Designing a Living Lab concept for the City of Vaasa

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Living lab -konseptin kehittäminen Vaasan kaupungille

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Pysyäkseen elinvoimaisina kaupunkien on kyettävä innovoimaan ja kehittämään asukkaiden tarpeita ja odotuksia vastaavia palveluita. Kehittääkseen kestäviä palveluita ja laadukkaita ratkaisuita niin asumisen, liikkumisen, kuin teknologian saralla, kaupunkien ja kuntien on osallistettava eri sidosryhmiä mukaan kehittämistyöhön entistä aktiivisemmin.

Opinnäytetyön tavoitteena oli kehittää living lab -konsepti Vaasan kaupungin tarpeisiin yhteistyön lisäämiseksi eri sidosryhmien välillä uudella Ravilaakson asuinalueella. Opinnäytetyössä tutkittiin, miten eri sidosryhmät voisivat toimia yhteistyössä kaupungin asuinalueen kehittämiseksi, niin palveluiden kuin asumis- ja tilaratkaisuiden osalta. Vaasan kaupungille kehitetty living lab -konsepti perustuu verkostossa toimivien sidosryhmien edustajien roolien, resurssien ja toimenpiteiden kirkastamiseen ja viestimiseen. Kaupunki voi hyödyntää konseptia jatkossa kaupungin palveluiden kehittämisessä, sekä eri sidosryhmien ja asukkaiden osallistamisessa esimerkiksi asuinalueiden kehittämiseen.

Opinnäytetyön tietoperustassa keskusteltiin avoin innovaatio- ja living lab -käsitteistä, toimijat-resurssit-toimenpiteet (actors-resources-activities, ARA) -mallista sekä muotoiluajattelusta. Konseptin kehittämistyössä sovellettiin palvelumuotoiluprosessia ja metodeina käytettiin benchmark -caseja, haastatteluita kaupungin edustajien ja kolmannen sektorin edustajien kanssa ja yhteiskehittämisen työpajaa sidosryhmien edustajien kanssa. Living lab -konsepti yhdistää tietoperustan annin kehittämistyön aikana kerätyn aineiston analyysituloksiin

Living lab -konsepti perustuu verkostossa olevien sidosryhmien edustajien toimintaan, roolehin ja resursseihin. Jotta living lab voidaan viedä konseptista käytäntöön, on valittava temaattiset kehitysprojektit Ravilaakson tai Vaasan alueelta, esimerkiksi asumiseen, liikkumiseen tai teknologisiin ratkaisuihin tähtääviä teemaprojekteja. Näiden temaattisten projektien kautta voidaan organisoida pienimuotoisia pilottihankkeita, jotka tuovat living lab -konseptin käytännön tasolle. Onnistuakseen living lab tarvitsee resursseja, erilaisia sidosryhmiä niin julkiselta, yksityiseltä, kolmannen sektorin sekä kaupunkilaisten puolelta, ja sisäistä kulttuuri-, toimintatapa- ja organisaation muutosta kaupungilta. Konseptin implementoinnin jälkeen olisi tarpeen tutkia, miten living lab -konseptin avulla toteutettu teemaprojekti ja sen tulokset eroavat perinteisestä kaupunkisuunnittelun projektista ja kuinka nämä voidaan mahdollisesti yhdistää.

Avainsanat: Avoin innovaatio, Living lab, ARA-malli, Verkosto, Konsepti

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Abstract

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Cities and municipalities need to participate different actors and citizens to service development in order to answer the needs of urban citizens when it comes to sustainable services and smart living possibilities in urban environments. The objective was to design a living lab concept for the City of Vaasa in order to enhance the cooperation between different stakeholders in the new urban neighbourhood of Ravilaakso in Vaasa. The living lab concept can be utilized also in other regional and urban development projects for the City of Vaasa purposes in the future.

The purpose of this thesis was to study what kind of actor network should be created in order to develop services in an urban neighbourhood and how to engage the stakeholders to city development. The theoretical background of the thesis focused on open innovation, living labs and the Actors-Resources-Activities (ARA) model.

The empirical part of the thesis, concentrated on what type of actors, resources and activities are available currently among the stakeholders and in the future when the Ravilaakso area is being constructed. The living lab concept was designed by following the service design process and by using methods such as benchmark case analysis, interviews with the third sector actors, City representatives and a co-creation workshop with different stakeholders. On top of this, the living lab concept was designed based on the theoretical building blocks of living labs and the ARA model.

The proposed living lab concept is built on the different stakeholders and their roles in the network and by analysing their activities and resources. As a suggestion for the city, certain thematic focus areas should be selected, and the city should organize small scale pilot projects around these themes in order to concretize the concept. The living lab concept requires enough resources and an internal cultural change in order to succeed.

The living lab concept should be further developed by using co-creation with the users and citizens and other possible stakeholders. The concept should be concretized and a clear roadmap of actions, resources needed, and actors involved should be planned. Future research should focus on implementing the living lab concept in real-life and analyse how the living lab concept differs from a traditional urban planning process in the long run.

Keywords: Open Innovation, Living lab, ARA model, Network, Concept

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1 Introduction

The first chapter introduces the requirements for the cities to develop their services, and the phenomenons of urbanization and participation in municipalities. The introduction chapter presents the research and development objectives are introduced and the context of the study, that focuses especially on the City of Vaasa and the Ravilaakso area. The key concepts and delimitations for the thesis are also introduced in this chapter.

1.1 City development requirements

Urbanization is a megatrend that puts pressure on cities to develop their services and the urban areas in order to answer the needs of modern citizens. According to United Nations Population Fund (2018) more than half of the world's population live in towns and cities and by 2030 this number will grow to about 5 billion. In Finland 69% of population lives in cities (Tilastokeskus 2017). An overall technological profile that the city provides is also a lens which the innovative city is consireder through. Free availability of Wi-Fi networks and accessibility to knowledge are connected trough setting up an infrmation infrastructure and a setting for wireless applications, services etc. Therefore, an innovative city needs to offer desirable living conditions for skilled and educated professionals and also service platforms that contribute to quality of life based on availablity of services and clean environment. E.g. education system, health services, clean and safe environment, various alternatives for consumption, including goods and services and cultural and social events. (Inkinen 2015, 5.)

There is a global economic pressure and a societal context for cities aiming to be innovative and develop themselves. Technological development and continuous progress are universal goals for any city. An "innovative city" can also be used as a marketing slogan for urban environments in order to build-up the reputation and image. This is important in Helsinki capital area of Finland, but also in Ostrobothnia in case Vaasa wishes to attract higher level of foreign or national investments. (Inkinen 2015, 4.) The innovative city may be projected through a specific area and locations within the city, such as university campuses, business districts or science parks, but sometimes they infuse into the urban location in an organic manner, or they may even differ from their surroundings notably (Inkinen 2015, 6). But most of all, the city government and governance have an important role in the city development. The good administrative process includes transparent decision making and the electoral system of city representatives, transparent and optimized public service provision and the division between in-house service production and outsourcing. Even though Inkinen (2015, 7) summarizes that PPP (Public-Private-Partnerships) are proven to be efficient solution for developing new innovative services for local inhabitants, it is claimed (Raunio, Räsänen & Kautonen 2016a) that a vital addition is the fourth P (People) for maximising the sustainability of the services in long

run. The knowledge transphere between individuals, teams and the networks play a key-role in the emergence of successful innovation (Inkinen 2015, 8).

Citizens need to be involved in the regional development from the early stages, in order to create sustainable services and products they will also benefit from. According to Local Government act (Finland 2015) regarding the opportunities to participate and exert influence (chapter 5, section 22), a municipality's residents and service users have the right to participate in and influence the activities of the municipality. More over, it is stated that "local councils must ensure that there are diverse and effective opportunities for participation. Participation and encouragement for influencing can be enhanced by:

1. arranging opportunities for discussion and for views to be presented, and setting up local resident panels;
2. finding out residents' opinions before taking decisions;
3. electing representatives of service users to municipal decision-making bodies;
4. arranging opportunities to participate in the planning of the municipality's finances;
5. planning and developing services together with service users;
6. supporting independent planning and preparation of matters by residents, organisations and other corporate entities."

According to the Association of Finnish Local and Regional Authorities (Local Finland 2018), Finnish municipalities and regions should actively promote the opportunity the citizens participation in anticipation, innovation, experiments and development acitivities, since these are the main elements for developing the municipal activities. Local Finland has even formed a toolkit for municipalities in Finland to use in order to enhance the participation. As an example, in Espoo (#MakeWithEspoo 2017, 9) the public sector's role is to enable, encourage and orhestrate the network. This means long-term facilitation within the networks, identifying business opportunities and making assesments of these opportunities together with companies, the third sector and universities involve. When co-creation becomes even more common, the demand for new management style in companies and in communities will be vital. The Finnish government (#MakeWithEspoo 2017, 9) also encourages municipalities and companies to open their research and development activities to be ecosystem based. This means that other actors in the ecosystem are invited and engaged in developing, co-creating, experimenting and pursuing new markets. Through intermediary activities, with the participation of bot small and medium sized companies, the citizens and communities benefit from the ecosystem and can contribute to its success. The city strategy should also focus on developing the city from this network and ecosystem perspective. The strategic work of the city is about planning, developing, coordinating and forecasting the future for the good of the citizens.

1.2 Context of the study: City of Vaasa and Ravilaakso area

Vaasa is the Energy capital of Nordics with 67 000 inhabitants. Vaasa is the 15th biggest city in Finland and it is located in the West Cost of Finland, 400km from Helsinki. Vaasa is known as a University city, with six Universities / Universities of Applied Sciences, operating in Finnish, Swedish and in English. (Wikipedia 2017.)

The six biggest cities in Finland, Helsinki, Espoo, Tampere, Vantaa, Oulu and Turku form a city development group, and their joint development projects have a national importance. These six cities populate 30% of Finlands population. The Six City Strategy aims to create new business, know-how and jobs in Finland. (6Aika 2019.) These cities can be used as benchmarks, although Vaasa being the 15th biggest city in Finland, one must remember that there are less resources available in the region.

The City of Vaasa aims to develop the urban living environment, in order to answer for the citizens needs for modern living, good local services need and work places. City of Vaasa strategy (2017), emphasizes the following areas when it comes to citizen's participation, co-operation and co-creation with stakeholders;

1. The accumulated surplus is the same in Vaasa as average in bigger cities.
2. Customer value regarding the communities is rapid testing and prototyping.
3. Process wise companies are emphasised to invest, dare and act, rapid decision-making is emphasized as well as rapid test culture.
4. When it comes to processes of the communitites, participation and unobstructured collaboration and cooperation is emphasised.
5. Knowledge and resource wised citizens will have services that are versatile and user-centered.
6. The emphasis for the companies is to have more start-up activities within the communities and gaining a trustworthy co-operation.

These focus areas in the city strategy support the ideology of Service Design and Design thinking, when user-centered services are designed together with different stakeholders, companies are emphasized to do start-up acitivies, such as rapid testing, prototyping and collaborating within the communities. The city's resources, the accumulated surplus should be the same as in bigger cities, which enables new working methods towards citizens' participation, collaboration and rapid test culture.

The Ravilaakso area is located 2km from the city center and the area used to be a Race track during years 1950-2014. The aim is that in 2035 the Ravilaakso area will be a colorful, active and new urban neighbourhood for 2000 inhabitants. The building process of the first Rio Well-being quarter starts in 2020. The Ravilaakso area aims for architectually and operationally

high-quality solutions, that are created by using various types of bidding procedures for the plots and quarters. The area will be using innovative energy solutions, circular economy aspects are considered when building and other important smart city solutions. The goal is to create housing services for special needs inhabitants and to attract group building projects as well as emphasise communal housing opportunities in the area. (City of Vaasa 2017.) The City of Vaasa also aims to involve a network of different actors into urban development, when creating and designing the neighborhoods and the services in Vaasa region.

According to Ravilaakso quality manual (2017, 5) the emergence of versatile activities and local services in the area as well as lively streets and market places require intensive activities and intelligent construction, steering and development work. The City of Vaasa (2017) wants to build rich and variable urban culture in Vaasa. The sustainable, vibrant and diverse urban living structure, local services, different activities, community development and diverse cultural promotion enhances the functionality and attractiveness of the city. These will attract new entrepreneurs, start-ups and and educated people to the area, which are essential for the development of the society and the business life in the future.

As learned from the Local Government act (Finland 2015), the citizens should have the opportunity to participate in urban development. Based on the previous study made in Vaasa (Kurula, Luomala, Norrgårds, Nieminen 2016, 29-30), citizens are not that willing to be part of urban planning when they feel they are lacking the required knowledge to participate in innovation/planning. The younger generation wishes to participate to the city development through internet, where as citizens the ages of 60-79 year prefer to participate in the general discussion. As Kuosmanen (2018) summarized the former United States Secretary of State, Madeleine K. Albrights' thoughts; "The citizens are speaking to their governments using 21st century technologies, governments are listening on 20th century technology and providing 19th century solutions". Currently, the City of Vaasa uses quite common methods for understanding the needs of their citizens, such as organising informative events, writing press releasess on their webpages, and maybe asking the citizens to comment on their town plan proposals online or in specific events. The dilemma in this working process is that the future vision of services and the area is missing, when only the active citizens have the time and will make the effort in participating in city development. New methods for attracting participating not only citizens but also stakeholders from private, public and third sector are welcome, in order to develop the city and its services and spaces that will be valued by the citizens.

Co-creation is vital for any design project, as well as city development where the different stakeholders need to be involved in the collaboration and co-creation process. City of Vaasa is participating into European project called Integrated and Replicable Solutions for Co-Creation in Sustainable Cities (IRIS), as a follower city learning the best practices from the leading "Lighthouse" cities. There are four different levels to engage the citizens, according to the

IRIS Ladder of Citizens Engagement (IRIS project 2018, 54-56). In the first level, the most important aim is to raise the awareness of citizens and storytelling. In the second level, where the City of Vaasa currently is, more pro-active storytelling is happening, where some citizens become engaged in actively spreading the story amongst peers as citizen journalists. In the third level, there are already existing active touchpoints and the citizens are co-creating for adoption of existing touchpoints. This means that there are supportive actions encouraging the citizens to adopt already implemented solutions using an existing touchpoint, for example co-creating instruction materials, adoption campaigns etc. In the fourth level, the citizens are highly engaged to city development and they are already co-creating in order to create new services/products as well as new active touchpoints. The citizens participate in generating new ideas (and the realisation) of new solutions, products and services or they are changing the design of existing touchpoints (interfaces, apps, services).

1.3 Research and development objectives

The research objective is to create a living lab concept, that can be further developed and used in the upcoming city development projects. In this study, the stakeholders are participated to the development project already from early stage of the process, which is a new way of working for the City. This gives a great opportunity to create sustainable services for the area.

The objective is to answer the following research questions;

1. What are the main elements to consider when designing a Living Lab concept?
2. What kind of Living Lab concept would be the most suitable one for the city purposes with scarce resources?

1.4 Structure of the thesis

The first chapter introduces the topic, the research objectives and questions and why the project is important to be studied. The chapter also explains the background, the main concepts and terminology used in this study. The second chapter concentrates on the theoretical part of this study. It provides the reader the background for the theories of open innovation, living labs and the ARA model, underlining in this study to give the reader an understanding of the empirical part of the thesis. The third chapter introduces the research approach through Design Thinking and Service Design process. The third chapter also introduces the data collection methods based on the Double Diamond Design process. The fourth chapter focuses on the results of the research, all aspects combined and analysed through the theory that was introduced in chapter two. The fifth chapter of the thesis introduces the summary, discussion, and suggestions for further study.

1.5 Key concepts and delimitations of the thesis

Open Innovation

In open innovation, the innovation process is open to several actors, and the ideas can be re-developed outside the company by different stakeholders and end-users. The level of participation can be defined by using specific experts or user groups and in this sense the whole process or the end solution does not need to be open for anybody. Open innovation processs is often used as part of co-creation and user-oriented innovation process, that help to connect different actors and external groups to development activities physically and digitally, such as in living labs. (Raunio, Nordling, Ketola, Saarinen & Heinikangas 2016b, 7.)

Living labs

Living labs are physical regions or virtual realities in digital context or interaction spaces, that happen in real-life context. In living labs, different stakeholders, from public-private-people partnerships (4Ps) of companies, public agencies, universities and users collaborate in order to create, prototype, validate and test new solutions, services, technologies, products and systems. (Westerlund & Leminen 2011.) Moreover, living labs are user-centred, open innovation ecosystems based on systematic user co-creation approach, integrating research and innovation processes in real life communities and settings (Enoll 2018). In this thesis, the living lab concept is the physical region of Ravilaakso area, in which different stakeholders collaborate to create new services and solutions for the area and for the whole city.

ARA Model

The Activity-Resource-Actor (ARA) model offers a framework to conceptualize the activity links, resource ties and actor bonds in the interaction process of business relations. The ARA model is used in business context to conceptualize the business networks, but it can also be used in the public sector's development project. The ARA model suggests that each affect and is affected by resources, pattern of activities and the network of actors in the wider network. (Håkansson, Ford, Gadde, Snehota & Waluszewski 2009, 33.) The ARA model is used in this thesis as a basis for the Living lab concept. These concepts are further introduced in chapter 2.

Delimitations of the study

There are few delimitations for the study. The citizens are not yet included in the project at this stage. The area will be inhabited in 4-5 years timeframe, therefore the end-users of the services, and inhabitants of the area will be participated in the next stages of the upcoming projects run in the living lab. This development project only focuses on creating the concept. It means that the thesis focuses on creating a concept, that is easy to multiple and modify

later in other projects, but this living lab does not include a physical space for example. Implementation of the living lab is not included in the study. E.g. running the pilot projects, facilitating the workshops or a written manual for managing the living Lab is not included in this study, but would need another project or a research to develop an implementation plan for the living lab.

2 Theoretical building blocks of the thesis

In this chapter, the theoretical background of the thesis is introduced, consisting of open innovation, living labs and the ARA model, to give an understanding to the phenomenon of co-creation with stakeholders in order to develop the city (see figure 1).

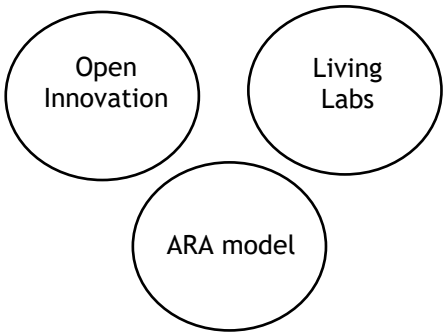

Figure 1. Theoretical building blocks of the thesis

In the next chapters, open innovation, living labs and the Actors-Resources-Activities (ARA model) is introduced.

2.1 Open innovation

Innovation means solving a problem by a solution that is widely implemented for example by a product, new business model, public or private service or in a form of a new business. It can also be new way of doing things for a company, or an innovation serving the public sector, or it can be a city's organization's new way of working that affects people's wellbeing. Open innovation means that the innovation process is open, and the innovation does not happen only inside the company, but is open to external actors, when the ideas can be re-developed outside the company by different bodies, such as en-users, cooperation partners. The open process does not automatically mean that the end solution or the process itself is open for anybody, but the level of participation can be defined by using specific experts or user groups. Open innovation process is more often used as part of co-creation and user-oriented innovation process, where the methods vary from crowdsourcing to co-creation and living labs, that help to connect different actors and external groups to development activities physically and digitally. (Raunio et al. 2016b, 7.)

The innovation has evolved from closed innovation to open innovation and nowadays even innovation networks or innovation ecosystems are becoming more common. When closed innovation focused in centralized and inwards looking innovation, that happened inside the organizations, open innovation is externally focused and enhances collaborative innovation with stakeholders. Innovation networks and ecosystems represent Open Innovation 2.0. model, where the innovation is seen as ecosystem centric, that happens in cross-organizational level through innovation networks. (Curley & Salmelin 2013, 3.) The participants of open innovation ecosystem need to create synergies with each other, which requires high level of trust and shared vision among the actors (Curley 2016, 316). Innovation has moved out from the laboratories into these ecosystems, that cross organizational boundaries. These networks are formal or informal groups that are based on trust, shared resources, shared vision and values and these innovation ecosystems are most successful and effective when properly managed by a dedicated actor. (Curley & Salmelin 2013, 9.) See figure 2.

Figure 2. The evolution of innovation (Curley & Salmelin 2013, 2)

When shifting to Open innovation 2.0, the innovation model is based on networking, co-creative collaboration between different actors in the society and co-generating innovation options that will bring competitive advantage and therefore helps to achieve broader scale innovation benefits for all the stakeholders. There is a cultural shift towards innovation and creation of shared value. The network that consists of government operators, industry, business, academia and citizens, co-create together the future and drive structural changes in the society, that no actor could achieve alone. Therefore this innovation model is most successful when there is a shared vision and shared value among the participants in the network. (Curley & Salmelin 2013, 5.)

The central aim for the Open Innovation 2.0 is to enhance simultaneous value creation for citizens, business, academia and government markets. Innovation is not seen only as an imperative for social and economic progress, but more of combination of mindset, art, skills and societal capacity that supports the survival and progress of human kind. Innovation takes place only when a customer becomes a co-creator of value and an active member of the innovation process. Open innovation 2.0 suggests that success of it is determined by the shared value

and shared vision, which means that all stakeholders have an active role in the innovation process. (Curley and Salmelin 2013, 3.)

Citizens are also seen as more active members of the innovation process, rather than objectives to test the solutions. Normal citizens also seem to be more open to innovation and willing to participate. User experience is also a new driver for innovation and rather than focusing on technical aspects or product features, the ones who develop by focusing on user experience, will most likely be successful. (Curley & Salmelin 2013, 4.)

