



Public Sector Innovation Leadership in Complex Networks

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The public sector faces increasing pressure to develop innovative ways of delivering services with limited resources while addressing complex social and environmental challenges. This thesis aims to explore the most relevant innovation leadership theories for the public sector, focusing on innovation in complex networks, and how to effectively implement these theories in practice.

The study adopts an exploratory qualitative research approach, combining elements of ontology and social constructionism. It employs an abductive research approach, allowing iterative data collection and analysis. The data were gathered through in-depth interviews with development experts from major Finnish cities, chosen for their expertise in public innovation.

The theoretical framework combines concepts of public sector innovation, innovation leadership, collaborative innovation, new public governance, complexity, and service-dominant logic. It provides a comprehensive perspective on public sector innovation and its leadership, highlighting the importance of collaboration, trust, communication, and adaptive leadership.

The objective of this thesis is to investigate the pertinent theories related to innovation leadership within the public sector, with a focus on addressing innovation within intricate networks, and subsequently, to explore the practical application of these theories. The study reveals that successful public sector innovation in networks requires collaboration, co-creation, and value exchange among diverse actors. Adaptive leadership and a supportive culture of innovation are crucial for driving innovation within complex networks.

This thesis is dedicated to advancing workplace development in the public sector, particularly in response to mounting pressures for innovative service delivery amid resource constraints and complex societal challenges. It employs an exploratory research approach, involving close collaboration with experts from major Finnish cities and integrating theoretical frameworks, to uncover actionable insights. These findings empower public sector leaders to foster a culture of continuous improvement, address intricate challenges through collaboration, and enhance innovation processes to drive positive change in society.

While the study acknowledges its limitations, such as sample size, participant diversity, and the exclusive focus on Finland, it provides a solid foundation for future research. Future studies could explore different network contexts, involve a broader range of actors, and investigate the long-term sustainability and impact of collaborative innovations in addressing complex societal challenges across diverse countries and regions.

In conclusion, this research sheds light on the significance of networks, collaboration, and shared values in fostering innovation within the public sector. By incorporating theoretical frameworks with empirical data, the study offers valuable guidance for public sector leaders seeking to enhance innovation processes and drive positive change in society.

Keywords: Public sector innovation, complexity, innovation networks, innovation leadership

Julkisen sektorin innovaatiojohtaminen kompleksisissa verkostoissa

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Julkinen rahoitus on tiukkenemassa ja samaan aikaan julkisen sektorin palvelutarpeet ovat muuttumassa yhä kompleksisemmiksi ja haastavimmiksi. Julkisen palvelujärjestelmän pitäisi siis jatkossa tuottaa enemmän ja parempia palveluja nykyistä pienemmillä resursseilla. Tätä yhtälöä ei voida ratkaista ilman toiminnan merkittävää kehittämistä. Tämän tutkimuksen tavoitteena on tutkia julkisella sektorilla käytössä olevia innovaatiojohtamisen teorioita, miten niitä sovelletaan innovaatioihin kompleksisissa verkostoissa, ja miten näitä teorioita voidaan tehokkaasti toteuttaa käytännössä.

Tutkimus hyödyntää laadullista lähestymistapaa ja yhdistää ontologian ja sosiaalisen konstruktionismin näkökulmia. Aineisto kerättiin haastattelemalla suurten suomalaisten kaupunkien kehittämisasiantuntijoita.

Teoreettinen viitekehys yhdistää julkisen sektorin innovaation, innovaatiojohtamisen, yhteistoiminnallisen innovaation, uuden julkisen hallinnon, kompleksisuuden ja palvelukeskeisen logiikan käsitteet. Tämä teoreettinen pohja korostaa yhteistyön, luottamuksen, viestinnän sekä avoimen ja adaptiivisen johtajuuden merkitystä.

Tämän opinnäytetyön tavoitteena on tutkia, mitkä ovat olennaisimmat innovaatiojohtamisen teorat julkisella sektorilla, ottaen huomioon innovaation monimutkaiset verkostot, sekä selvittää, miten näitä teorioita voidaan käytännössä toteuttaa. Tutkimuksen tulokset korostavat yhteistyön ja yhteiskehittämisen tärkeyttä julkisella sektorilla. Joustava ja kannustava johtajuus sekä avoin innovaatiokulttuuri edistävät organisaatioiden kykyä toimia ja innovoida monitoimijaverkostoissa.

Tutkimus tarjoaa teoriaan perustuvia käytännön suosituksia innovaatioihin liittyvään päätöksentekoon sekä yhteistyöverkostojen rakentamiseen ja johtamiseen. Tavoitteena on edistää suomalaisen julkisen sektorin kehittymistä ja kannustaa uusien toimintatapojen käyttöönottoa erityisesti innovaatioiden ja kompleksisten toimintaympäristöjen parissa toimiville. Tutkimukseen osallistuneiden asiantuntijoiden kokemukset auttavat julkisia organisaatioita kehittämään toimintaansa ja tuottamaan enemmän yhteiskunnallista arvoa.

Tutkimuksen tulosten yleistettävyyttä rajoittavat pieni otoskoko ja suppea tutkimuskonteksti, joka on lisäksi kohdistunut vain Suomen julkisen sektorin organisaatioihin. Jatkotutkimuksissa voitaisiin syventyä erilaisiin innovaatioverkostoihin ja laajentaa tutkimukseen osallistuvien joukkoa myös muihin maihin. Tämä auttaisi ymmärtämään verkostoinnovaatioiden pitkäaikaista vaikutusta kompleksisiin yhteiskunnallisiin haasteisiin.

Yhteenvedona tämä tutkimus korostaa yhteistyön, yhteiskehittämisen ja jaetun arvopohjan merkitystä julkisen sektorin innovaatioissa. Näiden avulla julkiset organisaatiot voivat kehittää toimintaansa ja vastata paremmin kompleksisten ilmiöiden ja järjestelmien tuottamiin haasteisiin.

Ydinsanat: Julkinen sektori, innovaatio, kompleksisuus, innovaatioverkostot, innovaatiojohtaminen

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1 Introduction

The aim of this thesis is to research what are the most relevant innovation leadership theories for the public sector that considers innovation in complex networks and how to implement the theory in practice. Public service systems face growing pressures to develop their operations. There is a need to produce more and better services with fewer resources than at present (Valtionvarainministeriö 2023). Developing the productivity of services is a key challenge for the public sector. The challenge is significant, and addressing it requires innovation in developing new ways of operating and developing services (Jalonen 2011). Additionally, public sector is facing ever growing number of complex social and environmental challenges (Seddon 2005) or even turbulent problems (Ansell et.al. 2021) that cannot be solved by policy and regulatory actions alone. Therefore, there is a need for public sector to be *“able to create and manage a dynamic competitive process to continuously reinvent their services and to re-combine their resources with their partners’ ones”* (Tani et.al 2018, 1). In other words, public sector would do well to learn to acquire the capacity for improvement in managing and operating in context of complex innovation networks.

Organizations are encouraged to acknowledge that they operate in a network of relationships, and to be open to cooperate with their external partners, and not try to limit their actions in reaching only for some pre-defined result (Eppel & Rhodes 2018). Consequently, the more actors the more complex the networks become. Hence, innovation networks appear to have similarities with the complex adaptive systems (CAS), where the actions of the system, and of its parts, are the result of the various actors’ interactions in an emergent way. Furthermore, multidisciplinary partners and stakeholders as well as multidimensional and interrelated factors create a complex environment where public sector is accustomed to work but the adaptive capability of CAS is often lacking (Eppel & Rhodes 2018).

Based on management needs in the public sector, in large cities there is a need to learn how networks, partnerships, and other forms of interaction between relevant and affected actors can accommodate the development and implementation of new and bold ideas in ways, which could reinvigorate public policies and services. Moreover, there is an interest to find out what are the suitable theoretical frameworks for innovation in CAS. This thesis will examine the following research questions.

- How to manage public sector innovation in networks?
- What are the most relevant innovation leadership theories for the public sector that considers innovation in complex networks?
- How to facilitate value co-creation in multi-actor networks?

- How to implement the theory in practice?

To answer these research questions the research approach focuses particularly on gaining an in-depth understanding of innovation methods and practices of big municipal organizations. To gather data for this study, in-depth interviews were conducted with development experts from major Finnish cities. These experts were selected for their knowledge and experience in the field of public innovation. The results of these interviews are intended to be beneficial to public organizations involved in public innovation and governance. The results of public sector innovation barometer clearly reveal a pressing need for increased innovation activity within the public sector (Jäppinen & Pekola-Sjöblom 2022). Organizations are currently engaged in innovation efforts, primarily targeting process improvement and adaptation to challenges such as the COVID-19 pandemic. However, the findings emphasize the necessity of fostering a broader innovation-friendly culture and actively involving citizens and stakeholders in the public sector's innovation journey. These insights reinforce the thesis's core focus on innovation leadership theories and the imperative of collaboration, trust, and adaptive leadership in effectively addressing complex challenges within intricate networks.

