A Private Sector Perspective on Enhancing Collaborative Innovation in Cities – Empirical Results from a Smart City Research Project

Kähäri, Jaakko

2017 Laurea

Laurea University of Applied Sciences

A Private Sector Perspective on Enhancing Collaborative Innovation in Cities – Empirical Results from a Smart City Research Project

Jaakko Kähäri
Degree Programme in Service Innovation and Design
Master's Thesis
October, 2017

Jaakko Kähäri

A Private Sector Perspective on Enhancing Collaborative Innovation in Cities – Empirical Results from a Smart City Research Project

Year	2017	Pages	62

This thesis is part of a two-year smart city research project titled "Open Service Innovation and Production in a Smart City: Concept and Model for Public Decision Making". The project was carried out in 2015-2016 and its primary goal was to develop concepts and models to aid cities in service innovation development. The project was funded by Finland's Ministry of Finance, Ministry of the Interior as well as the cities of Helsinki, Espoo, Vantaa, and Lahti. The thesis studied collaborative innovation in cities from a private sector perspective. The purpose of the thesis was twofold. Firstly, the thesis aimed at identifying opportunities, challenges, and solutions pertaining to collaborative innovation between private sector companies and cities. The second goal of the thesis was to discover ways to enhance collaborative innovation and develop a model that illustrates the key parties and activities that are essential to successful collaborative innovation.

The theoretical framework of the thesis consists of three elements. The two primary elements that serve as the basis of the framework are the concepts of smart cities and collaborative innovation. The third element focuses on the differences between the public and private sectors. Scientific literature on areas relevant to the thesis was studied in order to build the theoretical framework. The thesis is based on a qualitative study that was conducted using empirical data collected for the above-mentioned two-year research project. The data were collected by conducting interviews with elites and focus groups and analyzed by using grounded theory methods.

The study conducted as part of the thesis produced a number of empirical findings on the opportunities, challenges, and solutions pertaining to collaborative innovation. The findings provide insight on how the current state of affairs in collaborative innovation is perceived among private sector companies and shed light on the perceived underlying reasons why things have come to be the way they are. Based on the empirical findings, two models capturing and illustrating the essence of the findings and presenting approaches for enhancing collaborative innovation were developed.

This thesis contributes to the scientific discussion on collaborative innovation in cities and other public sector organizations by studying the phenomenon from a fresh angle that has not been extensively covered in the existing literature. The private sector perspective of the thesis and the empirical nature of the findings also hold practical value for various parties involved in collaborative innovation. The results are particularly useful for cities and other public sector organizations wishing to learn how private sector companies perceive the current state of affairs as pertains to collaborating with the public sector. The results of the thesis are potentially transferable across cities and companies both within Finland and internationally. Based on the results, it is evident that the subject that was studied is in need of further research and development in such areas as managing and organizing collaborative innovation and changing the negative attitudes and behaviors of the people involved in collaborative innovation.

Keywords: Smart City, Collaborative Innovation, Public-Private Partnerships

Jaakko Kähäri

Yksityisen sektorin näkökulma innovaatioyhteistyön kehittämiseen kaupungeissa – empiirisiä tuloksia älykäs kaupunki -tutkimusprojektista

Vuosi	2017		Sivumäärä	62

Tämä opinnäytetyö on osa kaksivuotista Palvelutuotannon ja palveluinnovaation avoin kehittämismalli älykkäässä kaupungissa: toimintakonsepti ja –malli julkisen päätöksenteon tueksi – tutkimusprojektia. Tutkimusprojekti toteutettiin vuosina 2015-2016 ja sen pääasiallinen tavoite oli tuottaa toimintakonsepteja ja malleja kaupunkien palvelutuotannon ja -innovaation sekä niihin liittyvän julkisen päätöksenteon tueksi. Tutkimusprojektia rahoittivat Suomen valtiovarain- ja sisäministeriöt sekä Helsingin, Espoon, Vantaan ja Lahden kaupungit. Tässä opinnäytetyössä tutkittiin kaupunkien innovaatioyhteistyötä yksityisen sektorin näkökulmasta. Opinnäytetyön tarkoitukset olivat tunnistaa yksityisen sektorin yritysten ja kaupunkien väliseen innovaatioyhteistyöhön liittyviä mahdollisuuksia, haasteita ja ratkaisuja sekä löytää lähestymistapoja innovaatioyhteistyön kehittämiseen ja kehittää niiden pohjalta malli, jossa kuvataan onnistuneen innovaatioyhteistyön kannalta oleellisia osapuolia ja toimintoja.

Opinnäytetyön teoreettinen viitekehys muodostuu kolmesta aihealueesta. Viitekehyksen perustana ovat älykkäiden kaupunkien ja innovaatioyhteistyön käsitteet. Lisäksi viitekehyksessä käsitellään julkisen ja yksityisen sektorin välisiä eroja. Viitekehyksen rakentamiseksi tutkittiin sen aihealueiden kannalta oleellista tieteellistä kirjallisuutta. Opinnäytetyö perustuu aineistolähtöiseen laadulliseen tutkimukseen. Empiirinen tutkimusaineisto kerättiin osana edellä mainittua kaksivuotista tutkimusprojektia tekemällä asiantuntija- sekä ryhmähaastatteluja ja analysoitiin ankkuroidun teorian (grounded theory) menetelmillä.

Opinnäytetyön osana tehty laadullinen tutkimus tuotti empiirisiä löydöksiä innovaatioyhteistyöhön liittyvistä mahdollisuuksista, haasteista ja ratkaisuista. Löydökset tuovat näkemyksiä yksityisen sektorin yritysten käsityksistä innovaatioyhteistyön nykytilanteesta sekä syistä, jotka ovat johtaneet nykytilanteen syntymiseen. Tutkimuksen empiiristen löydösten pohjalta laadittiin kaksi mallia, joihin tiivistyy löydösten oleellisin sisältö ja joissa esitetään lähestymistapoja innovaatioyhteistyön kehittämiseksi.

Tästä opinnäytetyöstä on hyötyä innovaatioyhteistyötä käsittelevässä tieteellisessä keskustelussa, sillä tutkittavaa aihetta lähestytään näkökulmasta, jota ei ole käsitelty laajasti olemassa olevassa kirjallisuudessa. Tutkimuksen yksityiseen sektoriin keskittyvästä näkökulmasta sekä empiirisistä löydöksistä on myös käytännön hyötyä erinäisille innovaatioyhteistyön parissa toimiville osapuolille. Tulokset ovat erityisen kiinnostavia sellaisille kaupungeille ja julkisen sektorin organisaatioille, jotka haluavat uutta tietoa siitä, miten innovaatioyhteistyön nykytilanne koetaan yksityisen sektorin keskuudessa. Opinnäytetyön tulokset ovat mahdollisesti siirrettävissä ja sovellettavissa kaupunkeihin ja yrityksiin sekä Suomessa että kansainvälisesti. Opinnäytetyön tuloksista käy ilmi, että innovaatioyhteistyöhön liittyvälle jatkotutkimus ja –kehitystoiminnalle on tarvetta. Muun muassa innovaatioyhteistyön johtaminen ja organisointi optimaalisten tulosten saavuttamiseksi sekä innovaatioyhteistyön parissa työskentelevien ihmisten negatiivisten asenteiden muuttaminen ovat kiinnostavia jatkotutkimuksen aiheita.

Avainsanat: Innovaatioyhteistyö, älykäs kaupunki, julkisen ja yksityisen sektorin kumppanuus

Table of Contents

1   Introduction

The world is becoming increasingly global and interconnected, and urbanization is rapid. In the year 2014, 54 per cent of the word's population lived in urban areas and the number is expected to reach 66 per cent by the year 2050. While cities play an important role in driving development and economic growth and urban living is often associated with numerous positive phenomena such as higher levels of education and healthier people, it is evident that fast and unplanned growth in urban areas poses risks to sustainable development. (United Nations, Department of Economic and Social Affairs, Population Division 2014, 1-3.)

Due to the rapid nature of urbanization and the the various challenges it presents, governments need to find new ways to manage and develop their infrastructures and policies in urban areas. Furthermore, the innovativeness of cities is one of the key drivers of international competitiveness. Smart cities around the world continue to attract interest from both the business world and academia as they become more intelligent in managing their resources and thus enable a higher quality of life for the citizens and contribute to sustainable development. (Bakici et al. 2013, 136-137.) In addition to having a strong focus on the utilization of information and communication technologies (ICTs), smart cities are often characterized by business-led urban development and public-private partnerships in which private businesses cooperate and consult with the government and the communities (Hollands 2008, 307-308). Public sector innovation plays an important role in smart city environments and it is taking on increasingly collaborative forms. As traditional ways of managing and developing public innovation are proving to be inadequate, collaborative innovation has emerged as a cross-disciplinary approach to enhance innovation by involving multiple actors and networks in the innovation process (Sorensen & Torfing 2011, 1-5).

This master's thesis stems from a two-year smart city research project that was designed to develop service innovation concepts and models for cities. The thesis is based on a qualitative study aimed at finding out ways to enhance collaborative innovation between the public sector and various external actors. The study approached the subject from a private sector perspective. The background and rationale, purpose and research questions, and delimitations and limitations of the thesis as well as the structure of the the report are discussed in more detail in the following sub-chapters 1.1-1.4.

1.1   Background and Rationale

This thesis is part of a research project titled "Open Service Innovation and Production in a Smart City: Concept and Model for Public Decision Making". The two-year research project

was carried out in 2015-2016 under the "Innovation Platforms in Smart Cities in the Urban Research and Metropolitan Policy" program and was funded by Finland's Ministry of Finance, Ministry of the Interior as well as the cities of Helsinki, Espoo, Vantaa, and Lahti.

The goal of the research project was to develop concepts and models to aid cities in service innovation development and decision making. By developing concepts and models, the project aimed at increasing the Helsinki Metropolitan Area's international attractiveness and competitive advantage by opening the cities' processes up for service innovation and taking advantage of the synergies between private and third sector actors. Producing results that are transferable to other smart city environments around the world as well as taking advantage of the already existing national and international networks and smart city knowledge were also important points listed in the goals of the project. The project was designed to deliver both scientific and applied results.

The rationale for the research project is that there is a clear need for research and development in service innovation and development in a smart city context. Experiences in successful smart city service innovation and production efforts demonstrate tremendous potential for increased financial, social, and environmental benefits, yet it seems that there is a lack of smart city service innovation concepts as well as models for linking them to public decision making. Furthermore, the scientific knowledge and existing literature on the subject are scarce. This thesis focuses primarily on the collaborative aspects of innovation in smart cities since involving the private and third sector actors as well as the citizens in the cities' innovation efforts is considered one of the key characteristics of a smart city.

1.2 Purpose and Research Questions

The purpose of this thesis is twofold. Firstly, the thesis aims at identifying opportunities, challenges, and solutions pertaining to collaborative innovation between private sector companies and cities. The second goal of the thesis is to discover ways to enhance collaborative innovation and develop a model that illustrates the key parties and activities of collaborative innovation that are essential to overcoming the identified challenges and seizing the opportunities.

The thesis seeks answers to the following research questions:

1. What kind of challenges and opportunities are there as pertains to collaborative innovation between private sector companies and cities?
2. Are there significant differences between the public and private sectors that cause challenges in collaborative innovation?

3. How to enhance collaborative innovation between private sector companies and cities?

    a. What parties and activities are essential to successful collaborative innovation?

    b. How should collaborative innovation efforts be managed and organized for optimal results?

1.3 Delimitations and Limitations

This thesis focuses on answering the research questions from the point of view of private sector companies that have experience in collaborating with cities. The data collected from public and 3rd sector subjects were excluded from the scope of the study with the goal of gaining insight specifically from the private sector. The private sector focus was chosen because it studies the topic of collaborative innovation in cities from a specific angle that differs from the other thesis studies conducted as part of the "Open Service Innovation and Production in a Smart City, Concept and Model for Public Government Decision Making" project. The results and findings of the thesis may potentially provide the public sector and cities with valuable and interesting insight as they are free from any assumptions and prejudices that may affect the perceptions and attitudes within the public sector. On the other hand, it is also important to note that due to the focused approach, the study may not provide complete and directly implementable solutions as the findings may not adequately represent the points of view of all parties involved in collaborative innovation. Rather, it is suggested that the results of the thesis be used to complement existing research and possibly stimulate ideas for further research.

The research that the thesis is based on was conducted using qualitative research methods. The analysis and coding of the data were carried out by the author of the thesis alone and therefore the findings reflect the subjective interpretation of one researcher. Furthermore, the findings of the research cannot be considered statistically generalizable.

1.4 Report Structure

This thesis is based on a qualitative study and the report has been structured with the goal of presenting the contents in a logical and compact fashion in mind. A thorough introduction to the thesis has been provided in this chapter and the structure of the rest of the report is described in the following paragraph.

Chapter 2 presents the theoretical framework of the thesis that is based on the existing theories on smart cities, collaborative innovation, and public-private differences. Next, the research method and the data collection and analysis processes are described in chapter 3.

Chapter 4 is dedicated to the empirical findings produced by the study and chapter 5 presents approaches to enhancing collaborative innovation by introducing two models that were derived from the empirical findings. Finally, the report is concluded in chapter 6 that summarizes the results of the study and discusses their value, transferability, and implications for further research and development.

2   Theoretical Framework: Collaborative Innovation in Smart Cities

This chapter introduces the key concepts that form the theoretical framework of this thesis (see Figure 1). The two primary elements that serve as the basis of the framework are the concepts of smart cities and collaborative innovation. Additionally, a third element focused on the differences between the public and private sectors was included in the framework for two reasons. Firstly, since the thesis is focused on the private sector perspective on collaborative innovation, it was deemed appropriate to study the sectoral differences in order to better understand the empirical findings and how they relate to the existing theories. Secondly, public-private differences seem to draw considerable attention in the existing literature attempting to explain the underlying phenomena of collaborative innovation and are therefore relevant to the thesis. (see Sørensen & Torfing 2011; Sørensen & Torfing 2012; Bommert 2010).
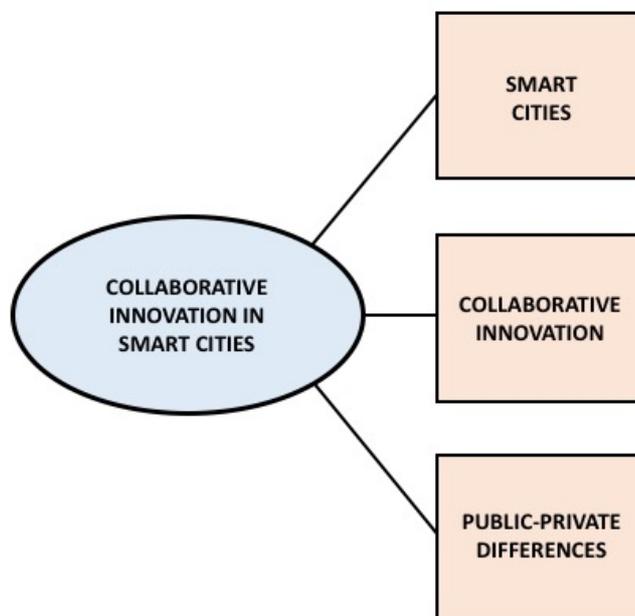

Figure 1: Theoretical Framework

A literature review was conducted on all three elements forming the theoretical framework of the thesis, and the results are presented in this chapter. The concept of smart cities is presented in chapter 2.1, followed by an overview on collaborative innovation in chapter 2.2. Lastly, chapter 2.3 discusses public-private differences.

