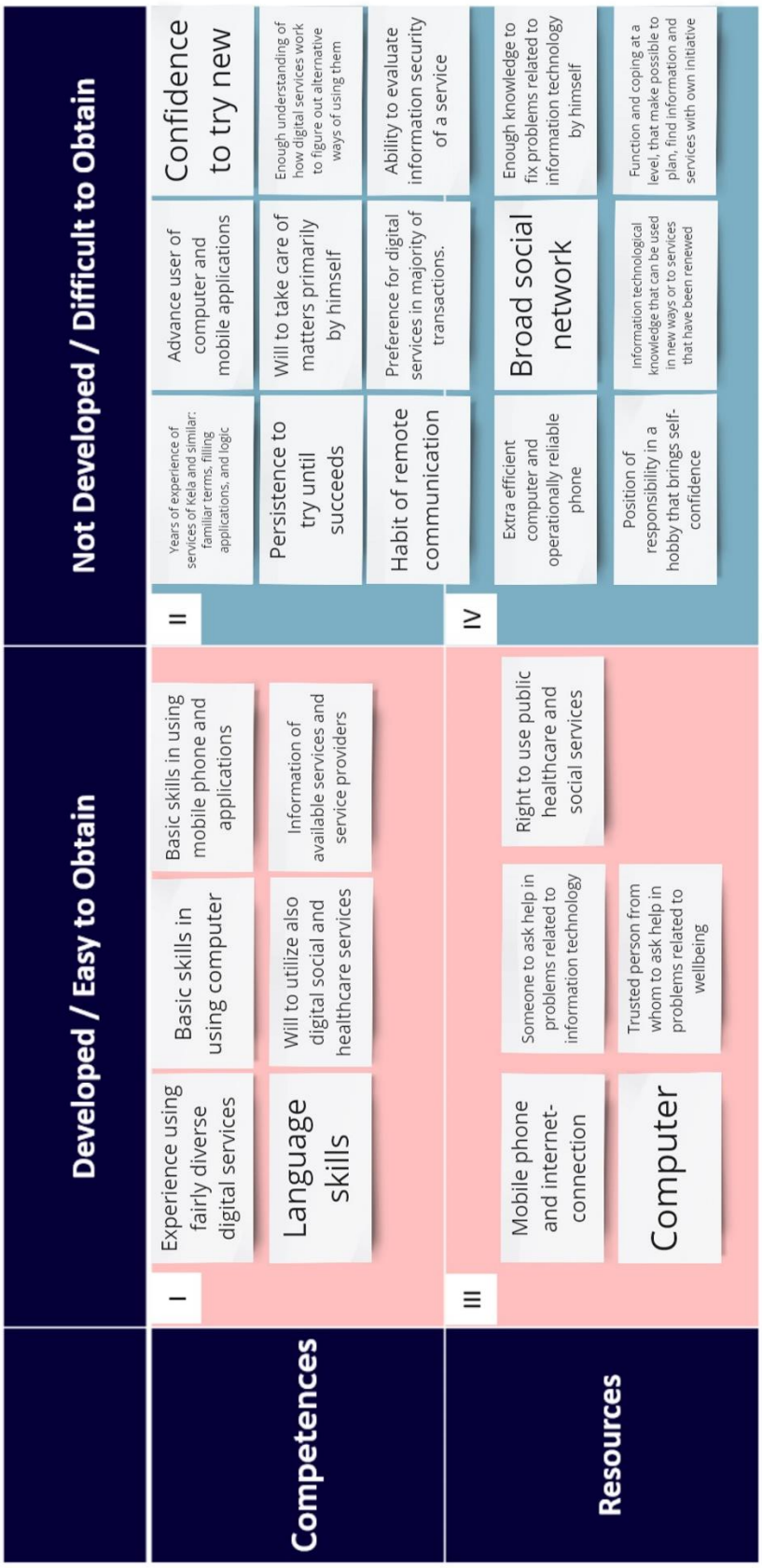
Economic
Gets financial support through benefits
Has computer/tablet, smart phone
Internet access on mobile

Personal
Support person takes care of transactions
Help and guidance from the personnel at the assisted living unit