Public Innovation

Regions themselves have an important role in innovative development and cities are the regional nodes and they are the motors for economic development that result in the accumulation of wellbeing and wealth (Inkinen 2015, 1). Public sectors' role is ito create conditions and environments for open innovation, by offering the framework for the innovationas well as procuring innovative products and sharing the research and developent risks. The legal and the political environment needs to be efficient to catalysing innovation and experimentation. (Curley & Salmelin 2013, 3.) Raunio et al. (2016b, 5) emphasise the rising role of the city in managing the relationships between the actors from the public, third and private sector, as well as the citizens, who all have a big role in developing the services (Laitinen 2013 in Raunio et al 2016b, 5). This approach is emphasizing community, engagement and democracy as well as partnerships between the private sectors and universities, which are the main actors related to platform development (Raunio et al. 2016b, 5). As Raunio et al. (2016b, 5) summarizes, platform development/activity is re-organizing the co-creative way of working on the innovation activities in the city community. The platform development uses digitalization and co-creation as tools for innovation, that helps for example lowering the barrier for public investments with the help of rapid testing and bringing together the end users/citizens as part of service development. By being part of co-creating the services, the citizens are taking an active role in public service development, which makes them more engaged and the services themselves serve the actual needs of the citizens.

Bekkers, Tummers & Voorberg (2013, 2) introduce the concept of social innovation, that refers to the innovation journey that the public sector in many countries have started. Instead of traditional governing, social entrepreneurship and social innovation should be embraced. Local communities, and citizens are encouraged to have an active role in the communities in order to enhance co-operation and start social enterprises to respond to the needs of local citizens. (Bekkers et al. 2013, 2.) Open innovation platforms can be used for example to support the citizens participation to defining future services for the city and to reach sustainable innovation ecosystems that will engender social innovation and collective creativity (Concilio and Rizzo 2013, 66).

There are certain aspects that are both drivers and barriers for social innovation, such as; 1) the social and political complexity of the environment in which the public organizations operate, 2) the country policy sector and legal culture of the country, 3) the type of governance in the country and the allocation of resources, their dependency on each other and quality of relationships among the network of stakeholders. (Bekkers et a. 2013, 5). In can also be concluded that the state and governance traditions of the country or a policy sector, influence on the level that the organizations are willing, or have the capacity or capability to participate on the innovation journey (Bekkers et al. 2013, 8). In Finland, the government stresses, that the citizens and service users have the right to participate and influence the activities of the municipality (Finland 2015). The Finnish government also encourages the public sector and companies to open their innovation processes for the network and act ecosystem based, so that stakeholders can together participate to development work, co-creating, pilot testing and pursuing new markets (#MakeWithEspoo 2017, 9).

Social innovation aims to create public value by outcomes that are long lasting and relevant for the society. They also aim to change the social relationships and "game rules" between the stakeholders. In order to produce sustainable and attractive innovation outcomes, the social innovations need relevant stakeholders to be involved in the design, adoption and implementation of innovation process. The social innovation refers not only to the innovation outcomes though, but the whole innovation process, which can be seen as a learning and reflection process as well. The innovation processes require willingness and ability for the stakeholders to cooperate and share their ideas with each other, as well as exchange their vital resources, such as human resources. (Bekkers et al. 2013, 3.)

Open public innovation

Open innovation is especially useful for also in the public sector, that often need new ideas and support to launch innovative procedures as well as improving their productivity, efficiency of service delivery and the quality of public services. Although, the public sector usually has scarce human and financial resources, the regulatory requirements are high, the culture is often risk-averse, and the decision-making process is quite time-consuming. These are the barriers to innovation in publich sector. Collaboration with private companies could help to overcome these cultural limits for innovation. Business operators can teach the best practices and new methods, share the costs and risks of innovation and spread the innovation outcomes to society or the innovation economy. (Venturini & Verabo 2017, 1337.)

Most of the studies focus on how public sector organizations are the collaborators and partners in network with private sector companies, in their open innovation network, rather than being the main actors benefitting from the innovation journey. One important learning from open innovation practices is how to commercialize innovations, which is something that the

public sector organizations could learn. For example universities, also as public sector organization, have traditionally commercialized their innovations through licensing for large companies. But nowadays the trend is to create spinn-off companies, that are in charge of development and commercialization of the innovations. This helps to lower the risks as well as reduce the need to maintain expensive and separate R&D laboratories (Venturini & Verabo 2017, 1338), which also are fighting agains the new trend of ecosystem centric, open innovation ideology, where innovation happen through cross organizational boundaries (Curley & Salmelin 2013, 9.)

Raunio et al. (2016a, 3) stress, that the value proposition of the open innovation platform approach is to engage a wider knowledge base for innovation activities while offering a new step in the "city as a living lab" and user-oriented open innovation services for the use of companies and customers. It is important to move the open innovation platform approach beyond the living lab concept and emphasise the importance of the network effects and users and actors for mutual value creation in the open innovation activities that are facilitated by the platforms. Due to rise of urbanization and smart living, innovation processes are no longer industry-specific, but more overarching, integrated and lifestyle-specific. New type of social practices and competitive advantage can and should be co-created based on participatory and open-innovation approaches, that actively and iteratively engage the technology developers, designers, producers, service providers (public & private), as well as users and citizens (von Geibler, Piwowar and Greven 2018, 253). Living labs themselves are a great example of these type of co-creative processes, that are emerging as new social participatory innovation infrastructure (Leminen et al. 2017). As Buhl et al. (2017) suggest, living labs can offer companies a structured open innovation process, with the aim to avoid insufficient market acceptance or unexpected user behaviour.

2.2 Living labs

According to European Networks of Living Labs (Enoll 2018) living labs are user-centred, open innovation ecosystems based on systematic user co-creation approach, integrating research and innovation processes in real life settings. Moreover, living labs are physical regions or virtual realities, or interaction spaces, in which stakeholders form public–private–people partnerships (4Ps) of companies, public agencies, universities, users, and other stakeholders, who are all collaborating for creation, prototyping, validating, and testing of new technologies, services, products, and systems in real-life contexts (Westerlund & Leminen 2011). Living labs are also seen as innovation networks (Nyström et al., 2014) as well as co-creation ecosystems (Westerlund & Leminen 2011). Living labs are operating between the citizens, research organizations, companies, cities and regions in order to boost innovation and business in the area (Enoll 2018). They can also be regarded as a new way to organize innovation, where new soci-

oeconomical challenges and technical opportunities are met (Leminen 2015). As open innovation networks, living labs also need a variety of stakeholders; suppliers, customer, users, competitors, researchers from universities, other institutions and organizations etc. and all who have an interest towards the innovation and collaboration (Leminen et al. 2017, 21). Livin labs are also one example of an open innovation ecosystem development, when shifting towards co-creating and participating multiple stakeholders to innovation, rather than using traditional test beds that usually have been technology driven (Curley & Salmelin 2013, 7).

Steen and van Bueren (2017) sum up four main elements that need to be included in living labs in order to label themselves as living labs, and these are; aims, activities, participants and context. Even thoug there are many kinds of living labs that act in different context, the most important assets for each living lab are the actors that are involved, such as service providers, third sector actors, end-users, the city and region, the government etc. Secondly, the resources, meaning the financial, human and physical resources (spaces) in the living labs are vital, as well as the activities, signifying the services that the living lab offers for its participants and end-users.

Actors and their roles in living lab

There are different actors and multiple actor roles in living labs, that should be acknowledged and considered in what way they may change over time. According to Nyström, Leminen, Westerlund and Kortelainen (2014, 492), there are 17 different identifiable roles among the living lab actors, but the main four types of stakeholders involved in living labs are; *the enablers, providers, utilizers and users*. Usually *the enablers* are the public actors, NGO's, financiers such as municipalities or cities. *Providers* are the private sector actors, the companies who provide the services or products to the living lab concept. Sometimes also the provider can be a university or university of applied sciences that provides the knowledge for the living lab. (Leminen, Westerlund and Nyström 2012). *The utilizers* are the companies and entrepreneurs that use the living lab as their strategic tool in order to collaborate with the end-users to get their input for their innovations (Schuurman and Herregodts 2017). *The users* are the end-users of the product or service or the regional area itself in which the living lab is taking place. Usually at least two out of the four stakeholders need to start cooperating with each other to formulate the living lab, whereafter they start to involve other participants and actors. (Leminen et al. 2012).

The cities themselves may have different roles in living labs, that develop and vary over time. The city can create an open space for innovation for other actors in the living lab as well as promote the development of living lab in the long run. The three main roles cities can have within living labs and while facilitating them are; *promoter, enabler and partner*. As a *promoter*, the city takes ownership, an active and a leading role in the living lab to apply for

funding and calling on other actors to implement policies. Usually in this case, the living lab is tied to the core competence of the city. When acting as an *enabler*, the city creates conditions for the living lab to function as well as possible, by facilitating collaboration or by supporting. This can be for example creating networks between actors that would not otherwise meet and creating connections between new actors. This can also be creating autonomy for other actors, such as funding, giving access to public spaces, facilities and infrastructure that is otherwised owned by the city. When the city is a *partner*, the collaboration is seen as horizontal across all the actors in the urban context, where leadership is shared, and all stakeholders participate on equal terms and each actor have their own explicit function. (Kronsell & Mukhtar-Landgren 2018, 989; 996-998.)

There are over 150 benchmarked and active living labs worldwide. Over the past 11 years there have been 409 recognized living labs (von Geibler 2018, 258). Although, on top of these 150 living labs, there are several inactive ones, that are not related to innovation theory (Schuurman 2015) and it is quite common that some projects are living labs in practice, but not theoretically and vice versa (Blezer 2018). The living labs can be differentiated based on the actors, who run the activities of the living labs. These types are utilizer-driven, enabler-driven, provider-driven and user-driven. Each of these types have a different actor that has a central role in the initial phase of the living lab and later the actor has the main role as promoter of innovation activities. The types of living labs differ from each other by their activities, structure, organization and coordination, which are more closely reviewed in the following table by their key characteristics. (Leminen et al 2012, 8.) (See table 1).

In utilizer-driven living labs, the companies launch and promote the living labs to develop their business. The focus is in developing and testing the company's products and services and using the living lab as a strategic tool for their business development by gathering data on users and using the help from others in the network of living lab. Although the utilizer-driven living labs have strategic focus and clear goals, its' lifespan is quite short due to the fact that the utilizers request for rapid results that can easily be integrated and implemented into their business strategy and therefore the co-created innovations are rapidly in use for the company's good. (Leminen et al. 2012, 8-9.)

The enabler-driven living labs, pursue societal improvements and are usually projects for the public sector, with the aim to develop the region or city area with various thematic aspects, e.g. reducing unemployment or solving social problems. The enablers include various public sector actors, such as the cities, non-governmental organizations, associations and areal development organizations. In many cases also universities and other academic/educational organizations bring the development work close to the users. Companies on the other hand are somewhat more reluctant to participate in these types of enabler-driven living labs, because it is hard to see the business benefits for the utilizer companies. The key outcome itself is to

activate collaboration among the key actors in the living lab network, because regional development needs multi-party cooperation for certain period and usually in these types of living labs, the "living labbing" lasts for a longer time compared to utilizer-driven. (Leminen et al. 2012, 9.)

In provider-driven living labs, the developer organizations, educational institutions, universities or consultants have the main role in the living labs. They aim to find solutions to specific problems, e.g. some universities use living labs for pursuing developing new research and teaching methods. The innovations are mostly about creating useful knowledge for everyone in the network and the focus is on improving users' everyday life in such a way that it allows all the participants to benefit from the resulted innovation. These living labs struggle with having enablers and utilizers in the network because the time span is long for this type of living lab, and companies demand for rapid results. Although, the knowledge that is created in the living lab, can be reused in future "living labbig" in the network. (Leminen et al. 2012, 9.)

User-driven living labs are established by the end-user communities, that are solving users' everyday-life problems. They aim to solve these problems so that they are consistent with the values of the users and user communities. These living labs are built on a specific problem that users are interested in. Value is created mainly for the user community, although the companies and society will also benefit indirectly. These types of living labs are driven by users, even though they are managed by a provider, that influence the users and their actions. The living lab needs other actors in the network supporting the users with their resources, knowledge, equipment, and guidance. (Leminen et al. 2012, 10.)

Table 1. Characteristics of different types of living labs (Leminen et al. 2012, 8)

Characteristics	**Types of Living labs**			
	Utilizer-driven	*Enabler-driven*	*Provider-driven*	*User-driven*
Purpose	Strategic R&D activity with present objectives	Strategy development throught action	Operations development through increased knowledge	Problem solving by collaborative accomplishments
Organization	Network formulates around the utilizer, that organizes action for rapid knowledge results	Network forms around a region, e.g. regional develop-men project or a funded project, e.g. public funding	Network forms around a provider organization	Netowork initiated by users lack formal coordination mechanisms
Action	Utilizer guides information collection from the users and promotes	Information is collected and used together and knowledge is co-	Information is collected for immediate or posponed use; new	Information is not collected formally and builds upon users' interest:

	knowledge creation that supports the achievement of present goals	created in the network	knowledge is based on the information that provider gets from the others	knowledge is utilized in the network to help the user community
Outcomes	New knowledge for product and business development	Guided strategy change into a preferred direction	New knowledge supporting operations development	Solutions to users' everyday-life problems
Lifespan	Short	Short/medium/long	Short/medium/long	Long

Living labs in city context

Usually the owner of the innovation platform is a city, and the platform functions as an innovation place between the city and the actors. Through the platforms, citizens become an active part of public service development and city facilitates or organizes the facilitation of the activities of the platform and defines the goals for the platform. (Raunio et al. 2016a, Anttiroiko 2016.) Based on the innovation platform operating method (Raunio et al. 2016a), the cities should shift their mindsets from being the regulative party in the development process into being the coordinator for the innovation work. This means changing the government into governance and focusing on realization of development goals. This way the city acts as the coordinator instead of the executor. When the living labs are studied in the city context, the cities are either; 1) providers 2) neighbourhood participators, 3) catalysts, or 4) rapid experimenters. (Leminen, Rajahonka and Westerlund 2017, 21-22.)

The *city as a provider* means that the entire city is seen as an innovation platform, where improvements are done to the city's own service provisioning to better serve the citizens (Leminen et al. 2017, 26). The difference to the *provider-driven living labs* is that the developer organizations, educational institutions, universities or consultants have the main role in the living labs, not the city itself. The main target for *provider-driven living lab* is to find solutions for specific problems, where as the *city as a provider* in a living lab the target is in improving the city's own services. (Leminen et al. 2012, 9 & Leminen et al. 2017, 26.) The activities are initiated by city's strategic aim and the stakeholders are participating and acting to develop the city's service provisioning and improving the effiency of the public services. Companies as utilizers can benefit from the results of innovation activities to improve their products and services. In this context, the users are unfortunately seen as "lab rats" for testing the products and services, rather than co-creators, which is why the full potential of the citizens is not used correctly. (Leminen et al. 2017, 26.) This may also cause insufficent market acceptance, when the innovations pay too little attentio to the desires, needs and practical puposes of the users (von Geibler et al. 2018, 254).

The *city as a neighbourhood participator* means that a certain neighbourhood is seen as a platform, where improvements of the neighbourhood and citizens' living conditions are done at the grassroot level, all of which are initiated by the citizens. Rather than being the steering party of the innovation activities, the city aims to support the citizens and collaborate with them in the innovation activities. The network or the community of certain neighbourhood itself organizes actions to solve citizens needs and the success is based on their own enthusiasm. Usually the solutions and implemented operations are quick and easy to accomplish. In this mode, scalability to city level solutions are not that important, but that the overall focus is in that certain neighbourhood. The citizens are active members in the network and are co-creators in the innovation process, where as the city initiates, participates and supports the activities as well as collects the best ideas for further development. (Leminen et al. 2017, 27.)

The mode of *city as a catalyst* means that the city's main aim is to boost and nourish the business ecosystem in the area through living labs, when companies do not take the role to cultivate new networks in the city. The city is a catalyst, that opens its service production and processes, such as land use, wellbeng and healthcare and educational system, and therefore becomes as a development platform for the companies to develop, experiment, test and validate products, services and systems. This helps to generate diverse value for the stakeholders in the network and the city can pursue benefits that are hard to obtain otherwise, e.g. residental area planning project can be done by organizing an innovation competition where construction companies and other actors work together in experimenting and testing for new housing solutions to reach the best results. These type of activities catalyze new solutions and services in the building industry as well. The platform and the living lab acts also as a showroom for the companies' solutions, even though the downside is that the users are again seen only as "lab rats" and the mode does not benefit from the full potential of the citizens. (Leminen et al. 2017, 28.)

The *city as a rapid experimenter* means that the platform is based on rapid experiments regarding certain neighbourhood, unit or specific theme or activity rather than the whole city. The rapid experiments focus on thematic areas which are supported by the city with a minimum financial or non-financial stake. The city organizes the rapid experiment competitions regarding for example smart mobility, health, energy efficient solutions etc. This way the city supports the growth of small companies and business ecosystems by enabling the small scale rapid experiments. In this mode, the companies can gather important information, test, develop and co-create their products and services as well as look for references for their products and services in the cities. Users' roles may vary, from being the "lab rats" to being active members of the network and in the innovation activities as co-creators. (Leminen et al. 2017, 29.)

Ravilaakso project also has the possibility to raise awareness locally, nationally and globally by connecting the living lab to the innovation system level, providing the living labs and their interconnections are a part of the research and innovation system within in a region or nation (von Geibler et al. 2018, 257).

Since this thesis focuses on designing a living lab concept for the city, it is vital to closer examine the enabler-driven living lab concept. The enabler-driven living lab pursues societal improvements and the aim is to improve the city with various thematic aspects. The enablers usually include various public sector actors, although the universities or academic actors are often also relevant stakeholders in the enabler-driven living labs. The main outcome for the enabler-driven living lab is to enhance the cooperation between the parties and enable collaboration of a multi-party stakeholder network, that is required in regional development. This living lab model has a longer timespan compared to the utilizer-driven living labs, which is why it is suitable for the Ravilaakso area, where the construction process takes 10 to 15 years. (Leminen et al. 2012, 9.) The *city as provider* (Leminen et al. 2017, 26) signifies that the entire city is an innovation platform and the activities are done in order to improve the city's own service provisioning to better serve the citizens. The difference compared to *provider-driven living lab* (Leminen et al. 2012, 9) is, that it aims to find a solution to a specific problem, and they are usually managed by development organisations, universities or academic actors.

When it comes to the city's different roles, the city as a *neighbourhood participator*, a certain neighbourhood is seen as a platform, such as the Ravilaakso area. The improvements to the living conditions of the citizens are done at the grassroot level, which are initiated by the citizens. The city aims to collaborate with the citizens and the neighbourhood community has a strong role in the living lab and the citizens are active members of the network, whereas the city initiates, participates and supports the activities (Leminen et al. 2017, 27.) The Ravilaakso area will have more neighbourhood participator elements when the residents move to the area. The *city as a catalyst* (Leminen et al. 2017, 28) the city becomes a development platform itself by opening the service processes for the network of actors and can therefore reach outcomes that are hard to obtain otherwise. A residental area planning project, such as in Ravilaakso can be done by organizing an innovation competition. The *city as a rapid experimenter*, the experiments are focused in thematic areas rather than the whole city and the city supports the experiments with small- or non-financial stake. The In this model, the companies can test and develop their innovations and seek for references. (Leminen et al. 2017, 29.)

As a conclusion, the living lab designed for the City of Vaasa purposes is an enabler-driven living lab, because the main aim is to enhance cooperation and engage the stakeholders in co-creating and developing the Ravilaakso area. Within the living lab, there are smaller pilot

projects and therefore the city acts as a rapid experimenter (Leminen et al. 2017, 29), and organizes small rapid experiments in different fields, such as smart mobility, healthcare, energy sufficient solutions etc. The rapid experiments are concentrated in certain neighbourhood, or a specific theme or activity rather than the whole city. The enabler-driven living lab in this context also has elements from the city being a neighbourhood participator, because the Ravilaakso area itself is the platform for the development. The city as a catalyst, meaning that the city organizes innovation competitions regarding different themes is also relevant for the enabler-driven living lab due to the network approach of the model. (Leminen et al. 2017, 27.) This enabler-driven living lab has also some aspects of the city acting as a provider, because the Ravilaakso area and the whole Vaasa region be the living lab and the target is to create a lively urban neighbourhood with services that are easy to access for the inhabitants.

2.3 ARA model

The Activities-Resources-Actors (ARA) model offers a framework to conceptualize the activity links, resource ties and actor bonds in the interaction process of business relations. The ARA model is used when business networks are studied, but it can be used to provide context to networks or to an ecosystem ecosystem related to the public-private-people-partnerships. Håkansson and Johansson (1992) originally created the ARA model and later Håkansson and Snehota (1995) studied the layers of these tree counterparts. This model suggests that each affect and is affected by resources, pattern of activities and the network of actors in the wider network (Håkansson, Ford, Gadde, Snehota & Waluszewski 2009, 33). Håkansson et al. (2009, 41) emphazise how there is no such thing as a new network, but instead, each new actor, resource or activity and new relationships emerge from something that already exists. Therefore, a new actor in the existing network brings its own past to the network. The ARA model is more closely introduced in figure 3 and in the following sub paragraphs.