2.1   Smart Cities

Smart cities have emerged as innovative new ways and strategic instruments to tackle the challenges presented by the rapid and large-scale urbanization that is taking place around the world. As the urban population of the world grows, urban living is reaching new levels of complexity which requires cities to come up with innovative ways to enable sustainable economic, environmental, and social development and to battle challenges such as poverty, inequality, and unemployment. (European Parliament 2014, 17.) Kuk & Janssen (2011, 39) note that another factor that drives cities to be more innovative and become smart is the fact that modern-day urban citizens have become more demanding and have higher expectations of what their municipality of residence can and should offer them – the citizens expect things such as availability and transparency of information and ease of interaction with government bodies which causes cities to re-think their business models and explore smart technologies.

Despite the increased positive attention that smart cities are attracting, the concept of a smart city is not easily defined. What it is that actually makes a city smart seems to be subject to debate, and different focuses on the key characteristics of a smart city can be identified in the existing literature. As pointed out in the paragraph above and chapter 1, the general idea of smart cities is to foster sustainable development and enable a better quality of life for the citizens. How cities go about achieving the aforementioned goals and get designated as smart in the process is not unanimously agreed on and the discussion on smart cities is not completely free from definitional problems and terminological confusion (Hollands 2008, 3). Due to the wide variety of opinions and terminological ambiguity, it is not feasible for the purpose of this thesis to try to produce a single, comprehensive definition of a smart city. Instead, this chapter aims at offering an overview on some of the points that are most commonly made when attempting to define smart cities and outline their key characteristics.

The utilization of ICTs and technological innovations are commonly associated with smart cities. The innovativeness of cities is what drives international competitiveness and ICTs have emerged as the new economic force dictating the way in which cities around the world compete. For example, the city of Barcelona has managed to endure tough times and transform itself into a globally recognized smart city. Barcelona's success in urban development has largely been achieved by going through significant reforms implementing technological solutions that enable the generation of smart ideas and involving the citizens in the process through ICTs. (Bakici et al. 2013, 136-137.) The European Parliament (2014, 23) also acknowledges the importance of utilizing ICTs in smart cities – smart cities use ICTs to make their data, citizens, and organizations smart by gathering, analyzing, and sharing information in order to optimize processes and activities that are useful and relevant. The strong focus on ICT utilization is closely connected to social inclusion through e-governance that can also be considered a typical smart city characteristic. The idea is to provide the citizens and companies

with governmental services enhanced by means of technology and thus get urban residents from all social classes involved in public services in order to foster equitable urban growth. (Caragilu et al. 2011, 68; Tranos & Gertner 2012, 177.)

Business-led urban development is another common element in many smart city agendas. Referring to the works of Quilley, Harvey, Gottdiener, Klein, and Monbiot, Robert G. Hollands (2008, 308) points out that urban governance in most western cities is shifting from managerial to entrepreneurial forms and that businesses and corporations are increasingly involved in shaping cities. In their smart city research, Tranos & Gertner (2012, 177) make a connection between the concepts of entrepreneurial cities and smart cities. Entrepreneurial cities have entrepreneurial self-identities and aim at maintaining and enhancing their economic competitiveness by pursuing innovative strategies that are generated in an entrepreneurial manner (Jessop & Sum 2000, 2289).

Business-led development and the utilization of ICTs go hand in hand and therefore smart cities are home to numerous companies in the ICT sector. However, the current smart city literature also acknowledges the role of creative industries, for example, the arts and cultural industries, in shaping smart cities. The creative city discourse focuses primarily on the social and human dimensions i.e. the soft infrastructure (Hollands 2008, 309; Tranos & Gertner 2012, 177). Richard Florida's (2002, 24) widely acknowledged but also somewhat controversial work (see for example Krätke 2010) on the creative class and industries suggests that it is important for cities to focus on diversity and attract a wide variety of bohemians and young workers from the creative industries in order to thrive in the creative age. Closely related to the creative discourse in terms of emphasizing the soft characteristics of cities is the concept of human and social capital and focusing on the people (Tranos & Gertner 2012, 177). John V. Winters hypothesizes that the amount of people seeking higher education is important to the growth of smart cities. Furthermore, Winters considers a city smart when a significant part of its adult population has a college degree. (Winters 2011, 254, 268.) Figure 2 illustrates and summarizes the smart city characteristics presented in this chapter.
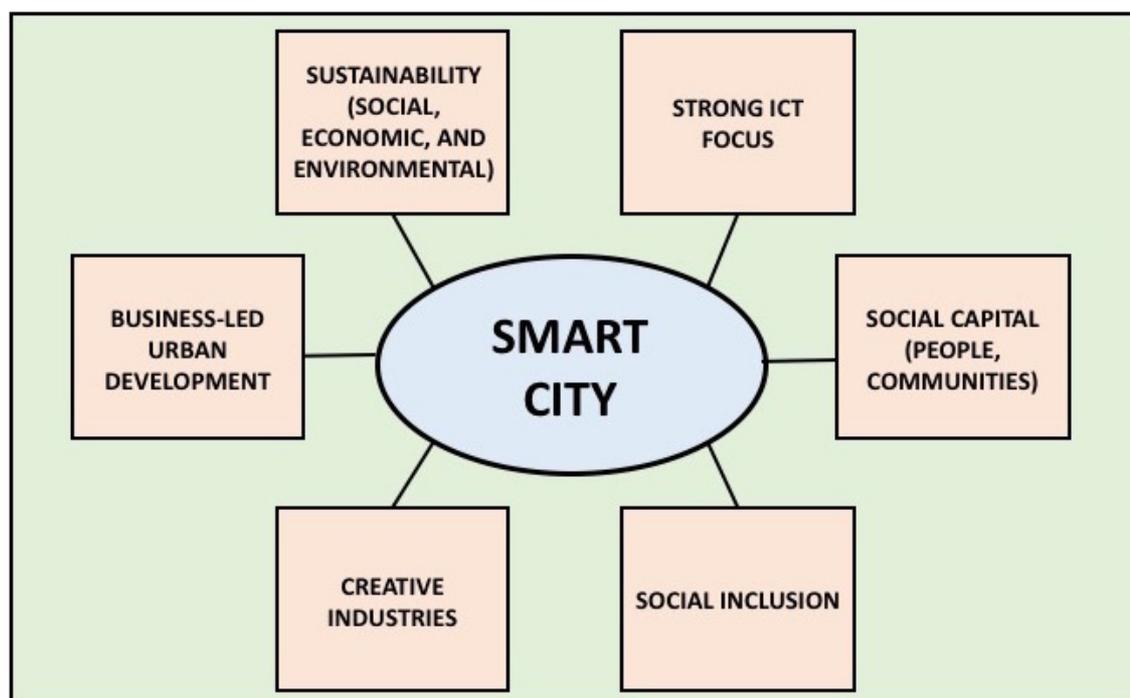
Figure 2: Smart City Characteristics

Any smart city initiative, whether it be technological, social, or economic in its focus, is going to face various challenges. Kuk & Janssen (2011, 39-40) point out that the transformation into a smart city may require the development of new services and business models that differ considerably from the existing ones. An important point of consideration is what kind of effects the adaption of the new models will have on the existing information architecture and what kind of limits said information architecture poses. Kuk & Janssen observed that municipalities around the Netherlands have started to explore web-based full service provider business models in their smart city endeavors. Such business models often necessitate enterprise-wide technological reforms that require tremendous efforts and are often failure-prone. Ojasalo & Kauppinen (2016, 52, 56) identified a wide variety of challenges in their study on collaborative innovation in smart cities. Their findings include challenges that are related to the cities' change-resistant organizations as well as slow and insufficient processes – it seems that – at least in some cities - certain significant structural and behavioral changes might have to take place in order for the cities to become truly ready to implement various smart city initiatives.

2.2   Collaborative Innovation in the Public Sector

The public sector plays an important role in generating innovations to tackle today's emergent and persistent challenges e.g. the unstable global economy, climate change, and crime.

Contemporary societies are becoming increasingly dynamic and complex in nature and the demands for public sector innovation are ever-growing. Furthermore, many governments are facing additional pressure to produce cost-effective solutions due to budget constraints caused by the financial crisis. Indeed, innovation in the public sector has become a topical subject of interest and is climbing towards the top in many governmental agendas. Even though the public sector has produced numerous celebrated innovations, it is argued and widely acknowledged that standard government solutions and the traditional ways of innovating in the public sector will not suffice in the face of the new emerging challenges and the citizens' rising expectations for public services. (Bommert 2010, 15; Donahue & Zeckhauser 2011, 3; Sørensen & Torfing 2011, 842; Sørensen & Torfing 2012, 3.)

Various reasons for the public sector's inability to respond to its innovation demands have been presented in the literature on public sector innovation. The public sector is considered highly bureaucratic by many and often associated with characteristics such as red tape, inertia, and top-down hierarchy (Sørensen & Torfing 2011, 842; Sørensen & Torfing 2012, 2). The bureaucratic nature of most governmental organizations has been identified as one of the primary limiting factors to innovation within the public sector. Bommert (2010, 21) argues that bureaucratic governmental organizations tend not to take full advantage of all the innovation resources that exist at various levels within the organization and outside its borders as the innovation efforts primarily reside at the top of the organizational hierarchy - this results in reduced quality and quantity of the generation, implementation, and diffusion of new ideas. Furthermore, a risk-averse organizational culture and poor skills in risk and change management are common in the public sector and considered barriers to innovation (Albury 2005, 55). In their empirical study on collaborative innovation in cities, Ojasalo & Kauppinen (2016, 56) discovered that cities' organizations often lack systematic tools for cultivating innovation. Ojasalo & Kauppinen found out that city officials and employees are not blind to the need to foster innovation and are actually frequently identifying problems that have potential to turn into innovations when solved, but there seems to be a lack of methods and systematic approaches to take the innovation process to the next step which results in missed opportunities.

Collaborative innovation has emerged as a potential new way to help the public sector meet its innovation needs. Collaborative innovation in the public sector is based on the idea of opening the innovation process up to multiple actors such as private and third sector organizations and citizens as opposed to keeping it closed i.e. strictly within the boundaries of any particular governmental organization. The involvement of external actors in the innovation cycle increases the amount of both intangible and tangible innovation assets the public sector has at its disposal. In fact, the availability of the right kind of assets and matching them with

problems are key in collaborative innovation and take priority over formal rules and roles of bureaucratic organizations. (Bommert 2010, 16.)

The idea of collaborating with external actors is not particularly new in the public sector and the early examples can be dated back to the Roman imperial period, whereas more recent examples include e.g. various networked approaches to governance in which the utilization of assets across organizational boundaries is being emphasized. Opening processes and systems up to external actors with innovation-specific goals in mind has its origins in the private sector. (Bommert 2010, 17; Donahue & Zeckhauser 2011, 5.) For example, Henry Chesbrough (2006, 1) has presented the concept of Open Innovation that can be considered the polar opposite of the traditional approach in which innovations are generated through companies' internal research and development activities. Open Innovation is based on the idea that companies should utilize both internal and external ideas and paths to market in their quest to advance their technology and create value.

Collaboration has the potential to enable synergies in which the public sector together with various external actors can produce greater results and achieve more than what the sum of their individual efforts would be (Donahue & Zeckhauser 2011, 5). According to Bommert (2010, 22-23), collaborative innovation is a suitable approach for the public sector as it helps overcome the organizational and cultural barriers that restrict innovation in the public sector. Furthermore, the collaborative approach to innovation is beneficial for the generation, selection, implementation, and diffusion of ideas. Sørensen & Torfing (2012, 5) present similar arguments and also note that the collaborative approach helps in identifying problems and challenges as well as assessing risks and benefits as it enables a broader perspective than innovating in-house.

Collaborative efforts between government and external actors are not free from challenges. The sharing of discretion between the parties involved can cause certain managerial difficulties as there is no fixed rule that determines how discretion should be dealt out. If the decision making of any particular effort is completely one-sided, it cannot be called a collaboration but rather a contract. However, finding out how to deal out discretion requires careful thought and balancing. (Donahue & Zeckhauser 2011, 45.) Another potential challenge to collaborative innovation is that actors from different sectors may have differing or contradicting interests and ideas how to utilize and disseminate the results of the innovation activities. As Bienkowska et al. (2010, 212) found out in their study on public-private innovation in Sweden, it might be problematic to find a hybrid order in which the private and public sectors' ways of using research results are in a symbiosis that is mutually reinforcing in nature. Hennala et al. (2011, 383) researched multi-actor involvement in public sector innovation processes and

came to the conclusion that it can be challenging to create and maintain collaborative innovation processes that are perceived as equally beneficial to all parties involved.

Collaborative innovation is also a hot topic in the smart city discussion and Kristiina Erkkilä (2014, 218) considers the potential for collaboration a key element of a smart city. A connection between smart cities and collaborative innovation can also be identified in the social inclusion aspects of smart cities as described in chapter 2.1. According to Ojasalo & Kauppinen (2016, 49, 52), urban innovation is at the core of the smart city concept and can benefit greatly from collaborative approaches. The perceived benefits are numerous and Ojasalo & Kauppinen have organized them into four categories as follows:

- Novel services/products/solutions
- Economic gains
- Urban and regional development
- Systemic improvements and process improvements

2.3 Differences Between the Private and Public Sectors

The discussion on the public sector is often filled with strong preconceptions and stereotypes. Many attempts at explaining the public sector's shortcomings and figuring out how to improve public sector activities such as innovating are based on the assumption that governmental organizations are being outperformed by their private sector counterparts in various functions. Hence, comparing the public and private sectors in e.g. organizational, cultural, and strategic aspects has become an essential part of the literature on the public sector and a burgeoning field of study in its own right. (Rainey & Bozeman 2000, 447-448; Sørensen & Torfing 2012, 2; Bommert 2010, 21; Halvorsen 2005, 9.) While it is fairly safe to assume that some of the stereotypes associated with the public sector are true, at least to a certain extent, there are also opinions and research suggesting that that the differences may not always be as prominent as one might think. Some organization and management theorists have even argued that the public-private distinction is unnecessary and that generally there are more similarities than differences between the sectors. (Albury 2005, 52; Rainey & Chun 2007, 71; Lachman 1985, 678.) This thesis takes the stance that the research on public-private differences has its place in academic discussion and may offer relevant insight on the subject of the thesis. Hence, some of the most commonly perceived sectoral differences are discussed in this chapter.

One common argument used to lay a foundation for the discussion on public-private differences is that public and private sector organizations are inherently different in the roles they play in society and the goals that legitimize their existence and actions. According to Paul C. Nutt (1999;2006), private sector companies are typically driven by expectations to make

profit for their shareholders by selling products and services, whereas public sector organizations aim at discovering the citizens' needs that require public attention and contracting for services accordingly. While private sector companies operate in markets that provide revenue, the resources of public sector organizations are typically dictated by oversight bodies. Furthermore, public sector organizations are constrained by a wide variety of rules, legislations, and various forms of political pressure. (Nutt 1999 308-310; Nutt 2006, 289-290.) Demeter & Tapardel (2013, 164) share Nutt's view on the differing roles of private and public organizations, noting that the performance of private sector companies revolves around their profits, whereas the purpose of public sector organizations is to render services with limited resources while using the taxpayers' money efficiently.