By understanding the experiences and insights shared by the interviewed experts, public organizations can gain valuable knowledge about effective approaches to fostering innovation in complex environments. The findings may help inform decision-making processes, policy formulation, and the development of strategies that encourage innovation and collaboration among various stakeholders within the public sector. Ultimately, the aim is to reinvigorate public policies and services by incorporating new and bold ideas into practice.

1.1 Thesis structure

The structure of this thesis comprises the following sections that collectively examine the role of public sector innovation leadership and network collaboration.

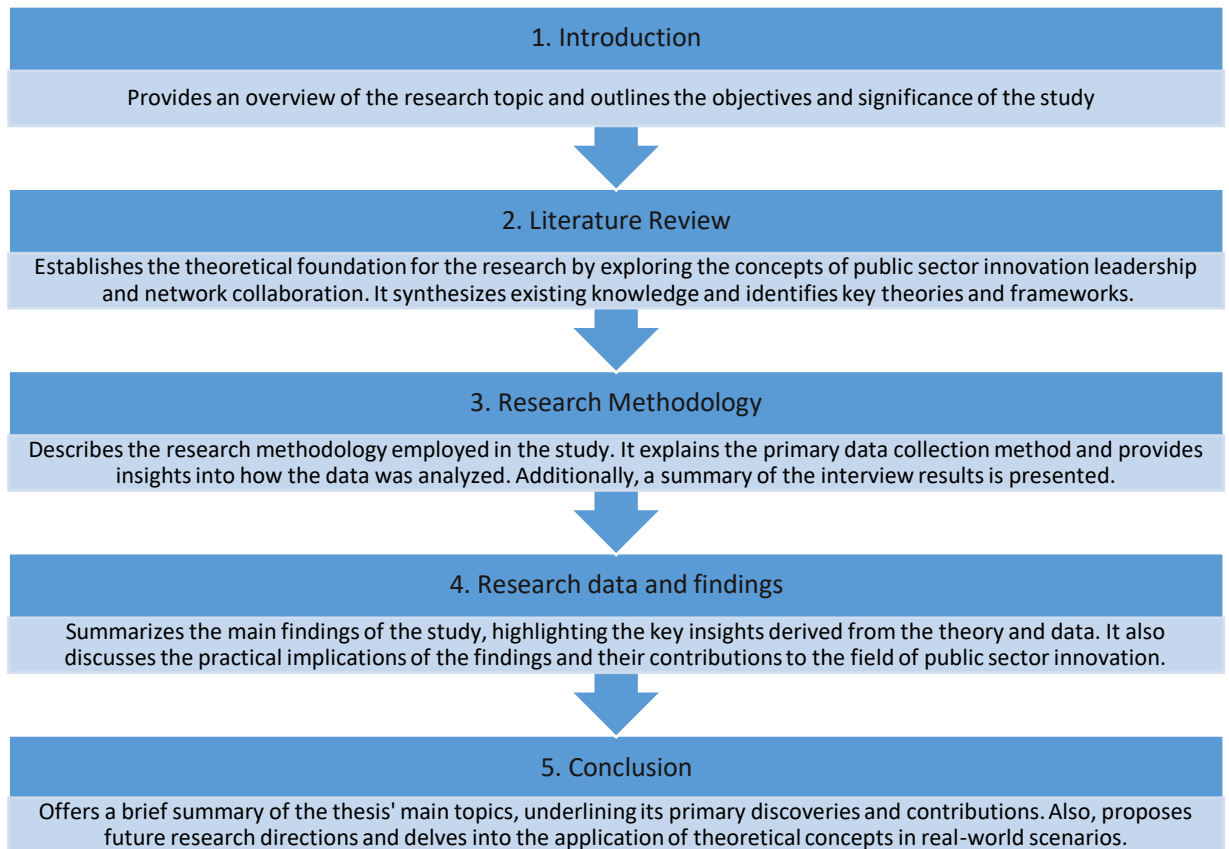


Figure 1: Thesis structure

2 Literature review

The aim of this section is to position the thesis subject within existing knowledge, to provide a theoretical basis for this study, and to identify the key fundamentals of a conceptual framework for the research questions. This chapter reviews the applicable literature on public sector innovation, especially innovation leadership and collaborative innovation in the context of this research. Additionally, this section examines the theory of innovation as it relates to new public governance theory, complexity, and service dominant logic.

The literature review explores the type of public sector innovation leadership in relation to complex networks and service innovation. The concepts of co-creation and innovation

networks are investigated to provide a greater understanding of how to manage complex service innovation in public sector. Furthermore, this chapter aims to develop an initial framework for addressing the research question.

2.1 Public sector innovation

The term public sector innovation is being used in this study in a broad sense to refer to the creation of new products, processes, concepts, and techniques that represent a departure from past practices (Baregheh et.al. 2009; Thompson 1965). In addition, rather than considering innovation as an item, which often implicates attempts to categorize distinctive forms of innovation, this study will approach innovation as a process and thereby emphasis on the notion of innovation as a solution associated to a set of problems.

Innovation today encompasses enhancing organizational competitiveness, driving sustainable economic growth, creating job opportunities, and improving quality of life (Valtionvarainministeriö 2023). It is a vital organizational phenomenon that plays a significant role in both economics and societal development (Bloch & Bugge 2013; Fagerberg 2004). In public sector innovation is not a discretionary or extravagant aspect for public services and the public sector. Instead, it is fundamental and must be established as an integral value at the institutional level (Albury 2005). For the purpose of this research, Thompson's (1965) definition is adopted as it defines innovation as the generation and implementation of new ideas, processes, products, or services. This description underscores the value of not just conceiving ideas but also putting them into practice (Fagerberg 2004).

Although scholars appear to hold differing views regarding the similarities between private and public sector organizations concerning innovation, there are some distinct differences between public and private sector innovation (Ligthart 2022). For instance, innovation "in the public sector always must be subjected to norms of appropriateness and standards of democratic accountability to be considered legitimate" (Österberg & Qvist 2020, 293). In contrast, innovation in the private sector inclines more toward new product development, while innovation in the public sector focuses more on intangible services (Bommert 2010). Moreover, innovation drivers in the private sector are primarily associated with achieving competitive advantages and maximizing profit margins whereas public sector is more motivated to improve service performance and strives for public benefit (Bommert 2010).

The typical characteristic of public sector innovation is the relationship between political leadership and the bureaucracy (Borins 2002). If there is a lack of trust, political leaders may suppress bottom-up innovation, exert excessive control during crises, and resort to widespread staff replacement. Conversely, a positive relationship encourages bottom-up

innovation, involves the bureaucracy in crisis response and organizational turnarounds, and recognizes the importance of a loyal and capable bureaucracy as a partner in achieving the public good (Borins 2002).

In addition to differences, there are also some similarities between private and public sector innovation in terms of incorporating external knowledge sources into the innovation process (Nambisan 2008). There is a growing trend among public sector organizations to seek out innovative ideas from external sources to improve public service delivery, resulting restructuring of organizational forms within the public sector. This has contributed to the rise of new public management as a macro-level change process that reflects a shift towards a more managed and market-oriented approach in the public sector (Nambisan 2008).

To fully benefit from innovation, governments may need to relinquish some control over pressing policy matters and instead employ "meta-governance" strategies that rely on formal or informal regulatory frameworks to foster the development of self-regulatory capabilities (Österberg & Qvist 2020). In short, innovation is an important element in the public sector, and its success relies on various key factors (Albury 2005):

- Effective linkages and relationships between innovators and end-users, as well as within the supply chain, are critical for success.
- Having a senior-level person for each innovation providing support and determination during challenging times.
- The first innovator may not always be the most successful, as innovations often evolve and improve over time.
- Innovations are rarely isolated occurrences, with parallel developments often taking place in similar or related areas.
- The relationship between competition, market concentration, and rates of innovation is complex and varies across sectors.