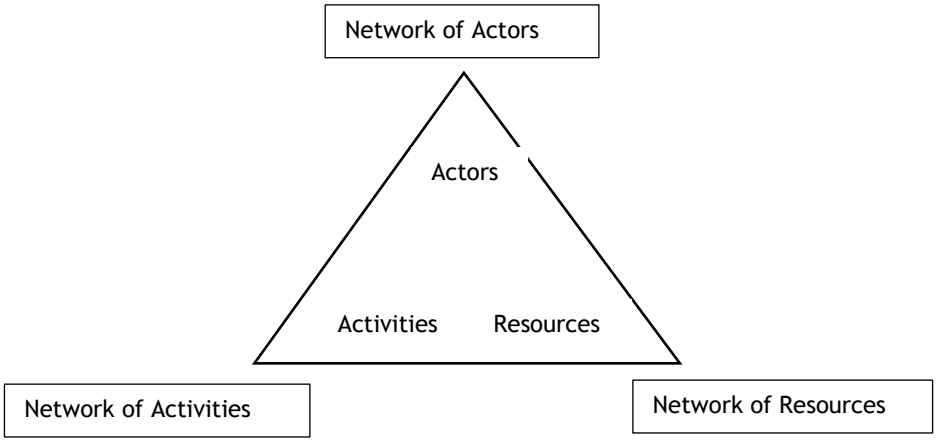

Figure 3. The ARA model (Håkansson and Johansson 1992)

The activity layer relates to the links between the activities of two actors. Many activities may be more or less integrated and linked together and this is how two companies' activity

structures can become more or less sytematically and tightly linked. (Håkansson et al. 2009, 33.) All the activities affect and are affected by the actors and resources with which they are associated. For example, company's services, new technologies and products that are developed, information that is exchanged and money that is transacted, all are activities that are connected to other actor's activities in the network. (Håkansson et al. 2009, 94.) There are few propositions of the nature of activities; 1) the execution and outcome of any activity is dependent on other activities, 2) adjustments between activities improve their joint performance and 3) create interdependencies, 4) a single activity is an integral part of several activity configurations, 5) as two activities become adjusted to each other, the better they function together in the larger activity patter in which they are involved. (Håkansson et al. 2009, 98.)

The resource layer reflects the resources each actor has, how they can become more or less adapted or tied together as the interaction between the actors grows. There may be tangible and physical resources, such as raw materials, physical facilities, components, operating systems, finance or intangible resources such as human knowledge, ability and ingenuity. (Håkansson et al. 2009, 33.) Håkansson et al. (2009, 71) propose that the value of the resource is dependent on its correlation to other resources, therefore a single economic resource is passive and without a value. When the resource interacts with other resources, it will define the nature of that resource and together they will generate economic value. The central idea of the ARA model is, that a single resource is combined with others in three levels; in a collection with others in a company, with others in the interaction with specific counterpart in business relationship and with the set of larger resource constellation in the network. (Håkansson et al. 2009, 67.)

The actor layer in this model relate to the interpersonal links between individuals in the involved companies, through interaction. The relationships develop over time based on how people see, feel and trust each other, and finally they become mutually committed. (Håkansson et al. 2009, 33-34.) New actors' interaction will affect the ones around them, but the experience is built on top of previous experiences. Every actor belongs to the wider web of interacting actors. (Håkansson et al. 2009, 131.) Relationshps that the companies develop with each other are important for the role that the company can play in the business network also in the future. This means that the business relations actors have with each other determine the role that the actors can have and develop over time. The actors also develop their special combination of activities and resources interactively with the activities and resources that the other actors have and can bring to the network. (Håkansson et al. 2009, 136-137.) Therefore, there is no relevance in only considering the activities and resources the actors currently posesses, because the network will create special solutions and combinations of activities and resources jointly. The network is more than the sum of its actors, their activities or resources.

It can be concluded that in order the network to be successful, the activities actors do or what resources they have should always aim for building the common good and reach the mutual goals. As the ARA model focuses on the Actors, Resources and Activities, it is a suitable theory to support and conceptualize the living lab theory as well as the open innovation theory.

As a summary for the theory chapter of the thesis, it can be concluded that open innovation, living labs and the Actors-Resources-Activities (ARA) -model all aim for co-creation, innovation, reaching sustainable services, products and innovation outcomes. In the core of all these presented theories is the network aspect, where the development work and the best results are achieved together operating in the network or through an ecosystem rather than all actors working separately or in a closed innovation laboratory. All the presented theories emphasize on having as heterogenic actor group as possible consisting of public- and private sector, third sector, and the citizens. By operating in the public-private-people-partnership (4P's) level, the different actors bring their own knowledge, resources and actovities to the network's usage, that creates the best possible platform for creating and innovating new services and products for the network. The citizens have an active role and they should be participated to the innovation process by not only as lab rats to test the innovation outcomes but as equal and active members of the co-creative process

Common for all the theories, is the development of the models over time. In open innovation, it is not only about the innovation outcomes, but the process itself develops and the actors can learn from each other. The living labs also develop over time and their structure is based on the actors, their resources and activites within the network. The living labs can be defined by the actors, their roles and who is in the "driver's position" of the living lab. Although it must be remebered to evaluate the context and the aim of the living lab as well. In the ARA model, the activities are based on the type of relationship the various actors' posses and what resources they can bring to the network, although the summ of the resources is always bigger than the actors or single resources brought to the network. Therefore, it can be concluded that the common sphere for all these theoretical building blocks is creating a network that is tied together by shared values and which is also based on mutual trust is especially important for any successful innovation, living lab or ARA network.

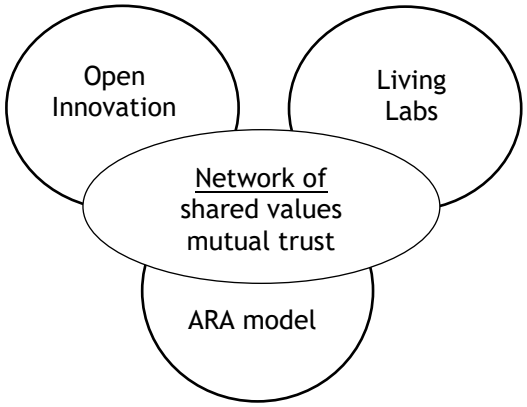

Figure 4. The common sphere of the theoretical building blocks

The next chapter will introduce the empirical part of the thesis that is based on the theoretical building blocks of the thesis.

3 Design Thinking and Service Design as Research Approach

In this chapter, the research approach for the development work for the thesis is introduced. As living labs are about co-creating and collaborating with different actors and using the participatory approach when collaborating with different stakeholders, design thinking as a research approach assembles all these themes together. The empirical part of the thesis, e.g. data collection and analysis, is presented through the double diamond model of Service Design (British Design Counsil 2005). The design process follows through Discover, Define, Develop and Deliver phases, which are more deeply discussed in the following sub-chapters.

Research Approach

As the literature shows, the research approach is about choosing the direction of the study. The two main research approaches are deductive and inductive approaches. The third one is abductive, which is a combination of the two (Saunders, Lewis & Tornhill 2003, 82-85; Trochim 2006; Preece 1994, 55), where theory and empirical data alternate with each other. Deductive approach can include some hypotheses or propositions into the research, that are then tested during the research (Ghauri & Grønhaug 2010). Testing the hypotheses (deductive) and documentation of the surrounding theory (induction) form the combination of the both, is called abductive approach (Chamberlain 2006, 295).

The inductive analysis goes from methodology to theory, when there is not that much theory that can be applied for a specific phenomenon. Also Elo & Kyngäs (2008) sum up that in the organization phase the inductive approach includes open coding, creating categories, and abstraction. As Patton (2002) explains, the deductive reasoning on the other hand the structure

of the analysis is operationalized on the ground of existing framework. The deductive approach starts with a strong theoretical foundation, such as with a business model, but the inductive part can bring new knowledge and topics from the interviews/workshops, so new theory needs to be added due to something new being created. Based on the literature and the given format of the research project developing over time, as well as the research questions asking "what", this study is a combination of deductive and inductive research approach, meaning that the abductive research approach is applied. Abductive thinking method also suggests that rationality, emotions and feelings are equally important when creating new ideas, therefore abductive thinking is important in design thinking. (Tschimmel 2012, 3.)

When the research questions asks; "What are the main elements to consider when designing a Living Lab concept? What kind of Living Lab concept would be the most suitable one for the city purposes with scarce resources?", this thesis answers by using a case study research method. In case study research there is a current phenomenon is being evaluated and the research is made in its natural context by using multiple sources of data evidence (Kananen 2013, 54) and theory base, such as is used in this thesis. The main idea is to get as deep understanding of the phenomenon as possible (Kananen 2013, 54). In case study research, the researcher tries to reach the best holistic view from the phenomenon as possible by using multiple sources of data gathering, because of the multidimensional problems that are surrounding the phenomenon. When comparing to qualitative research, the research problem can be delimited more clearly (Kananen 2013, 56-57).

In most of the service design studies, the content analysis is a natural choice for the methodof analysis because it tries to make sense from a volume of qualitative material and tries to identify the core meanings (Patton 2002). Kvale (2009) suggests that content analysis indicates that phrases and words are extracted into relevant categories, making patterns and sort of a coding method. The data should be coded or categorized when starting to analyse it, since the themes and codes give extra knowledge on the phenomenon, which can then later be supported by new theoretical information if needed. The ARA model is transferred into a measurable form and the model is operationalized when the data analysis progresses. The following figure 5 explains the research approach.

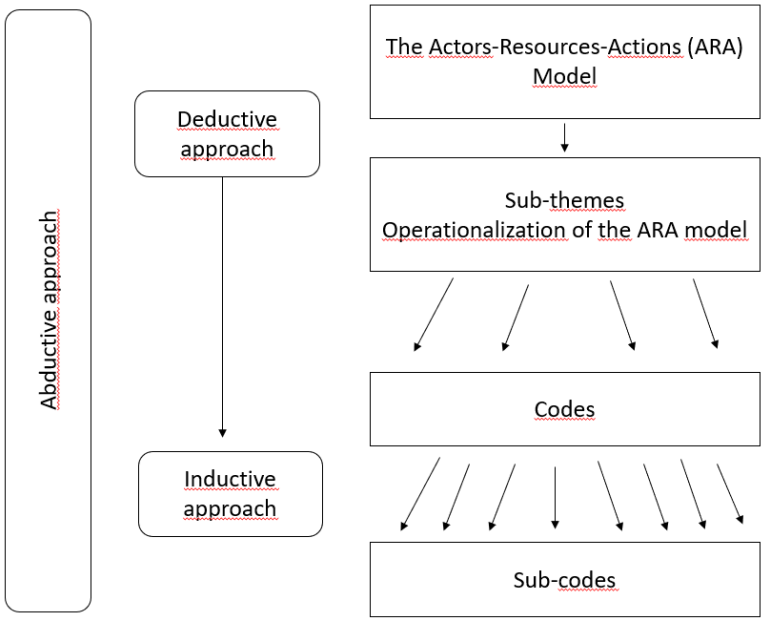

Figure 5. Research approach for the thesis

3.1 Design thinking

In some research, design thinking is seen as abductive thinking or reasoning, although design thinking is a way of thinking where feelings and emotions are just as important as rationality (Tschimmel 2012, 3). According to Lockwood (2010, xi) Design Thinking is seen as a human-centered innovation process, that emphasizes collaboration, observation, fast learning, visualization of ideas, rapid concept prototyping and business analysis, which influences the innovation and business strategy. Moreover, Lockwood (2010, xi) sees design thinking as a methodology for innovation, where designer's sensibility and methods are applied to problem solving. Brown (2009) concludes that in design thinking there is no one best way to move through the process, since innovation process is a more of a system of overlapping spaces rather than a sequence of orderly steps. Even though there is no one way to proceed in the process, there are helpful landmarks and starting points along the way. The spaces are inspiration, ideation and implementation, where the design team can loop back and forth in order to explore new directions for the project. This iterative process may seem like unstructured or time-consuming, but this is only shortsighted perception. When the team makes prototypes from the beginning of the project and does corrections as the project proceeds, they will save money and time on the end. Fail early to success sooner. (Brown 2009, 17.) In order to achieve extraordinary results, that are not easy to copy, it is better to take the experimental approach, where processes are shared, ideas are collectively pressed and teams are enabled to learn from one another.

Design thinking is seen as way of thinking that leads to transformation, evolution and innovation, to new forms of living and new ways of managing business. Tschimmel (2012, 1) adds that design thinking has a lot to offer for innovation management, yet the real value of design thinking is still unclear for managers when considering the innovation practices, and when choosing and evaluating the most effective design thinking models to suit the innovation practices. The design thinking concept itself offers an option to swift towards more creative and efficient innovation processes, instead ot the old model of professionals applying their knowledge on the creation of new products and services. (Tschimmel 2012, 2.)

Visualisation plays a key role in design thinking, since visual perception is the dominant among the senses. Perceptions in and through images are very important. (Tschimmel 2012, 3.) Early prototyping is also a way to visualise and test solution. Rapid prototyping in early phases of the design process helps the designer team to test the products and business ideas in early stages. Designers need to be comfortable with uncertainty and rapid prototyping permits early failure. A human centered approach is vital for design thinking, meaning that designers work collaboratively, and using participatory methods of co-creation. The human centered approach emphasises that solutions are designed with users, instead of designed for the users. Designers often work with a variety of colleagues (marketing, sales, other designers, engineers etc), researchers and stakeholders and often also with the final customers and users of their creation. (Tschimmel 2012, 4.) Usually, the prototype is tested among the users in the early phase of the design process, to get quick improvement ideas and then be able to implement these while returning to the beginning of the design process.

Design Thinking can be identified with the following aspects (Tschimmel 2012, Brown 2009):

1. *Human-centered approach*. People need to be put in the middle and the user experience is important.

2. *Collaboration and Co-creative way of working*. Designers are moving from “designing for users” towards human-centered approach by “designing with users”.

3. *Experimentation*. It is better to make mistakes in order to develop, “fail early to succeed sooner” in order to save time and money.

4. *Divergent thinking is about creating choices*. The main thing in divergent thinking is fluency, since when you create a lot, you fail a lot, but over time you’ll most likely generate an original idea. The first idea is usually not the most original one. “Divergent thinking is the route to innovation!”

5. *Visualization* by using post-it’s, colors, text, pictures, images.

6. *Prototyping can elaborate ideas*. Rapid prototyping allows testing the business ideas and permits early failure.

Empathic design methods start with the mindset of interpretation. The design teams and people who are interested in design, should to apply their design skills and imagine the future possibilities. People are often asked to join and participate in sharing their experiences and imagining future possibilities. (Hakio & Mattelmäki 2011, 476.) In the participatory design approach the user is seen as the ”partner” in the creative process, from data research to prototyping and until creating the design solutions. The users themselves are the experts in the service experiences. On top of this, a co-creative way of working increases the loyalty towards the brand as well as increases the effectiveness of creative and innovative processes. (Tschimmel 2012, 4.)

3.2 Service Design process

The problem with Service Design is that it is a quite new branch of study, withouth solid theoretical background, and it has no institutionalized research method. Because of this, the research orientation needs to be validated by how the data is analysed. The data needs to be analyzed based on the theoretical background of deductive and inductive data analysis (Elo & Kyngäs 2008). Service design is a valuable and recognized tool in the public sector, which is why it is very usable for this development project. British Design Council (2005) has formed the Service Design process as a Double Diamond model, which is widely used in the Service design projects. One needs to remember though that the Design process is iterative, and one part of the diamond can include multiple smaller iterative diamonds. The Service Design’s Double Diamond Design process consists of four main steps; (1) Discovery phase, (2) Definition phase, (3) Development phase and (4) Delivery phase.

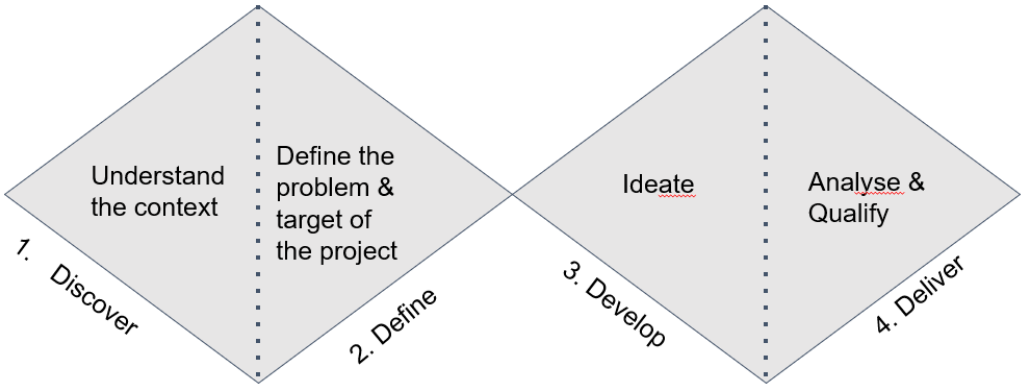

Figure 6. Double Diamond model of Service Design (British Design Council, 2005).

3.2.1 Understanding the context through Benchmark cases and Interwievs

In this thesis, the data collection methods in the discovery phase of the study included benchmark cases and interviews.

Benchmark cases

To understand the phenomenon of urban planning, living labs and the living habits people have in urban environment and to understand how to activate the different stakeholders and citizens to develope the area, a few benchmark cases were studied in order to receive a better understanding of the development work done in other cities in Finland. Projects such as Smart Kalasatama and Jätkäsaari in Helsinki, Smart City Programm in Tampere and Oma Tesoma in Tampere were selected as benchmark cases for this thesis.

I visited Jätkäsaari area on 7th of September 2018 to observe and to get a better understanding of the the phenomenon of urban living and how people perceive the area and its services. One inhabitant of Jätkäsaari area was interviewed, to understand better why people like to live in urban environment and what new type of services or events this offers them. One employee of Forum Virium was interviewed about the Smart Kalasatama project, to gain an understanding of the concept of living labs and how they use service design methods for t activate and engage different stakeholders and inhabitants for example in Smart Kalasatama project. Smart City Program and Oma Tesoma projects in Tampere were studied through the project webpages and The Smart City Program Cookbook. In the discovery phase it was important to get an overall view on the topic and understand the context, which is why there were no extra interviews done within the benchmark cases.

Interviews

Qualitative research methods are quite flexible, and interviews can be structured or semi-structured (Ghauri & Grønhaug 2010, 107). The data collection method should be thought about how to best answer the research questions and whether there should be for example descriptive or the semi-structured questions used (Elo, Kääriäinen, Kans, Pölkki, Utriainen & Kyngäs 2014, 3).

The interviews were done as theme interviews rather than by structured questionnaire interview method. As an interviewer, my task was to flexibly go through the selected themes rather than specific questions in order to receive a wider holistic and comprehensive understanding of the phenomenon, as Kananen (2013, 58) suggests. The interviewer must be able to read the interviewee and guide the discussion through the themes. This is also challenging when interpreting and analysing the interviews, since the patterns may change throughout the themes of the interviews. (Kananen 2013, 58.)

I conducted eight (8) qualitative semi-structured theme interviews in Finnish, of which seven (7) were done face-to-face and one (1) through a phone meeting. The interviews were done in October 2018 and all of them were recorded. Interviews were done with different stakeholders in order to understand the process of urban planning, the goals of each actor, their fears, risks, opportunities, resources and activities regarding the Ravilaakso area and the Rio Wellbeing quarter, which is also studied. The interview questions are in Appendix 1.

3.2.2 Defining through the thematic analysis

In the Definition phase, a stakeholder map was created from the interviews with the City representatives in order to better define the target of the project and which stakeholders are the most relevant ones to be interviewed. The benchmark cases and the interviews were analysed through the Actors, Resources, Activities (ARA) model.

Stakeholder mapping

To be able to define the problem and define the target of the project, the first two interviews were done with the City representatives. During the interviews, two stakeholder maps were done in order to understand the context and target of the project and which stakeholders are the most relevant ones for this project. Based on these interviews, the other interviewees were selected, which is why the stakeholder maps are presented before the interviews are analysed.

The stakeholder map illustrates the various stakeholders that are involved in the experience that is examined. Stakeholder map is the basis for value network maps and ecosystem maps, which then extend the understanding to the network of value exchanges between the stakeholders as well as visualizing complex systems involving various constituents, like platforms, humans, systems, machines and their relationships among each other. (Stickdorn et al. 2018, 58.) Stakeholder map includes the customers or the experience in the middle circle, essential stakeholders, important stakeholders and other stakeholders (Stickdorn et al. 2018, 59).

In this thesis, stakeholder mapping was done when interviewing the City representatives, in order to understand all the stakeholders that are involved in the project. The potential stakeholders were previously listed by the City of Vaasa and the stakeholders map revealed their relations to each other. The City of Vaasa representatives were both asked to map out the target for the project, and list out the very important, important and interesting stakeholders for the future. The stakeholder map layers were categorized as follows;

1. Target (of the project)
2. Very important stakeholders
3. Important stakeholders

4. Interesting stakeholders

As stated in Stickdorn et al. (2018, 58), the stakeholders and their importance are tied to certain time and space. Both City representatives pointed out, that the stakeholders' importancy vary when the development of the area is analysed within the timeframe of 10-15 years. Therefore, the key challenge/customer/experience should rather be quite narrow and simple rather than a generic one (Stickdorn et al. 2018, 62), so that it would be easier to use the stakeholder or network mapping. The City representatives defined the targets themselves in the middle of the stakeholder maps.

In the first stakeholder map, the target in the middle circle is "Rio wellbeing quarter". The stakeholders that are related to each other are bundled together with the orange circle, such as the doers, the cultural actors, the investors, the business actors and the associations, The housing actors and other actors. The arrows define the relation the actors have with each other. The stakeholder map is more closely analysed in the next paragraphs.