Public sector organizations are often associated with high levels of formalization, rules, and red tape. The typical organizational structure in the public sector is considered to be siloed with most of the authority concentrated at the top and the organizational culture is labelled as risk-averse. The aforementioned characteristics often take negative tones in the discussion surrounding the public sector and have contributed to the idea that public sector organizations are slow and rigid bureaucracies that are not capable of performing well in certain activities such as innovating. These points are also frequently brought up in literature when trying to explain the various issues the public sector is facing. (Sørensen & Torfing 2011, 846; Bommert 2010, 21; Albury 2005, 21; Halvorsen 2005, 9.)

In an attempt to provide evidence for or against some of the commonly held beliefs about public-private differences, Rainey & Bozeman (2000, 447-469) analyzed a wide body of empirical research literature comparing the public and private sectors. The work of Rainey & Bozeman was motivated by their belief that many of the common stereotypes about the public sector were too easily accepted as truths without solid research and evidence to back them up. The analysis covered various dimensions and the findings are summarized in Table 1.

DIMENSION	STEREOTYPES/ ASSUMPTIONS	FINDINGS
Goal Complexity & Ambiguity	Goal complexity and ambiguity are high in the public sector - the goals are often conflicting, vague, and not easily measured.	Public managers find their goals clear and measurable (based on several questionnaire surveys). No significant differences between the private and public sectors were discovered.
Organizational Structure	The levels of formalization, rules, and red tape are particularly high in the public sector.	The research findings are somewhat conflicting. Research on general levels of formalization does not prove that there are significant differences.

		When observing particular types of formalization, research shows that public organizations do indeed have higher levels of rules and constraints when it comes to personnel, purchasing, budgeting, and accounting. Governmental ownership is seen as one of the primary causes as it subjects public sector organizations to jurisdictional rules and the authority of oversight bodies.
Work-Related Attitudes and Values (Satisfaction, Motivation, Valuation of Rewards, and Work Outcomes)	Motivation, satisfaction, and rewards are low in the public sector.	Studies have yielded mixed results that suggest no significant differences between the sectors. In some instances, public sector employees have reported even higher levels of satisfaction than their private sector counterparts. However, some particular frustrations and disappointments have been identified in the public sector.
		Whether the study methods to analyze and compare the true levels of work values in the public and private sectors have been sufficient is debatable. Nevertheless, the studies clearly demonstrate that the situation is not as simple as the a priori assumptions indicate.

Table 1: Public-Private Differences (adapted from Rainey & Bozeman, 2000)

According to Rainey & Chun (2007), studying and understanding the differences between the public and private sectors has played an important role in the discussion on public management, as the growing trend of privatizing governmental functions and organizations is largely based on the premise that privatization brings with it more effective management practices than what are typically exercised in the public sector. Rainey & Chun (2007) compared public and private management by analyzing the existing theories and found out that in some areas of management, the sectors do not differ significantly from each other. On the other hand, the findings also suggested clear differences in certain areas. For example, the findings indicated that public managers are subject to various governmental processes and as a result, are

more likely to face complex rules and red tape in their work than their private sector counterparts. Public managers were found to be more concerned about matters such as their co-workers' motivation and performance, but their assessment of their own motivation and satisfaction did not differ significantly from the observations from the private sector. (Rainey & Chun 2007, 71-72, 90-91.)

In conclusion, there are numerous strong and deep-rooted beliefs and stereotypes surrounding the public sector. Upon closer examination, it seems that the differences between the public and private sectors are not as prominent as is commonly perceived. In fact, there are individual instances in which research has yielded results suggesting the exact opposites of the common stereotypes to be true. Furthermore, examples from recent years are showing that many public sector organizations are shifting towards more entrepreneurial, risk-embracing, and creative approaches, further closing the perceived sectoral gap (Somasundaram & Kruthika 2012, 24; Luke et al. 2010, 150). Nevertheless, it is important for the purpose of this thesis to understand what the most common a priori assumptions are and acknowledge that they may have significant value in interpreting the empirical findings, even though the real extent to which they are true is debatable.

3   Research Methods and Process

The research methods used in this thesis were defined in the research plan of the "Open Service Innovation and Production in a Smart City: Concept and Model for Public Decision Making" project. Data-driven qualitative research was chosen as the primary approach for the whole research project. The project team operated under the supervision of professor Jukka Ojasalo and consisted of a bachelor's degree student as a full-time research assistant and three master's degree students as researchers. The data collection process was a team effort in which all of the members of the project team participated, and the primary data collection methods were individual elite interviews and workshop-like focus group interviews as outlined in the research plan. The research plan defined grounded theory as the primary approach to analyzing the data.

The research methods of the project and how they were applied to this thesis are presented in this chapter. Chapter 3.1 discusses the characteristics of qualitative research. The data collection methods and process are presented in chapter 3.2. Lastly, chapter 3.3 describes how the data were analyzed according to the principles of grounded theory in order to produce empirical findings.

3.1   Qualitative Research

Qualitative research in its numerous forms has become highly influential in social sciences in recent decades (Hammersley 2013,8). The essence of qualitative research is not easily defined or explained by any one trait. According to Hirsjärvi et al. (2007, 157), the basis of qualitative research is to describe and explain real life and to study phenomena holistically. Pertti Alasuutari (1999, 44-48) compares qualitative research to the process of solving a riddle. The researcher analyzes the data to produce clues that are then used in combination with the existing theories and research to solve the riddle – the more clues can be found during the process, the more likely it is that the solution is correct or sensible, even though absolute certainty is impossible to attain by science.

One way to define and understand the meaning of qualitative research is to make a distinction between the qualitative and quantitative research methods and examine how they contrast with each other. Understanding the defining features of quantitative research may be a helpful starting point in identifying the features of qualitative research. The contrast between the two methods also reflects the history of qualitative research and its emergence as an alternative to the well-established traditional forms of quantitative research. (Hammersley 2013, 13.) Even though making a clear distinction between the qualitative and quantitative disciplines may seem helpful and appealing, it is important to note that the two methods are not mutually exclusive polar opposites of each other – as there are differences, there are also similarities between the methods and they can be used to complement each other (Alasuutari 1999, 31-32).

The key features of the qualitative method are manifest in various aspects of research e.g. the research design and goals, the methods and settings of data collection, the approaches to data analysis, and the level of subjectivity. Table 2 summarizes the key features of qualitative research as laid out by Hirsjärvi et al. (2007) and Hammersley (2013). Comparisons to the quantitative method are also included where appropriate.

Hirsjärvi et al. (2007, 160)	Hammersley (2013, 15-17)
Qualitative research is holistic in nature and data are collected in natural settings.	Qualitative research adopts a flexible research design as it focuses on the generation and development of explanations rather than the testing of hypotheses.
People are the primary instrument of data collection. The researcher's observations and discussions with the research subjects are essential.	The use of relatively unstructured data is common as statistical aspects such as formal counting and ranking are not emphasized.

The approach to data analysis is often inductive. Qualitative research aims at uncovering unexpected findings and therefore it studies phenomena holistically and in detail. The goal is not to test predefined hypotheses. What is important is not determined by the researcher.	Qualitative research is subjective in nature. It is acknowledged that the social and personal traits of the researcher cannot be eliminated from the research and therefore affect the data and how they are interpreted.
Qualitative methods such as theme and group interviews and participatory observation are used to collect data.	Subjects are often studied in natural settings as opposed to, for example, laboratory studies or formal interviews that aim to standardize the settings and control variables.
Choosing the subjects is based on the purpose of the study rather than the principles of random sampling.	Qualitative research studies a small number of cases and examines them in detail, documenting complexity, whereas quantitative research often studies large samples with the goal of generalizing the results.
The research design is flexible and may be adjusted as the research progresses.	Verbal methods are favored over statistical ones in data analysis.
Cases are treated as unique and the data are interpreted accordingly.	

Table 2: Features of Qualitative Research (adapted from Hirsjärvi et al., 2007 & Hammersley, 2013)

As Hirsjärvi et al. (2007, 179) point out, the research questions and methods are closely connected with each other and the selection of the research method is guided by what kind of information is sought. Choosing the qualitative method for the research project this thesis is a part of was guided and justified by the nature and goals of the project. The existing knowledge base on the subject of the project is still fairly scarce, and thus the goal was to study the subject in detail and possibly uncover new information about it rather than to test predetermined hypotheses about it.

3.2   Data Collection

Qualitative methods were favored in the data collection process of this thesis. The primary methods used were elite interviews and focus group interviews of which the latter were conducted in workshop-like settings. The use of qualitative interviews to collect data has become increasingly prominent in social sciences which can be attributed to several factors. For ex-

ample, the qualitative stance on research in which the world and its processes and phenomena should be described and understood before they are theorized and explained is getting increasingly popular. Furthermore, the technological advances of recent decades such as portable recorders and computer software have made the collection and analysis of interview data much easier and more efficient than it was in the past. (Brinkmann & Kvale 2015, 14-15.)

According to Hirsjärvi et al. (2007, 200), interviewing is a flexible method that is often used in qualitative research when the goal is to obtain in-depth knowledge and study new phenomena about which little is known. Hirsjärvi et al. also point out that there are certain challenges as pertains to research interviews. For example, interviews are always bound to specific circumstances and contexts which makes the results less generalizable. Moreover, the reliability of interviews may be affected by the interviewees' desire to give socially acceptable answers if they want to, for example, portray themselves as good citizens and members of society. (Hirsjärvi et al. 2007, 200-202.)

The data collection process of the two-year research project spanned from April 2015 to January 2016 and was a joint effort in which the whole research project team participated. Ultimately, a single large file containing all the collected data was put together for each researcher to utilize in their individual work as deemed appropriate for their particular research objectives. The data collection process and methods are described in detail in the following sub-chapters. Elite interviews are discussed in chapter 3.2.1 and focus group interviews are discussed in chapter 3.2.2.

3.2.1 Semi-Structured Elite Interviews

The majority of the data used in this thesis was collected by conducting semi-structured elite interviews. According to Hirsjärvi et al. (2007, 203), one of the key characteristics of semi-structured interviews is that the themes of the interview are known and predetermined, but the exact form and order of questions are not fixed. Hirjärvi et al. also note that semi-structured interviews are popular in social sciences because they are in line with the general principles of qualitative research. Gillham (2005, 70) argues that the flexibility of semi-structured interviewing makes it the most important form of research interviewing. As per Gillham, the questions in semi-structured interviews are open and the interviewer often use probes in order to make the interviewee elaborate on a particular point and thus disclose more information about it.

The term elite may have certain implications of superiority that do not sit well with some people, but it has a particular meaning in the context of research interviews. Interviewing

elites refers to interviewing people who are experts in a community and particularly knowl-edgeable about the specific subject that is being studied. The interviewees are referred to as elites because their experience and knowledge have often taken them to positions of author-ity and power. Interviewing elites may be a source for interesting insight on highly specific subjects because of the interviewees' extensive knowledge and experience. In elite inter-views, it is crucial that the interviewer also has a certain amount of expertise in the topic and is familiar with the professional terminology and lingo used among the experts. Because of their high levels of knowledge, the elites are often sophisticated interviewees. They are not likely to submit to a predetermined set of structured questions which is why a loose or open structure is suitable in elite interviews. Elites are also often in positions where the state-ments they make can have considerable implications and consequences. Therefore, discretion and, in many cases, complete anonymity of the interviewees, are required when using data collected through elite interviews. (Brinkmann & Kvale 2015, 171; Gillham 2005, 54.)

A total of 65 elite interviews were conducted by the members of the research project team. The interviews took place between May 2015 and January 2016. The interviewees were se-lected based on their experience in public-private collaboration, public procurement, and in-novation platforms and intermediaries. The interviews were categorized into groups based on the interviewees' backgrounds. The categories were the public sector, private sector, third sector, innovation platform, and researcher, and the total numbers of interviewees repre-senting each category are summarized in Table 3. For the purpose of this thesis, only the 20 private sector interviews (highlighted in red in Table 3) were analyzed as the focus was to study the subject from a private sector perspective. The total amount of interviews con-ducted was mostly determined by two factors. Firstly, the schedule and resources of the pro-ject had to be taken into consideration – there was a timeframe within which the data were to be collected and a limited amount of human resources to complete the task. Secondly, a point where a certain degree of theoretical saturation started to occur was reached during the data collection process. However, conducting interviews did not stop at the first signs of saturation. As Gillham (2005, 50) notes, empirical data contain explanations and the more subjects are interviewed, the more explanations are found. Theoretical saturation starts to occur when new explanations found in the data are few and fairly insignificant.

SECTOR	FINLAND	INTERNATIONAL	TOTAL
Public	18	-	18
Private	17	3	20
Third	7	-	7
Innovation Platform	6	10	16
Researcher	1	3	4
TOTAL	49	16	65

Table 3: Summary of all Interviews Conducted in the Research Project

The interviewee candidates were approached by e-mail or phone to find out whether they would grant an interview for the research project. The interviewees were given information about the purpose, goals, and funding of the research project, the intended use of the interview data, and the estimated time required for the interview. The discussion continued with the candidates who expressed interest and meetings were set up accordingly. All interviewees gave permission to disclose the name of the organization they represented if necessary, but it was agreed on that the interviews would be treated and reported confidentially and that the interviewees would remain anonymous which is why their names and titles are not disclosed in this thesis.

The interviews analyzed in this thesis were conducted face-to-face with the interviewees with one or two members of the research project team present during each interview. The interviewers were equipped with an interview guide that was meant to provide a loose structure and help facilitate the interview (see appendix 1). All interviewees were asked the same questions, but the degree of elaboration and time spent with each question varied greatly based on the interviewees' knowledge on the subject and willingness to elaborate on their answers. The interviews lasted from one to three hours each. The interviewees were encouraged to visualize their answers and were provided with pens and paper to aid in visualization as well as two innovation platform models by Ojasalo (2015a:2015b – see appendices 2&3) to stimulate the conversation.

All of the conducted interviews were audio recorded with the interviewees' permission and the interviews were later transferred into text format by transcribing them word for word. The transcription work was done by the research project team's assistant. The visual illustrations were photographed and also included in the data analysis. After each interview, the researcher responsible filled out an interview information form containing the basic information on the interview such as the names of the interviewer and interviewee and the time and

place of the interview. The interview information forms were then sent to the research assistant who filed them in the project database to validate that the interviews had been conducted according to plan.

3.2.2   Focus Group Interview Workshops

Various forms of group interviews have been used by social researchers since the 1920s, and focus group interviews emerged in academic social research in the 1980s. Focus group interviews are essentially moderated group discussions that are used to unveil and obtain a variety of viewpoints on a focused topic. A focus group typically consists of four to ten interviewees whose role is to discuss the topic presented by the moderator who is also responsible for facilitating the conversation. In addition to the discussion that is at the core of focus group interviews, the use of stimulus materials and activities such flip charts and pens, games, and exercises is becoming increasingly common. The stimulus materials and activities may be helpful in warming the participants up and making them feel more comfortable as well as in visualizing their thoughts. (Brinkmann & Kvale 2015, 175; Liamputtong 2011, 31, 42, 64.)