2.2 Innovation leadership in public sector

Innovation leadership involves the management of systems that establish a shared organizational process to facilitate progress towards the innovation goal of the organization (Horth & Buchner 2014; Kremer et al. 2019). Leaders in this role foster a culture of innovation by encouraging others to think differently and work in new ways, even with limited resources (Horth & Buchner 2014; Johnson 2000). They act as change agents, supporting creativity and managing the innovation process (Kremer et al. 2019). Additionally, their role is critical in establishing a safe work environment where all employees can contribute effectively (Kremer et al. 2019). Thus, leadership behavior plays a significant role in creating a climate for

creativity and supporting organizational innovation and organizations are encouraged to embrace and cultivate new ideas rather than protect them, and to create forums for sharing and accumulating information and knowledge (Johnson 2000; Kremer et al. 2019).

Public sector institutions are traditionally hierarchic, bureaucratic, and rigid (Borins 2002). On the other hand, they are relatively well resourced, possess clear management and operational processes and provide stable working environment (De Vries et. al. 2016). Yet, there are no inherent distinctions between public and private service organizations, nor any justification for public service organizations to be less efficient or less focused on service compared to their private counterparts (Grönroos 2019). Additionally, it has been argued that the public sector is more innovative than generally is conceived. What is missing, is a more open and collaborative innovation culture or climate (De Vries et. al. 2016).

To effectively manage collaborative innovation, there is a need for managers to perform various functions to overcome barriers to interaction, collaboration, and innovation (Kim & Shin 2021; Kremer et al. 2019). Firstly, managers are encouraged to act as conveners to create interactive arenas with committed actors (Kim & Shin 2021). They motivate and empower the actors, set the initial agenda, clarify the process, and ensure mutual adjustment of expectations. Secondly, managers are urged to act as mediators to encourage and facilitate collaboration between stakeholders (Kim & Shin 2021). They create or clarify interdependencies, manage the process, build trust, align interests, construct common frameworks, and remove barriers to collaboration. Finally, to spur innovation, it would be essential for managers to act as catalysts, exercising entrepreneurial leadership to re-frame problems, bring new knowledge into play, explore constraints and opportunities, manage risks, and encourage transformative learning and innovative thinking (Kim & Shin 2021). Collaborative innovation leadership can be undertaken by a participant or a professional facilitator, but the manager would benefit to have sufficient authority, knowledge, experience, access to resources, and organizational backing. Since it involves the governance of self-governance, collaborative innovation leadership is a form of meta governance (Kim & Shin 2021; Kremer et al. 2019; Sørensen & Torfing 2012).

To foster innovation and its diffusion in policy, policy-making, and public services, Albury (2005) has presented a framework for systemic approach that ingrains innovation as a fundamental characteristic of public sector development. It consists of four major components that interact with each other within an innovative environment:

- The generation of possibilities.
- Trailing and prototyping of promising ideas.
- Replication and scaling up.
- Analysis and learning.

These components do not follow a linear progression but instead interact dynamically to create an environment conducive to innovation. By adopting this framework, policymakers and public sector organizations can cultivate a culture of innovation, enabling them to generate new ideas, test and refine them, replicate successful innovations, and continuously learn and improve from their experiences (Albury 2005).

Furthermore, Jones, Cope, and Kintz (2016) have categorized innovation leadership into five areas known as the five Ps.

Category	Explanation
1. Partnerships	Explores how nontraditional partnerships can help firms achieve their innovation goals
2. Process	Aims to add structure and discipline to the innovation leadership process
3. Position	How the changing makeup of global consumers and producers will impact innovation leadership
4. People	How shifting demographics and changing attitudes about work will affect talent acquisition and retention
5. Profession	How the growth of the innovation leadership profession will affect perceptions of innovation

Table 1: Five P's categorization (Jones, Cope, & Kintz 2016)

The future of innovation leadership is likely to become more complex as organizations face new challenges in generating and managing solutions. Innovation models such as lean startup approaches, human-centric design thinking, and big data analytics are being tested in corporate environments and will have a significant impact on how innovation is managed (Jones, Cope & Kintz 2016). Hence, to become innovation leaders, managers should focus on driving creativity and innovation by promoting employee participation, knowledge sharing, and establishing a supportive environment (Kremer et al. 2019). The future innovative leadership can indeed be characterized by the application of creative thinking and supporting diverse innovation from different levels of organizations (Horth & Buchner 2014).

2.3 Complexity & innovation

Complexity can be characterized by several key insights from complexity theory; the dynamic and non-linear nature of phenomena, the self-organizing capacities of entities, the influence of context, and the behavior and co-evolution of actors within complex systems (Teisman & Klijn 2008). Marks and Gerrits (2013) points out that complexity does not arise simply from being complicated; instead, it emerges when events become incomprehensible, produce unforeseen consequences, exhibit varying impacts across multiple levels, and undergo changes over time.

The innovation has been defined in this text as a process that aims to provide solution associated to a set of problems (Thompson 1965; Baregheh et.al. 2009). Further, innovation had been elaborated as a vital organizational phenomenon that plays a significant role in both economics and societal development (Valtionvarainministeriö 2023). The ability to innovate in complex systems is closely linked to the capacity to adapt and adjust to external forces and changes. This ability, known as dissipative or adaptive behavior, is considered crucial but often underestimated in the realm of public administration (Teisman & Klijn 2008).

It's been widely recognized that incremental adjustments of public policies and services are not enough to solve the myriad of complex and wicked problems facing the public institutions and societies in general (Ansell et.al. 2021). Consequently, the traditional and linear innovation approach does not provide solutions to complex situations. Rather, the future is shaped by unpredictable, evolving, interconnected, and potentially influenced by past events and patterns through reflective and non-linear interactions (Eppel & Rhodes 2018). Bloch and Bugge (2013, 135) strengthen this stance in their study to innovation systems theory while stating, that innovation *“does not occur in isolation, but depends upon the interplay between many different types of actors that take part in and play various roles in an innovation process. It is often in the relations between actors and their respective knowledge bases that innovation occurs, through re-combinations of existing knowledge”*.

Furthermore, it is essential to acknowledge that some problems not only possess complexity but also exhibit turbulence. These turbulent problems are characterized by unexpected events, inconsistencies, unpredictability, and uncertainty (Ansell et.al. 2021). They defy ready-made solutions and require adaptive approaches that can accommodate continuous adjustments and learning processes. Successfully tackling such problems necessitates open system approach that embrace flexibility, resilience, and the ability to navigate through uncertainty what Ansell et.al. (2021) call robust governance strategies which entails abandoning the goal of restoring a previous state of balance.

Recombining existing knowledge (Bloch & Bugge 2013) and acquiring the capability to dynamically respond to the external influences (Teisman & Klijn 2008) is challenging task to

manage in isolation. Subsequently, Laitinen et.al (2016) argues for innovation networks and ecosystems and emphasize that innovation heavily relies on the interconnectedness of ideas, the constant flow of information, and effective communication across multiple channels. Without these elements the ecosystem necessary for thriving innovation cannot be sustained (Laitinen et.al. 2016). Additionally, Torfing (2018) states that collaboration of many public and private actors is the best driver for innovation in the public context. This consideration aligns well with the meta-governance concept discussed in previous chapter (Ansell et.al. 2021; Klijn & Koppenjan 2012; Sørensen & Torfing 2012; Österberg & Qvist 2020). Consequently, one can complement the previous definition of innovation as a socially constructed process in which social groups continuously negotiate different meanings (Laitinen et.al, 2016).

2.4 Innovation networks

Networking skills are listed among the five most essential abilities for an innovator (Dyer, Gregersen, and Christensen 2009). It seems to be a very conclusive argument that innovations occur more often when wide variety of people from different backgrounds and with different mindsets interacts, and when they are exposed to more and more varied ideas. System thinking takes into consideration the various effects emerging off the interactions. According to the system theory, the most radical innovations emerge from unexpected combination of tacit knowledge and free access to information (Dyer, Gregersen, and Christensen 2009).

To be an effective innovator, one is encouraged to create stimulating innovative work environments and that is of course easier, if the organization culture facilitates open collaboration and creative thinking. Ind, Inglesias and Markovic (2017) state, that If organization wants to shift towards strategic collaborative innovation method, they need flexible low hierarchy structure and forming of cross-functional teams that foster collaboration. Innovative organizational culture needs to be receptive, inclusive, participatory, and sharing. In this section two particular network theories are presented in more detail: issue networks theory and value network theory.

Issue networks, characterized as loose coalitions of diverse actors focused on a common issue, have a significant impact on other networks, such as business and innovation networks (Ritvala & Salmi 2010). These networks can be temporary or enduring, depending on the issue at hand. The emergence of issue networks relies on mobilization, driven by motivated actors who attract interest and resources from others. Successful network mobilization is often facilitated by a shared value base or common norms, enabling collaboration among individuals with diverse backgrounds (Ritvala & Salmi 2010).