The very important stakeholders are currently in an active role (The Doers), Peab, the construction company, Yrjö & Hanna Foundation and the City of Vaasa, who is acting as an enabler in this group. In this stage of the planning and development of the quarter, the cultural actors are also very important, because of a special art/cultural programme that is developed for the area and the the percentage principle is used in supporting this development. This means that a certain amount of the project appropriation is used for creating and supporting art in the area (Prosenttiperiaate 2018). Other cultural actors that are currently very important are the churches and other art related actors. The City has discussed with different associations and actors from the public sector, such as the Settlement Association and Vamia (vocational education actor), what type of services these actors could offer in the Ravilaakso area and how could the City support them, wich is why they are stated as very important stakeholders. VES (Vaasa Entrepreneurship Society) is an important stakeholder at this point, since they can offer the start-up and pop-up activities in the area.

The architecture company that is selected for the project is currently an important actor, but will eventually become one of the key actors, representing the group of doers, when the architecture competition is finished. The investors are also important stakeholders, such as multinational companies, private investors, smaller local investors as well as private social- and healthcare companies, such as Attendo etc. These are partners that could be interesting partners to cooperate with when considering investing and operating in the first wellbeing quarter. The companies are presented as interesting stakeholders, for example local companies and equipment suppliers, that could have a showroom in the area that would help to support the visibility of them in the area, raise awareness of the local solutions used in the area, but this way also the companies would invest in the area, and in return receive visibility from

the showroom. The housing actors, such as VOAS Student Housing and Pikipruukki are also interesting stakeholders in the coming years, when the first wellbeing quarter is ready.

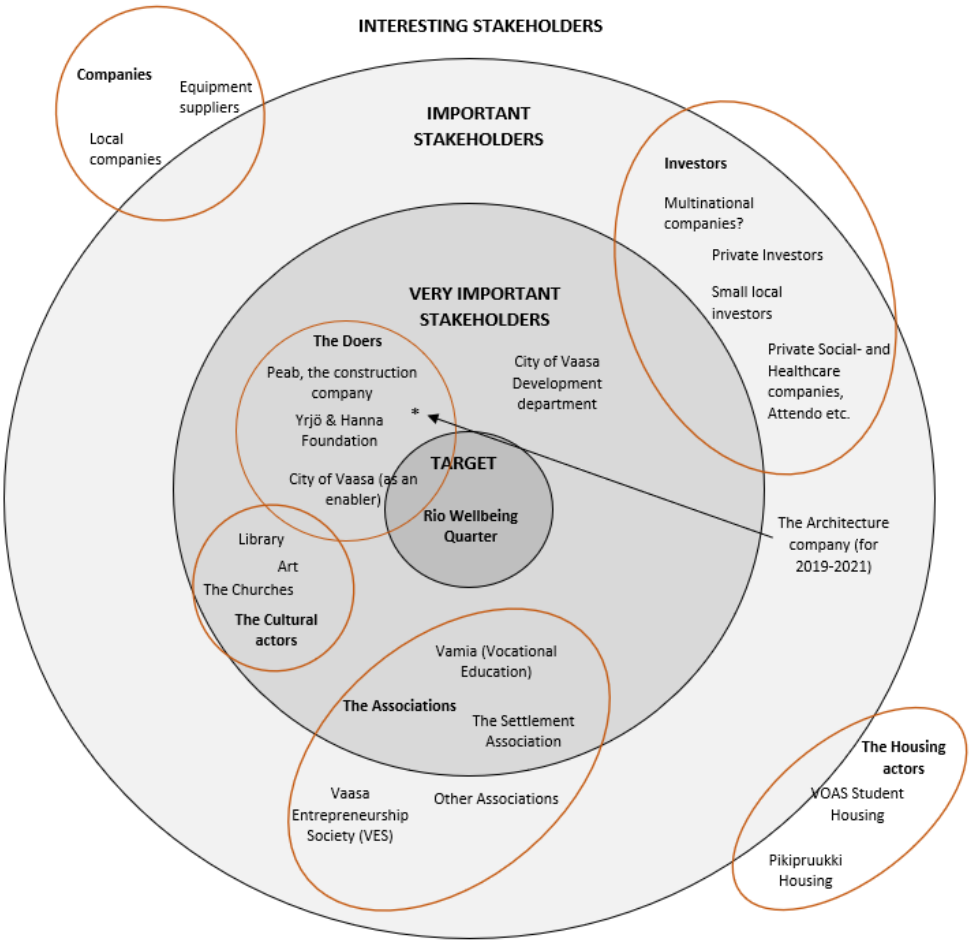

Figure 7. Stakeholder map (Schulte-Tigges 2018a Pers. com.)

In the second stakeholder map, the target is to create “proper living conditions for seniors” and a lively urban environment for all the residents in the Ravilaakso area. The very important stakeholders are the same as previously, the construction company Peab, Yrjö & Hanna Foundation and the City, acting as an enabler. When the project continues, these actors become less important and instead the maintainer and the owner of the buildings that will become very important stakeholders once the first quarter is built.

The city also acts as a service provider in the area when it comes to sports and cultural services such as swimming pool, football field, art exhibitions, opera, library, or concerts. The health and wellbeing service providers, such as hairdressers, physiotherapists or pedicurist, are also seen as very important stakeholders. Other actors operating in the social- and healthcare sector, such as the hospital and healthcare center, services for the elderly and food and cleaning services, as well as schools and daycare services are bundled together and

seen as important stakeholders. The third sector service providers are clustered into the important stakeholders, considering the mental health association, the Settlement Association, senior clubs and the churches in the area. One idea that rose was a service room, or a flexible space, that can be utilized for different service providers, such as hairdressers, beauticians or even doctors, at alternate times. The potential residents in the wellbeing quarter and in the area of Ravilaakso area are also very important, and their relatives are considered important stakeholders. In this case the relatives merely mean the relatives of the seniors living in the wellbeing quarter.

When it comes to the important stakeholders in technical aspect, Vaasan sähkö Oy (Vaasa Electric Ltd.) and Vaasan vesi Oy (Vaasa Water Ltd.) were mentioned to be part of the development of the area, as well as the technology and infrastructure department of the City. Interesting stakeholders, that become more relavant for the Ravilaakso area in the future, are the different workplace providers as well as authorities related to the workplaces.

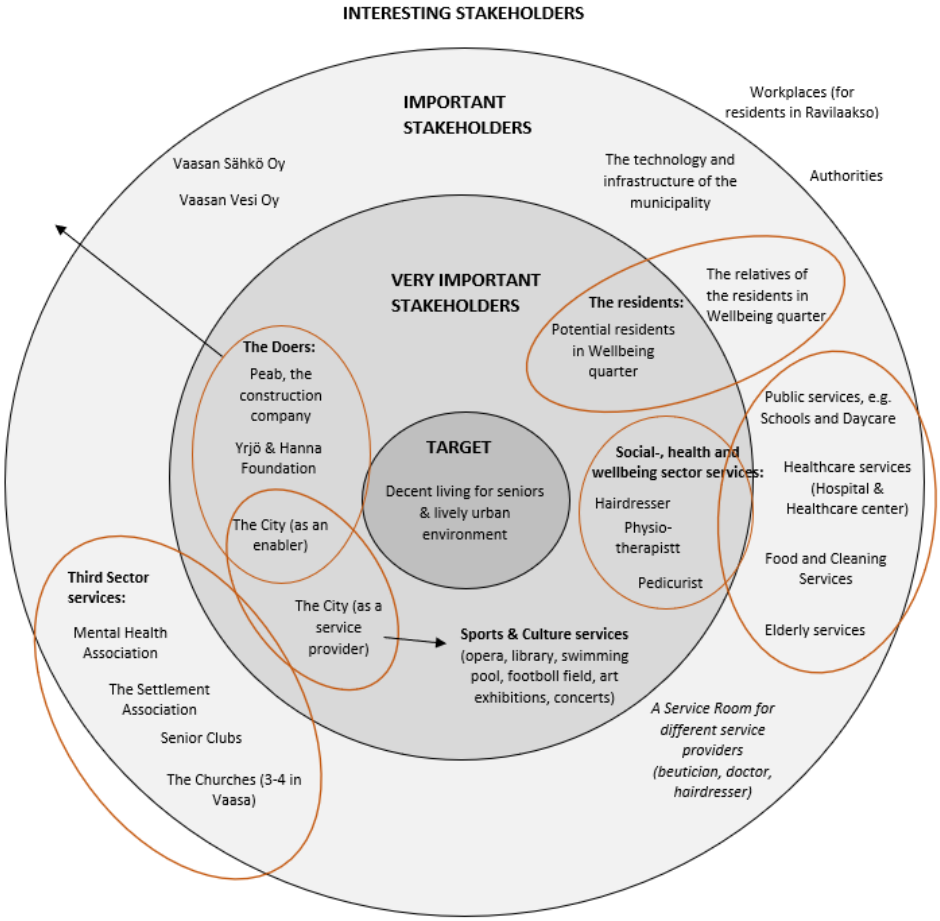

Figure 8. Stakeholder map (Onkalo 2018a Pers. com.)

As a summary, in both stakeholder maps, the doers of the projects are in the very important stakeholder cluster and they will move to the outer circle of the map when the project proceeds. In a few year's time frame, there will be need for a specified maintainer, or an operator in the area who will take the responsibility of the activities and stakeholder cooperation in the area, while the construction company, the foundation and the city have less important roles. The social, health and wellbeing services have very important roles, as well as the associations and other third sector operators in this stage of the project. When the project develops further, the business partner's and local companie's role become even more important. Interestingly the residents of the area are missing from the other stakeholder map. Maybe this is because there are no residents in the area yet, so in this stage of the project they are not that important. In addition, one difference was that the investor's and local companie's roles were emphasized, as well as the architecture company's, which will be a very important stakeholder during the coming years. The housing actors, especially when it comes to student housing were mentioned in the one stakeholder map, while as the other stakeholder map emphasises more the living aspects for the senior citizens.

It can therefore be concluded, that there can be different actors along the way in the project that are operating within the project and their roles and level of importancy will change over time. All in all, the most important stakeholders and actors are evidently the construction company Peab, Yrjö & Hanna Foudation, the City as well as the third sector operators and the associations. Because of this, the interviews were selected from these actors and they are further analysed in the following chapter.

The interviewees were recruited from the contacts that the City of Vaasa representatives had previously discussed with regarding this project, and that already seemed to be interested in the Ravilaakso area. Six interviews with different stakeholders and two interviews with the city representatives were settled on to receive enough data to answer the research questions.

Table 2. Interview participants and their organisations

Interviewee	**Title**	**Organisation**	**Time**
Oliver Schulte-Tigges	Planning Architect	City of Vaasa	10 October 2018
Pertti Onkalo	Chief Real Estate Officer	City of Vaasa	11 October 2018
Kirsi Ikäheimonen	Executive Director	Vaasa Settlement Association	23 October 2018
Kai Magnusson	Real Estate Manager	Yrjö & Hanna Foundation	16 October 2018
Åsa Stenbacka	Principal	Vaasa Educational Center (Vamia)	16 October 2018

Esko Korpi	Head of Unit	Peab Vaasa	24 October 2018
Maija Aarnio	Executive Director	The Federation of Vaasa Enterprises	6 November 2018
Oskari Kaskinen	Chairman	Vaasa Entrepreneur-ship Society (VES)	6 November 2018

3.2.3 Developing and ideating in a co-creative workshop

After the interviews, a co-creative workshop was organized in order to develop the project and ideate with the participants. The co-creative workshop was organized with the stakeholders, because the different stakeholders had never met each other before. As learned from the living lab literature, different stakeholders are needed for the living lab to be up and running. In order to recruit different stakeholders for the development and ideating the services needed for the area, a co-creative workshop was organized. A co-creative workshop as a design method helps to create a safe space among the participants in order to enhance the feeling of belonging to the group, solving mutual challenges and to develop the City of Vaasa and the Ravilaakso area. The co-creative workshop also creates a mutual understanding to the Ravilaakso project, since until now The City repreresentatives have talked to each stakeholder separately, so the workshop gathers all the participants and a joint target and vision for the future can be formulated.

Table 3. The co-creative workshop

Time & Place & Duration	Mon 12 November, 4:30-7:00pm (2,5h hours) in Vaasa public library.
Participants	9 participants out of 23 invited from different sectors representing companies, third party and public sector
Aim	To create a future vision 2035, map out the main challenges & solutions for these as well as a roadmap of tasks to reach the future vision.
Methods	Backcasting & Futures Workshop methods

Time & Place & Duration

The workshop was organized on Monday 12 November 2018 at 16.30-19.00, as it was voted amongst the participants as the most suitable time for most of the people. The workshop was organised in Vaasa library, in the auditorium space, as it was easy to access for everybody with its' central location in Vaasa city center and the space was easily reserved for the City

of Vaasa purposes. The workshop lasted for 2,5h hours in the evening time, although the participants requested the workshop to be organized during office hours, because the theme of the workshop was involved to their daily jobs.

Recruiting the participants

The participants were recruited from the City of Vaasa's contacts. The participants that were invited to the workshop, were the contacts that the City of Vaasa representatives had previously discussed with about the service development in the Ravilaakso area. All together 23 participants were sent the invitation to select the most suitable date for them for the workshop. Those who were interviewed before for the thesis were among these invited participants. By voting for the dates on Google Forms, the most suitable time was selected for the workshop. Seven people did not answer at all and with the rest of the group the workshop date was selected according to the date that received the most votes. All together nine participants came to the workshop and there was three of us acting as the the facilitator parties. Among these nine participants, three of the participants were interviewed for the thesis, other interviewed invited participants were unable to participate. Most of the participants were the third sector operators, since there were no companies present or actual potential inhabitants of the area were not invited to the workshop at this stage.

Table 4. Participants of the co-creative workshop

Participant	**Organisation & Function**
Oliver Schulte-Tigges	City of Vaasa, Planning architect
Pertti Onkalo	City of Vaasa, Chief Real Estate officer
Tuomo Klapuri	Finnish Church of Vaasa, Pastor
Mikko Päällyaho	Finnish Church of Vaasa, Property Manager
Mauritz Knuts	Vasek, Project manager of energy-efficient construction projects
Göran Östberg	Vasek, Project manager of Circular Economy
Leena Nyqvist	City of Vaasa, Cultural services
Leif Holmlund	City of Vaasa, Home and Institutional care Director

Aim of the workshop

The aim for the workshop was to get mutual understanding on the vision and target for the co-operation as well as build trust and engagement among the participants. The aim was also

to formulate the future Vision, 2035 of the Ravilaakso area and map out the challenges ahead and make a clear Roadmap for the tasks that need to be accomplished to reach the future Vision 2035 in the area.

One important target for the workshop was that the stakeholders meet each other, start talking to each other and also share their common goals and vision about the Ravilaakso area. Previously the City of Vaasa representatives have discussed with multiple stakeholders separately and individually. Since the city is seen more like an enabler for the living lab concept in the area, it is vital for the stakeholders to meet in an early stage of the planning process and start collaborating and co-creating with each other for the common goals. This target was successfully accomplished in the workshop.

Methods

In the co-creative workshop, backasting and futures workshop methods were combined, because the participants did not know each other beforehand and we also wanted the participants to sharetheir vision of the future, as well as their common goal in the area.

According to the experience domain, in order to learn about the potential future experiences, we need to include people's dreams and fears, their aspirations and ideas in to consideration. By knowing these, it is easier to uncover the explicit and observable knowledge about contexts. (Adapted from Sanders 2001 in Visser, Stappers, Van der Lugt 2005, 4.) See figure 9.

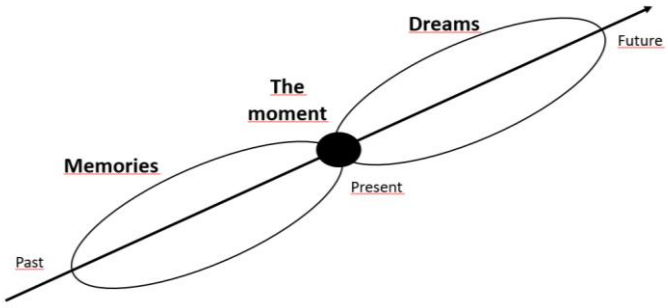

Figure 9. The experience domain (adapted from Sanders, 2001 in Visser et al. 2005, 4)

It is vital to use different tools and methods to reach the dreams for the future, because people often tend to talk about the present situation or the past memories, when interviewed to about the future dreams. By asking people to visualise the future city in 2035 by using different artefacts can help them to get into the mood of loosening up their minds from the present constrains. (Visser et al. 2005, 4.)

According to Dreborg (1996, 814) backcasting is applied in long-term complex issues that involve many aspects of society, technological innovation and change, such as in Ravilaakso project where the area will be built within the coming 15 years, which creates a lot of uncertainty among the stakeholders. In backcasting the participants think about a future event or situation and formulate a causal chain leading from the present to the future. Backcasting is used in scenario-based foresight methodology and the use of different scenarios is especially good when coping with the uncertainty (Dreborg 1996, 816.) As see in figure 10, according to Becque (2015), backasting is a roadmap itself to transformational change, where the process starts by describing of the future vision according to the participants wishes. After that it is vital to understand the present, the possible constrains we have today and then start thinking "what do I do today to achieve this vision?" by ideating and making task lists. The last part is to prioritize the tasks in the timeline.

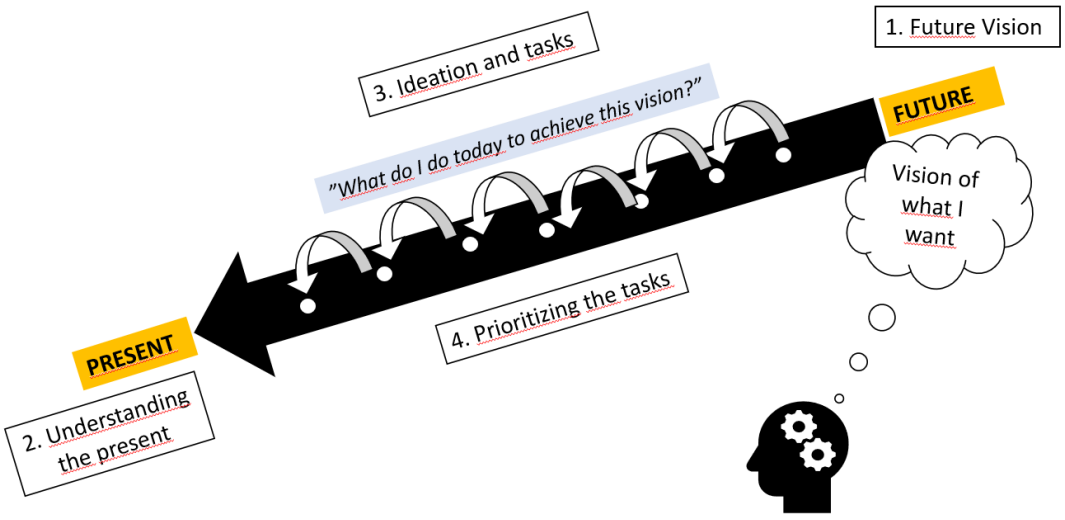

Figure 10. Backcasting: a roadmap to transformational change (adapted from Becque 2015)

Since the participants had not met each other beforehand in this context, it was important for them to have enough time for also non-structured discussion also and time to get to know each other. Since the timeframe of the workshop was limited and the City of Vaasa wanted already concrete tasks and solutions from the workshop, which is why futures workshop method was also used to momve onto concrete tasks quickly. As Lauttamäki (2014, 2) sums up, futures workshop method increases people's participation in solving collective problems instead of leaving the issues and decisions only to decision makers, such as politicians, civil servants or experts. This way the stakeholders from various backgrounds become active members of solving quite practical questions related to the Ravilaakso area and for the future of that area. A part of the Future Workshop method is to make an action plan or a roadmap to

achieve the desired future in quite a short timeframe, during a half- or one-day workshop. This is the reasoning behind why backasting and the futures workshop methods are combined, to answer the targets for the workshop, to share knowledge and thoughts among the participants and also to create a concrete roadmap in order to reach the future vision.

The structure of the workshop

The workshop structure followed the timetable, where the duration of each stage was planned and there were descriptions, purposes and targets for each task (see Appendix 2.)

First the attendees got to know each other by using the Coctail -party method (Kantojärvi, 2017). They wrote their names and the expectations for the workshop on the post-it's and drew their source of energy. They were asked to mingle around the room and talk to at least three people they have not talked to in a while and share their thoughts. The expectations were collected to a flip chart from the group and this exercise in the beginning of the workshop helped formulate the safe space between participants and to share their thoughts in a structured way. The workshop had the following stages, according to backcasting method (see figure 11). They are more closely explained in the following paragraphs below.

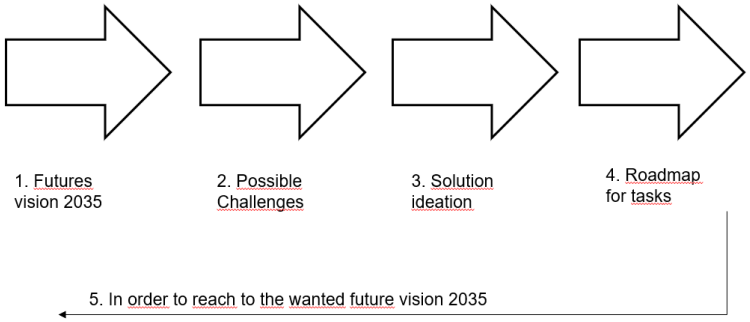

Figure 11. Workshop structure

At the first stage (1) the participants were asked to formulate the futures vision for year 2035. They were shown a few questions to get the idea, such as "How do people live?", "How people move?", "How people eat/drink?", "What kind of services people use?", " What type of space people use and need?", "How these spaces are financed?", "How can the future inhabitants in the area participate in co-creating the area?", "How to continue the co-operation between the citizens and the parties developing the area?". The questions were selected with the City of Vaasa representatives and some guidelines how to formulate the questions were selected from the study of Carlsson-Kanyama, Dreborg, Moll & Padovan (2008, 38).