According to Morgan (1998, 11-12), focus group interviews are useful in exploration and discovery and are frequently used to study topics about which there is little knowledge. Focus groups provide in-depth insight of the participants' views and opinions through their interaction and how they react to each other. Furthermore, focus group interviewing is one of the few interview forms that allow for uncovering large amounts of information even if the researcher does not specifically know what questions they want to ask. Focus groups also provide interpretative insights on why things are the way they are and how they came to be that way, as the participants are interested in learning about each other and finding out how their views are shaped. There are also challenges associated with focus groups. For example, exercising little control over the group allows for a wide variety of insights, but it may also result in hit-and-miss type of conversations. Brinkmann & Kvale (2015, 176) also note that the interview transcripts - especially the ones of particularly lively conversations – may turn out chaotic.

As part of the data collection process of the research project, a total of five focus group interview sessions were arranged in workshop-like settings in the year 2015. The workshops were carefully documented through audio recordings of the discussions and photographs of the visual outputs (see Figure 3 for an example). Selected parts of the discussions were also transcribed word for word and included in the research project's database for analysis along with written summaries of the workshops' key insights and photographs of the visual illustrations.

Only one of the workshops – arranged in collaboration with the city of Lahti - was analyzed for this thesis because of its suitable participant profile. In addition to the city of Lahti, the third and private sectors were also represented. The participants were divided into three focus groups to discuss collaborative innovation between cities and external actors. The groups were equipped with markers, post-it notes, and flipcharts and encouraged to visualize their discussions. Members of the research project team acted as moderators for the groups. Each focus group had an additional focus of discussion and group 1 discussed collaborative innovation from a private sector perspective. Therefore, the focus of analysis as pertains to this thesis was primarily on focus group 1.
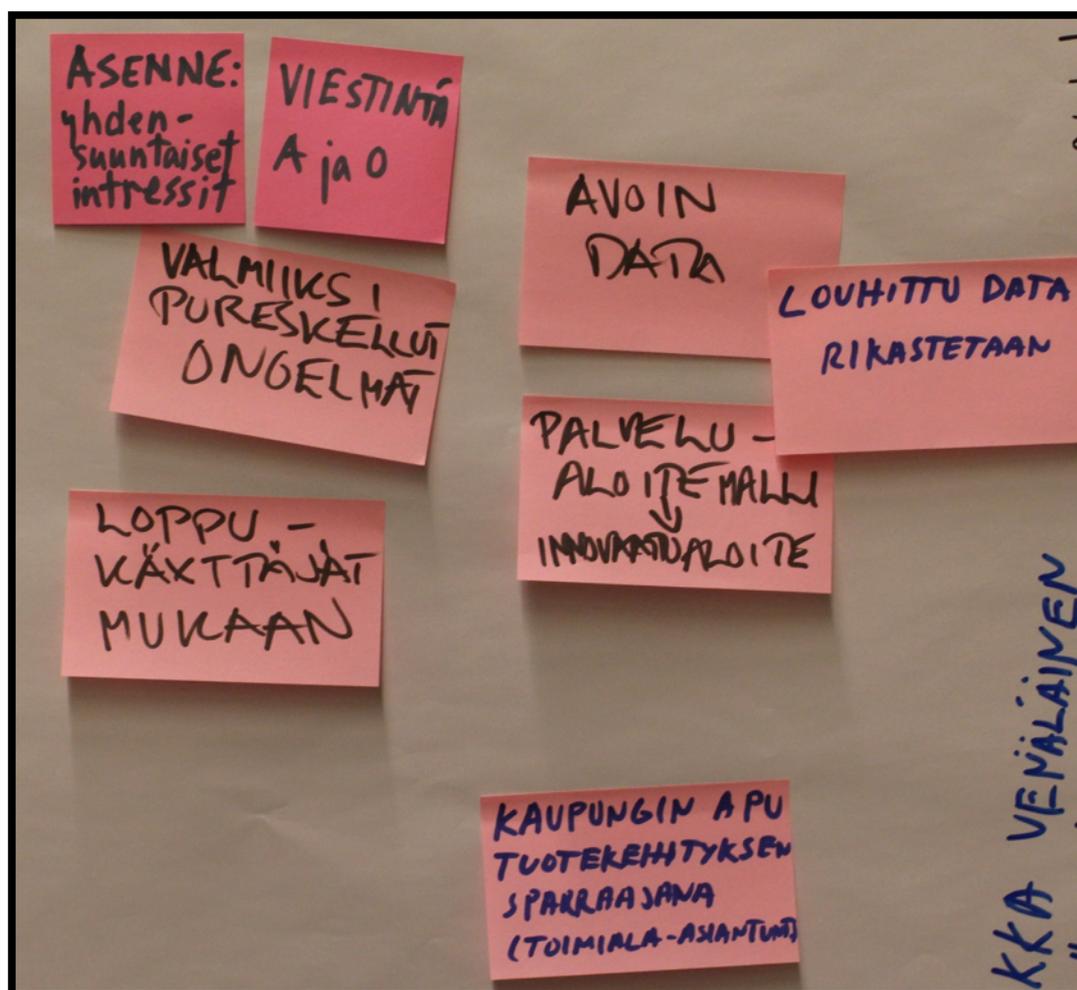
Figure 3: A Visual Output Example by Focus Group 1 of the Lahti Workshop

3.3   Grounded Theory Data Analysis

In its essence, the grounded theory method is an applied method that follows the principles of analytical induction (Hirsjärvi et al. 2007, 219). The grounded theory method was originated by Glaser & Strauss in 1967 and has since become a widely used and popular qualitative

research method across various disciplines. (Bryant & Charmaz 2007, 1). The idea of generating new theory from data instead of testing existing theory or hypotheses is characteristic of the grounded theory method. What also differentiates grounded theory from various other methods is that the grounded theory method goes beyond exploring and describing the phenomena being studied – it also seeks to explain the phenomena by producing theory that is grounded in the data that have been collected. (Birks & Mills 2011, 2,16.)

Bryant & Charmaz (2011, 2-3) make a distinction between the grounded theory method itself and the concept of grounded theory that is - as the name suggests - a theory that has been developed using the grounded theory method. Bryant & Charmaz (2011, 11) further argue that the grounded theory method is actually a family of methods. These notions are relevant to this thesis as it is not intended to be a complete grounded theory study that meets all the defining criteria of one – rather, specific grounded theory methods as pertains to the coding and categorization of data were used in the data analysis process with the purpose of generating findings.

According to Johnny Saldaña, coding is an essential part of data analysis in the grounded theory method and the data analysis process is characterized by coding cycles during which the researcher meticulously applies codes to the data in order to ultimately create theory. Saldaña (2013, 3) notes that a code is usually defined as "a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data". As per Birks & Mills (2011, 93), codes are essentially used to identify conceptual repetition and similarities in the subjects' experiences and groups of codes form categories that represent high level concepts. This thesis adopts parts of the coding typologies laid out by Saldaña (2013) and Birks & Mills (2011) and particularly the concepts of initial coding (also known as open coding), intermediate coding (also known as focused coding), and theoretical coding.

The purpose of initial coding is to establish conceptual control over the data. Initial coding is used to recognize conceptual possibilities by splitting the data and initiating the process of distinguishing and naming incidents, phenomena, and patterns as well as comparing them with each other. Initial coding is suitable for the early stages of the process of analyzing qualitative data and it can be considered a good way for beginning qualitative researchers to familiarize themselves with coding. Intermediate coding includes the grouping of codes into categories and linking the categories together and it enables reaching deeper levels of conceptual depth than initial coding. Identifying the most pertinent categories is one of the key goals of intermediate coding. Intermediate coding and the formation of categories usually reveals where the data are possibly lacking which might prompt the researcher to collect more data until theoretical saturation starts to occur. Theoretical coding is the final step towards

producing a grounded theory by synthesizing the categories that have been derived from the preceding stages of the analysis process and identifying a core category that explains the gist of the study. Not all qualitative studies aim at generating original theory, but rather build on or modify existing theories. However, addressing how the phenomena being studied works and for what reasons is an important part of the final stages of theory building even if the study does not aim at the development of original theory. (Birks & Mills 2011, 95, 97-99; Saldaña 2013, 100-101, 223-224.)

The data analysis process of this thesis took place over a long period of time and was partially overlapped with the collection process meaning that the two phases did not follow each other in a strictly linear fashion. The early analysis of the data started as soon as the first interview transcripts were available. The transcripts were carefully read through while taking notes and attempting to identify parts that held significance for the study i.e. codes. Already at this stage it was noticed that the meaningful insights tended to revolve around three main themes that were possibilities, challenges, and solutions – these three themes would later become the main categories of the empirical findings of the thesis and identifying codes in the categories became one of the primary purposes of the thesis. It could be argued that a certain amount of theoretical saturation had occurred by the time the data collection process was finished, because the emergence of new codes started to diminish significantly and the ones that did emerge were usually variations of the codes that had already been identified during the early stages of the coding process.

Once the data collection phase was finished, all of the transcribed interview data were transferred into one large text document accompanied by a selected set of photographs of the visual outputs of the interviewees. The main part of the data analysis phase began with the large data file. At that point, the focus of this thesis had become clear which meant that a significant portion of the data could be eliminated from the data set that was to be analyzed further – with only the data collected from the private sector, the size of the data set was reduced considerably, but there were still hundreds of pages of data to be analyzed.

The full data set was read through several times and the amount of focus was gradually increased with each cycle. During this part of the process, significant and recurring themes were highlighted and transferred to a separate document and as a result, the data set was condensed into a more manageable size. The analysis continued with the condensed data set and the notion of the three categories became more clear. Thus, the codes were color coded and regrouped into the three categories that were identified i.e. possibilities, challenges, and solutions. Once categorized, the codes were further summarized and the empirical findings of the thesis (described in more detail in chapter 4) were the result. The data analysis process continued by trying to identify the most meaningful codes in the categories and find out how

they interact with each other and form a larger entity that summarizes the key findings of this thesis in a meaningful and communicable fashion. This part of the analysis process resembled what is referred to as theoretical coding in the methodology literature (see for example, Birks & Mills 2011) and was extremely challenging. Ultimately, two models illustrating the process as well as the key parties and activities of successful collaborative innovation were formulated based on the analysis. The models are presented and discussed in more detail in chapter 5.

3.4   Ethical Considerations

According to Hirsjärvi et al. (2007) there are various ethical matters that need to be taken into consideration when doing research. Ethical implications are present in various parts of research – from the choosing of the subject to be studied to the acquisition and publishing of information, all researchers have ethical responsibilities. An ethically acceptable study should follow good scientific practices. (Hirsjärvi et al. 2007, 23-25.)

The ethical aspects of this thesis were carefully considered throughout the research process. The data collection methods themselves required discretion. The interview candidates were given a comprehensive overview on the research project and its funding bodies and the intended use of the interview data. The process only moved forward with the candidates who expressed consent. Furthermore, the interviewees were promised confidentiality and anonymity meaning that the interview recordings and other forms of documentation would be treated confidentially within the research project team and that the interviewees' names would not be mentioned in any of the publications produced by the research project. Ethical aspects have also been considered in the reporting of this thesis. The researcher has sincerely strived for avoiding plagiarism and providing adequate reference information whenever referring to texts published by other researchers and authors.

4   Empirical Findings

The process of coding and categorizing the data produced the empirical findings of this thesis. The three categories are labelled possibilities and opportunities, challenges, and solutions and good practices. The possibilities and opportunities represent the findings that describe what kind of potential and benefits collaborative innovation is perceived to have when done right. The challenges reflect the issues that are considered barriers to successful collaborative innovation. The last category i.e. the solutions and good practices is the most complex one of the three – it includes concrete suggestions on how to improve collaborative innovation activities and overcome some of the perceived challenges as well as more general ideas of factors that enable successful collaborative innovation. The empirical findings - organized by category - are summarized in Table 4. The order in which the findings are presented holds no

significance, meaning that they are not organized, for example, by the perceived level of impact or importance.

POSSIBILITIES AND OPPORTUNITIES	CHALLENGES	SOLUTIONS AND GOOD PRACTICES
Improved Quality of Solutions Purchased by Cities	Organizational Silos in Cities	Key Parties and People Involved in Collaborative Innovation
Positive Financial Impact for SMEs	Rigidity, Hierarchy, and Bureaucracy in Cities' Organizations	Identifying Innovators and Change Agents in Cities' Organizations
New Resources, Contacts, and Opportunities	Legislative Challenges	Organizing and Managing Collaborative Innovation Projects
Positive Public Image and Social Innovation	Negative Attitudes Towards the Private Sector	Face-to-Face Meetings Between the Actors
	Resistance to Change	Technological Tools and Solutions
	Lack of Openness in Market Dialogues	Structural, Legal, and Political Changes
	Cities' Procurement Policies Favor Big Companies	Active and Honest Communication
	Short Contract Periods Limit Long-Term Commitment	Openness and Transparency
	Issues with the Sustainability of Ideas and Successful Projects	New Metrics, Rewards, and Evaluation Criteria
	The Current Metrics and Bidding Criteria Limit Innovation	User-Centricity
	Lack of Conformity and Scalability in Cities' Systems and Processes	
	The Public and Private Sectors Operate at Different Paces	

Table 4: Summary of the Empirical Findings

The empirical findings are discussed in more detail in the following sub-chapters. The possibilities and opportunities are discussed in chapter 4.1, followed by the challenges in chapter 4.2. The solutions and good practices are presented in chapter 4.3.

4.1   Possibilities and Opportunities

Improved Quality of Solutions Purchased by Cities

Opening up the innovation projects and collaboration between cities and private sector companies holds potential to increase the amount of competition which is considered to have a positive effect on the quality of work. The idea is that as competition increases, qualitative metrics become more important as ranking suppliers based on price alone is not sufficient. Open and honest communication pertaining to collaborative innovation projects is also considered a quality-increasing elements as it enables better match-making – it helps the cities find the most suitable suppliers to fulfill their needs and it also helps the suppliers to realistically evaluate whether they have the right kind of solution for a particular project.

Another quality-related point that was identified in the data is that the possibility for cities to buy small solution packages from a wide pool of suppliers could potentially improve the quality of the solutions they are paying for. Splitting the purchases into smaller parts would enable more SMEs to participate in bidding which would increase competition. While taking such an approach may seem costly in the short-term, it is perceived to increase the quality of work and bring savings in the long-term as less damage control is required to fix problems arising from poorly rendered services.

Positive Financial Impact for SMEs

The buying power of a city is significant from an SME's point of view and becoming a supplier for a city can have a substantial financial impact on an SME's business. What may seem like a small project from a city's standpoint can be very important to a small supplier. Therefore, lowering the threshold for SMEs to become cities' suppliers has potential to affect a city's business environment in a positive way by supporting the companies in the area with new business opportunities.

Expanding the possibilities for SMEs to form alliances in order to become suppliers for cities as joint efforts is also regarded as a potential way to work in a more cost-effective manner, especially from the SMEs' point of view. Forming alliances allows the member companies to split costs and resources pertaining to participating in bidding for cities' projects.