On the other hand, a value network is a multi-layered agreement and cooperation network that produces value and shares a common value base (Jalonen 2011). The complexity of a value network stems from the interconnectedness of numerous organizations and their relationships with other networks. The diversity of services provided within the network and the conflicting interest of network parties further contributes to its complexity (Shrestha et.al. 2014). Additionally, the interpretation of the value of public services varies among actors, considering both the benefits and costs of the service and the actors' cultural values. Ethical norms guide actors in their efforts to enhance the effectiveness and develop new service innovations (Jalonen 2011).

Despite the complexity, the interdependence within a value network presents opportunities for productivity improvement and service innovation. Interdependence encourages actors to consider service production from different perspectives, leading to a more diverse and productive service system (Jalonen 2011; Laitinen et.al, 2016).

2.5 New public governance

New Public Management (NPM) has been the overriding paradigm in the public sector and private sector management practices (Rhodes 1996; Österberg & Qvist 2020). Even though NPM retains still influence on the innovation discussion and research, the use of governance networks in public innovation is gaining more and more interest. Moreover, innovation has become an essential component of the reform approach known as New Public Governance (Klijn & Koppenjan 2012; Österberg & Qvist 2020).

New Public Governance (NPG) emphasizes the importance of network-based governance, characterized by shared goals, trust and cooperation, fluid boundaries between the public, private, and voluntary sectors, as well as novel approaches to action, intervention, and control (Österberg & Qvist 2020). NPG has roots in network governance theory that argues that policy and service delivery involve interdependent actors operating within a network (Klijn & Koppenjan 2012). Network governance strategies are shaped by individual perceptions, leading to diverse views on problems and solutions. Complex interactions and negotiations arise from these interdependencies, influencing problem-solving and service implementation. Moreover, this will lead institutional relationships to emerge, encompassing social interactions, power dynamics, and patterns of rules (Klijn & Koppenjan 2012).

Advancements in both New Public Management (NPM) and New Public Governance (NPG) have led to the creation of a range of interactive spaces for governance within the public sector. These encompass quasi-markets, partnerships, and governance networks (Sørensen & Torfing 2012). The concept of meta-governance has become widely used to describe the role of

government in the management of interactive spaces. This role can be seen as two-sided, reflecting an ambition to balance discretion with control (Sørensen & Torfing 2012). It involves the creation of a governance space where market or network actors are provided room for maneuver within regulative, normative, and discursive frames which are supportive of problem solving "from below" (Sørensen & Torfing 2012). This is based on insight that central government is no longer sovereign authority, yet no other single actor either has all the knowledge to solve complex problems, nor has the full overview to effectively apply necessary tools (Klijn & Koppenjan 2012).

The side of meta-governance, where politicians and public managers steer at a distance, aligns well with the recommendations of public innovation scholars on how to create a productive innovation milieu (Österberg & Qvist 2020). The challenge, according to scholars, is to recognize the interdependencies, to find ways to facilitate, manage, and direct interactive governance arrangements without resorting to top-down command and without compromising the self-regulatory capacity of networks, partnerships, and quasi-markets (Klijn & Koppenjan 2012; Österberg & Qvist 2020).

The other aspect of meta-governance is to adopt indirect governing strategies to maintain some level of control over the innovation process (Torfing 2013). These strategies can be either hands-off, targeting the general governance conditions of a specific sector, or hands-on, which involve direct support or participation in interactive processes (Torfing 2013). As an example of this, some public sector organizations have implemented networked forms of governance, referred to as citizen-centered governance (Nambisan 2008). This approach considers the public as co-producers of service and innovation, which allows the government to solve problems faster by collaborating with citizen experts (Nambisan 2008).

However, it is important to recognize that the multi-actor processes for problem-solving and public service innovation are not linear in nature (Klijn & Koppenjan 2012). While such collaborations can yield positive outcomes, they are also susceptible to challenges. They may encounter failures, consume considerable time, and involve high transition costs (Klijn & Koppenjan 2012). Overall, governance network theories have provided valuable insights into addressing complex problems by emphasizing the significance of multi-actor collaborations in networks and partnerships (Torfing 2013). By leveraging the collective expertise and resources of different actors, these collaborations facilitate the mobilization of valuable resources, foster innovation, and establish a sense of shared responsibility for finding joint solutions (Klijn & Koppenjan 2012).

2.6 Collaborative innovation and co-creation

Collaborative innovation is a distinctive approach to public innovation that disputes the idea that innovation results from the heroic efforts of great individuals who operate in a stimulating environment, and at the same time promotes inspiration from wide spectrum of ideas (Torfing 2018). Collaborative innovation also offers viable answers to innovating in complex environments and as such, is particularly suited to the public sector (Torfing 2018).

The collaborative model of innovation involves collective problem solving and information exchange between public, private and voluntary actors, but the belief that markets and competition drive innovation remains prevalent (Torfing 2018). Public sector organizations have a complex role in creating favorable conditions for innovation in the private sector while also aligning innovations with policy goals and minimizing risk (Österberg & Qvist 2020). This bottom-up approach can present challenges, particularly in balancing flexibility and openness with concerns over control, predictability, legality, impartiality, and accountability (Klijn & Koppenjan 2012; Österberg & Qvist 2020). The meta-governing role of government in institutional governance stability is thus essential, especially for government agencies new to innovation promotion (Österberg & Qvist 2020).

Deeper form of innovation collaboration is co-creation, which emphasizes collaboration between customers and organizations (Heinonen et al. 2010). It involves active collaboration throughout the innovation process, where both customers and organizations contribute their knowledge and expertise, resulting in the co-creation of value (Kristensson et al. 2008). Co-creation has emerged due to two trends (Voorberg, Bekkers & Tummers 2014). Firstly, organizations are under pressure to improve their production efficiency, which has led to end-users being viewed as potential co-producers who can perform specific activities in the production chain. Secondly, end-users can also be involved as co-creators, offering valuable insights and experiences that can enhance a company's products or services. Therefore, co-creation has been found to not only impact customer satisfaction and loyalty but also provide companies with a competitive advantage by promoting innovation (Voorberg, Bekkers & Tummers 2014).

Regarding the public sector, co-creation is also related to other concepts such as public participation, collaborative governance, or community involvement (Voorberg, Bekkers & Tummers 2014). Regardless of the terminology, the systematic understanding of the conditions that encourage citizens, private and other voluntary actors to participate in innovation is crucial (Voorberg, Bekkers & Tummers 2014). Nevertheless, it is safe to conclude that collaborative innovation methods will enhance the exchange of knowledge, competences and ideas between participants and facilitates the processes of shared learning that may improve the understanding of the problem or challenge at hand and extend the range of

creative ideas about how to solve it. However, this will lead to question how complex, dynamic, and multidisciplinary innovation process can be conceptualized and how innovators enable interactions between actors and institutions at different levels of service ecosystems (Ansell et.al 2021; Klijn & Koppenjan 2012; Torfing 2018).

2.7 Service dominant-logic

The significance of Service-Dominant Logic (SDL) and its connection to innovation activities has been recognized (Vargo & Lusch 2017). Contribution to innovation comes mainly from the way SDL approaches value creation from a service perspective, emphasizing customer involvement and co-creation (Vargo & Lusch 2004). In SDL, innovation is primarily seen as the development and offering of new services that dynamically address customer needs and generate added value. In this logic, value is created through the service experience and the quality of customer relationships, not solely from linear service production process. This highlights the crucial role of innovation in understanding and responding to customer needs (Vargo & Lusch 2004).

SDL also provides novel perspectives on guiding and managing the innovation process. It emphasizes open collaboration and network-based models, where various stakeholders and partners actively participate in innovation activities (Osborne & Strokosch 2013; Vargo & Lusch 2004). This enables the combination of diverse resources and expertise, which can foster creativity, accelerate the innovation process, and enhance market acceptance of innovations (Vargo & Lusch 2004). Additionally, applying the principles of SDL to innovation activities can help public sector organizations identify new opportunities and develop unique value propositions (Wellstead et.al. 2022).

There has also been critique towards SDL theory (Grönroos 2019; Osborne 2018) which has spurned alternative concepts, namely the public service-dominant logic (Osborne & Strokosch 2013) and the public service logic (Osborne 2018), that explore the ideas of co-production and co-creation of value in public services by integrating perspectives from services management and public administration. These theories argue that understanding the dynamics and context of value creation is crucial for improving the effectiveness and efficiency of public service delivery (Alford 2016; Osborne 2018; Osborne & Strokosch 2013).