In the second task (2), the possible challenges were mapped to undestand the constrains and risks there may be in order to not attain the futures vision 2035. The challenges were clustered underneath themes that arose and then the teams were separated in two, A and B teams. Each team could choose one challenge they wanted to concentrate more deeply on. After the challenges were clustered and selected, the third task (3) was to ideate possible solutions for these challenges, and to write them down on post-its.

In the last stage (4), the teams formulated a roadmap from the ideated solutions they had created and added concrete tasks that need to be executed to reach the futures vision 2035. The tasks were put on a timeframe starting from year 2018 and ending in year 2035. The teams could also vote (three votes/person) about which the most important tasks to be executed in the roadmap. In the end, the teams shared their roadmap with other teams by pitching their solutions and these were video recorded.

3.2.4 Delivering the Living lab concept

Based on the benchmark cases, the interviews and the co-creative workshop material, the delivery phase of the service desig process was done by delivering the Living lab concept. The data that was gathered in the empirical part of the thesis was analysed through the ARA model. The Living lab concept was designed trough combining the ARA model with the different Living lab actor roles (Leminen et al. 2012) and adapted to City of Vaasa and Ravilaakso area by naming local actors, their resources and activities to the concept.

Within the stage delivering the Living lab concept, it is also important to also qualify the concept through pilot testing. The pilot testing was was done by presenting the Living lab concept for three City of Vaasa representatives, that were the contact persons during the project by organizing a mutual two-hour meeting. During the presentation the participants were asked for feedback, suggestions for improvements and the following questions were discussed during the session;

1) How could this living lab concept work in practice? What would it require and on what schedule?

2) What are the possible obstacles to establish and operate the living lab?

3) What do you consider as the main benefits and challenges of the living lab concept for the Ravilaakso area?

4) Does the living lab concept help the city in terms of designing and developing the services in the Ravilaakso area and whole Vaasa region?

5) What would you change in the living lab concept?

The feedback from the pilot testing is analyzed in chapter 4.5.

4 Results and Analysis

In the next chapter, the results that were gathered from the empirical part of the study are analysed. Chapter four introduces the analysis of the benchmark cases, the interviews and the co-creative workshop. This chapter also combines the theoretical background of the thesis, that was introduced in chapter two, with the empirical analysis of the thesis.

4.1 Benchmark case analysis

The Benchmark cases are further analysed through the ARA model.

ACTORS

Kalasatama is a district in the eastern end of Helsinki. Forum Virium Helsinki runs a project called Smart Kalasatama, which is an innovation platform for smart and sustainable services Forum Virium 2018), Forum Virium Helsinki is an innovation company owned by the Helsinki City Group, that develops new digital services in cooperation with companies, other City of Helsinki units and residents acting as a non-governmental agency (Forum Virium 2019). Smart Cities should move from treating citizens as recipients of services and start using the citizens as participants in the co-creation of improved quality of life (Smart Kalasatama 2018). The City of Helsinki is running the the area construction and engages the residents in the different phases of the process. The roadmap for the smart city development is planned in collaboration with the different city sectors and other network partners. The smart city development is carried out in several projects run by the city and other partners. Forum Virium Helsinki is also actively initiating new project themes and working on proposals for new funding for different projects. (Spilling 2018a. pers com.)

Smart Kalasatama gathers the local actors in a network called the Innovators' Club, which joins the city, companies, property developers and planners, as well as the residents, who take part in defining the needs and testing as well as evaluating the services. For the new services to provide value for the everyday life, the end-users should be involved in to the development work already from the first day. Smart Kalasatama living lab is an innovation platform, that offers companies the possibilities to co-develop and experiment their services in real-life environment with the end users. (Forum Virium 2017.) In addition, the pilots bring together multiple actors; companies, residents of Kalasatama, city officials, and for example the service professionals related to a certain area that is developed (Spilling 2018a. pers.com., Spilling 2018b). In Kalasatama wellbeing piloting programme, the Kalasatama Health and Wellbeing Centre and corporate partners as well as startups were co-developing and experimenting services with the end users and health professionals. Laurea University of applied sciences acted as a research and development partner in this one-year project. (Spilling 2018b.)

In the Oma Tesoma (own Tesoma) project in Tampere, the essence in service development was that the concepts and contents of the service needed to be renewed user-orientedly. This principle was applied in connection with construction projects for the Tesoma school, the kindergarten, sports facilities, elderly housing services, library, health care services and other public and private sector services. The actors that were involved in the project were the citizens, service users and other actors in the region of Tesoma. (Oma Tesoma, 2018.)

In the Smart City project in Tampere different stakeholders were engaged to the projects by clearly defining what the smart city approach means for each stakeholder; citizen, partner and business needs and City's organizational needs. This also required planning the communication and marketing for different audiences; citizens, business, suppliers, partners, third sector etc, which were all actors in the project. (The Smart City Cookbook 2018, 23.)

RESOURCES

The resources can be human resources, financial resources or physical space as a resource.

Human Resources

For example, several team members in Forum Virium Helsinki have a background or experience on service design. The people working in living lab projects need to have certain knowledge and experience on city development, business and an understanding how to lead and facilitate workshops.

Oma Tesoma project on the other hand had at least six project workers working on the project during the years 2013-2018, when the project was ongoing. Some of the project workers were resourced from 6Aika project pool and some of the resources were directly working on the Oma Tesoma project. (Oma Tesoma, 2018.)

Financial

In Smart Kalasatama's Agile Piloting Programme the agile pilots within the projects are procured from start-ups and SME's. This kind of financing is important for the small companies and start-ups in order to be able to invest time on experimentation. For each theme or project there is an open call around the design challenge that is launched. The outcomes from the agile pilots and the IP rights belong to the company or organization that does the experiment. The goal is always to learn as much as possible, and to engage a wider network. (Mustonen, Spilling, & Bergström 2018, 11 & 24.) For example, Kalasatama Wellbeing project was funded by the Regional Innovations and Experiments funding of the Helsinki-Uusimaa Regional Council (Spilling 2018b).

In Oma Tesoma, there was a different type of funding methods around the projects. For example, the healthcare services in Tesoma area were funded through a cooperation model between public, private and third sector, by an alliance by of the City of Tampere and Mehiläinen consortium. This was the first time in Finland that the alliance model, that is usually used in construction projects was applied in healthcare services. Under the project, there was also consultancy for companies on how to apply for funding for business ideas. The projects were financed through 6Aika project funding, City of Tampere and European Regional Development Fund. (Oma Tesoma 2018.)

Physical space

When it comes to the facilities or innovation space, Smart Kalasatama living lab started gathering the network by using the facilities in the area, such as schools, healthcare, department buildings, restaurants etc. (Spilling 2018a. pers. com.) Thereafter the Smart Kalasatama living lab operated a “pre-lab” –space in the Suvilahti area premises in Helsinki to organize different co-creation events and workshops for the stakeholders. In November 2018 they opened a new Urban Lab in REDI shopping center fo co-creation and to gathering with the stakeholders and network. (Smart Kalasatama 2018.)

ACTIVITIES

Smart Kalasatama district combines renewable energy, smart grid technology, electric cars and traffic solutions that make the area development project a true green-project with all the possibilities to make it as a big next thing. More over, Kalasatama area itself is a co-creation platform and a living lab. Since living lab is a real-life laboratory for testing t and developing new services, Smart Kalasatama uses the whole district and the key locations as a living lab for co-developing and experimenting new services, for example the residential buildings, school, and the health care center. (Smart Kalasatama 2016.)

When buiding the vision for a smart district in 2013-2014, Smart Kalasatama team organized thematic workshops for different stakeholders, for example from the point of companies, the citizens and services. In these workshops, they discussed what they want from this Smart Kalasatama part of the city. The city has regularly organized resident events and Smart Kalasatama has contributed by introducing the smart agile pilots and by showing the participants what happens inside the sprints. Forum Virium has also organized ”experience Kalasatama” day, where the participants could go around in the area and see the smart projects that have been developed in the area. (Spilling 2018a. pers. com.)

Providing temporary usage of the area that is under construction has been important. For example, in Smart Kalasatama there was a small cafeteria operating during the construction

phase, related to areal construction. Kalasatama living lab has also hosted different delegations visiting the smart city district. An important part of the work has been to communicate about the different projects and smart development in the district this has resulted in visibility in international media. (Spilling 2018a. pers. com.)

There have been several agile pilots during the years in Smart Kalasatama project, that follow the themes of; 1) resource wise solutions, 2) wellbeing services close to people, 3) climate positive try-outs (design sprints) (Mustonen et al. 2018, 12-14). What was learned is that a piloting programme works better than individual experiments (pilots). During the piloting sprints, the co-creation workshops are a great way to engage the wider ecosystem for the development process and develop the things regarding to the themes. (Mustonen et al. 2018, 17.) The services provided for the start ups by Smart Kalasatama living lab are co-creation and facilitation, access to networks and research partners, marketing, access to the city infrastructure or technical infra. (Mustonen et al. 2018, 23.)

”Smart Kalasatama team acts as the glue(mediator) among different actors and stakeholders, we start new projects, new piloting programmes, we facilitate real life experimentation and communicate how Helsinki is building a smart neighbourhood. We also communicate what does means to experiment and how can we co-create value and learn as much as possible together.” (Spilling 2018a. pers. com.)

One of the outcomes that was created from the need of deeloping a smarter city, was for example services related to more flexible usage of space. One can book a facility online for one’s own purposes through ”Varaamo” service, or book a sauna from ”Kliffa” service, or get to know the ”Flexitila” service and its smart locking system, where there is no need for keys anymore to access the space. (Joustotilat 2018.)

Oma Tesoma project had multiple different smaller pilot projects happening during the years. There was the Tesoma Innovation model (part of 6Aika), the wellbeing center, cultural projects, participatory budgeting, building and city planning, research projects, communal forest garden, life cycle quarter and mediapolis project. (Oma Tesoma, 2018.) One interesting concept in Tesoma was their ”Koklaamo” (Try out) that brings together the citizens, companies, associations and experts from different areas in order to find solutions for different challenges regarding living in new urban neighbourhood and the development of the city environment. The idea was to build up an operating model, where the ideas can be further developed and tested rapidly. The Tesoma area in Tampere was the testing platform or the living lab for prototyping. Lean Service Creation model was used and there were five companies involved in each try out and they received sparring help from the experts. There was one try out project regarding road safety and another one regarding the everyday life of sporty families. (Oma Tesoma 2018.) Smart City Tampere they used scrum-based sprints to manage the

project content and different meetings could be held daily in project and on program level. The scrum-based sprint model gives flexibility to adapt to changes and it improves quality as well as delivers earlier functionality. (The Smart City Cookbook 2018, 27.)

There are multiple **actors** that are involved in projects within the living labs because cooperation is needed between at least two actors. All benchmark cases have a project group, a community manager or a quarter coach operating and coordinating the projects and making sure all necessary stakeholders are involved some time during the project.

The common **resource** for all these living labs and projects is the need for financial resources so they can function. The options to get the funding may vary a bit, although all these benchmark cases are related to 6Aika programme, which strategy enhances sustainable urban development in the six biggest cities in Finland (6Aika 2019). This strategy also helps the cities to share their knowledge and resources within different projects.

When the **activities** are analysed in these benchmark cases, they all have common principles, such as organizing smaller pilots, design sprints or try-outs within the projects rather than investing a lot of money and time in long big scale projects. In the pilot projects Lean Service Creation tools and Service Design tools are used, which helps the living lab to be flexible and creative. The projects are iterative where ideas are co-created with participants and tested in the early phase of the design process. In conclusion, there are pilots inside the projects and projects inside the programmes that can have different themes. All cases included organising workshops, events and co-creative sessions with the various stakeholders involved in different parts of the process, as well as organizing pilot funding, communication, marketing and getting global visibility for the projects, participating in seminars etc. The activities were always targeted to fit the purpose of finding a solution for each type of urban challenge that was progressed at that certain time.

As a summary it is important to understand the nature of living labs. They are constantly developing; they are a sum of all the stakeholders acting in the living labs and the resources that are available at a certain time. The nature alters within the project as well as in the actions within the living lab or within the project, depending on what is needed or can be done. No living lab resembles another.

4.2 Interview analysis

”The main thing is to create a city environment that will last for the next 106 years.” (Interviewee 3. 2018)

In most of the service design studies, the content analysis is a natural choice for form of analysis because it tries to make sense from a volume of qualitative material and tries to identify the core meanings (Patton 2002). Kvale (2009) suggests that content analysis indicates that

phrases and words are extracted into relevant categories, making patterns and sort of coding method. The data should be coded or categorized when analysing begins, which has been done in this thesis. The interviews were analysed through the ARA model with the help of Atlas.ti coding programme, which is useful for large data amounts. Although, Atlas.ti is critisized for analysing the data on a screen, then it does not offer an inspiring and flexible workspace for analysing fragmentary information (Visser et al. 2005, 15). The interviews were held in Finnish, so the quotations were translated from Finnish to English. The interviewees anonymity is protected by using randomly drawn numbers between 1 to 8.

The interviews were conducted based on the main themes; Actors, Resources and Activities (ARA model), (see Appendix 1. for the interview questions), which formulated categories (in square boxes), or codes in Atlas.ti, after which they were sub-categorised into the smaller details (in rounded corner boxes), or sub-codes. See figure 12 below for the themes, categories and sub-categories for the data analysis.

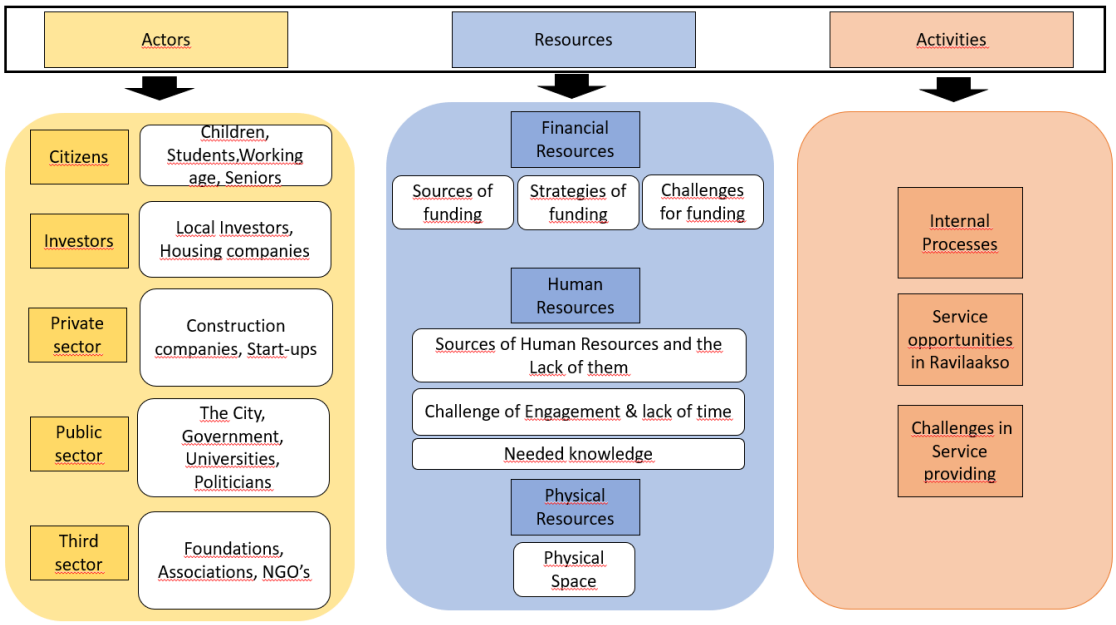

Figure 12. The ARA model, categories and sub-categories for the data analysis

ACTORS

The actors were sub-categorised as the citizen (children, students, working age, seniors), public sector actors (the city, government, universities, politicians), investors (local investors or housing companies), private sector actors (construction companies, start-ups), and the third sector actors (foundations, associations, non-profit organisations).

One needs to remember the role of the stakeholders and actors in different parts of the process. The construction company, Peab, has a big role in the beginning by coordinating the

planning work for the construction site whereas the Yrjö & Hanna Foundation has a bigger role when the architecture competition is ready, when they start to plan, develop and organize the services in the quarter with the help of other actors and stakeholders. The city itself is doing continuous work to make all the stakeholder's opinions heard, market the area among politicians and citizens, making sure the needs of the city is heard from different departments as well as overseeing that the main goals for the area, with communality and easy access services are supported by all the decisions made during the process.

Citizens

The citizens were not interviewed for the thesis at this point. They are however a vital group of actors that need to be engaged in the upcoming stages of the Ravilaakso project to gain understanding of the citizens' thoughts and values and what type of services are needed.

The Ravilaakso area is going to to be an area for different age groups, and for these different groups of citizens and their need to be considered. The young adults could be reached through the housing company, VOAS or by schools and universities nearby the Ravilaakso area. Since the area is far away from the University of Vaasa campus area, there should be interesting events and happenings around the area to attract students to the area even before it is fully constructed. Students can also offer their services in the area, by selling their products in pop-up stores or offer any type of health- and wellbeing services in the area. Working aged citizens need new workplaces in the area, good transportation availability and all in all there is a needs for well-payed workplaces in Vaasa region as a whole, so that families can afford to live in a new urban housing area close to the city center. As the first wellbeing quarter, Rio, it is mainly targeted for senior housing or residents with special needs. Therefore the senior citizen's point of view is important to understand deeply in order to meet the needs and requirements for housing, living and services needed in the area. This is tackeld though through Yrjö & Hanna Foundation and and the City of Vaasa, who have done special research for the housing needs.

Investors

Local investors should be considered as co-operation partners, although the long rental contracts may be a turn off for the investors. Airaksinen, Wasa Group and Wasacon are potential local investors in Vaasa area, to name a few. There can also be non-profit organizations or foundations, whose main target is in building communality in the area and supporting the services being close to the citizens, could also be considered viable options. In Sweden for example, there are foundations in the construction business that invest in innovative activities and development rather than seek for big economic returns. (Interviewee 2., 3. & 7. 2018.)

Private sector

The private sector can consist of private companies, e.g. construction companies and start-up companies. The construction company's main role in the area is to make sure the project is profitable for different project operators. The company is accountable for budgeting, timetables and the costruction process. Both the construction company Peab and Yrjö & Hanna Foundation have an active role in the project in the Rio wellbeing quarter. Both actors wish to construct several quarters in order to reach the full potential of the area and the resources. At minmum of four quarters would create an oasis in the middle of the area that will attract the inhabitants and start the activities in the area. The four quarters formulates the heart, which helps the area to go through the construction process and be lively within the oasis (Interviewee 1. 2018).

Because the Ravilaakso area itself is emphasizing modern urban living, different innovative ideas are more than welcome to support the area development. Start-ups were mentioned in many of the interviews and what type of new local and international innovations could be brought and tested in the area. Even though start-ups and new innovations are very welcome while developing the area, one must also remember the importance of basic service needs, offered by the local entrepreneurs, such as stores, hairdressers, restaurants, cafeterias and cleaning services, which are always needed. The entrepreneurs appreciate that they are involved in service development beforehand, so that they can really influence on the services and the spaces that are built on the area. However, the entrepreneurs are very busy and therefore it is hard to get them involved in workshops or any extra-curricular activities, which are vital for innovating new services in the area, (Interviewee 8. 2018) making it obvious marketing is needed, so that different private sector actors will get engaged to the area's development and service innovation from the early stages.

Public Sector

In the public sector there is the city, the government and politicians for example. In addition, schools, hospitals, healthcare center are included to the public sector as well as regional development organization. The City of Vaasa wants to see themselves as an enabler for different solutions, but not being liable for everything. The city can introduce some new technology solutions from some benchmark city for the local stakeholders (an entrepreneur or other actor), who can then start the developing process of said technology in Vaasa. The Yrjö & Hanna Foundation and Peab have the main roles as active enablers in the process and the city sees itself as a supporting actor in the process (Interviewee 3. & 7. 2018).

The different departments within the city, such as the municipal engineering, real estate departmet, the green area planning team, housing team and the planning department, are involved in this development project. In Rio wellbeing quarter, the disablement unit from the

city is one important actor. The Vaasa student housing organisation, VOAS, and Pikipruukki housing company could be operating in the area as well. The hospital, the health center, schools and daycare are all located quite nearby the area, so they will be utilized by the inhabitans of the area. (Interviewee 7. 2018.)

The politicians are both acting both locally and on government level. Therefore, it is vital for the city and other actors to do lobbig, marketing and establish an open communication with the politicians, who are the ones making the decisions on both city and government level in the end. The politicians have a big role in the big picture, which is why it is highly important to influence this group of actors. Government laws and especially provincial reform stimulated discussion amongst the interviewees on how it affects the healthcare services or the workplaces, or incomes of the City of Vaasa through either migration loss or people moving into the city.

The Housing Finance and Development Center of Finland (ARA) is also a public actor that should be mentioned, since they are involved in the construction project of the Rio wellbeing quarter. ARA offers public funding and seeks to support housing projects to meet current challenges in the area for housing solutions for special-needs groups, communal housing, energy-efficiency solutions etc. (ARA, 2017.) ARA also has a role as a public actor in the project, since they are financing the first quarter in the area.

There are also actors, that are not directly related to Ravilaakso area specifically but are involved in different projects, related to overall development of certain solutions that are developed on city level. One of these is the Vaasa Region Development Company (Vasek), who is in the IRIS European project together with the City of Vaasa, looking to find sustainable energy solutions for example. (Interviewee 3. 2018.)