New Resources, Contacts, and Opportunities

The data suggest that companies in the private sector see great potential in working on collaborative innovation projects with cities and other companies. Working on cities' challenges

with new people and new customers can offer valuable insight on what's happening in the world and thus help identify new business opportunities and come up with new solutions. Based on the data, it seems that currently there is room to include more companies in cities' collaborative innovation projects and that it is indeed possible to achieve win-win situations in which no party needs to feel like the increased pool of suppliers is a threat to their existing business.

Collaborative innovation work with cities is also perceived to increase the possibilities to disseminate ideas across the borders of an individual city and thus create new business opportunities. Private sector companies seem to appreciate the idea that teaming up with a city as well as other companies offers useful and increased resources to spread the word about successful projects and reach new customers such as other cities. In other words, collaborative innovation holds potential for companies to increase and widen the impact of their work which benefits not only the companies in terms of new business opportunities but also their customers in terms of better access to new solutions. The improved impact of collaborative innovation is also considered beneficial because it helps eliminate re-inventing the wheel as long as the results are scalable and and openly disseminated.

The perception seems to be that forming alliances and consortia is currently a feasible way for companies, especially small and medium-sized ones, to get involved in collaborative innovation projects with cities. The current procurement policies of cities as well as the related national laws already allow for smaller companies to join forces in order to become eligible to bid and the data suggest that companies appreciate the fact that such possibilities exist and see great potential in them. Even though the current legislation on public procurement was largely considered a challenge to collaborative innovation, the data revealed an interesting notion in that some companies also see the new legislation as an enabling factor as pertains to the various possibilities to team up and become a city's supplier as part of an alliance.

Positive Public Image and Social Innovation
Collaborative innovation work also holds potential to help cities as well as the other parties involved build a positive public image through new innovations and successful projects. In addition to improving a city's image in the eyes of the citizens, successful collaborative innovation is likely to attract positive attention from other cities, companies, etc. Smart cities and the work done therein tends to be recognized worldwide which is considered to help build not only the public image of a particular city, but rather the whole country in which the city is located.

Social innovation is also considered an important element of collaborative innovation work, especially the kind that involves citizens in the process. For example, if a collaborative innovation project focuses on a particular area of the city, the citizens may become an essential part of the process. By participating as end-users and interacting with each other, the citizens help build a new social dimension of innovation that is important in a smart city.

4.2   Challenges

Organizational Silos in Cities

The data suggest that it is common for cities to be organized in silos that operate independently from each other and might have differing agendas that guide their actions and decision making. Rather than being single entities with a common set of problems, challenges, and needs, cities are perceived to comprise a diverse group of operators, bodies, and organizations that – even though existing under one umbrella – do not necessarily communicate with each other nor work together towards shared goals. From the point of view of an outsider, for example, a private sector supplier, crossing the borders between different silos and departments within a city seems arduous due to the various conflicts of interest that exist and prevail within the organizational structures.

The very logic based on which the cities' organizations are formed is considered suboptimal for customer-centric service development; a large portion of the data and findings collected by working with the citizens as well as suppliers is being underutilized as it is not distributed and shared across the silos. Even though it is acknowledged that a will to do good exists and good work is being done in cities, it is the cities' organizational structures that prevent the ideas and work from reaching their full potential. The aforementioned underutilization of data is most prominent when there is no clear managerial body that sees the big picture and administers the city as a whole.

Rigidity, Hierarchy, and Bureaucracy in Cities' Organizations

The typical organizational structures of cities are considered rigid and hierarchical which might be detrimental to innovation and collaboration efforts with external actors. Cities' organizations are facing challenges to cope with the pace at which the world outside along with its needs are changing, because the cities' internal logic, skills, and processes are changing and developing slowly if at all. One interviewee noted that, in their experience, many people employed by cities have joined the organizations years or decades ago when the organizations have been very different from what they are - and more importantly, should be - today, but somehow their positions and jobs have remained unchanged throughout the years even though they don't necessarily meet the requirements of the modern-day operating environment. The existence of the aforementioned positions creates inertia and is seen as a hindrance to the

efforts of the people who actually have vision and insight on how to develop more modern and innovative processes and ways to work.

The hierarchical power structure in cities' organizations is another challenge identified in the data. From the point of view of an external supplier, carrying out projects or research and development activities with cities is difficult, because in order for any work to get done and projects to get started, strategic decisions need to be made but the people who actually have the authority to make the decisions are so high up in the cities' organizations that they are not involved in or concerned with individual projects. Several interviewees felt like the city representatives they have been working with have been open to new ideas and easy to work with, but at the same time powerless to make any decisions and get things moving forward which results in good efforts stopping dead on their tracks when approval to proceed is sought from someone higher up in the hierarchy who has no real interest in the project at hand.

Bureaucracy in cities' organizations is also considered a challenge. One interviewee noted that the cities organizations are actually full of innovative ideas but they tend to get lost in the red tape before ever being realized. Another private sector representative described a situation in which their company was working on a project together with a group of city employees who were surprised and amazed at the level of liberty they were given to experiment and try out new things without having a group of higher-ranking city officials hold several meetings about it first. In this particular example, the subject of experimentation was a simple admission form that daycare customers need to fill out which is something a private sector company would change immediately if it were likely to improve their customers' experience, but something that, in a city, would require long bouts of internal deliberation and the involvement of a large group of people with sufficient authority in the organization.

Legislative Challenges

The work carried out by cities is strictly controlled by rules, laws, and regulations which is considered a limiting factor to innovation and new ideas. In cities, the decision-making model is grounded in legislation, particularly, the national law on public procurement, and the data suggest that once decisions on any particular procurement project have been made, it becomes extremely difficult to have them overturned or changed going forward. This means that a large part of, for example, an innovation project is pre-determined and even though such projects tend to be dynamic and unpredictable in nature, they remain somewhat chained to the initially formulated set of rules as any drastic change might be considered a breach of contract from a legal standpoint. This results in situations where the city employees get extremely cautious about legal implications and have a reluctant attitude towards anything new that has not been covered in the guidelines set at the beginning of the procurement project in question.

Another somewhat limiting factor about the currently prevailing laws on public procurement that was identified in the data is that whenever cities are looking for innovative solutions, they are legally bound to go a certain route and follow certain processes in order to even find out what is available in the market. Whenever looking for a new solution or supplier, cities are obliged to do a certain amount of tendering which, on the one hand, supports equality, but on the other hand, means more work and resources used as the tenders need to be carefully planned and conform to the existing laws and regulations. Furthermore, the strictly predetermined format of the cities' requests for proposals limits the solutions available – several interviewees reported instances in which great solutions have been disqualified in the tendering phase because they haven't met every detailed requirement set out in the request for proposal. The tendering process described above creates situations in which cities need to know exactly what they want to buy before actually buying it or even considering alternatives which means that great external solutions the city hasn't been able to think about internally are left out of the competition before it even starts.

Negative Attitudes Towards the Private Sector
The data suggest that in certain situations, city employees have somewhat negative and condescending attitudes towards external suppliers and partners, especially SMEs. Several interviewees felt like, when collaborating with cities, they have not been treated as equal partners but rather as inferior parties in the hierarchy which probably stems from the long traditions of hierarchical organizations the city employees are used to. The condescending attitudes are even more prominent when it comes to the relationships between cities and SMEs whose managers and staff are typically of the hands-on type and often busy and very much involved in their companies' daily operations, whereas certain city employees are more used to dealing with highly educated and seemingly important executives from big corporations.

It also seems like the cities' attitudes towards external suppliers may sometimes limit openness in communication – one interviewee reckoned that city employees might feel threatened and even jealous whenever someone from outside the organization gets involved, because they consider it a failure when their organization cannot solve all problems internally and have to resort to external help. The lack of openness works both ways and the data indicate that the problem does not lie solely in the cities' organizations; the private sector suffers from similar attitude-related problems and the lack of willingness to share all information and systems openly with the cities they are working with. The data also suggest that there are still city officers who cannot see any value in involving private or third sector suppliers in the city's activities which is also reflected in the way they communicate and serve the external suppliers.

Resistance to Change

Decision making in cities is perceived to be based on precedents and therefore the decision making logic follows the idea that something that has not been done before does not need to be done now or in the future either. New and innovative ideas tend to be difficult to fit into the currently existing pigeonholes and the data suggest that city officials are not comfortable dealing with things that cannot be easily categorized.

The perception in the private sector is that some city officials are reluctant and afraid to leave their comfort zones in pursuit of new innovations and improvements, so they prefer to stick to the old, tried-and-tested ways of working that, while probably not optimal, at least get the job done somehow. Various new systems and methods to help with the procurement of innovative solutions are already in place in different cities, but it seems that unless made mandatory by the top management, the city employees responsible for procurement are reluctant to embrace and use them when their old ways work adequately, at least seemingly.

Lack of Openness in Market Dialogues

A certain lack of openness in procurement policies was identified as one of the key factors that limit cities' open innovation efforts. For example, cities organize market dialogues in which they engage in discussion with their suppliers in order to explore the current supply of solutions in the market and anticipate possible upcoming changes. Market dialogues should be based on the principles of openness and equality, but the perception within the private sector seems to be that the market dialogues are often carried out as mandatory formalities with no real intention of engaging in active dialogue between the suppliers, citizens, and other parties involved.

Several interviewees with experience in market dialogues noted that for tactical reasons, cities as well as private sector companies are often not willing to disclose enough information to create a setup for open dialogue. Even though the purpose of the market dialogue events is that the cities can present their ideas, challenges, new projects, etc. so that they can be openly discussed and improved on, they seem to have no real interest in hearing what the other participants actually think. The market dialogues are typically organized at a stage where the actual proposal or project in question has been so carefully prepared that making any drastic changes based on the external feedback is not realistic from the city's point of view.

Cities' Procurement Policies Favor Big Companies

While it has been acknowledged that small and medium-sized companies often have feasible and competitive solutions to cities' challenges, the current procurement policies seem to fa-

vor big companies. Firstly, cities tend to buy large solution packages in which numerous different services are procured under one tender – many SMEs are left out of the competition just because they cannot provide all services covered in the tender, even though they would be able to make competitive offerings on one or several smaller fragments of it.

Cities' procurement policies and tendering processes are considered complicated and heavy which also favors big companies with abundant resources. It seems like the sheer act of completing a city's request for proposal in such a way that it does not get disqualified due to some minor format error can take considerable amounts of man-hours which is discouraging and in some instances makes it downright impossible for SMEs to even offer their services let alone win the tender. One interviewee also noted that with some cities, winning tenders has become an art of technical competence in public bidding processes and it has become a matter of making the right tactical moves rather than offering the most suitable and competitive solution.

Short Contract Periods Limit Long-Term Commitment

The service contract periods between cities and their external suppliers are fairly short from the suppliers' point of view. Companies in the private sector would generally prefer long-term returns as well as relationship-building possibilities and the fact that, in order to keep their business, they have to regularly compete in a bidding setup after their contract period with a city comes to an end seems to be de-motivating as well as a limiting factor in terms of commitment.

The notion that cities are regularly changing their vendors may seem contradictory to the idea that public sector organizations are generally reluctant to change their existing setups and procedures. However, it is what the cities are obligated to do and in this instance the private sector opinion seems to be that extending contracts without having to go through the grueling competition process every two years would be preferable if the collaboration seems to flow smoothly and holds potential for further development.

Issues with the Sustainability of Ideas and Successful Projects

A large part of innovation and R&D work done in cities is carried out in projects, and a tendency of letting the results fade away after a project's lifecycle was identified in the data. This is considered problematic by the suppliers involved in the aforementioned projects as they feel like there is often no sustainability to their work and ideas, no matter how successful they are. Even though the cities are themselves often invested and committed to the various projects they initiate, they do not seem to have adequate processes in place to utilize the results and turn them into ongoing and sustainable parts of their activities.

From the private sector point of view, sustainability issues have similar effects as the short contract periods; the lack of long-term prospects limits commitment. Some examples in the data also described situations in which cities have not been completely transparent and open about their actual goals when ordering project work that is experimental in nature from their suppliers. If there are no real intentions and chances to turn a particular project into ongoing business, it would be preferable for the suppliers to know about it before committing to the project so they would have a chance to adjust their approach and allocate their resources accordingly or even decline the project altogether.

The Current Metrics and Bidding Criteria Limit Innovation
The way in which cities rank and evaluate proposals during the bidding phase is largely based on quantitative metrics which is, in many instances, considered insufficient. Large and sophisticated projects end up being defined solely by numbers while various important qualitative attributes are being neglected because the current procurement policies do not allow the suppliers to present them.

The price of the solution as laid out in the proposal seems to be the most important criterion when ranking proposals, but several interviewees noted that they have witnessed first-hand how choosing the cheapest alternative has proved to be costly in the long-term when failure to meet the qualitative requirements that have not been taken into consideration in the bidding phase has resulted in additional and unforeseen costs. The absence of qualitative metrics in the bidding phase does not mean that qualitative factors are not important to the cities – indeed it seems that the procurement policies are not always aligned with the actual needs and cities do appreciate flexibility and high quality in the work of their suppliers, but the suppliers rarely get to show what they can do and present their most compelling selling points in the bidding phase.

Lack of Conformity and Scalability in Cities' Systems and Processes
Cities' external suppliers find it problematic that there is a lack of conformity and scalability between different cities and sometimes between the various silos within one city. It seems that on a national level, most cities seem to be using different systems and different processes which creates extra work for the suppliers looking to provide services for multiple cities at the same time. Considerable effort is required to learn the city-specific lingo, systems, nuances, etc. which in other words means that what may work in one city may be downright impossible to implement in another one without considerable adjustments. The data also indicate that in some instances, there are significant differences within the organizational silos of a single city. Basic daily routines and tasks such as delivering invoices may vary from one silo to another.

Another conformity-related challenge identified in the data is that cities do not seem to sufficiently communicate and exchange ideas as well as good practices with each other. The lack of communication often results in reinvention of the wheel instead of using the resources on creating and developing something new. The data do not reveal any clear reasons as to why more communication and idea exchange is not taking place between cities, but there are implications that it might have to do with the generally negative attitudes towards seeking help from outside the city organization.

Public and Private Sectors Operate at Different Paces
The difference in the pace at which cities and their private sector suppliers operate creates certain challenges. For example, when a city launches a project, it might take them years of planning and development work before the results are actually implemented in practice, whereas companies in the private sector tend to carry their projects out in shorter cycles and also expect quicker returns and results.

The differing perceptions of time between the sectors can be challenging from a financial perspective, particularly for SMEs. The smaller the company, the more important a steady cash flow is and having a city as a customer often means that getting paid for the services rendered can take time due to red tape and slow processes. In some instances, the cities also expect their suppliers to do different kinds of development and ideation work that will only be paid for once the city is finally ready to buy the services – many SMEs are simply not financially able to operate like that.

4.3   Solutions and Good Practices

Key Parties and People Involved in Collaborative Innovation
In addition to city officials and private sector company representatives, a number of other parties whose role in collaborative innovation projects is essential was identified in the data. Involving the key regulatory bodies and authorities in the process and maintaining active communication with them is considered beneficial for overcoming certain legal and regulatory challenges as well as avoiding unforeseen regulatory roadblocks. Academic institutions such as universities are also perceived to provide valuable insight since they tend to have up-to-date information on the issues and industries that are relevant to the cities' challenges and needs.