Overall, Service-Dominant Logic offers a theoretical framework that advances innovation activities by understanding innovation and value creation from a service perspective. S-D logic in the public sector is investigated by Osborne and Strokosch (2013). They introduce the 'public service-dominant' concept to reflect public sector management. The application of

this theory to innovation processes can help public sector organizations succeed in dynamic and customer-centric environments (Vargo & Lusch 2004).

2.8 Synthesizing theoretical framework

In this study, a theoretical framework combines the concepts of public sector innovation, innovation leadership, complexity, innovation networks, new public governance, collaborative innovation, and service-dominant logic. This section summarizes and brings together the different theories presented above, provides a coherent theoretical framework as well as examines the links between the theories.

The concept of public sector innovation is central to all theories, as it serves as the foundation and focal point of the research. Innovation aims to improve service performance and achieve public value (Bommert 2010; Borins 2002). Public sector innovation is examined here as socially constructed process in which social groups continuously negotiate different meanings, create, and implement new ideas, processes, products, or services in the public sector, focusing on improving service performance and achieving public value (Baregheh et.al. 2009; Laitinen et.al. 2016; Thompson 1965;).

The theory of innovation leadership provides a structural approach to managing public sector innovation. Innovation leadership is crucial in facilitating the innovation process in the public sector, with leaders playing a significant role as conveners, intermediaries, and catalysts (Horth & Buchner 2014; Kim & Shin 2021; Kremer et al. 2019; Sørensen & Torfing 2012). The Five P's framework of innovation leadership provides a structural approach to managing innovation in the public sector (Jones, Cope & Kintz 2016).

A public organization is a typical complex social system comprised of numerous interacting actors, characterized by interdependent, non-linear, and recursive dynamics among them (Eppel 2017). Therefore, it is important to identify the connections between complexity and innovation. Complexity provides a means for understanding and acting in unclear and vague conditions and this theoretical framework incorporates an understanding of complexity and innovation, emphasizing the importance of open system frameworks, innovation ecosystems, organizational learning, and collaboration (Laitinen et.al. 2016; Teisman & Klijn 2008). The framework recognizes the role of extensive information flow, experience, and process-based learning in networked innovation (Eppel & Rhodes 2018). It emphasizes the collaboration between public and private sector actors as enablers of innovation (Bloch & Bugge 2013; Torfing 2018).

Additionally, issue networks and value networks play significant roles in the public sector. Issue networks influence other networks and require mobilization based on shared values (Ritvala & Salmi 2010), while value networks involve multiple organizations and encompass diverse services, cultural values, and ethical considerations (Jalonen 2011). Understanding and effectively managing these networks can contribute to innovation and improved public service delivery. Furthermore, Laitinen et. al. (2016) connects the concept of network innovation to organizational learning, knowledge management and collaborative practices. From this perspective, network innovation is a constantly developing interactive process, where reformation and learning are based on broad information flows, experience, and in-process learning (Laitinen et. al. 2016).

Collaborative innovation is closely related to innovation leadership and innovation networks. It is presented as a particular approach that involves joint problem-solving and knowledge exchange between public and private actors (Klijn & Koppenjan 2012; Österberg & Qvist 2020). Collaborative innovation emphasizes the government's role in creating favorable collaboration conditions and balancing flexibility, openness, and control (Torfing 2018). Co-creation is highlighted as a deeper form of collaborative innovation that requires involving end-users in the production process to enhance efficiency and add value (Voorberg, Bekkers & Tummers 2014).

The concept of new public governance complements collaborative innovation and innovation leadership and is here presented as a novel reform approach that emphasizes the use of governance networks and meta governance strategies (Klijn & Koppenjan 2012; Österberg & Qvist 2020). It involves balancing discretion and control and creating governance spaces where market or network actors can operate within supportive regulatory, normative, and discursive frameworks (Sørensen & Torfing 2012).

Service-dominant logic represents a mindset where the creation of customer value and fulfilling needs are central (Vargo & Lusch 2004). Services are not limited to physical products but can also include immaterial and social elements (Vargo & Lusch 2004; Vargo & Lusch 2017). In public sector innovation, there is a focus on the efficiency, effectiveness, and user-centricity of services (Osborne & Strokosch 2013). This framework enables a broad perspective on public sector innovation and its management. It allows for the examination and understanding of the innovation process in the public sector and the identification of key factors and approaches to promote and leverage innovation (Alford 2016; Osborne 2018; Osborne & Strokosch 2013).

These theories are intertwined and provide a multifaceted perspective on public sector innovation and its leadership. They help understand the innovation process in the public sector and identify key factors and approaches to promote and harness innovation. The

theoretical framework is presented in the figure 2. The core theme of the framework “Public sector innovation” is placed in the blue box in the center of the figure and is surrounded with the complimentary theories in grey boxes. The main characteristics of these theoretical concepts are described in smaller grey boxes, and they are all addressed and discussed in this thesis.



Figure 2: Theoretical framework

The theoretical framework of the study focuses on managing public sector innovation in networks and facilitating value co-creation in multi-actor networks. It also explores the most relevant innovation leadership theories for the public sector that consider innovation in complex networks. The purpose of the framework is to help address the research questions and provide practical guidance on implementing the theory.

1. The first research question examines how public sector innovation can be managed in innovation networks. The framework offers theories and concepts such as perspectives on innovation leadership, collaboration-based innovation, and new public governance, which can aid in understanding and analyzing innovation

leadership in network context. The framework can provide guidance on developing strategies, forming partnerships, and managing processes to promote innovation in the public sector within innovation networks.

2. The second research question investigates how value co-creation can be facilitated in multi-actor networks. The framework includes concepts such as collaboration-based problem-solving, knowledge exchange, co-creation, and the role of the public sector, which can help understand and analyze value co-creation in multi-actor networks. The framework can provide guidance on using participation and interaction methods, sharing knowledge, and developing collaboration approaches to enhance value co-creation.
3. The third research question examines innovation leadership theories that are relevant to the public sector and consider innovation in complex networks. The framework encompasses concepts such as complexity-based innovation, service-dominant logic, leadership, and governance networks, which can aid in understanding and analyzing innovation leadership in complex networks. The framework can offer perspectives on developing organizational structures and processes, supporting multi-actor collaboration, and strengthening innovation leadership within the public sector.
4. The fourth research question focuses on implementing the theory in practice. The framework provides practical guidance and perspectives on how to apply the theories to managing public sector innovation and promoting value co-creation in multi-actor networks.

In summary, the theoretical framework provides concepts, theories, and practical guidance for managing public sector innovation, facilitating value co-creation in multi-actor networks, understanding innovation leadership in complex networks, and implementing the theory in practice. It assists researchers and practitioners in comprehending these concepts and applying them to address research questions and promote innovation in the public sector.

3 Research methodology

This chapter discusses the research methodology adopted in this study, which is qualitative and abductive in nature. The qualitative approach allows for a deeper exploration of the complex social phenomenon under investigation, focusing on understanding "why," "how," and "what" aspects of the research (Eriksson & Kovalainen 2016). Unlike structured surveys, qualitative data occurs naturally and is not influenced or shaped by the researcher (Silverman 2011).

To conduct strong empirical research, it is crucial to begin by establishing a solid foundation in the relevant literature and identifying any gaps in existing research (Eisenhardt and Graebner 2007). In line with this approach, this study began with creating an initial framework through a comprehensive literature review. This framework aimed to abstract the concept of public sector innovation leadership within networks that share common values, vision, and goals. The goal of the study was to develop a framework that captures the key components, complexities, and interdependencies for implementing public sector innovation in a network context.

This framework represents an early conceptualization of public sector innovation. However, it serves as a valuable starting point for further investigation and research, and it has the potential to assist public sector professionals in shaping the design of their service innovation processes. By building upon this framework, future studies can delve deeper into the subject and contribute to advancing the understanding and practice of public sector innovation.

In Figure 3, the organization of the research and the design of the research method are elucidated. The illustration employs the research onion model to depict how the research unfolds. It demonstrates that the research journey initiates by laying the foundation of the fundamental philosophy, followed by the curation of diverse research approaches and strategies, while also determining the temporal boundaries and the data collection methods.