Third sector

Third sector actors consist of the foundations, associations and other non-governmental and non-profit organizations. Many of the interviewees were representing third party sector actors, such as Yrjö & Hanna Foundation, The Settlement Association, the Vaasa Entrepreneurship Society (VES) and the Vaasa Entrepreneurs.

Many of the third sector actors voiced their desires to be involved in the area, contributing to developing and planning the area and its services. Although, since most of them are non-profit organizations, they need a solid network as well as funding to start operating in the area. The third sector actors are very valuable for the Ravilaakso area, because they can offer specific knowledge and resources that would otherwise be very costly or hard to pursue. The target for this actor group is usually to act and work for the greater mutual good. Yrjö & Hanna Foundation has experience on senior housing projects, and how and which stakeholders

should be engaged in the project from the service development point of view. There are many associations and organizations that are run by volunteers that could join their forces in sharing their knowledge, activities and by sharing the communal spaces, making it possible to divide the costs as well.

RESOURCES

The resources were further divided into categories of financial resources, human resources and physical resources. The financial resources were sub-categorised on challenges for funding, sources of funding and strategies of funding based on the interviews. Human resources were categorised as sources of human resources and the lack of them, change of engagement and lack of time & needed knowledge. Physical resources signify mainly the physical space in this content, which was discussed with the interviewees related to the communal spaces and their needs for various spaces to offering their services.

Financial resources

As stated earlier in the third sector organizations have scarce resources and they will be requiring especially financial resources and funding in order to operate in the Ravilaakso area.

1. Sources of funding

Many of the NGO's get funding from different sources, e.g. foundations and association, whose target is to support non-profit organizations' actions and operations towards greater societal good. The Settlement Association offers different types of free club activities for their customers, since they want to give anyone the possibility to participate. They receive funding from the City of Vaasa, who acquires their services. Usually the contracts are made for 3 to 5 years in order to be able to make long-term objectives. One healthcare service project is financed by the City of Vaasa's long-term agreement on buying the services from Settlement Association, having part of it covered by a bank loan and part of it is funded through the Finland's Slot Machine Association.

Vaasa Entrepreneurship Society (VES) organizes activities for students in order to accelerate entrepreneurship and entrepreneurial attitude among the students. VES is part of the national Entrepreneurship network for students, and therefore they can apply for project funding from The Ministry of Employment and the Economy of Finland and also The Ministry of Education and Culture, Finland. This way they can support their activities, such as their new co-working space programme, which is planned to start in year 2019. With this funding, they can support the activities for a certain period, altough the main idea is to keep the activities non-profit in

the long run. Local investors's roles will become clearer when the construction project proceeds and with concrete pilot projects and business ideas it will be easier to attract the investors as well.

2. Strategies for funding

One strategy for funding can be a framework agreement with the City of Vaasa and with actor operating in the area and offering healthcare/wellbeing services. (Interviewee 5. 2018). Interviewee (1. & 2. 2018) stresses the importance of the role of the city to cover a part of the financial risks by for example owning certain parts of the premises and renting them to local operators. The City of Vaasa wishes however that the actors themselves will make the contracts and build the network directly with Yrjö & Hanna Foundation, leaving the city acting only as an enabler, not owning any facilities and therefore not having any financial resources attached to the buildings.

Interviewee 4. (2018) suggests that to cover the rental costs of the spaces with differet operators, actors and foundations together, the rental agreement can be done between different parties, having the risks divided by many actors. Interviewee 3.(2018) stated the problem with this type of multi-rental-agreement with many actors, there still needs to be someonw who collects the rent and is in charge, otherwise te situation can become quite hard to manage. One strategy would be to collect higher price per square meter in housing from the inhabitants in order to cover the costs of community spaces, gym facilities, laundry room or for a Quarter Coach organizing activities (Interviewee 5. 2018). The same strategy is accordance with the "persentage principle", quite commonly used in all urban development projects nowadays (Spilling 2018a Pers. com.).

Moreover, most of the interviewees claimed they are not willing to engage in the facilities or spaces in the area before they know what sort of activities there will be. Since many of the interviewees represent the third sector, it is understandable that they do not have extra budgets for rental costs. VAMIA for example, would offer the services powered by their students free of charge in the area and therefore they should not be charged the space rental costs.

3. Challenges for funding

Some of the challenges of funding are related to the actual construction project and to the spaces that ought to be built in the Rio wellbeing quarter. Even though the city and many of the actors wish for communal spaces to build up the community and its' shared activities in the area, this causes some problems at the moment construction and funding wise. Usually, if there is a lot of communcal space assigned to the building, The Housing Finance and Development Center of Finland (ARA) will not support the construction process. That is why the city is

needed in sharing the risks, even for the spaces to be implemented. Even though this sort of communal spaces are in demand all over Finland nowadays, it is very hard to build them, because the ARA will not support them. Then again, all the construction that Yrjö & Hanna Foundation mainly do are society supported production through the ARA such as this.

As stated earlier, for the third sector operators, the biggest challenge for funding their operations in the area is to find the commitment and engagement by someone to either buy their services or to find the funding for their operations. Additionally, the rental agreements need to be created so that they can be terminated within one month's notice in case of lack of funding. When the Ravilaakso area is just about to be built, there is not yet any citizens around who would need, use or pay for the services.

Human Resources

When it comes to human resources, it is vital to have a local operator in the area that plans, coordinates and takes charge of the activities in the area. This operator can be anyone from the city to any local foundation or association or even a quarter coach.

"The area needs a local operator, which can be a local foundation, association or the city that starts to organize and coordinate the activities and services in the area." (Interviewee 1. 2018).

"A human resource is needed, who then plans the community activities in the area. This can be a quarter coatch etc." (Interviewee 7. 2018).

4. Sources of human resources and the lack of them

Many interviewees stated how scarce human resources they already have, which makes it hard to participate to any extra development work. Vaasa Entrepreneurs are cooperating with various actors in Vaasa region, such as Vasek, Startia, the City of Vaasa and Women Entrepreneurs to establish more when they cooperate and communicate together. When organizing events for example, it is easier with shared resources. (Interviewee 8. 2018). This type of cooperation should be enhanced more.

The city has few human resources dedicated to this project full-time, which naturally causes pressure for the current project team as being part of their daily job. One option to ease the workload and plan the whole project from the start is to organize an own cost unit for this project. The workload could be more accurately tracked while time and costs invested and budgeted for this project would be more transparent. The Ravilaakso project has its' special requirements for being the forerunner development project of an urban area where new innovations are piloted. By having enough resources, also rapid experiments would be easier to

organize in the area. (Interviewee 3. 2018.) The concept of efficiency on the city level is unfortunately thought as the same amount of work done by less human resources, which is why cooperation with various stakeholders is more than welcome.

5. Challenge of engagement & lack of time

The Settlement Association finds it hard to engage people for the voluntary work. Previously the volunteers committed for at least one year, but now the Settlement Association is thinking of starting a six months programme to get people involved in the voluntary work. The challenge to get people or companies engaged is a threat, because without enthusiastic people nothing will happen in the area.

”It is hard to get people involved or engage them, because there are so many happenings at the same time. If you are an active person, you are involved in many activities.” (Interviewee 8. 2018).

Most of the finnish companies (93,3%) are micro companies that employ 1-6 persons and there are 60% of entrepreneurs in Finland. This means that entrepreneurs do not have enough resources and time for testing new things or taking too big risks, as they need to be active and constantly seek out new business opportunities. The entrepreneurs need to have quite targeted and concrete contents ready before they invest their time by participating in any planning or development work, because they would rather focus on their own projects. This cultural change by participating in development projects already from the beginning of the project takes time. (Interviewee 8. 2018). People will get exited, if the theme and idea is grounded enough and well planned. In 2017 Vaasa Entrepreneurs and Visit Vaasa organized a joint event called ”Functioning and Developing City Center”, which generated a lot of with people.

6. Needed knowledge

The operator who takes on the task to manage and plan the activities in the area, e.g. a quarter coach, needs to have previous expertise and knowledge on these sort of urban development projects and areas, as well as the knowledge on how to manage the network of actors. All the operators that will eventually join to the area are expected to have a positive attitude for innovation, be willing to try new things and be a part of the community.

”In Ostrobothnia we have this attitude of "arhg, let's do this!". Entrepreneurs are that kind that if they see an opportunity, they will reach for it, it is in their DNA.” (Interviewee 8. 2018).

Especially the young entrepreneurs are eager to try our new business ideas, for example a pop-up or a drop-in hairdresser in the area. The academia can also offer different types of

knowledge in the area, for example when building circular economy quarter, there are Vamk students with the most recent knowledge on electricity, ICT, plumbing and air conditioning close by to help and in return they will learn by doing in a practical context.

Physical Resources

Physical Resources in this project refers to the actual physical spaces, facilities and properties that will be built in the area and what kinds of physical spaces the interviewees wish for in the area.

Physical space

The communal aspect of the area requires communal spaces as well. The ideas regarding communality were e.g. a city library spot, a co-working space, spaces for your people to meet and spaces that can easily be modified and shared with different actors and operators. A city library spot, that would have all the city services in the same facility or in a co-working space, with easy access and low cost, would also motivate students and workers to come to the area from other parts of the city as well. However, this creates a need for a wel functioning public transportation. Common office spaces, restaurants, shops and traditional commercial spaces for different entrepreneurs will all be needed. The common garden areas create a lively urban living environment. The sports activities are close by, which also creates attraction to the area. The idea is to improve the efficiency by investing in more functionable spaces, as some of the actors have made a strategic decision to discard some of their current premises in order to invest in spaces and facilities that better serve their customer's needs by being in the Ravilaakso area. A physical space in the area is also needed to provide visibility for the innovative solutions and local companies. Currently there is no such space, that would help the companies to show cases or mock-ups to their global visitors in the Vaasa region. There could be a showroom space where the local companies could market and test their products in the area.

"…Vaasa being The Energy capital of Nordics, we still don't have any showrooms to show our energy solutions. We are still using the same housing fair area in Suvilahti from 2008." (Interviewee 3. 2018)

Most of the third/public sector actors, could easily see themselves sharing the space with some other actors. Although there are ideas and needs for different types of spaces, one problem still focuses on the funding side of the premises. Who owns the spaces? Who rents them? Who can get engaged in a space in the early stages of the project, when there are no operators in the area yet? There are no investors at in the beginning of the project and the housing apartment buildings and square meters bring more value for the company. Renting small business spaces from the bottom floor is very tough business and especially in such a

small city as in Vaasa. Even in bigger cities it is a problem to get these spaces profitable when operating outside the city centre. Luckily, the project group has come up with good innovative ideas on the area and how to develop the spaces.

”We have planned and thought about the parking spaces, the streets, green areas, accessibility, comfortable green areas for the residents and community spaces, saunas, and those kinds of facilities that support the good old communality in the area. Energy efficiency is one thing to think about - we have thought that Vaasan sähkö Oy could make energy wells/bins heated by solar power and then distribute it in the area during the coldest months of the year.” (Interviewee 2. 2018).

ACTIVITIES

Activities were sub-coded by internal processes, service opportunities in Ravilaakso and challenges in the service providing. The benchmark cases themselves were subcategorised by activities that are offered by the living lab, that were introduced in the benchmark chapter.

”The services that are offered in the Ravilaakso area all have a target to build up a neighbourhood where community, lively city and services that are close by are the main building blocks for the area.” (Interviewee 7. 2018).

Internal processes

The City of Vaasa’s target is to find a process and a model on how to create the network and act as the enabler or the facilitator. This process can be copied to any other city development project or new area that is built. It is necessary to have a clear internal process for the network to operate together, because of all the stakeholders; different departments in the public sector, the third sector and entrepreneurs all need to be engaged, and their cooperation should be increased.

The city has discussed internally about the expectations and needs of different units inside the city and for example the Disability Unit of City of Vaasa will join the Ravilaakso area.There are still quite many silos in the city, where the different units and departments are still discussing the need for other projects and improvements, but step by step the internal processes are improving. The cooperation between the planning and the real estate/plot unit from the early stage of the project is a new way of working within the City. It is also quite a novelty for the city to be active by bringing the public and third sector needs to the negotiations with the construction company and the foundation. It is important that the stakeholdes form an active network, to gain the advantages of working together to achieve

the common goals. The private sector companies are more difficult, since there is more competition among the companies, so they won't necessarily share their business ideas with each other.

”We want to be actively involved in the creation process, while normally it is left to the construction company's own control when the city has just said that there should be 500 square meters of commercial space and that's it.. We want to be actively involved, because if we don't believe in this or have the knowledge, this won't work.” (Interviewee 7. 2018).

Potential services in the area

There is a lot of potential services and service ideas that emerged from the interviews. Especially services that are flexible, movable from one space to another and serving as many actors and stakeholders as possible and for the common good, are valued. People always need a space in which to gather, some sports activities, healthcare services, daycare, restaurants and cafeterias, all of which are the basic ones. The customer point of view is the most valued aspect and there should be only those type of services and actions operating in the area that are needed by the customers.

”The service should be offered where the customers are. On the other hand, it does not need to be attached to one certain space, but the service itself is movable and flexible to meet the customer where they are (at home etc.).” (Interviewee 6. 2018).

Vamia can offer different types of services in the health- and wellbeing sector through their students. The services could work through a service point system or in a way that the students visit people's homes. There are students in areas of; beautician services, pedicure, healthcare services, hairdressers, massage services and restaurant services, cleaning services, housekeeping and senior services. When it comes to the energy solutions in the area, the benchmark area in Gothenburg, related to IRIS project in EU level, has many interesting solutions that could be consideed as potential options for Ravilaakso as well. This area with it's non-car policy, providing energy by self-sufficiency with the help of solar panels, electric car battery storage system, bike repair service, shared bikes and facilities has many good elements that can be implemented in Vaasa as well.

”We want to bring those activities close to people that we think are the imporant ones. Bike and motorcycle repair service for example should be easy enough for people to access, but these kinds of services never find their way to these places because the available spaces in the area are avaible in the area are not in line with their needs. This is the reason we want to be active.” (Interviewee 7. 2018).

The Settlement Association has offered house- & gardening services that would be conducted by long-term unemployed people. There could be a community kitchen, which would serve different types of actors and activities, such as immigrants' activities or mother-child club activities. Services for the elderly such as housekeeping, grocery shopping, aiding daily outdoor exercise or offering plain company are important. People with international backgrounds moving to Vaasa are more used to new and innovative services, and this can create need for instance for a dog walking services, grocery shopping services, delivery services etc.

A functioning and flexible public transportation was a key issue in the interviews. Easy access to healthcare services, the hospital, to the city center and to sports activities are essential for the inhabitants in the area but also the citizens around Vaasa, since the area will be needing visitors from other parts of the city to use the area's services. The temporary usage of the area, during the costruction phase, would increase the interest towards the area. There could be pop-up activities and restaurants, some games during summer and perhaps a special happening during Christmas time, or some eco-friendly event, open air festivals, pop-up gardening occasions and others, as many as possible.

Challenges in service providing

The key challenge is that the area is empty, so it is impossible for the actors to visualize what the area and its structure will look like in the coming years. The area is going to be a construction site for a very long time, which is why it is hard to engage the actors/service providers to the area, since many entrepreneurs will come to the area only after it is completed, along with the customers. Therefore, the city is needed in covering some of the risks and for renting the spaces to different actors. One option is to have a transition period of 10 to 15 years, after which the foundation can reclaim the city's shares of the property. Testing and piloting some of the service concepts in the area would help the actors visualising what type of services will be needed in the area within the next 2-5 years.

As a summary from the interviews, all interviewees were grateful for being asked to participate to the development work from the beginning. The main discovery from the interviews was that many stakeholders are interested in the Ravilaakso area, but they are hesitant to engage any resources or start any operative actions before there are any buildings or activity in the area. There is a need for concrete plans and concrete projects to involve themselves in. One key insight was that even though these interviewees had been discussing with the city representatives about the Ravilaakso project during the past years, the link between them is missing as they have not yet met other stakeholders to find synergies from the network. The co-creative workshop was organized due to this reasin and it will be analysed in the next chapter.

4.3 Analysis of the co-creative workshop

In the next chapter, the co-creative workshop is analysed. As the workshop structure was presented in figure 11, the participants created the futures vision for year 2035, mapped out the possible challenges on the journey there, the possible solution ideation and built a roadmap for tasks to achieve the wanted vision of year 2035. The nine (9) main themes related to the vision 2035, that arose from the first task are collected in the following table (see table 5).

Table 5. Themes of future vision 2035

Theme	**Content**
Wellbeing & Sports	Wellbeing services, green sports areas, sport facilities and opportunities that are easy to access.
Transportation	Electric busses and cars, shuttle bus by using the technology, communal cars, city bikes, enough pedestrian roads
Common spaces	Market place to buy local services and products, which can be the new meeting point for the whole Hietalahti area. The public/community spaces should be attractive, easy to access and actively used for people to meet each other, like a common living room. The financing can be done through the maintenance charge, percentage principle or usage fee. The accommodations should be easily modified with minimum amount of private spaces, since all the activities happen in common hobbyroooms etc.
Citizens and participation	Citizens and consumers should be thought as ”Prosumers” (Producer + Consumer), where they have an active role in the service production and consuming them. For engaging and participating citizens/inhabitants there could be resident evenings, neighbourhood panel, volunteer work available, communal services available for the residents; daycare services for children, dog walking service, service for elderly people.
Culture	Culture, arts and crafts are done over generations and there are natural encounters between the residents.
Recycling	Garbage recycling that is made easy, hazardous waste disposal service, goods repair service.
Food	A food court, local pub, restaurants that use local ingredients and are reasonably priced, home delivery service for groceries, communal kitchen for the whole area, self-grown and planted food, local food from the local farmers.
Companies	A company hotel, new workplaces generated around the communal services, people establishing own little shops, co-working space available for all entrepreneurs.
Digitalization	The digital services, different digital plaforms and new technological solutions should be used in the area to help the residents Services can be ordered only when needed, there is a possibility to order help for everyday living, services are delivered via the internet. The common spaces are used and reserved through smart technology solutions.

Many of the themes consisted of the aspect of communality, helping the citizens in everyday life through a sustainable way using the modern technology that is currently available and in the future. The participants of the co-creative workshop consisted of third sector operators between 30-60-year olds. Therefore, it is vital to remember that if the future vision of 2035 is

created, also the young generation should also be included in the co-creation and ideation sessions, since they have needs and values differing from the age group above.

In the next phase the groups gathered some challenges related in reaching the future vision and what may be the challenges on the journey there. The challenges were clustered together and two of the topics that had most sub-challenges were selected for the next phase. These two topics created the basis for the roadmapa from this current moment towards the vision 2035. The first theme was *"improving the whole process or ways of working in the project"*. Under this topic the challenges were related to the big picture of the whole construction process. These were for example, the target is unclear for the stakeholders, time pressure is high, actors and stakeholders are not ready for agile testing or new working methods, there is lack of trust towards the process. The other theme was "*citizens / residents' perspective"*. The challenge under this topic was the population structure in Vaasa, that relates to not having enough of innovative and enthusiast citizens who would want to co-create for better urban living. The finnish culture was seen as a challenge, when co-creation and new ways of cooperating with other people are not that common, and multiculturality was seen both as a challenge and as an opportunity. Finding the right stakeholders to be involved, having equal services offered for the citizens, having enough workplaces in the area and making sure that the spaces and the urban neighbourhood would be used by the residents in a communal manner were topics that sparked discussion.

When the roadmaps were created, the first group emphasized that benchmark cases should be used when developing the area. The municipal economical criterion should be visible for all the participants, setting the measurement system, and the needs and targets for the area were seen as being critical in the beginning. The objective for the area was seen as unclear and therefore it is important to set the goals and build a scorecard or a measurement system to measure the project development continuously. The area is not planned only for the next 15 years, but for the coming decades, which is why the life-cycle of the area should be considered in every step of the process. The group underlined the importance of having high enough quality ideas about the development of the area. In order to reach the high quality of ideas, there needs to be high quantity of ideas, that can be gained by having a culture of trust among the stakeholders, and within the network. Local knowledge, political commitment and vision and strategy are also vital in the beginning of the process. The group highlighted courage, dividing the risks, the possibility to change, cooperation between stakeholders, actions that support the communality, the flexibility of the processes, daring to demand, continuous assesment and enabling agile testing and piloting. In the last steps of the roadmap there were hands-on processing, diversity of the area and maintenance, benchmarking and estimating the financials. The whole area should be planned and developed as an entity simultaneuosly to understand the needs and possibilities for the whole area, not only from quarter to another.

The other group emphasized that the entire life-cycle and the citizens should be the core aspects when the area is developed. The branding should be done in a way that people, citizens and stakeholders will acquire an interest in it. The area itself is a bit aside from the city center, and since the area is still empty, it is hard to visualize how the living will be like in the area. Some people feel that by being a new urban neighborhood, there will be only expensive appartments available. The group also discussed about the persentage principle and how it needs to be solved, and how to encourage the communality in the area and empower the third sector to take an active role in the area. The group discussed and pointed out how residents' wellbeing increases by having e.g. gardens, green areas, animals, cultural possibilities and agile experiments in the area. Flexibility of the area, the spaces, their layout and the residences are important from life-cycle point of view. The area needs also a Quarter Coach or an operator that oversees the actions in the area as well as engages the residents and actors to participate and co-create in the area. When the area is constructed, there can be a Quarter's Club, different type of hobby clubs and communal art possibilities.