Based on the data, it seems that private sector companies also find it important that parties such as various enterprise federations and the chamber of commerce are involved in collaborative innovation. The primary function of the aforementioned parties is to disseminate information on potential projects and opportunities among their members and customers in order to ensure that as many potential vendors as possible become aware of cities' challenges and get a chance to participate in the bidding by offering their services accordingly.

When cities engage in collaborative innovation projects, the aim is often to develop new and better solutions for the citizens which is why their involvement in the innovation process is considered essential. The data strongly suggest that higher levels of citizen involvement are needed at various stages of the collaborative innovation process; sometimes collaborative innovation projects tend to fail or yield suboptimal outcomes because of the fact that the challenges have not been identified and goals have not been set with the citizens' i.e. the end-users' needs in mind.

As the paragraphs above indicate, collaborative innovation projects require a large number of various parties and people to work together and communicate with each other. It is considered beneficial for collaborative innovation work to be carried out in an open fashion in order to ensure that the end-users' real needs are adequately identified and that as many potential solutions as possible are taken into consideration. However, the level of openness is an important point to consider as the data clearly indicate that a certain amount of caution and control needs to be exercised when determining the extent to which potential vendors and end-users are allowed to participate at various stages of any particular collaborative innovation project. The early stages such as challenge identification and goal setting are particularly challenging as they are the moments when the risk of information overflow is at its highest; having too much information and opinions to process might lead to situations in which choosing a clear focus becomes difficult which in turn may prevent projects from getting properly started and moving forward.

Identifying Innovators and Change Agents in Cities' Organizations
As discussed in chapter 4.2, some of the most critical challenges that limit the potential of collaborative innovation between cities and private sector companies have to do with people and attitudes. Reluctance to change and the tendency to stick to the old ways of operating are generally considered negative qualities when the goal is to create something new and the perception among private sector companies seems to be that said negative qualities are particularly prominent in the public sector and cities' organizations. Therefore, it is considered extremely important that cities try to find and identify open-minded and innovation-driven employees within their organizations and put them in charge of their collaborative innovation efforts.

The data contained examples of the powerful impact that the right kind of individuals may have on collaborative innovation projects and encounters with such individuals within cities' organizations stood out as positive experiences among the interviewees. The interviewees used various names such as innovators, change agents, and disruptors to describe these indi-

viduals. It is seen as a positive sign that such individuals already exist and work in cities' organizations and the general perception seems to be that cities would benefit from putting more effort into identifying and empowering them. While the change agents tend to have a positive effect on other people around them and abilities to lead and inspire by setting good examples, the data suggest that cities need to make sure that the change agents are granted with sufficient authority to make decisions and implement ideas in order to utilize their full potential. In addition to empowering the change agents, rewarding their innovative efforts is also considered important as it could potentially encourage other like-minded individuals to come forward and express their ideas.

Organizing and Managing Collaborative Innovation Projects

Collaborative innovation requires coordinated efforts by various parties and therefore the structure, management, and administration of the project organization are essential points of consideration when setting up a collaborative innovation project. While the data did not yield a single, unanimous view on an optimal administrative model, certain key elements and recurring themes were identified.

Firstly, the consensus among private sector companies seems to be that while it is important to have a clear leading party that assumes the overall responsibility of the collaborative innovation project in question, it is important to maintain a flat structure in the project organization in such a way that all members can contribute to and participate in the decision-making equally. A certain tendency of cities elevating themselves in the organizational hierarchy could be identified in the data which is something that private sector companies wish to avoid. Secondly, the data support the idea that the organizational structures should be kept light and involving more people than is necessary should be avoided. Heavy organizations tend to be slower and less agile which is considered detrimental to innovation. Furthermore, private sector companies feel like they need to carefully consider how they utilize their resources and precious man-hours, and the data contained examples in which private sector representatives described that the amount of people involved in collaborative projects with cities is often exaggerated and that similar results could be obtained by smaller project teams.

The idea of having individual silos in cities' organizations coordinate their own collaborative innovation projects was met with skepticism by a large majority of the interviewees. The reason why such an approach received little support is that the silos tend to get too focused on their own areas of interest and expertise and therefore forget about the bigger picture i.e. the end-users' needs. Having a neutral external coordinator to facilitate the innovation process and manage the projects seems to be considered feasible among private sector companies. The role of the coordinator would be to bring together the various parties involved in

the innovation process and help challenges meet solutions. The coordinating party would also be responsible for monitoring the projects and ensuring that the goals and deadlines are being met.

The data do not give a clear answer as to who the external facilitator should be, but it seems like they should not be operating directly under any city's administration in order to avoid the usual obstacles associated with cities' organizations. In addition, having a completely external coordinator would help promote a sense of equality among the project organization. The coordinating party could be, for example, a private sector entity that is specifically hired and paid for the sole purpose of coordinating collaborative innovation. In this scenario, the coordinator would be accountable for their work and would have to commit to certain goals. Such a model is considered a feasible option, but it raises certain questions on how the funding should be arranged so that the coordinator remains neutral towards all parties involved. Another idea found in the data would be to have some well-established neutral party such as a university act as the coordinator. The perception is that such an organization as the coordinator – as opposed to a private sector company - would be easier for cities to accept. Regardless of the type of organization, the data suggest that the coordinating party should be accountable for their performance and have clearly defined responsibilities as well as sufficient authority to act and make decisions.

Face-to-Face Meetings Between the Actors
Even though modern technology allows for communication and work to take place on online platforms, it is considered important that the various parties involved in collaborative innovation projects also meet face-to-face and gather together in the same physical space to work and discuss. Face-to-face meetings are considered especially important during the early stages of a project as they help the people involved establish a comfortable working atmosphere and build trust.

The data suggest that communication between private sector companies and cities gets easier once people have actually met each other. For example, calling an unknown city official during a project may seem intimidating or otherwise unpleasant to a private sector company employee, but the threshold to do so is significantly lower if there is a face and a familiar person that can be associated with the name and title. While meeting face-to-face and getting to know the project organization is considered important, it is also worth pointing out that holding too many meetings just for the sake of holding a meeting can take time away from working on the actual tasks at hand. The data contained examples of collaborative innovation projects whose quality had clearly suffered due to an exaggerated amount of meetings.

Technological Tools and Solutions

Taking advantage of modern technology in collaborative innovation projects is considered beneficial and even mandatory – if cities wish to receive and process an ever-increasing amount of ideas and solutions, sufficient technological tools and platforms need to be in place. Private sector companies seem to appreciate possibilities to get in touch with cities and offer their services through electronic channels.

The utilization of technology and various online systems seems to be especially important in the bidding phase when cities start requesting the vendors for proposals. From the point of view of private sector companies, it would be helpful if various cities could make their systems more uniform or even find a way to create and use a single system nation-wide, as learning multiple systems with their own interfaces and nuances can become arduous, especially for SMEs with limited resources. Based on the data, there also seems to be a need for a notification-based bidding system in which the supplier is not solely responsible for finding suitable projects, but rather, based on certain data and criteria, the system would use the suppliers' user profile data to find suitable projects and notify them accordingly.

Structural, Legal, and Political Changes

As discussed in chapter 4.2, there are certain structural, legal, and political obstacles that complicate collaborative innovation between the private and public sectors. While it may not be realistically possible to eliminate all of the aforementioned obstacles, it is still considered important to at least understand how they affect collaborative innovation and strive for favorable adjustments whenever possible.

From the private sector point of view, the most important changes to be made have to do with the current procurement legislation and policies under which cities operate. The processes are considered too heavy for smaller companies to handle and also too specific to leave room for any kind of novel ideas and innovation. The perception among private sector companies is that cities often already have a pre-determined solution in mind when they open a project up for bidding, and thus rule out a significant amount of potential solutions that they haven't been able to come up with on their own. It seems like it would be beneficial to involve the suppliers as well as end-users earlier on in the process to ideate and allow for changes to be made as new ideas emerge – in other words, the processes need to be made lighter as well as more flexible and open.

Enabling cities to split their purchases into smaller units both financially and in terms of the scope of work is considered to promote equal opportunities for potential suppliers regardless of their size. Furthermore, the perception among private sector companies is that while it may initially seem costly and arduous, cities would also benefit from smaller purchases by

way of improved quality of work and more innovative solutions. One interviewee described an ideal scenario in which cities would be able to bypass the usual procurement process or apply for a lighter version thereof when purchasing and initiating an innovation project as long as the project in question would not exceed certain set limits, for example, in total costs or man-hours required. Such an approach might turn out to foster innovation and be helpful in getting SMEs involved.

In order for any significant changes to happen, courage to try new things and change the operating environment is required. While the reasons for having laws and regulations are acknowledged and appreciated, many private sector companies feel like sometimes bold changes are required in order for innovation and new ideas to thrive.

Active and Honest Communication

In order to overcome at least some of the challenges related to human behavior and attitudes, active and honest communication as well as a certain level of openness is considered essential to collaborative innovation. Active communication both ways helps promote a sense of equality between cities and their suppliers and it also sets ground for long-term partnerships and sustainability of results beyond the life-cycles of individual projects.

Honesty in communication is a quality that private sector companies seem to value greatly when doing business with cities which is emphasized by numerous references to real-life examples in the data. Several interviewees pointed out that the cities' intentions and actual goals have not always been clearly communicated to the suppliers which may lead to disappointing situations. For example, if a city is only looking to buy certain consultation services or trial projects, it would be beneficial and fair to make the suppliers aware of it and openly tell if long-term cooperation is not expected or possible. It is extremely important for a private sector company to know whether the work they do has any implications of sustainability and long-term business opportunities so they have a fair chance to consider whether they wish to commit their resources to a project or not.

Openness and Transparency

Even though the level of openness in collaborative innovation is a broad topic and reaches beyond the scope of this thesis, openness and transparency are discussed in this chapter as they were both recurring themes in the data. The perception among private sector companies seems to be that all parties involved in collaborative innovation would benefit from more openness and transparency in processes, communication, and the sharing of data. Based on the data, openness refers primarily to attitudes and mindsets and the consensus seems to be that when people feel like it is safe to act and communicate openly, they tend achieve more innovative results.

Despite the fact that private sector companies have their own interests and business secrets to protect, it seems like there are companies that would be willing to share their work and ideas in an open fashion when bidding for projects and developing new solutions with cities and other suppliers, even competitors. The companies that are inclined to share more also seem to value the learning opportunities that are enabled by openness in collaborative innovation efforts. The data suggest that openness in the bidding processes would also be appreciated even though the bids contain sensitive information such as prices. For example, if a company loses a bid, they could get valuable insight if the info on who won the bid and on what grounds would be openly available after the bid is finished.

The data suggest that it would be beneficial in a number of ways if cities carried out their procurement processes and collaborative innovation projects in a transparent and open manner. Firstly, it could attract positive interest towards cities and their collaborative innovation projects if they operated more transparently and openly disclosed relevant information such as actual financial figures pertaining to their projects. Furthermore, the more transparent the public sector operates, the better, as transparency helps build trust with the citizens as well as private and third sector organizations. Transparency and openness would also help avoid situations were certain suppliers are unjustly favored over others.

Building on the idea of having an open and honest operating environment, many suppliers feel like they could produce better results if the cities gave them more freedom to make independent decisions, test their ideas, and participate in project planning. One interviewee described a positive experience in which a city they were working with had taken an unconventional approach and openly asked the suppliers to give feedback on the project and point out any relevant points that hadn't been taken into consideration in the city's initial plans – the results were positive and private sector companies would appreciate it if more cities displayed similar flexibility.

New Metrics, Rewards, and Evaluation Criteria
The perception among private sector companies seems to be that the metrics cities use to rank suppliers in the bidding phase of the procurement process could be improved. A number of companies are of the opinion that the current metrics are too focused on quantitative attributes such as price. While in certain situations price alone might be the most important factor when choosing a vendor, there are also other kind of projects in which emphasizing various qualitative attributes could change the nature of the competition and result in more suitable supplier choices and more innovative solutions.

Opportunities to include more value-based selling points in the bids were called for by several interviewees. An innovative solution might seem more expensive than a competing offer on the pricing sheet, but turn out to create considerable savings through ways that are not possible to demonstrate during the bidding process. For example, a decision to reduce road maintenance might save a city a certain amount of money in the short-term, but the first traffic accident caused by the reduction could end up costing the city multiple times the amount initially saved.

Longevity in measuring and rewarding performance is also important to private sector companies – ongoing cooperation with prospects of long-term business opportunities increases motivation to commit and suppliers value possibilities to strengthen and deepen their business relationships with cities beyond fixed and often short contracts. As noted in the paragraph above, sometimes the true value of innovative solutions can only be demonstrated implicitly and over longer periods of time. For this reason, it would be beneficial if new criteria for evaluating the value of the suppliers' services and rewarding long-term performance were in place. While long-term cooperation and possibilities are important to a number of private sector companies, it is also important to note that certain companies such as SMEs also consider it essential to get their projects started quickly and in an agile fashion – these companies might have less interest in long-term visions and more interest in matters such as short-term cash flow i.e. getting paid regularly and preferably as often as possible. Therefore, it seems that from a private sector point of view, cities should be quick, agile, and flexible in getting vendors in and projects started, yet at the same time have the ability to provide long-term opportunities.

User-Centricity

User-centricity is considered essential in collaborative innovation with cities. In this instance, users refer to citizens and the consensus among private sector companies is that all work done by cities should reflect the citizens' needs. Whenever new solutions and services are being designed, the desired outcomes should always be determined with the citizens' best interests in mind.

Facing the citizens and involving them in the collaborative innovation process – even at the very early stages when the challenges are being identified and defined - is important in order to learn about their true needs. The data suggest that sometimes, cities' innovation projects are driven by factors such novel technologies, systems, and service concepts, when in reality these factors should primarily serve to support the goal of delivering what the citizens actually need. Meaningful innovations do not always need to be radical or technologically revolutionizing – the best solutions are often simple in nature and their real value lies in a deep understanding of the users.

5   Approaches for Enhancing Collaborative Innovation

This chapter presents approaches for enhancing collaborative innovation and aims to do so by presenting two models that were derived from the empirical findings during the last stages of the data analysis process. The models describe what are perceived to be ideal situations in terms of collaborative innovation and they are focused on the collaborative innovation process as a whole as well as the key parties and activities involved in successful collaborative innovation. The collaborative innovation process is discussed first (Figure 4), followed by an overview on the key parties and activities (Figure 5).
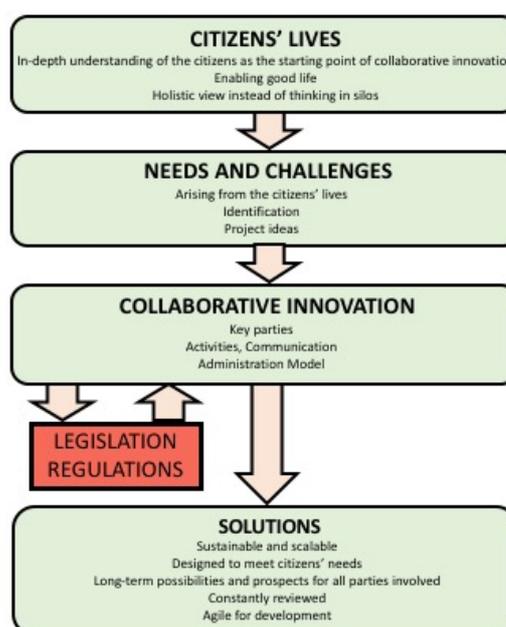
Figure 4: Collaborative Innovation; Overview and Process Flow

The process chart in Figure 4 shows the citizens' lives as the starting point of collaborative innovation in smart cities. The aim of the innovation efforts should be enabling good life for the citizens, which requires establishing a holistic view on their lives rather than thinking and operating in silos. Involving the citizens in the collaborative innovation process as early as possible is essential to achieving a collaborative innovation setup that is based on in-depth understanding of the citizens' lives and needs.