Social
Experiences and opinions on workshops and other activities
Friends from living community bring company
Entertainment from following friends' life through social media
Gets help and information from peer support groups

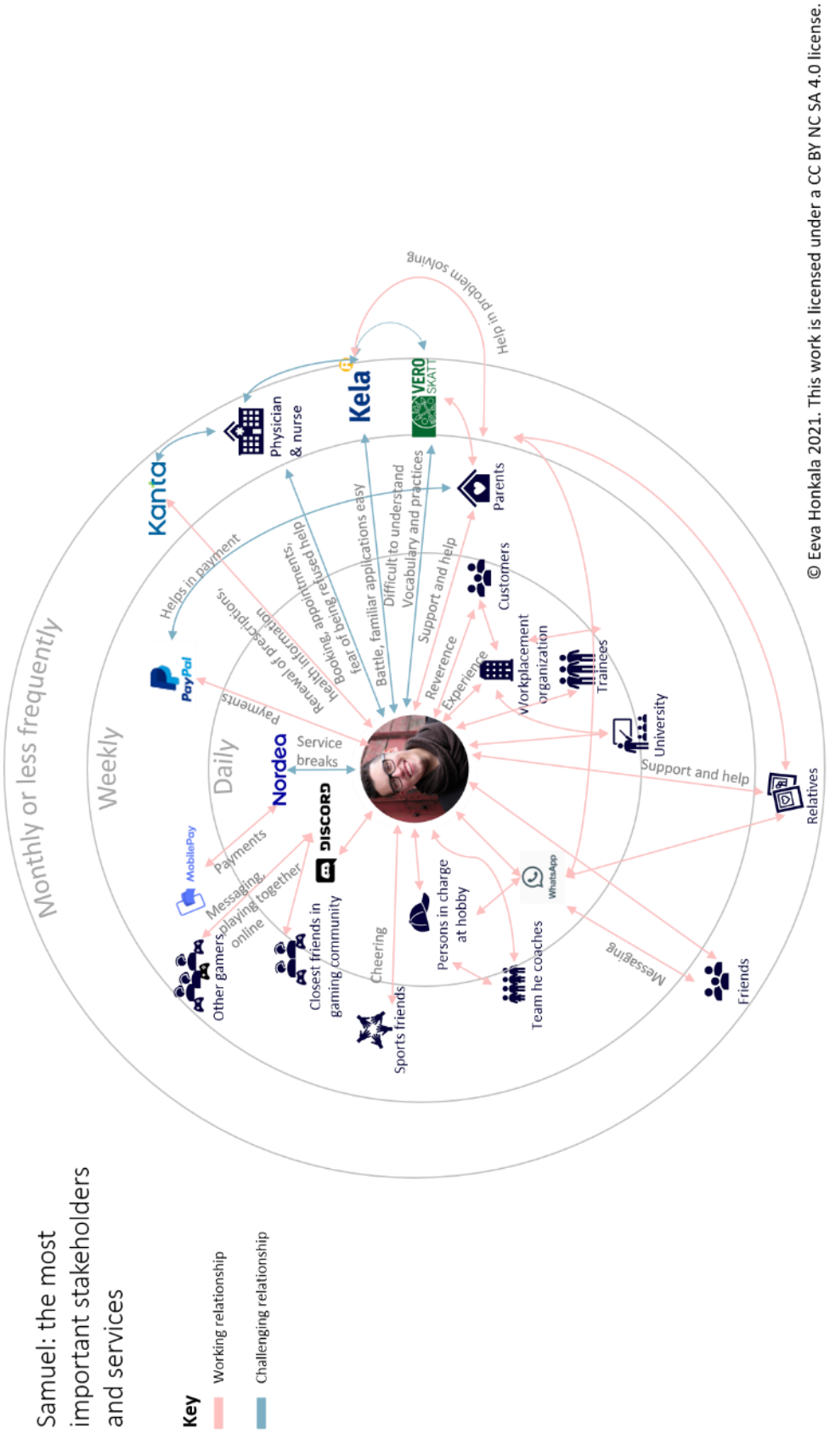
Cultural
Own community through the assisted living unit

Appendix 8: Resource availability table



Comparison of competence and resources that advanced users (Samuel: difficult to obtain) and all users (Developed / Easy to obtain) have based on Takeyama & al. (2014, 348) model.