As a summary, the life-cycle aspect is important when planning and developing the area and its' services. All age groups, the residents and other stakeholders should be participated in co-creation of services and solutions in the next phase. Flexibility of spaces, the area and the residences are also related to life-cycle aspect, when designing for the coming decades. Communality of the area was emphasized and the need for a quarter coach or a community manager to facilitate and guide the activities. The tasks of a quarter coach / a community manager could later be transferred to the group of volunteers working to enhance the communality activities in the area. Skilled and future-oriented staff that is willing to renew is needed in the area and creating a culture that encourages people to experiment and trust each other. The political commitment and engaging different stakeholders to the project should be solved. By involving various stakeholders in the planning and co-creating the solutions, mutual trust and engagement can be achieved. The living lab concept and the thematic projects creates the opportunities for the stakeholders to form a network, co-create and develop the area together.

4.4 Creating the Living Lab concept

In this chapter, the living lab concept is created for the City of Vaasa. As stated in Leminen et al.´s research (2012), there needs to be four types of stakeholders providing their resources and acting in the living lab for it to succeed. These are; 1) enablers 2) providers 3) utilizers and 4) users of the living lab. The living lab concept is formulated through the ARA model by creating a concept for the Ravilaakso area by analysing the resources and activities each actor can bring and provide within the living lab. See figure 13 for the living lab concept for Ravilaakso.

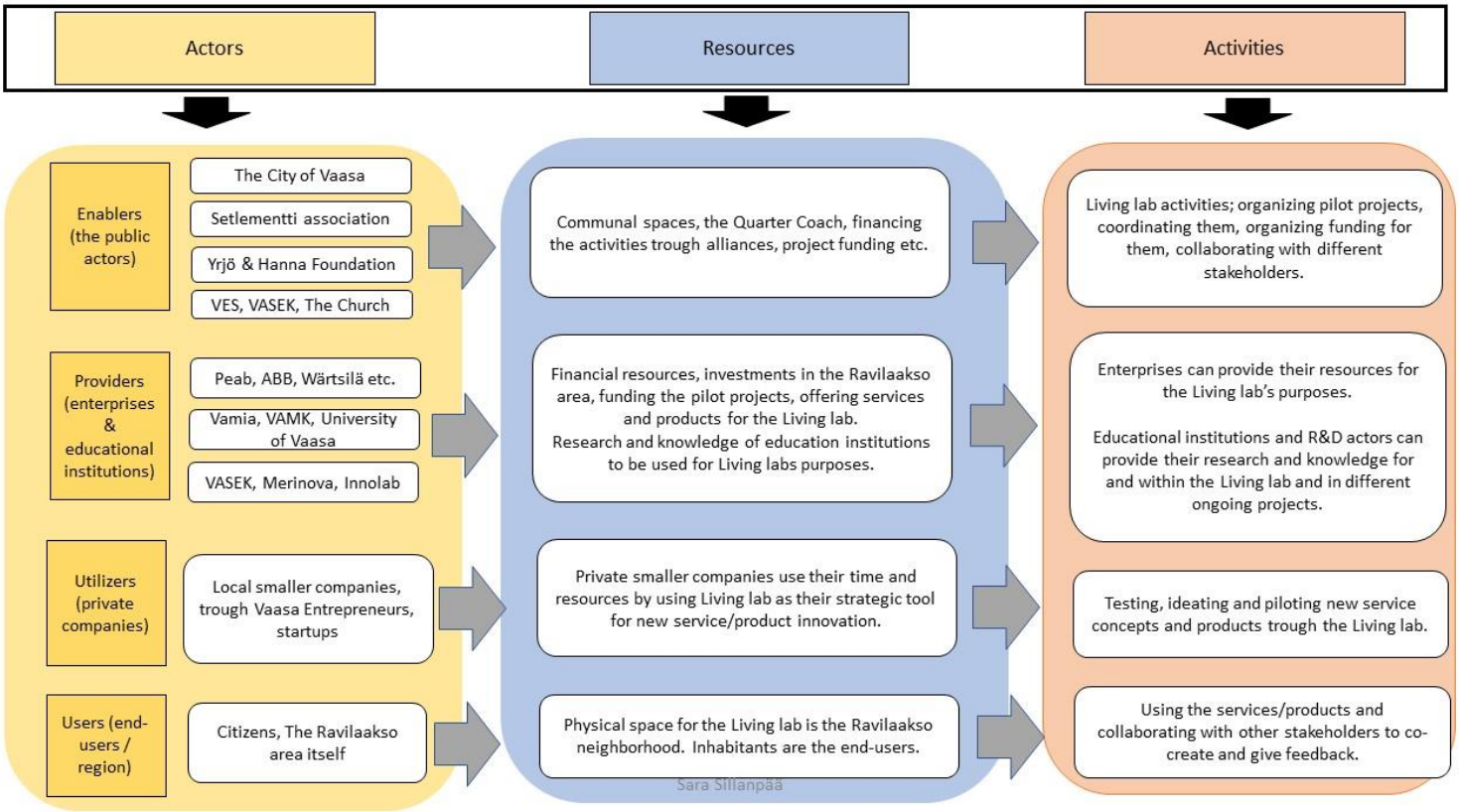

Figure 13. The living lab concept for the City of Vaasa

The concept is further explained horizontally through each type of actor, the resources and activities they can provide for the living lab.

Enablers (the public actors)

Usually the enablers are the actors operating in the public sector. The city is usually quite a natural enabler with its networks and with the goal of overall development of the city, like the one as in Oma Tesoma and Smart City in Tampere. In some cases, the enabler can be the local university together with the city, or a non-governmental agency/innovation company, such as Forum Virium Helsinki operating as an enabler in Smart Kalasatama together with the

city. In Vaasa, in addition to the City of Vaasa, the enablers can be Yrjö & Hanna Foundation, the church, the Settlement Association, Vasek and VES.

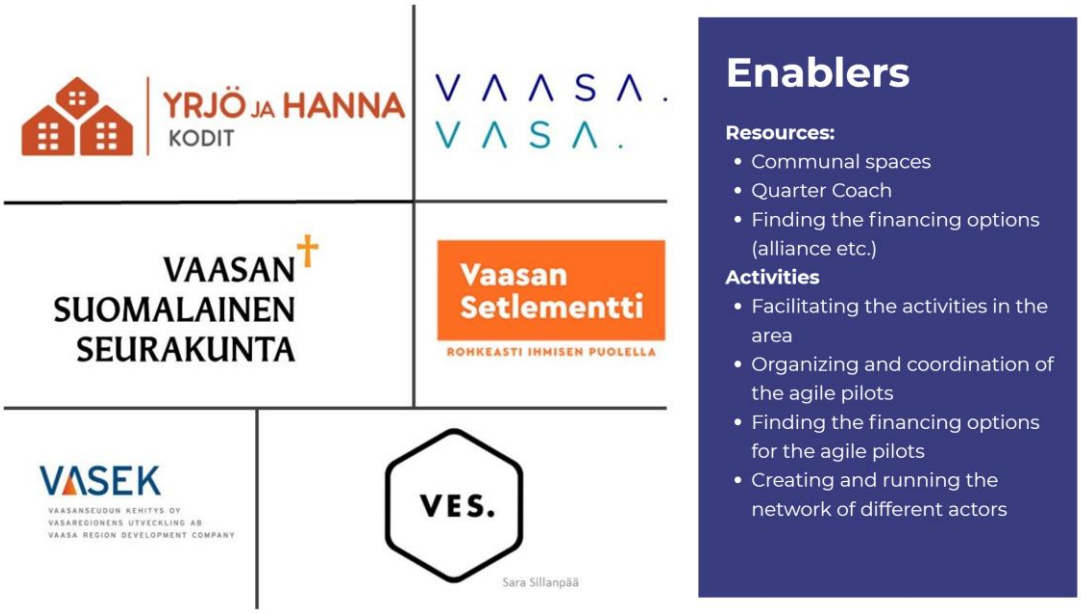

Figure 14. Enablers of the living lab

The enablers can provide communal spaces and the facilities, such as in Smart Kalasatama, where there was a temporary lab close to Kalasatama before the Urban Lab was opened in the fall of 2018. The enabler also provides the quarter coach or a similarly dedicated person or community manager who will be taking charge of the projects in the living lab. The enabler finds the funding options for the living lab, by researching financial options and formulating alliances, finding cooperation partners etc. Different foundations operating in Finland, such as Business Finland, Regional Development Fund, Ministry of Employment and Economy and other foundations acting in Europe should be contacted in order to receive funding for the projects in the living lab.

As learned from the benchmark cases, Oma Tesoma, Smart City Tampere and Smart Kalasatama, the living lab is based on agile pilots, that are conducted with different stakeholders from private, public and third sector. The citizens are participated in different ways in certain stages of the project. The living lab needs a dedicated enabler who oversees the planning, facilitating and operating of the different theme projects. The enabler also builds the network of stakeholders, consisting of public-, private-, third sector and the citizens, who have dedicated expertize in different fields related to the projects.

Providers (enterprises and educational institutions)

The providers are big enterprises, who act locally, but may also have national or global resources. In Ravilaakso living lab concept, these enterprises can be for example ABB, Wärtsilä, Peab and Vaasan sähkö, which are all big companies in Vaasa region. Providers are also the educational institutes who provide their knowledge and research resources, also certain institutions that promote the innovation and development activities of the region are providers for the living lab. The innovation insitutions in Vaasa are for example Merinova, Innolab of University of Vaasa, and the Vaasa Region Development company (Vasek). The educational institutes are University of Vaasa, Vamia, Vamk (Vaasa university of applied sciences), Hanken and Åbo Akademi.

Figure 15. Providers of the living lab

The enterprises can offer financial resources and agile pilots and rapid experiments in the area. The enterprises can also provide their services and products for the living lab's usage in different projects. When it comes to the educational and innovation institutions, their expertise, knowledge and research resources can be used in the living lab's projects and agile pilots. As discussed with the interviewees, there is a need for local investors in the Ravilaakso, to start the living lab activities and these enterprises is the main target group to be involved in the living lab to start the activities in the area.

The providers' activities focus in providing their resources for the living lab in forms of services, products and expertise and research activities. In return, the providers will receive visibility for their solutions from the showroom, they get new partners through the projects and

they will also an the opportunity to develop their own solutions. The educational institutions have a lot of research projects in progress, which will provide the access to the global academic research network. This research network can offer cases for benchmarking other living labs or innovation platforms operating around the world. The educational institutions can promote their scientific research and get closer to the business life.

Utilizers (small or bigger local companies)

The utilizers of the living labs are usually small local companies. In Vaasa though, the bigger companies can be clustered into utilizers and providers at the same time. These are Wärtsilä, ABB and Vaasan sähkö, but also Wapice as a local technology partner is an interesting utilizer of the living lab. The smaller local companies and start-ups can be contacted through Vaasa entrepreneurs, to find a suitable utilizer for each project with a specific theme.

Figure 16. Utilizers of the living lab

The private smaller companies use their time and internal human resources to pilot, co-create and test their services and products in the living lab, aiming at using the living lab as their strategic tool for innovation. The companies and start-ups utilizing the living lab have an active role in different projects. As learned from the Smart Kalastama case, the smaller utilizer companies and start-ups may receive project funding for 4-6 moths. The projects are usually fast agile pilots among 4-5 companies, such as in OmaTesoma (2018). The companies will be motivated to be active in the project when they receive a small project funding and they can test their service or product concept in practical business life situations.

Users (citizens and the area itself)

Citizens and the Ravilaakso area itself have a major role in the living lab. The services need to be co-created with the citizens in order to the living lab function properly. In the first stage, there can be citizens of Hietalahti involved in the pilot projects, since there are no inhabitants in the area. The Ravilaakso area itself is the physical living lab and the surrounding residential areas, such as the Hietalahti area.

THE CITIZENS

Users

Resources:

- Ravilaakso area is the physical Living lab and the surrounding residential areas
- Residents of Ravilaakso and other citizens are end users of the Living lab

Activities:

- End-users participate in the design, use and development of services and products in collaboration with other stakeholders
- Residents and citizens play an active role in cooperation with other stakeholders, not only by giving feedback
- Marketing and branding in the area to attract future customers
- Usage of modern communication methods to engage the residents

Figure 17. Users of the living lab

The area needs residents and citizens who are willing to participate in co-creative planning of the urban neighbourhood so that the end-user's values are considered. Through co-creation, the residents will be engaged in the district. The end-users are participated to the design, usage and development of the products and services in the area in collaboration with other stakeholders, as an equivalent actor group in the network. As learned earlier, the City of Vaasa is in stage 2. when it comes engagement of the citizens, according to the EU IRIS project (2018). Therefore, the city should reach the next stage by developing their methods of engaging the citizens, by using modern communication channels and by focusing on branding the area to attract the future residents and customers.

As a summary, all the actor groups are vital for the living lab's success. Even though the living lab concept focuses in the local actors and stakeholders, the actors may also be some non-local stakeholders operating in the area. The importancy of various types of actors in the living lab needs to be focused in. The actor roles change over time and they are determined by the thematic projects that take place at certain time.

4.5 Pilot testing the Living lab concept

Testing the living lab concept was done by presenting the concept for the same steering group representatives, who have been the main contact persons from the City of Vaasa during the project. The concept (see figure 13) was introduced to the three participants and they were requested for feedback and suggestions for improvement.

The questions that rose from the feedback discussions were as follows;

- When it comes to service creation, what is done differently in a living lab compared to an ordinary service creation process and how is it better?
- How is the urban planning process connected to living lab? And how does the urban planning effect on the living lab? Hoq the rapid experiments and pilot projects affect the urban development, when they are done in the early phase of the process?
- Where and when does the living lab start from? What type of pilot projects will be run in the area? What is the first and the best project to start the living lab activities? How many and what type of workshops need to be organized in each pilot project? Who are involved, what resources and activities are needed in this type of a pilot project?

The main *benefit* for the living lab concept is to create a visibility of the process, and actions among different participants. Creating a concept to engage different stakeholders and the citizens is beneficial for the whole city development. The main **challenge** is to change the internal ways of working in order to act as the living lab requires, e.g. by co-operating, co-creating and engaging the stakeholders. Despite of the change resistance, as this can be overcome with time and by connecting the living labs' methods of working with the city strategy. The lack of resources (financial, human, time) is a significant challenge, as is the political lead, which should be involved in the development process.

Concretization was the main issue discussed in the feedback session. The city representatives wished for amore concrete plan with simple steps to follow to start the living lab operations. The city wishes for a guidebook on how, what, when and who does what in the living lab. This concrete plan can involve for example guidelines on what type of workshops should be included in the projects, and a facilitator's guidebook about how to run them. The concept can be concretisized by building a simple roadmap/guidebook, of which there are many benchmark cases already available online from other Finnish cities, e.g. #MakeitwithEspoo (2018) as a good example. The living labs are multidimensional laboratories, which have aims, activities, participants and a context (Steen & van Bueren 2017). By taking the living lab concept to a concrete level, pilot projects, which are based on certain themes, are needed. Living labbing takes place through small scale pilot projects.

The city needs to decide on which these concrete pilot projects are that are linked to the city strategy and have a thematic approach. The themes of the pilot projects should be aligned with the city development plan, so that the projects will focus on striving for the best outcomes to support the city development. A concrete example is a to focus on how to improve the public transportation in Vaasa and establish a smart mobility project. The outcome of the project will evidently affect the Ravilaakso area as well.

The discussion also focused on the **actor roles** and responsibilities and how they develop over time in the living lab. The city requested for a guidance in what does each actor do in each stage of the process. The city is the enabler in the beginning when starting the living lab activities, but who will take the responsibility after this? In the long run, the enabler actor role should swift from the city to the neighborhood association and democracy should be used within the Ravilaakso area. The question is that is the enabler always the same stakeholder or can it change from project to another? The city representatives also requested some guidelines for the communication plan, e.g. how to interact with different stakeholders at each stage. The interest level towards the Ravilaakso area is high, but marketing and branding the area for companies, third party stakeholders and the citizens could be improved to get the stakeholders involved in co-creative actions in the living lab.

Currently the City of Vaasa officials work on many projects simultaneously. They have their own development department, which is handling all the project funding tasks locally, on national level and on EU-level. The problem with this model is that in living labs the funding is usually raised from different places, e.g. from investors, from EU funds and from companies and start-ups. Instead of the city officials, in other cities, for example in Oulu, Tampere and Helsinki, the project teams of the living labs consists of experts from different fields that work for the living lab during certain period of time.The group can consist of people from different expertise areas, such as from the education sector, areal development sector and from the city. When a specific project group oversees the budgeting, planning, setting targets and organizing the project, it creates flexilibity and agility for the project.

Incentives for the different actors to participate in the living lab operations should be considered carefully. The main target is to involve the stakeholders and engage them in the development work. The living lab concept introduces the model for local companies to test their products and services in the area and use the living lab as their strategic tool to validate and pilot test their ideas. This is one incentive for the living lab utilizers. When it comes to the inhabitants or the end-users, their incentive is to be the forerunners to test and co-create new ideas and solutions, that will help their daily lives. The incentive for the city as an enabler/facilitator is that the ideas, solutions and services that will be created in the area will more likely to last over time, have a direct impact on the wellbeing of the inhabitants and they will be more cost-effective when the whole process is done in a sustainable manner. The

go-to market time and the overall costs will be lower than in ordinary city development projects.

As a summary from the pilot testing of the living lab concept, the main things that should be focused are; finding the concrete pilot projects to start the living lab activities, consider the different actor roles and how they evolve over time within different projects inside the living lab, what incentives there may be for different stakeholders, what type of a project steering group is the best for this living lab and finally, creating a guideline or a roadmap with concrete steps for the city to help them get started with the living lab activities.

5 Conclusions and discussion

The final chapter summarizes the development project and includes the assessment of the process and results of the development project. In this chapter, the concrete recommendations are presented, and how the results can be wider applied outside the target of this thesis. In addition, the further research opportunities for further research are presented.

5.1 Summary

The purpose of this thesis was to explore how a living lab concept can be designed for City of Vaasa, a city that has less resources compared to other big cities in Finland, where the co-creative way of working is also quite a new form for operating. The purpose was to explore what type of actors, resources and activities are needed for the living lab. The opportunity for the living lab concept was studied on a concept level from the perspective of the stakeholder's knowledge and internal resources.

The objective was to design a living lab concept that would support building the network of actors and the engagement and participation of different stakeholders to the urban development of the Ravilaakso area in Vaasa. The objective was to design a living lab concept, that can further be developed and used in the upcoming city development projects in the future.

The stakeholders of this living lab concept are the actors in different actor groups, public, private, and the people partnerships (4P's). In this thesis, only the public and third sector operators participated in this first stage of developing the stakeholder network and the living lab concept. The aim is to create longlasting sustainable services for the area.

The living lab concept was designed based on benchmark cases, the stakeholder interviews and a co-creative workshop by following the Double Diamond design process. The starting point of the development work was to get familiarize with the current development status of the Ravilaakso area, the City of Vaasa's ways of working and the benchmark cases of other living labs in Finland. The theoretical building blocks consisted of the open innovation, living labs and the ARA model. The common sphere for the theoretical building blocks is creating a

network that is tied together by shared values and mutual trust, which are important for any successful innovation, living lab or ARA network. All theories introduced in the second chapter aim to building a network, co-creation, innovation, reaching sustainable services, products and innovation outcomes. The empirical part of the study focused on design thinking and service design process as research approaches. The living lab concept was designed based on the theoretical building blocks as well as the benchmark cases, interviews and the co-creative workshop.

To reach the objectives of the thesis, the following research questions were asked;

1. What are the main elements to consider when designing a Living Lab concept?
2. What kind of Living Lab concept would be the most suitable one for the city purposes with scarce resources?

To answer the first research question, "What are the main elements to consider when designing a Living Lab concept?", the theories behind living labs and the ARA model were examined and the benchmark cases were studied in order to understand the concept of living labs. The theoretical background indicates how living labs are multidimensional, user-centred, open innovation ecosystems based on systematic user co-creation approach, integrating research and innovation processes in real life communities and settings (Enoll 2018). The main elements for a successful living lab are; aims, activities, participants and context. (Steen & van Bueren 2017.) By being multidimensional, the stakeholders should represent different actor groups from public-private-people-partnerships (4P's), consisting of private companies, public agencies, universities and users who are collaborating in order to create, prototype, validate and test new solutions, services, technologies, products and systems (Westerlund & Leminen 2011). As learned from the benchmark cases, Smart Kalasatama, Oma Tesoma and Smart Tampere, all the living labs have multiple stakeholders involved in the innovation process within the living labs and they aim to develop the urban area and its services by combining the resources, activities and knowledge from different sources.

The actors involved in the living lab and the network they formulate together is important. The resources, meaning the financial, human and physical resources in the living labs are also vital, as well as the activities, meaning the services that the living lab offers for its actors and end-users (Steen & van Beuren 2017). Therefore, the Actors-Resources-Activities (ARA) model creates a solid foundation for the living lab, since the model suggests that each affect and is affected by resources, pattern of activities and the network of actors in the wider network (Håkansson et al. 2009, 33). Each new actor, resource or activity and new relationship emerge from something that already exists and for the network to be successfull, the activities, the resources and the actors should always aim for building the common good and reaching the mutual goals. (Håkansson et al. 2009, 41.)

To answer the second research question, “What kind of Living Lab concept would be the most suitable one for the city purposes with scarce resources?”, the theories behind open- and public innovations as well as the theory of the living labs through the lens of actor roles of the city in a living lab, were studied. On top of this, the phenomena of urban living and developing the cities were studied through the benchmark cases and by interviewing the city representatives to understand the current status of the development processes and internal procedures of the City of Vaasa.