Studying and understanding the citizens' lives from a holistic point of view enables identifying their real needs and challenges which should be the basis of the cities' collaborative innovation efforts. All parties involved in the innovation process should be able to identify the needs and challenges and communicate their findings openly. The processes, systems, and means of

communication should form a collaborative innovation environment that supports open communication and unobstructed expression of ideas.

The key parties and activities of collaborative innovation are illustrated in more detail in Figure 5. Sometimes, various legislative and regulatory matters may slow down the process of turning an idea into a solution, which is why it is important that any particular innovation project consortium acknowledges said matters and is prepared and willing to react to any possible obstacle arising from them.

The ultimate goal of the collaborative innovation process is to produce solutions that meet the citizens' real needs and solve their real challenges. The solutions should be designed in such a way that they can be sustained beyond the project life cycles. This would enable the citizens to enjoy the benefits for as long as needed and the private sector companies involved to gain long-term business value from their participation. Scalability is also important as it enables the transfer of ideas and good practices to other cities within and beyond national borders which creates new business opportunities and may have a positive impact on the image of the city where the solution was first developed.
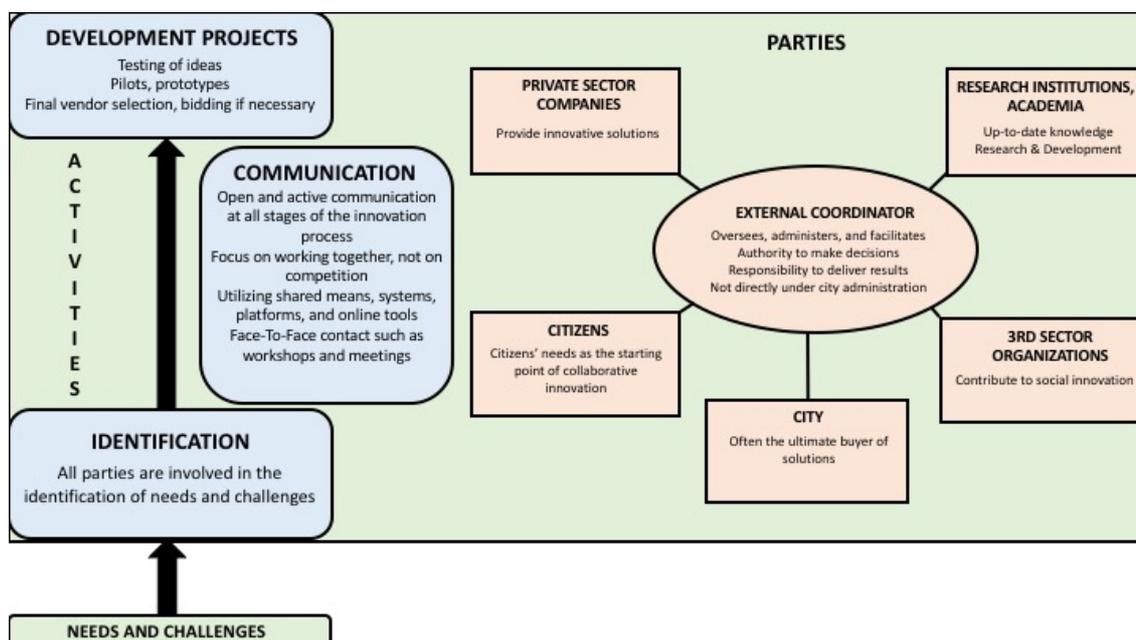

Figure 5: Collaborative Innovation; Key Parties and Activities

Figure 5 illustrates the key parties and activities of collaborative innovation in cities and can be considered a zoomed in, more detailed version of step 3 illustrated in Figure 4. The five key parties are listed on the right side of the figure and include the city, citizens, private sector companies, 3rd sector organizations as well as research institutions and academia. As

noted in chapter 4.3, all of the aforementioned parties are important to collaborative innovation as each of them possesses particular characteristics and insight that contribute to meaningful innovation. Furthermore, a sixth party i.e. the external coordinator responsible for administering and overseeing the collaborative innovation process, is depicted in the oval surrounded by the five key parties.

The key activities required to produce solutions to meet the citizens' needs are shown on the left hand side of Figure 5. Identifying the citizens' needs and challenges is crucial as they determine what kind of solutions the collaborative innovation efforts aim to produce. Contrary to the idea that cities are fully in charge of identifying the needs and challenges and presenting their findings to the rest of the parties, the findings of this study suggest that the other parties should be involved in the identification process as well. Once the the challenges are identified, they can gradually evolve into projects that strive for testing and filtering ideas as well as finding the suitable vendors to turn ideas into action. If any kind of bidding is required between, for example, the city and the vendors, it can be done at the project stage to determine the parties that will ultimately be responsible for delivering and sustaining the solution resulting from the project work.

Communication between the key parties is depicted as a separate item in the figure, as it is one of the most important components of successful collaborative innovation. Rather than placing communication at any specific point in the process timeline, it is considered and expected to happen at all stages of the process. The communication should be active, open, and honest and all parties should have sufficient means and channels for expressing their thoughts. Low hierarchy between the parties is key in creating the right kind of environment for communication and interaction. Utilizing technology in form of joint platforms and systems is considered important, but face-to-face contact at e.g. meetings and workshops is also valued.

6   Conclusions

Collaborative innovation continues to draw attention among professionals and academics as it holds significant potential to help the public sector meet its ever-increasing innovation needs. Likewise, smart cities have been a hot topic ever since their emergence as a way to respond to modern day challenges such as the global trend of rapid urbanization, provide the urban residents of the world with better quality of life, and enable sustainable development. Seeing as how innovation is one of the key drivers of urban growth and how various forms of collaboration and multi-actor involvement are at the core of smart cities, it is indeed relevant and feasible to study collaborative innovation and ways to enhance it in smart city contexts.

This thesis is based on a qualitative study that was focused on enhancing collaborative innovation in smart cities and this chapter serves to conclude the thesis report. First, the results of the study are summarized in chapter 6.1. Next, the value and transferability of the results are discussed in chapter 6.2. Finally, implications for future research and development are presented in chapter 6.3.

6.1   Summary of Results

In order for this thesis to fulfil its purpose, a qualitative study was conducted. The study was carried out by collecting data through interviews and analyzing the data by going through numerous coding cycles as is characteristic of the grounded theory method. By identifying and categorizing the codes in the data and thus producing empirical findings, the thesis fulfilled the purpose of identifying opportunities, challenges, and possibilities as pertains to collaborative innovation between cities and private sector companies. Subsequently, two models illustrating approaches for enhancing collaborative innovation were formulated based on the empirical findings. These models served the second purpose of the thesis that was to discover ways to enhance collaborative innovation and develop a model illustrating what was discovered.

The research questions this thesis sought to answer were presented in chapter 1. The first and third research questions were mostly answered based on the empirical study. The second research question was primarily answered within the literature review presented in chapter 2. As is characteristic of qualitative research, the results of the thesis represent the researcher's subjective interpretation. Therefore, they are not necessarily generalizable and cannot be considered definite, be-all and end-all answers to the research questions. However, they offer a novel point of view on the subject that's being studied. The answers to the research questions are summarized as follows:

1. What kind of challenges and opportunities are there as pertains to collaborative innovation between private sector companies and cities?

Numerous challenges that are perceived to be barriers to collaborative innovation were identified. The challenges mainly revolve around the differences between private and public sector organizations, the perceived shortcomings of cities' organizations and processes, and the attitudes of public sector employees.

Private sector companies also see tremendous potential in collaborative innovation with cities. Successful collaborative innovation is considered to bring with it economic benefits as well as new contacts and business opportunities. Collaborative innovation is also perceived to improve the quality of work through increased competition and a larger pool of resources

which in turn may have a positive impact on the public image of both the companies and cities involved. The identified opportunities and possibilities of collaborative innovation were labelled as follows:

- Improved quality of work
- Positive financial impact
- New resources, contacts, and opportunities
- Positive public image and social innovation

2. Are there significant differences between the public and private sectors that cause challenges in collaborative innovation?

Even though some managerial and organizational theorists have called the importance of public-private comparisons into question (see for example Rainey & Chun 2009, 71-72), the empirical findings of this thesis suggest that significant sectoral differences do indeed exist. These differences are frequently referred to when attempting to describe challenges pertaining to any collaborative efforts involving actors from both the public and private sectors.

The findings on challenges turned out to be particularly interesting because many of them are in stark contrast to some of the existing theories. For example, there are numerous a priori assumptions that are commonly associated with public sector organizations and their bureaucratic nature (see for example Sørensen & Torfing 2011, 846; Bommert 2010, 21) and while some research findings suggest that the stereotypes are either severely exaggerated or not true at all (see for example Rainey & Bozeman 2000), the empirical findings of this thesis clearly indicate that private sector employees consider public sector organizations such as cities more rigid and bureaucratic than their private sector counterparts and therefore hard to work with and less capable of performing well in certain functions, for example ones that require agility.

3. How to enhance collaborative innovation between private sector companies and cities?
    a. What parties and activities are essential to successful collaborative innovation?

The importance of all the parties commonly associated with collaborative innovation was evident in the data. These parties include e.g. private sector companies, cities (or other public sector organizations), research institutions and academia, 3rd sector organizations, and citizens. Each party is considered to bring a unique set of resources and insight with it and thus contribute to collaborative innovation in a meaningful way.

The crucial role of the citizens i.e. the end-users of public services was strongly emphasized in the data. Even though private sector companies have their own interests to look after, they tend to think of the citizens as the starting point of collaborative innovation. In other words, all collaborative innovation activities should be aimed at fulfilling the citizens' needs. This finding brought up an interesting notion about identifying the needs that eventually develop into collaborative innovation projects. Some existing theories assumed that in a standard collaborative innovation setup, the public sector organization contracting for services is responsible for identifying the challenges that demand public attention and bringing them to the attention of the possible vendors accordingly (see for example Nutt 2006, 289-290; Ojasalo 2015a, 199). However, the empirical findings of this thesis indicate that all parties involved in collaborative innovation should participate in the identification of needs and they should be provided with sufficient tools and processes for expressing their discoveries.

b. How should collaborative innovation efforts be managed and organized for optimal results?

Several preliminary administrative models for administering and organizing collaborative innovation efforts and implementing them into the city administration (see Ojasalo 2015, 526; Ojasalo & Tähtinen 2016, 43) were discussed with the interviewees. The findings suggest that having a clearly defined leading party is considered essential to successful collaborative innovation.

Based on the empirical findings, having a neutral external coordinator in charge seems like the most feasible option for managing collaborative innovation. The idea of having the public sector organization that is contracting for services manage collaborative innovation was met with skepticism. It is not considered a viable alternative because it may result in an unequal hierarchy among the actors involved. Silo-based management was also considered a less-than-ideal option due to the tendency of losing sight of the big picture when operating in silos.

6.2   Value and Transferability of Results

Until recent years, the role of multi-actor collaboration in enhancing public innovation has not been studied and addressed adequately in academic literature considering the ever-increasing demand for innovation the public sector is facing (Sørensen & Torfing 2011, 844). This thesis offers a contribution to the discussion on collaborative innovation by presenting the results of a qualitative study that focused on collaborative innovation in a smart city context. Thus, the results of the thesis also hold relevance in the smart city discussion as collaborative innovation is an essential part of the smart city concept (see for example Erkkilä 2014, 218; Ojasalo & Kauppinen 2016, 49, 52).

The results of the thesis have practical value for various parties. Firstly, the combination of theory and empirical findings can be used as a primer of collaborative innovation in the public sector and might therefore be valuable to anyone wishing to familiarize themselves with the topic. Secondly, because of the private sector focus, the results offer cities and other public sector organizations valuable insight because their own views and biases have been excluded from the scope of analysis. Private sector companies are the most important vendors in collaborative innovation which is why understanding how they think is important to the public sector organizations that contract for services and initiate collaborative innovation projects.

The results of this thesis are potentially transferable both within Finland and internationally. The data analyzed in this thesis were primarily collected in Finland which makes the results particularly relevant on a national level for any city or other organization planning on studying collaborative innovation or engaging in it. The thesis report is written in English and will be available in the public domain which makes the results also internationally accessible and understandable.

6.3   Implications for further Research and Development

This thesis offers a contribution to its field of study, yet it does not in and of itself solve all the challenges pertaining to collaborative innovation or provide complete solutions for setting up and managing a successful collaborative innovation project. Therefore, plenty of academic and practical efforts are still required in order to equip the various actors involved in collaborative innovation with sufficient knowledge and experience. The process of conducting the qualitative study and writing this thesis spawned some interesting ideas for further research and development.

The various human aspects in cities' organizations could make for valuable and realistically implementable research and development projects, because changing behaviors and attitudes can be achieved without substantial investments and complex legal and political reforms. First of all, the extent to which the negative attitudes and behaviors identified in the current research are actually present in cities and other public sector organizations could be studied further. If the notions are substantiated by the studies, the next logical step would be to figure out ways to change these negative attitudes. Another interesting subject related to the people working in public sector organizations has to do with the identification and empowerment of innovators and the so called change agents. As evidenced in the findings, there are plenty of innovative people working in public sector organizations. How the public sector could better identify these individuals and unleash their full potential for collaborative innovation could be studied through research and various practical experiments.

One of the key findings of this thesis was placing the citizens and their needs at the core of collaborative innovation. Moreover, the findings strongly suggested that all parties involved in collaborative innovation should be allowed and encouraged to identify the citizens' needs and communicate their findings on a platform that would reach the decision makers and other key parties involved in collaborative innovation activities. It is apparent that plenty of research and development is still needed before the desired scenario is achieved. The transformation from the current state of affairs into the ideal collaborative innovation setup requires research and development in many areas such as the managerial and organizational aspects of collaborative innovation as well as the technological solutions needed to enable sufficient communication and interaction among the actors involved.

References

Albury, D. Fostering Innovation in Public Services. Public Money & Management, 25, 1, 51-56.

Bakici, T., Almirall, E. & Wareham, J. 2013. A Smart City Initiative: the Case of Barcelona. Journal of the Knowledge Economy, 4, 2, 135-148.

Bienkowska, D., Larsen, K. & Sörlin, S. 2010. Public-Private Innovation: Mediating Roles and ICT Niches of Industrial Research Institutes. Innovation: Organization & Management, 12, 2, 201-216.