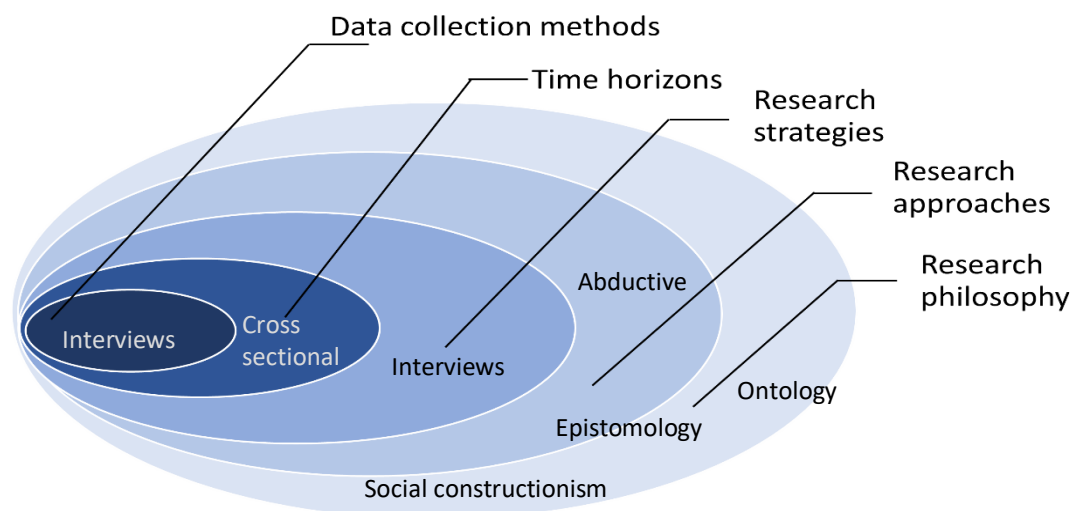


Figure 3: Research methodology (adapted from Saunders et al. 2016)

3.1 Research philosophy

A research philosophy pertains to a collection of beliefs regarding the nature of the phenomena under investigation (Crossan 2003). It serves as the foundational understanding of the nature of knowledge. Research philosophies can vary in terms of research goals and the most suitable methods to achieve those goals (Goddard & Melville 2004). The selection of a research philosophy is determined by the type of knowledge being explored within the research project (Crossan 2003). Two key philosophical positions, namely ontology and epistemology, play a crucial role in assisting researchers in designing an appropriate research methodology (Easterby-Smith et al. 2015)

Ontology can be understood as the examination of reality, encompassing the understanding of the nature of reality itself (Easterby-Smith et al. 2015). It involves contemplating the thoughts and perceptions that arise when conducting research and the relational impact it has on society and its surroundings (Holden & Lynch 2004). Thus, ontology clarifies the distinction between objective reality and one's subjective perception of reality. Moreover, it helps in understanding how reality influences people's behavior (Holden & Lynch 2004). By elucidating the philosophical stance, it becomes possible to evaluate the credibility and dependability of research outcomes and establish the relationship between data and theory (Easterby-Smith et al. 2015).

Epistemology involves investigating the nature of the physical and social worlds through different approaches and in scientific research it aids in finding information that can be proven beyond doubt (Easterby-Smith et al. 2015). Moreover, it encompasses how researchers formulate questions and evaluate the relevance and value of various research methodologies (Holden & Lynch 2004). This evaluation influences how researchers assess the outcomes of their research and varies based on their epistemological commitments (Holden & Lynch 2004). Epistemology primarily focuses on contrasting views regarding the conduct of social science research: positivism and social constructionism (Easterby-Smith et al. 2015).

Positivism maintains that the social world exists externally and that its properties should be measured using objective methods, rather than being subjectively inferred through sensation, reflection, or intuition (Crossan 2003). On the other hand, social constructionism assumes that reality is not objective and external, but rather socially constructed and given meaning by individuals. It emphasizes how people make sense of the world, particularly through sharing their experiences with others (Easterby-Smith et al. 2015).

This study explores a complex social phenomenon that cannot be fully explained by a single philosophical foundation. Consequently, the epistemological stance of this research posits

that studying social actions in real-life settings cannot be detached from reality (Creswell 2014). The reality under investigation, specifically how organizations manage and develop innovation processes in complex environments, exists independently of this research, making it an integral part of that reality. Furthermore, it is essential to acknowledge that research is subjective and context dependent. Therefore, this study incorporates elements of ontology and aligns with social constructionism, as it aims to enhance understanding and grasp the complexity of the larger situational context. Consequently, this research adopts a social constructionist epistemological viewpoint and embraces some elements of ontological ideology.

3.2 Research approach

In the field of social sciences, four logics are commonly used: inductive, deductive, retroductive, and abductive (Dubois & Gadde 2002). The deductive approach involves formulating a research approach based on pre-existing theories and hypotheses, and then testing them (Greener 2011). It follows a pattern from the general to the specific, where the general theory is established first, and the specific knowledge acquired from the research process is tested against it (Dubois & Gadde 2002). Contrarily, the inductive approach allows for the creation of a theory rather than adopting a pre-existing one. In this approach, there is no initial framework guiding data collection, and the research focus can be formed after the data has been collected (Greener 2011).

The research methodology employed in this study is abductive. Abduction involves delving into real-life situations, organizing the gained insights into specific categories, and through this process, gaining an understanding of a particular phenomenon (Eriksson & Kovalainen (2016). In other words, the abductive approach aims to build theory by integrating multiple current theories as inputs for empirical observations (Dubois & Gadde 2002). Researchers using the abductive approach examine how data supports existing theories or hypotheses, modifying or rejecting theories if necessary, or combining old ideas in novel ways to understand and explain the data. The connection between data collection and analysis, as well as between theory and data, is a crucial consideration in this regard (Flick 2018). Hence, this strategy involves an iterative cycle between theory and empirical data, with theory guiding the researcher towards conclusions (Dubois & Gadde 2002). In this research, an exploratory approach is adopted, employing the abductive research approach. This iterative process emphasizes the interplay between data collection and analysis.

3.3 Research strategy

The research strategy outlines the methods and approaches the researcher plans to employ in conducting the study (Saunders et al. 2016). Creswell (2014) refers research strategy as research design which encompasses various approaches, including experimental research, action research, case study research, interviews, surveys, or a systematic literature review.

3.3.1 Workplace development needs

The author of this thesis, working as a development manager for the city of Turku, one of the largest Finnish cities, possesses firsthand knowledge of the challenges encountered by public institutions. Despite limited existing research, this thesis strives to advance workplace development within the public sector. It responds to the growing pressures for innovative service delivery amid resource limitations and complex societal issues.

To achieve this, an exploratory research approach is employed, involving data from experts of major Finnish cities and incorporating theoretical frameworks. This methodology aims to uncover actionable insights, empowering public sector leaders to instill a culture of continuous improvement, address complex challenges through collaboration, and enhance innovation processes to drive positive societal change.

The results from the Public Sector Innovation Barometer (Jäppinen & Pekola-Sjöblom 2022) underscore the urgent need for increased innovation activity within the public sector. Currently, organizations are primarily focused on improving processes and adapting to challenges, such as the COVID-19 pandemic. However, these findings stress the importance of nurturing a more comprehensive innovation-friendly culture and actively engaging citizens and stakeholders in the public sector's innovation journey.

These insights reinforce the thesis's central focus on innovation leadership theories, highlighting the significance of collaboration, trust, and adaptive leadership in effectively addressing complex challenges within intricate networks. For example, the strategy of the city of Turku emphasizes resident and customer orientation, as well as renewal and cooperation, indicating a commitment to operating in a manner aligned with the research's objectives (Turun kaupunki 2023b).

In short, this research aims to provide practical recommendations for decision-making, policy formulation, and strategies to promote innovation and collaboration within the public sector, directly addressing workplace development needs. The engagement of experts from major Finnish cities ensures the relevance and applicability of the research results, which ultimately

serves to guide public sector organizations in their pursuit of innovative approaches to address resource constraints and complex challenges.

3.3.2 Qualitative research method

Qualitative research methodology is a versatile approach that aims to understand phenomena in-depth and derive meaning from individuals' experiences, perspectives, and contexts (Creswell 2014; Greener 2011). It emphasizes the researcher's role as a knowledge builder and interpreter, employing open and flexible techniques such as interviews, participant observation, and data analysis (Greener 2011). Furthermore, qualitative research enables the collection of diverse and rich data, providing new insights into the phenomenon under investigation. It allows for an in-depth exploration of details and context, considering the perspectives and experiences of individuals and groups (Yin 2009).