As learned from the theory, open innovation enhances collaboration with stakeholders and innovation is nowadays seen as ecosystem centric, that happens in cross-organizational level through innovation networks. (Curley & Salmelin 2013, 3.) The participants of open innovation ecosystem need to create synergies with each other, which requires high level of trust and shared resources and vision among the actors (Curley 2016, 316). Public sectors’ role is to create the best possible conditions for open innovation, by offering the framework for the innovations as well as procuring innovative products and sharing the research and developent risks. (Curley & Salmelin 2013, 3.) The cities have an important role in managing the relationships between different actor groups (Raunio et al. 2016b, 5), and creating the environment for rapid testing, co-creation and participating different actors as tools for innovation. Because the public sector usually has scarce human and financial resources, the regulatory requirements are high, the culture is often risk-averse and the decision-making process is quite time-consuming (Venturini & Verabo 2017, 1337) the collaboration with private companies can help to overcome the cultural limits for innovation and increase the efficiency of service delivery and the quality of public services.

When it comes to the different roles in living labs, the enabler-driven living lab (Leminen et al. 2012, 9) is the most suitable one for the City of Vaasa purposes, because it enhances the development of the city or a special region, such as the Ravilaakso area. It is vital to organize agile experiments and innovation competitions within the living lab, which indicates the city being a catalyst, when the main aim is to boost the business ecosystem in the area and the city’s service production process becomes a development platform (Leminen et al. 2017, 27). By creating a lively urban neighbourhood and targeting to create easy access services in the area, the city acts as a provider, since in this model the entire city is seen as an innovation platform and the improvements are done for the city’s own services (Leminen et al. 2017, 26). All of the benchmarked living labs highlight the importance of agile experiments and small pilot projects which should be targeted for certain projects which are supporting the city’s strategy and main development areas.

5.2 Reflection of the development process

The development process towards the living lab concept started by discussions with the city representatives about the current way of working in the city in the urban planning department. The topics that were discussed, were the aims and the pain points in the city's current plannig process, something that service design and a living lab concept could help the city with. From the city planning perspective, the challenge was to find a business or a funding model to design and implement communal spaces to the residential houses. From the service design and living lab perspective, the challenge was to engage the stakeholders to the development work to design sustainable and longlasting services in the Ravilaakso area.

The terminology that was used along the process included discussions with the city representatives about "development project", "living lab", "living lab concept", "agile piloting and pilot projects". The researcher should have been clearer on the fact that the result of the thesis is a living lab concept. The city representatives were in the impression that the agile pilots and thematic projects are called as living labs, although the research suggests that the whole area of Ravilaakso is the living lab, where the agile pilot projects will take place.

The recruitment plan for the interviews were made by the city representatives based on their previous discussions and ideation with certain actors that had expressed their interest towards the Ravilaakso area and towards the Rio wellbeing quarter. The interviewees represented mostly third sector actors or NGO's, in addition the construction company that was also interviewed. The interviewees were interested in participating in the interviews, and expressed their gratefulness on being asked for opinions, needs and values already in the planning phase of the development process, rather than in the end when the area is completely constructed and ready. The researcher was working as an outside researcher for the project, which may have been confusing for the stakeholders that were interviewed. It took extra time for the researcher to understand the context of the development project and to understand the urban planning process and the terminology related to the field. The researcher was acting as an expert of the field of living labs, with only few months' background in studying the literature, studying the benchmark cases and having discussions with different experts in the field. This may have caused some misunderstandings and difficulty in communication with the city representatives and the researcher. The researcher also thought that her being an outsider in the project, the stakeholders may have felt uncomfortable on sharing all their thoughts, and therefore some of the interviews may have lacked the deeper insights of the interviewees. In order to reach a deeper understanding on the interviewees' thoughts, the method of "5 times Why?" (Kananen 2013, 70) could have been used.

When the co-creative workshop was organized, a wider scope of participants was invited to the workshop than the amount who attended in the end. There were all together nine at-

tendees from 23 invited. All the participants represented third sector, and most of the stakeholders met each other and the researcher for the first time at the workshop. The construction company and the foundation would have been also important stakeholders to participate to the workshop, because in the first stage they have quite a big role in the project. The attendees were sent an invitation for the workshop through Google Forms online form with the title of "Ravilaakso Service Design Workshop", and the content of the invitation stated that the purpose of the workshop was to find operating models that can be used to develop, finance, implement and use new premises intelligently and cost-effectly in Ravilaakso area. The purpose for the researcher though was to engage the different stakeholders, since they had not met each other before.

The outcome of the workshop consisted of what type of needs and wishes there are for the area and what sort of services there should be for the requirements of an urban neighbourhood to be met. The topics that arose from the workshop and from the interviews were in line with each other. The city would have wanted to have concrete solutions on how to finance the services, the communal spaces and the innovative ideas for the area, but these concrete steps were lacking in the roadmaps. The city was pleased though to use an outside facilitator to coordinate and facilitate the workshop, since it was vital to have a facilitator to manage the structure and timeframe when working. When the facilitator represents the organization that is in charge of the project, the session may easily turn into a lecture, where the experts share their knowledge and insights on the topic and the participants only listen. This working method is not that fruitful when there is a need to engage the participants.

In the co-creative workshop, a design game could have been one option to share the thoughts and open the discussion between different stakeholders. As Hakio & Mattelmäki (2011, 477) conclude, the design games and their physical artefacts give a good basis for cooperation and communication, especially where the tangible game-material gives space for natural conversation and participants are equally given the possibility to share their expertise and opinions. Design game helps to create shared understanding and documented conversation. New ways to collaborate and to co-operate such as these give space for new ideas and thinking out-of the box, which is a very good way to facilitate cooperation between different stakeholders in the public sector. Some elements from design games, such as rules were applied in the co-creative workshop, since there were multiple stakeholders representing different hierarchical structures and the cultures of the organizations may differ (Hakio & Mattelmäki 2011, 479). Workshop participats were for example asked to write ideas on post-its silently by themselves rather than speaking out loud, which helped the quiet participants to participate during the workshop. The discussion easily started to ramble when the facilitator/researcher had to adjust to the timeline and the tasks that were planned to be conducted during the workshop session.

When the ”Yes, And” method (Stickdorn 2018, 418) was used, everybody had to wait their turn which also enhanced the equal participation, that Hakio & Mattelmäki (2011, 479) emphasise. This exercise should have been done only after the challenge mapping and when the groups started to ideate potential solutions for the problems. The ”Yes, And..” exercise would have shifted their thoughts away from the challenges and triggered the groups to build on to the potential solutions. The groups worked quite intesively with the challenges and they seemed to be stuck with them until the very end of the workshop. Therefore, the solutions and the tasks were not that concrete ones in the roadmaps. The expectations for the workshop were mostly covered and one of the participants stated that the workshop was the first step towards forming a desired joint design and project team, which is working towards shared goals in the Ravilaakso area.

The researcher learned that during the workshop there should have been another co-facilitator to keep the time and to introduce the phases and exercises, so that the main facilitator would have had enough time to listen, observe and guide the discussion. In that sense, the content of the workshop was left unclear for the researcher even though the roadmaps and the videos gave a good insight for the researcher of the content and outcomes.

Along with the invitation to the workshop, the attendees were asked for a permission for the researcher to use the workshop data, their names and pictures for scientific research purposes. The participants gave their permission when registrating to the workshop. Because the workshop lacked concrete plans and a business model on how to finance the communal spaces and facilities, the city requested the possibility to send a survey to the participants. The topics included; 1) functions and services 2) facilities – the need for facilities, how to finance them and possible costs 3) challenges – possible challenges in realizing facilities and evaluating their realism 4) synergy benefits – the possibility for sharing the facilities, services and operations with some other stakeholder. This survey was not part of the thesis research, but the results from this survey shows that the participants are not willing to invest in communal spaces or activities before there is activity in the area.

5.3 Recommendations for the city and transferability of the results

The recommendation is to develop the concept further, because even though the living lab concept is tested among the city representatives, it should also be evaluated in a real-life context among the stakeholders. Another workshop should be organized to get deeper insights and to have other stakeholder groups participate on top of the third sector actors, who are currently active in the project. The citizens’ participation in the co-creation and innovation work is very important, which can be done by contacting and inviting the residents from the Hietalahti area to participate to a joint workshop with a selected theme. Benchmarking other living labs in Finland and in Europe, that also operate with scarce resources and with less previous experience about agile pilots and co-creation, would also generate good ideas on how to

improve the concept and what opportunities and risks there may be on the concrete level when implementing the concept in real-life.

In the next phase, the living lab concept needs to be addressed on a concrete level and plan a roadmap for actions, what resources and actors are needed along the way. During this thesis project the first step towards formulating the network of actors has been taken by organizing a joint workshop between the stakeholders. In the next phase, the network of actors needs to be expanded to those stakeholder groups that are not yet contacted (private sector and citizens). The politicians are one big group of actors which needs to be engaged in the projects and lobbying within this group would be important.

Here is a short roadmap on how to proceed to a concrete level from the living lab concept:

1. Building a common vision and goal with the stakeholders

    - Even though there is a vision for the Ravilaakso area from the urban planning and the construction process side, the common vision and mutual goal needs to be formulated with the stakeholders as well. In Smart Kalasatama for example, the vision of the area was co-created through the participation of different stakeholders in multiple workshops. The vision of Smart Kalasatama is that smart services save one hour of citizen's time every day. When stakeholders participate and the vision is co-created, the actors are more engaged to the development work.

2. Deciding on the first main themes for the pilot projects

    - The city decides the first themes that are selected for the pilot projects. These themes should be related to the city strategy, as well as to the previously planned/developed themes that the city has been developing and ideating for the area. These themes can be e.g. smart mobility, smart energy or smart parking etc. The themes have to relate to the whole Ravilaakso area or Vaasa region, rather than only one quarter.

3. Formulating a project group for the pilot project

    - When the vision is clear, and the main themes are selected, the project group is gathered for each pilot project. Under each theme there can be several projects and agile pilots going on that aim to design, create and test different solutions. The project group consists of different living lab actors, based on the presented concept; enabler, providers, utilizers and users. There also needs to be a dedicated facilitator for the living lab to function.

4. Running the thematic projects and agile pilots

- When the project group is selected, the group should get to know each other by a joint workshop to get familiarized with the design challenge for the theme and engage themselves in the project. Each pilot project can last for 4-6 months for example as in Smart Kalasatama, and the enabler or the project group will be in charge of the facilitation, finding small scale funding for the project, or just offering the theme and innovation platform for the stakeholders to use.

5. Continuous communication

- The communication between the stakeholders, inside the network of actors as well as to outside partners is important. One important task for the enabler is to enhance the open communication related to the projects, because this will lead to a stronger cooperation and finding the right actors for the next pilot project will become much easier.

One of the local key players in Vaasa, Wärtsilä, is about to open a Smart Technology HUB for enhancing research, agile testing and co-creation in Vaasa by the end of 2020. They launched their Smart Partner Campus, which is a knowledge hub related to smart marine and smart energy solutions, during Vaasa Energy week in March 2019 (Wärtsilä Corporation 2019). This is a great initiative from the private sector to enhance the co-operation and enlarge the ecosystem between different actors to develop smart solutions in the area that will help the whole ecosystem and market. Is this ecosystem something that the City of Vaasa could be part of? When it comes to attracting new inhabitants to Vaasa region, the communication should be targeted all over Finland and to the Nordics to attract people by the career opportunities related to the Smart Energy field for example.

VES has also organized a couple of hackathons related to the areal development from a few different aspects. In 2018 they organized a hackathon with Energy Vaasa regarding the energy knowledge and possible battery factory of Tesla establishment in Vaasa. During the event they planned and ideated what changes it would bring for living and working possibilities as well as marketing the factory, how Vaasa should be prepared for this change, what possibilities it brings, what services it requires and how the city develops with the factory. During the Energy Week in Vaasa in March 2019, VES organized a Digitalization hackathon. These hackathons would be a great platform for the living lab projects to ideate, co-create and test ideas related to some agile pilot project.

When it comes to the transferability of the results, the concept itself is a starting point to for innovation and living lab operations in Vaasa region. In order to succeed, the living lab concept needs enough dedicated actors, resources and activities and a certain theme to start the “living labbing”. The concept also needs cultural changes, changes in mindsets of different

stakeholders, as well as in internal processes in order to enhance the co-operation and collaboration across the network of actors.

The living lab concept can be transferred to also other surrounding municipalities around Vaasa, such as Mustasaari, Seinäjoki and Kokkola, to reach economies of scale when combining the resources from surrounding municipalities. More over, the livng lab concept can be used in different service areas that the City of Vaasa is offering, such as culture, healthcare- and social services, employement services or public transportation services, The concept can be used in other development and innovation projects outside the urban development projects by City of Vaasa. For example, it would be interesting to test the living lab concept in the private sector, so that the thematic project would be led by a business operator.

5.4 Further research opportunities

There is a lot of future research opportunities in the field of living labs and how to implement the concept in the Vaasa region. Further research worth exploring would be on how to concretisize and implement the living lab concept in real-life. How agile piloting could be implemented in Ravilaakso and in Vaasa needs further research.

It would be interesting to explore what kind of similarities or differences there is in traditional urban planning process compared to Service design process or operating by the model of a living lab. Also creating a measurement scale for each process would be interesting to better compare the results.

The living lab concept and agile piloting also needs flexibility and an innovative mindset from the enabler and from all the stakeholders. Another interesting research path would be to study the internal culture and hiearchy inside the city, between policy makers, politicians and local actors in Ostrobothnia area. As learned from the interviews, there are a lot of entrepreneurs in Ostrobotnia region with the mindset of “let’s do this”, but they act quite hesitantly when it comes to the risks related to expanding their business. Therefore, the stakeholder group could be recruited also on a national or European level.

Another interesting future research topic would be choosing a similar kind of city that has approximately same quantity of inhabitants and resources available. Would there be some similarities when it comes to the challenges of the living lab and how to overcome them? The benchmark cases were from bigger cities, which is why conducting the research in a smaller city would give interesting insights to the topic.

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Figures

Tables

Appendices

Appendix 1. The interview questions

General questions:

1. Tell me a little bit about your organisation and your activities.
2. What are your priorities in your strategy?
3. What are your goals?
4. What is your vision and values?
5. Do you work independently or how much do you work with your parent organization / company nation wide in Finland?
6. Who are your stakeholders and partners?

Questions about the Ravilaakso area:

1. How did you get to know this Ravilaakso project?
2. What would you do in the area or in this Rio Wellbeing quarter?
3. What makes the area particularly interesting to you?
4. What is the potential in this area?
5. What kind of hopes do you have for the region and the activities, and for the different actors?
6. Are there any fears or threats in the area?
7. What are the cornerstones of your business, what should be considered? mm. facilities, resources, people, finances, etc.
8. What are that tasks that need to be done in order to achieve the goals in the area? ie. what is your own approach / process for similar projects?
9. How would you like to work? (what would be the easiest and most cost-effective way to participate in the region and its activities?)

Appendix 2. The workshop structure

<table>
<tr><td>Time</td><td>Dura-tion</td><td>Name</td><td>Description and Purpose</td></tr>
<tr><td>16:00</td><td>30 min</td><td>Preparations (Sara)</td><td>Tables and 5pcs of chairs / table putting close to the showroom. Setting the camera near the tables and placing the camera in shooting mode. Setting up the sound recorder. Post-its tables, pens and other accessories for tables. Placing a tape and flip chart on a blank wall.</td></tr>
<tr><td>16:30</td><td>10min</td><td>Getting started, goals and get-ting to know the workshop (Sara).</td><td>Workshop goal

1. Creating a shared vision for the future of the Ravilaakso (creating a vision for the future, through elements of the future, e.g. services, facilities, par-ticipation of (future) residents in planning the area and its services)
2. Ideal for services and solutions for the Ravilakso to achieve the desired vi-sion of the future.
3. Prepare a preliminary action plan (incl. Concrete Implementation Solu-tions & Operational Models for Services) to achieve the desired future in the area of services. (Make an action plan to develop, finance, implement, and use new premises intelligently and cost-effectively to create an area of vi-sion for the region's vision for the future.)
4. Creating conditions for versatile availability of facilities that can be uti-lized for different services and activities to achieve mutual synergy benefits.
5. Ideas on how to continue co-operation with the people who are interested in the area, and how to involve them in the future.
6. The goal is also to get to know each other and go together to develop ser-vices in the area.
7. (Possibly, if we will: Finding financial models: what kind of financing model will be used in the future, and what action is needed to get this fu-ture in this respect too.)

Workshop Rules:
1. No laptops, phones or tablets
2. Take photos of yourself
3. Let everyone turn to talk
4. Appreciate the thoughts and ideas of everyone, but it is a challenge
5. All feelings are allowed, open and fair to others
6. Have fun in the workshop and it is ok to laugh here!</td></tr>
<tr><td>16:40</td><td>10min</td><td>Cocktail party. Aiming to get to know each other & collect expectations.</td><td>Write your name, draw your energy source, and write your expectations for the evening. Talk to at least 3 people with whom you haven't talked to. Ac-cumulated in a semicircle and gathering your expectations quickly on a flip chart (Sara's book). Then divide into two groups, A and B.</td></tr>
<tr><td>16:50</td><td>5min</td><td>Let’s form two groups</td><td>
<table>
<tr><td>Schulte-Tigges Oliver (A)</td><td>Organizer</td><td></td><td>AA</td><td></td></tr>
<tr><td>Tuomo Klapuri</td><td>Church</td><td></td><td>A</td><td></td></tr>
<tr><td>Leena Nyqvist</td><td>City of Vaasa, Cultural services</td><td></td><td>A</td><td></td></tr>
<tr><td>Seppo Evwaraye</td><td>Vaasa Royals</td><td></td><td>A</td><td></td></tr>
<tr><td>Göran Östberg</td><td>Vasek</td><td></td><td>A</td><td></td></tr>
<tr><td>Onkalo Pertti (B)</td><td>Organizer</td><td></td><td>B</td><td></td></tr>
<tr><td>Maija Aarnio</td><td>Entrepreneurs in Vaasa</td><td></td><td>B</td><td></td></tr>
<tr><td>Mikko Paallysaho</td><td>Church</td><td></td><td>B</td><td></td></tr>
<tr><td>Leif Holmlund</td><td>City of Vaasa, Home and Institutional care</td><td></td><td>B</td><td></td></tr>
<tr><td>Mauritz Knuts</td><td>Vasek</td><td></td><td>B</td><td></td></tr>
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16:55	15 min	Presentation of a project in the Ravilaakso and Wellbeing District (Oliver & Pertti). The goal is to give an overview of what is happening now.	The Ravilaakso project status in short. Presentation of the actors involved in the project. Current project news and action plan of Vaasa City, Peab and Yrjö & Hanna Foundation. Target schedule.
17:10	10min	Figure out the future. Goal: A common goal for the vision of the future and how to get there together.	(To stimulate discussion and broaden perspectives, a brief discussion will take place on the ideas raised by the presentation if needed) Sara presents a double-diamond model of the Process Flow, as well as a method for perceiving the Backcasting. The goal is to understand that in order to create the future we want, the steps to get there need to be thought together. This will eventually result in a plan of action.
17:20	5min	"Yes, And". Goal: Reaching confidence + Idea and building on other ideas	Idea:" eg creating a restaurant / hairdresser in Ravilaakso," continues the sentence starting with "Yes, and…" and the next goes on with the sentence. Goal: Get as many ideas as possible, create a confidential discussion environment, and not underestimate the ideas of others.
17:25	10min	A. Sketching the Future Image (Vision 2035) Aim: To outline the future of our people?	Think: What do people eat, how do they move, what do they do? What kind of services do they use? What kind of facilities do they use? How can people in the future be involved in planning services? How are shared spaces used? How are they funded? The idea is how to continue the cooperation of the actors who build the region with the people who are interested in the area. Each one records the first thoughts of the future on the mail. One thought per piece. Now the ideas fly! Sara records a future image on flipchart. clustering if necessary.
17:35	25min	Problems / challenges / barriers. The goal is to understand what the challenges will be with during the journey to the Future.	What are the problems / challenges / obstacles to the future of red mail that prevent it from happening? 1.Think the thoughts about the wishful state of the theme (= problems with reaching the wish state) for red post it tags. Each participant writes their own thoughts on red leaves. The goal is to find a theme-related problem that should be solved in order to reach the wish state. 2. Find your own thoughts aloud to the rest of the group; 3.Sara groups similar problems together. 4. Every participant gives their voice to the most important problems, max 1 vote / idea Voices are marked with a pen on post it tags. (OR if we see obvious themes, choose the two) 5. Choosing the problem for further processing. The two themes with the highest number of votes are selected for deeper review. For example, for the Wellbeing quarter or the whole Ravilaakso area: a. Housing b. Getting Around c. Physical well-being d. Sociability / psyche e. Technology f. Eating + drinking g. Common spaces h. Financial Models

18:00	10min	Goal: to find possible solutions to problems	What would be the solutions to these problems? What could or should be done? What benefits do you find, what about the goals? 1.Thinking solutions and measures to the problem you selected for green mailing pages. All the ideas, group clerks make ideas for their own flip.
18:10	20min	Understanding the measures. Objective: To develop a preliminary action plan to achieve the desired future, in terms of services in the area.	What measures should be taken to ensure that the future is realized? How to involve residents in the planning of the area? What measures? How do we continue to work with the people in the region who are interested in building the area? What kind of funding model will be in use in the future and what action will be needed to do something? to the future?
18:30	15 min	Voting / sorting the best ideas	Vote for the most feasible aspects of the Action Plan, 3 votes / person.
18:45	15min	Group Presentation, Summary, and Feedback	Goal: To create a timeline, find actions, create a to-do list. The timeline is formed on the wall on two different flip papers.