Birks, M. & Mills, J. 2011. Grounded Theory: A Practical Guide. London, United Kingdom: SAGE Publications Ltd.

Bommert, B. 2010. Collaborative Innovation in the Public Sector. International Public Management Review, 11, 1, 15-33.

Brinkmann, S. & Kvale, S. 2015. Interviews: Learning the Craft of Qualitative Research Interviewing. Thousand Oaks, California, United States: SAGE Publications Inc.

Bryant, A. & Charmaz, K. 2007. Introduction: Grounded Theory Research: Methods and Practices. In Bryant, A. & Charmaz, K. (eds.) The SAGE Handbook of Grounded Theory. London, United Kingdom: SAGE Publications Ltd. 1-28.

Caragliu, A., Del Bo, C., Nijkamp, P. 2011. Smart Cities in Europe. Journal of Urban Technology, 18, 2, 65-82.

Chesbrough, H. 2006. Open Innovation: A New Paradigm for Understanding Industrial Innovation. In Chesbrough, H., Vanhaverbeke, W. & West, J. (eds.) Open Innovation: Researching a New Paradigm. New York, United States: Oxford University Press. 1-12.

Demeter, C. & Tapardei, A-C. 2013. Public and Private Leadership and Performance Management. Manager, 17, 1, 162-167.

Donahue, J. & Zeckhauser, R.. 2011. Collaborative Governance: Private Roles for Public Goals in Turbulent Times. New Jersey, United States: Princeton University Press.

Erkkilä, K. 2014. Espoo is a Smart City through Collaboration. Interdisciplinary Studies Journal, 3, 4, 218-226.

Florida, R. 2002. The Rise of the Creative Class. The Washington Monthly, 34, 5, 15-25.

Gillham, B. 2005. Research Interviewing: The Range of Techniques. Berkshire, United Kingdom: Open University Press.

Halvorsen, T. 2005. On Innovation in the Public Sector. In Halvorsen, T., Hauknes, J., Miles, I. & Rannveig, R. (eds.) On the Differences Between Public and Private Sector Innovation. Publin Report No. D9. Oslo, Norway: Nifu Step. 2-21.

Hammersley, M. 2013. What is Qualitative Research? London, United Kingdom: Bloomsbury Publishing Plc.

Hennala, L., Parjanen, S. & Uotila, T. 2011. Challenges of Multi-Actor Involvement in the Public Sector Front-End Innovation Processes. European Journal of Innovation Management, 14, 3, 364-387.

Hirsjärvi, S., Remes, P. & Sajavaara, P. 2007. Tutki ja kirjoita. 13th edition. Keuruu, Finland: Otavan Kirjapaino Oy.

Hollands, R.,G.2008. Will the Real Smart City Please Stand Up? City: Analysis of Urban Trends, Culture, Theory, Policy, Action, 12, 3, 303-320.

Jessop, B. & Sum, N-L. 2000. An Entrepreneurial City in Action: Hong Kong's Emerging Strategies in and for (Inter)Urban Competition. Urban Studies, 37, 12, 2287-2313.

Krätke, S. 2010. 'Creative Cities' and the Rise of the Dealer Class: A Critique of Richard Florida's Approach to Urban Theory. International Journal of Urban and Regional Research, 34, 4, 835-853.

Kuk, G. & Janssen, M. 2011. The Business Models and Information Architectures of Smart Cities. Journal of Urban Technology, 18, 2, 39-52.

Lachman, R. 1985. Public and Private Sector Differences: CEO's Perceptions of their Role Environments. Academy of Management Journal, 28, 3, 671-680.

Liamputtong, P. 2011. Focus Group Methodology: Principles and Practice. London, United Kingdom: SAGE Publications Ltd.

Luke, B., Verreyenne, M-L. & Kearins, K. 2010. Innovative and Entrepreneurial Activity in the Public Sector: The Changing Face of Public Sector Institutions. Innovation, 12, 2, 138-153.

Morgan, D.,L. 1998. The Focus Group Guidebook. Thousand Oaks, California, United States: SAGE Publications, Inc.

Nutt, P. 1999. Public-Private Differences and the Assessment of Alternatives for Decision Making. Journal of Public Administration Research and Theory, 9, 2, 305-349.

Nutt, P. 2006. Comparing Public and Private Sector Decision-Making Practices. Journal of Public Administration Research and Theory, 16, 2, 289-318.

Ojasalo, J. 2015a. Open Innovation Platform in a Smart City: Empirical Results. American Business Review Cambridge, 4, 1, 195-202.

Ojasalo, J. 2015b. Open Service Innovation Platform in a Smart City. In Dameri, R. & Beltrametti, L. (eds.) Proceedings of the 10th ECIE European Conference on Innovation and Entrepreneurship, University of Genoa, 17-18 September 2015, Genoa, Italy. 521-528.

Ojasalo, J., & Kauppinen, H. 2016. Collaborative Innovation with External Actors: An Empirical Study on Open Innovation Platforms in Smart Cities. Technology Innovation Management Review, 6, 12, 49–60.

Ojasalo, J. & Tähtinen, L. 2016. Integrating Open Innovation Platforms in Public Sector Decision Making: Empirical Results from Smart City Research. Techonology Innovation Management Review, 6, 12, 38-48.

Rainey, H. & Bozeman, B. 2000. Comparing Public and Private Organizations: Empirical Research and the Power of the A Priori. Journal of Public Administration Research & Theory, 10, 2, 447-469.

Rainey, H. & Chun, Y. 2009. Public and Private Management Compared. In Ferlie, E., Lynn, L. & Pollitt, C. (eds.) The Oxford Handbook of Public Management. Oxford, United Kingdom: Oxford University Press. 71-105.

Saldaña, J. 2013. The Coding Manual for Qualitative Researchers. London, United Kingdom: SAGE Publications Ltd.

Somasundaram, S. & Kruthika, J. 2012. Comparison between Public and Private Sector Executives on Key Psychological Aspects. Journal of Organisation and Human Behaviour, 1, 1, 27-35.

Sørensen, E. & Torfing, J. 2011. Enhacing collaborative Innovation in the Public Sector. Administration and Society, 43, 8, 842-868.

Sørensen, E. & Torfing, J. 2012. Introduction: Collaborative Innovation in the Public Sector. The innovation Journal, 17, 1, 1-14.

Tranos, E. & Gertner, D. 2012. Smart Networked Cities? Innovation – The European Journal of Social Science Research, 25, 2, 175-190.

Winters, J.V. 2011. Why Are Smart Cities Growing? Who Moves and Who Stays? Journal of Regional Science, 51, 2, 253-270.

Electronic Sources

European Parliament, Directorate-General for Internal Policies, Industry, Research and Energy. 2014. Mapping Smart Cities in the EU. Accessed 05.09.2017. Available at: http://www.europarl.europa.eu/RegData/etudes/etudes/join/2014/507480/IPOL-ITRE_ET(2014)507480_EN.pdf

United Nations, Department of Economic and Social Affairs, Population Division. 2014. World Urbanization Prospects: The 2014 Revision, Highlights (ST/ESA/SER.A/352). Accessed 05.09.2017. Available at: https://esa.un.org/unpd/wup/Publications/Files/WUP2014-Highlights.pdf

Figures

Tables

Appendices

Appendix 1: Interview Guide

HAASTATTELU

1. Esittele itsesi ja pyydä haastateltavaa esittelemään itsensä
2. Kerro, mistä projektista on kyse ja mihin liittyy
   a. Kyseessä Smart City-tutkimusprojekti, jossa tutkitaan ja kehitetään ratkaisuja avoimen innovaation hyödyntämiseen tilanteessa, jossa kaupunki haluaa saada ulkoiset toimijat (yritykset, 3 sektorin organisaatiot) kehittämään ratkaisuja kaupungin ongelmiin ja tarpeisiin. Tavoitteen kehittää lähestymistapa tai lähestymistapoja, joilla yritykset innovoivat ratkaisuja kaupungin ongelmiin ja tarpeisiin ja saavat tätä kautta itselleen uutta liiketoimintaa.
   b. Projekti liittyy Kaupunkitutkimus ja Metropolipolitiikka-tutkimusohjelmaan, jota rahoittavat Sisäministeriö, Valtionvarainministeriö ja kaikki Metropolialueen kaupungit: Helsinki, Espoo, Vantaa, Lahti, Hämeenlinna
3. Anna haastateltavalle 2 kpl A3-papereita eteen, joissa kuviot, ja kerro tarkemmin, mitkä ovat tutkimuksen pääaihepiirit. Eli innovaatioalusta, joka yhdistää kaupunkia ja yrityksiä ja kolmatta sektoria + miten se liitetään kaupungin hallintomalliin. Kerro, miten innovaatioalusta on tässä tapauksessa määritelty.
   a. Innovaatioalusta on lähestymistapa, jolla kaupunki edesauttaa tai johtaa ulkoisten toimijoiden (yritykset + kolmannen sektorin tahot) innovaatiota, tavoitteen kehittää ratkaisuja kaupungin ongelmiin ja tarpeisiin.
   b. Kyseessä siis on lähestymistapa, jolla on monia eri vaihtoehtoa, millainen se voi olla. Esim. innovaatiota fasilitoiva välittäjäorganisaatio, innovaatiota toeuttava organisaatio, jokin tietty pilottikohde, pilottirakennus, pilottikaupunginosa, living lab, Fab Lab, virtuaalinen ratkaisu, verkosto, tms.
   c. Lisäksi keskeisenä kysymyksenä on, kuinka tällainen innovaatiotoiminta tai innovaatioalusta voidaan kiinnittää kaupungin hallintomalliin?
   d. Papereilla yksinkertaistetut mallit havainnollistavat tutkimuksen pääaihepiirejä. Toivotaan, että haastattelun aikana tätä mallia vapaasti täydennetään ja korjataan halutulla tavalla.
4. Erilaisia kysymyksiä
   a. Millaisia ajatuksia tai ideoita tämä herättää?
   b. Miten Sinä näet, millaisilla erilaisilla tavoilla tämänkaltainen lähestymistapa (innovaatioalustoja) voitaisiin toteuttaa ja mikä voisi olla sen toiminta?
   c. Millaisia toimijoita tässä prosessissa pitäisi olla mukana?
      1. Mitkä olisivat heidän roolinsa ja tehtävänsä?
      2. Miten he ovat verkottuneet?

   > Mitä tarkoitetaan?
   >
   > Miksi?

   d. Millaisia resursseja tarvitaan?
   e. Miten lainsäädäntö, esimerkiksi hankintalainsäädäntö, suhtautuu tähän yhteyteen?
      1. Hankaloittaako / mahdollistaako? Miten?
   f. Miten näet, että innovatiiviset julkiset hankinnat (PPI Public Procurement for Innovation) ja esikaupallinen hankintamenettely (precommercial procurement) sopivat tähän yhteyteen?
   g. Minkälaiset tekijät edesauttaisivat kaupungin tarpeisiin tapahtuvan yritysten/3.sektorin innovaatiotoiminnan aikaansaamista?
   h. Mitkä ovat merkittävimmän haasteet?
      1. Miten haasteita voitaisiin voittaa?
   i. Onko tiedossasi onnistuneita tai epäonnistuneita yrityksiä Suomesta tai ulkomailta toteuttaa kyseisen kaltaista innovaatioalustaa?
   j. Millaisia neuvoja haluaisit antaa kaupungille, joka lähtee tyhjästä rakentamaan innovaatiotoimintaan kaupungin ja yritysten/3. Sektorin välille? Entä millaisia neuvoja yrityksille ja 3. sektorille?
   k. Onko haastattelun aikana jäänyt käsittelemättä jotain olennaista?
   l. KIITOS

Appendix 2: Innovation Platform (Ojasalo 2015a, 199)
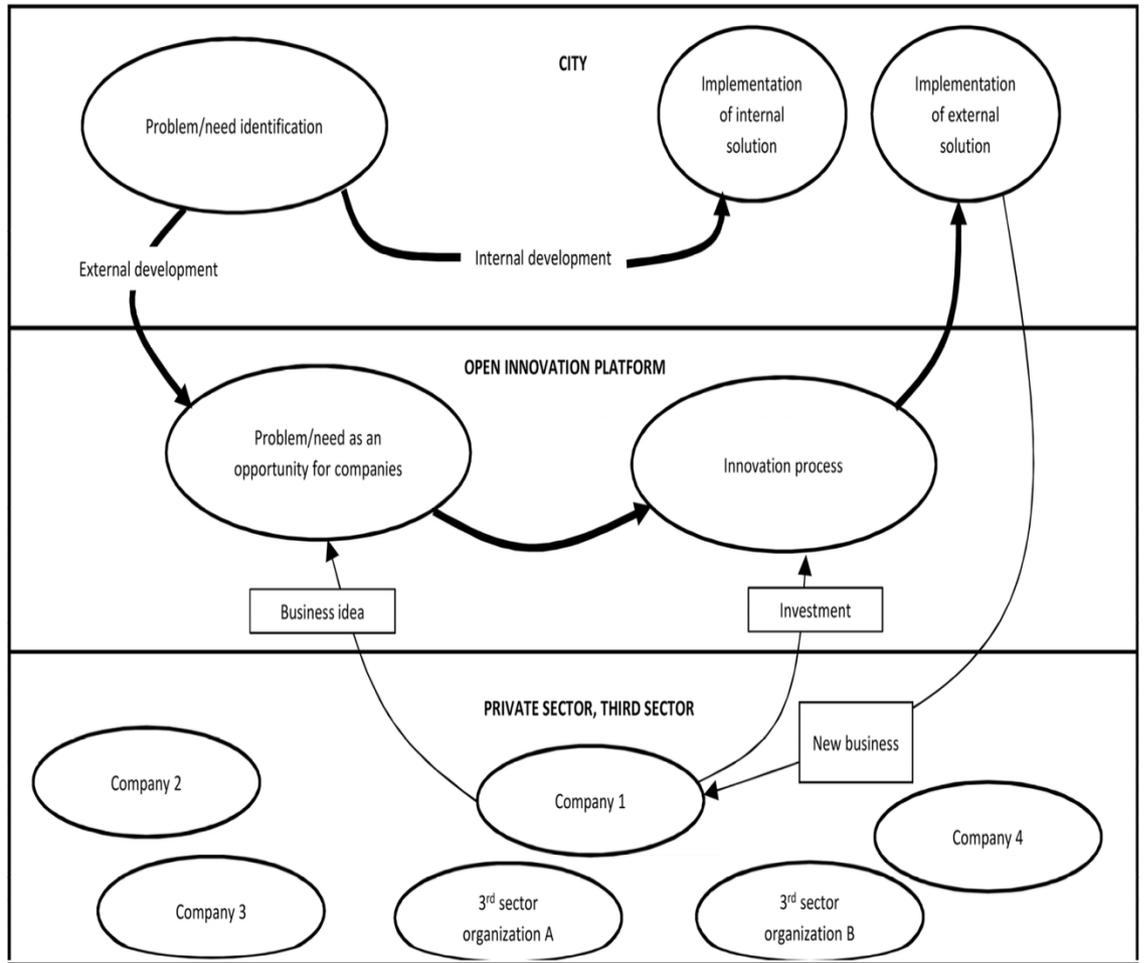
Appendix 3: Innovation Platform in the City Organization (Ojasalo 2015b, 526)