In this study, a qualitative research approach was chosen as the most suitable strategy to develop a comprehensive framework for public sector innovation in network contexts. This topic is complex and multifaceted, requiring a thorough examination of contextual factors, processes, and dynamics (Yin 2009). By employing qualitative methods, such as case study research and interviews, the study gathered rich empirical data and captured diverse perspectives (Creswell 2014). The qualitative research approach offered flexibility in adapting the research design as the study progressed, allowing for an iterative exploration of the topic. It facilitated an abductive approach, where theories and frameworks could be developed from the collected data, enhancing the understanding of public sector innovation in network contexts (Eisenhardt & Graebner 2007; Yin 2009).

3.3.3 Interviews

Interview was selected as a research strategy as it is a useful method for gathering valid and relevant data that can be used to answer research questions and objectives (Creswell 2014). Interviews can be a highly effective method for collecting detailed empirical data, particularly when the phenomenon under investigation occurs sporadically and infrequently (Eisenhardt & Graebner 2007). Furthermore, qualitative research interviews aim to understand the subject's perspective and do not provide scientific explanations. The interviewer strives to ask purposeful questions and listen carefully to the answers to explore them further (Saunders et al. 2016). The researcher is urged also to critically follow up on the answers to refine or formulate research questions and objectives (Saunders et al. 2016).

There are several types of research interviews, and the type chosen ought to align with the research question(s), objective(s), and adopted research strategy (Saunders et al. 2016). The structured, semi-structured, and unstructured interview typology is commonly used to distinguish between interviews (Robson 2011). The structured format is highly formalized, and standard questions are used for each participant (Robson 2011). In less structured approaches, the interviewee has more flexibility in their responses (Robson 2011).

In this study, the primary data was collected through semi-structured interviews. The researcher had a list of themes and key questions to cover, but their use varied depending on the interview context. The semi-structured approach allowed the researcher to ask follow-up questions and inquire about emerging topics during the interview. The order of the questions was modified based on the flow of the interview and the interviewee's work profile (Saunders et al. 2016). Unplanned questions were also asked to follow up on the interviewee's responses (Robson 2011).

All interviews were conducted in Finnish, recorded, and subsequently transcribed. There were in total ten people interviewed, with four individual interviews and one interview with two people and one interview with three people. Interviews session lasted between 30 and 60 minutes. The participants openly discussed the research phenomenon and allowed the researcher to observe them. They became used to the researcher's presence and having their discussions captured as direct quotes. Anonymity was promised to all interviewees to encourage open dialogue. The interview questions are included in appendix 1.

3.4 Time horizon

The time horizon refers to the timeframe needed to complete the project work. Two types of time horizons are defined within the research onion: cross-sectional and longitudinal (Bryman 2012). The choice of a cross-sectional time horizon was made for this study. The cross-sectional time horizon signifies a predetermined period during which data must be collected. It is suitable when the research aims to examine a specific phenomenon at a particular point in time (Bryman 2012). This approach aligns with the objective of studying public sector innovation within network contexts within a specific timeframe, capturing a snapshot of the phenomenon at a given moment.

3.5 Data collection

Data collection and analysis are contingent upon the chosen methodological approach (Saunders et al. 2016). This encompasses the process of collecting and analyzing the data utilized in the research. It also delineates the data source, research design, sample characteristics, sample size, ethical considerations, limitations of the sample, as well as the reliability and validity of the research. The collected data can be categorized as either primary data or secondary data. Primary data refers to information gathered directly from the source, while secondary data refers to information obtained indirectly. (Saunders et al. 2016).

3.5.1 Research Context

This chapter provides an overview of the cities involved in this research study. The cities under consideration are Oulu, Vantaa, Turku, and Tampere. Each city holds significance in the context of the thesis topic, as they serve as focal points for understanding public sector innovation and leadership within complex networks.

City	Number of inhabitants (31.12.2022)	Main focus of innovation activities	Contributions for the research
Oulu	211 848	City of Oulu has placed strong emphasis on technological innovation and research	The commitment of City of Oulu to fostering innovation in the public sector within complex networks offers valuable insights into the thesis topic
Tampere	249 060	The city's focus on leveraging digital tools and data for improved service delivery and governance.	Exploring Tampere's experiences offers valuable lessons on navigating digital transformation and its impact on innovation.
Turku	197 917	Turku has embraced a collaborative approach to innovation, fostering	Understanding Turku's collaborative model provides valuable insights into effective

		partnerships and networks among various stakeholders.	leadership strategies within complex networks.
Vantaa	242 819	Vantaa faces the challenge of balancing urban development with sustainability. With its diverse population and economic activities, Vantaa has strived to create an innovative and sustainable environment.	Exploring the city of Vantaa's approach to public sector innovation leadership in complex networks sheds light on the dynamic interplay between urban development, sustainability, and innovation.

Table 2: Information of the cities involved in the research (Oulun kaupunki 2023, Vantaan kaupunki 2023; Turun kaupunki 2023; Tampereen kaupunki 2023)

These cities were selected for their understanding of public sector innovation leadership within complex networks. The unique characteristics and approaches of each city offer valuable perspectives for the thesis topic. The subsequent chapters will delve deeper into the research findings and analysis gathered from interviews conducted with innovation experts from these cities.

3.5.2 Selection of Interviewees

This chapter explains the selection process for the interviewees in this research. Eleven innovation experts were selected from cities of Oulu, Tampere, Vantaa, and Turku. These interviewees' unique expertise supports a comprehensive exploration of public sector innovation in complex networks. The subsequent chapters will present the findings and analysis derived from these interviews.

- In Vantaa, interviewees were chosen for their knowledge of participatory innovation and citizen involvement, offering insights into collaborative approaches within complex networks.
- Oulu's interviewees represented different hierarchical levels within the city organization, providing diverse perspectives on innovation practices and leadership in public sector organization and networks.
- Tampere's interviewee possessed expertise in innovation networks, collaboration with the business sector, and the establishment of innovation platforms, contributing to an understanding of cooperative strategies.

- Experts from Turku specialized in leading innovation networks, developing organizational innovation models, and fostering innovation citywide, offering valuable insights into innovation leadership.

3.6 Analyzing the data

The data analysis happened almost at the same time as data collection and the process was iterative, meaning the data was reviewed often and with growing insight (Robson 2011). First iteration happened during the interviews, which provided some preliminary analysis. The actual analysis began after transcription phase. The data was labeled with relevant information, with the purpose of finding thematic patterns emerging in the interviews. Focus was placed on topics interviewees explicitly stated as important or that fell into categories related to the research questions (Ojasalo 2022). Next analysis round included assessing the data categories and data conceptualizing (Robson 2011). Conceptualization of the data also aided to illustrate the dynamic relationships among the emergent concepts that describe and explain the topic of this study.

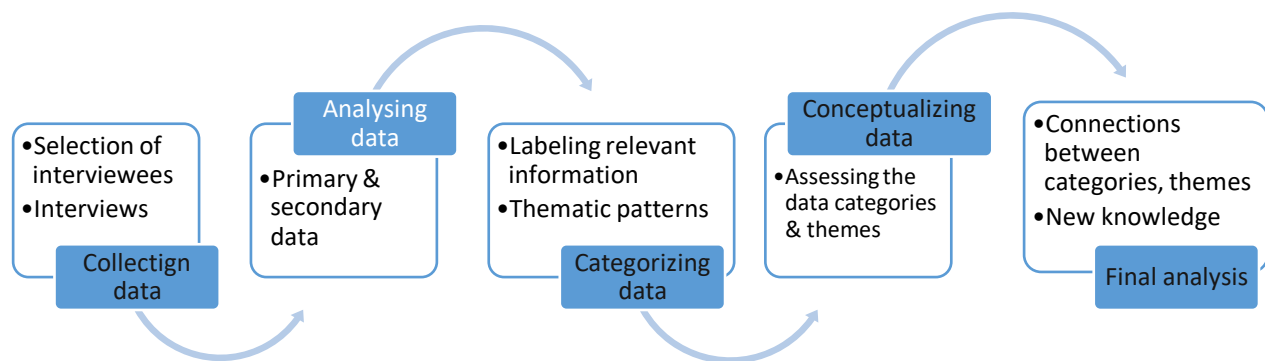


Figure 4: Process of data analysis

The findings of the data analysis, mainly the connections between different categories, themes and patterns that provide new knowledge about the phenomena is described with more detail in the next section which considers the results.

4 Research data and findings

In this section, the findings of the interviews will be presented. The participants' responses will be provided in the form of direct quotations, capturing their perspectives and insights. Additionally, the writer of this thesis will summarize the results to offer a comprehensive understanding of the data. The quotations provide valuable firsthand insights and perspectives from the experts in the field of public sector innovation. Here the aim is to accurately convey their thoughts and experiences and the quotations also serve as evidence and support for the conclusions drawn in this research. It is important to note that all direct quotations from the interviews have been carefully transcribed and attributed to the respective participants. The quotes are translated from Finnish and in some cases the translations have been adjusted to ensure clarity and coherence in English.