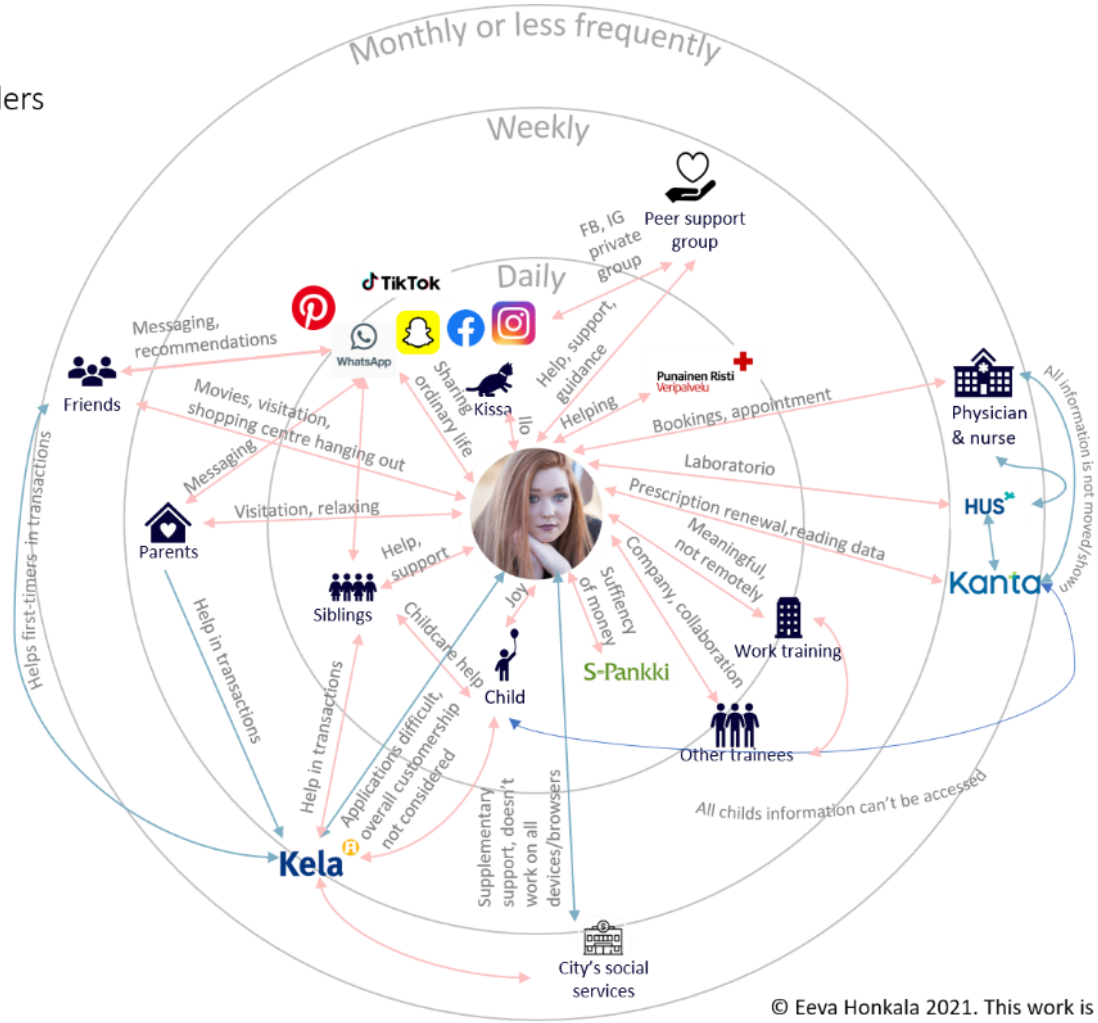
Appendix 9: Customer ecosystem maps



Veera: the most important stakeholders and services

Key

- Working relationship
- Challenging relationship



Emilia: the most important stakeholders and services

Key

- Working relationship
- Challenging relationship