Every interviewee can be identified but any personal identifiers have been anonymized and coded according to organization, gender, and the interview order to ensure confidentiality and privacy. The code for the interviews used in this study consist of the following symbols with make the code key used as a reference for the anonymous interview material:

- w = woman
- m = man
- x = non-binary
- 1 = City of Oulu
- 2 = City of Tampere
- 3 = City of Turku
- 4 = City of Vantaa

For example, a female interviewee from Vantaa that was second person to be interviewed would be coded as: w4 2/9

Additionally, this section examines the links between the themes and any patterns from the data, it also explains how the data categories are connected to each other and how concepts and tentative relationships emerged from the interviews and how they could explain the phenomena of this research. This section will also compare the findings from the interviews to existing theory and will test the theoretical framework of this research.

The following table presents the data categories derived from the analysis phase with the main data categories placed in the upper row and the sub-categories in the subsequent column below.

Public Sector Innovation	Value networks	Facilitating co-creation	Innovation in complex networks	Innovation leadership
Scope of innovation	Aligning values, personal relationships, and authority	Engaging citizens	Common goal and mission	Innovation leadership in networks
Innovation resources	Challenges in Collaboration	Collaborative innovation	Value creation in networks	Participatory leadership
Innovation drivers	Benefits of Network Innovation		Network innovation	Centralized vs. shared leadership
Culture and leadership to support innovation				Leading the continuous improvement

Table 3: Data categories

The findings of each category will be described in their individual sub-section. The key question in them is how to account for not only all the major emergent concepts, themes, and dimensions, but also for their dynamic interrelationships.

4.1 Public Sector Innovation

According to the interviews, effective innovation requires a holistic approach that addresses key factors such as the scope of development, timeframes, siloed problem-solving, resource allocation, drivers of innovation, ownership and support, organizational culture, and innovative collaboration models. By considering these aspects and fostering an environment conducive to collaboration, organizations can maximize the impact of their innovation efforts and drive meaningful change.

4.1.1 Scope of innovation

According to the experts, innovation plays a crucial role in public sector organizations, but there are certain aspects that need attention for effective implementation. One key aspect is the scope of innovation, which often tends to focus on trivial matters, with a limited perspective and with lack of future orientation, resulting in a drain of valuable work hours.

Regarding the innovation activities, there are a few issues that was addressed by the interviewees. Firstly, the organization often find themselves engaged in insignificant matters, constantly diverting staff working time and resources. This tendency to focus too much on small and less meaningful issues prevents the organizations from making profound progress. The manager involved with innovation described following *"...how we choose those development activities, and then the fact that our working time and resources are constantly flowing into trivial things. So, we fiddle around a lot, whereas if it's about addressing issues such segregation, which is really good that it has been brought up again, it has been somewhat silent for a longer time, so with this kind of fussing around, we won't be able to change anything. That's probably the challenge in our development."*¹

Second, it is common for problems to be approached in isolation. Organization would do well to break free from this siloed thinking and foster collaboration across different areas as one of the interviewees stated: *"It's typical to solve problems in silos, even though they weren't originally in silos."*² Besides the need to adopt a broader perspective and organization are encouraged to look towards the future, rather than being confined to the present. It is crucial to engage in discussions and explore possibilities for larger-scale changes. Successful organizations strive for long-term transformations that have a lasting impact.

Thirdly, the timeframe for achieving these changes has become shorter and organizations are pushed to strive for continuous progress and action, streamline processes and ensure efficient progress. One of the experts reflected how *"the time frame has somewhat shortened, as no one can wait for a term of office or a parliamentary term for things to be done, so we should be able to achieve things continuously."*³ To overcome this, it is essential to shift the focus towards larger-scale changes, directing attention towards the future and breaking free from the constraints of the present.

Lastly, the interviewees argued that to facilitate innovation of a larger scope and more future-orientation, organizations are advised to prioritize mentoring, reflection, diverse perspectives, constructive dialogue, and contextualization. These elements are essential for fostering growth and creating a more inclusive and effective innovation environment.

To summarize the scope of innovation, it was noted that organizations often focus on trivial matters and lacks a future-oriented perspective, resulting in a waste of valuable work hours. The interviews highlighted the tendency for organizations to get caught up in insignificant issues, diverting resources away from meaningful progress. To address this, it is important to

¹ w3 10/10

² w2 1/10

³ w3 10/10

break free from siloed thinking and encourage collaboration and open innovation approach across different areas. Looking towards the future and engaging in discussions for larger-scale changes is crucial. The timeframe for achieving these changes has become shorter, necessitating continuous progress and efficient processes. In order to cultivate innovation with a wider scope and an orientation towards the future, organizations are encouraged to place emphasis on key factors such as mentoring, reflection, embracing diverse perspectives, promoting constructive dialogue, and contextualizing the innovation process.

4.1.2 Innovation resources

Resources play a vital role in shaping the success of innovation endeavors. It is essential to allocate adequate resources to support innovation initiatives. However, there are limitations on the size of development investments, which may restrict the ability to address all challenges. As one of the specialists questioned: *"Can we address all these challenges... It's actually good that we need to be able to identify and respond to emerging challenges, but of course, resources, resource scarcity, limit how many we can dedicate time to."*⁴

Consequently, careful resource allocation becomes critical, considering factors such as funding, personnel, and expertise. It is worth noting that everyday work demands a significant amount of time from the experts, potentially detracting from available resources for innovation. In some cases, external funding can provide a much-needed boost to these efforts, enabling experimentation and innovation. Moreover, limited funding often necessitates the search for partners and external resources to support and drive innovation initiatives. One of the interviewees summed up the situation: *"Our resources are primarily allocated to basic tasks and functions, and in a way, the available capacity for systematic development is quite limited. This has directed us towards utilizing external funding for these development initiatives. We heavily rely on funding from the ministry and the regional administration to explore and pilot various new operational models and thus improve our practices."*⁵

Despite the clear need for larger-scale initiatives, organization are often constrained not only by a small budget but necessary knowledge and expertise as well. The manager involved with innovation funding described that *"...we heavily rely on external funding, but it's also true that we might not have sufficient expertise in acquiring funding. Agility is probably one*

⁴ w3 10/10

⁵ m1 2/10

important factor, and on the other hand, we are somewhat forced to seek collaboration with partners”⁶

This section emphasizes the role of resources in shaping the success of innovation efforts in the public sector. Adequate resource allocation is essential, but organizations often face limitations in terms of budget and available personnel, especially as everyday tasks already consume a significant amount of time. Thus, careful resource allocation becomes critical, considering factors such as funding, expertise, and external partnerships. Additionally, limited resources necessitate the search for external funding and collaboration. Agility and collaboration with partners are highlighted as important factors in securing necessary resources for innovation. Despite resource constraints, organizations recognize the need for larger-scale initiatives and strive to invest in national development initiatives.

4.1.3 Innovation drivers

The interviewees argued that identifying innovation needs and understanding the drivers behind them is essential for meaningful progress. Innovation is best to be grounded in the genuine needs that arise from the field, rather than being driven by arbitrary impulses. Hence, innovation is necessary to meet real needs and address the development requirements identified within the organization or brought up by the customers. Innovation stems from the organizational culture and values, which guide the strategy. One expert stressed how *“...there is no need to develop things within the industry or the corporation if there is no substantive demand for them... The same problem applies to us, just in terms of operations, if I were to independently develop something as the head of development. It would never lead to a happy ending. Instead, it has to start with me and my organization being so close to the field of action, so to speak.”⁷*

Innovation not only brings about positive change but also opens up new possibilities. As guidelines influence the innovation process, the outcomes of development efforts, in turn, shape new guidelines and directions for future endeavors. An innovation manager involved in strategic decision making explained: *“I personally see this strategic connection as a crucial part of my work, and it involves either shaping our policies and attitudes in such a way that*

⁶ m4 7/10

⁷ m1 2/10

*there is a policy and it is implemented, or the other way around, coming up with something new and incorporating it into the strategy, which then spirals back to implementation."*⁸

Development ideas can arise from interactions between employees, politicians, and residents. Guidelines and development influence each other, creating new directions. This was emphasized by one of the experts: *"Constantly new development topics... that is, new things keep emerging that need to be explored and developed." The guidelines guide innovation, and innovation creates new guidelines.*⁹ There was a common understanding among interviewees that a systematic and structured approach is needed, based on knowledge-driven decision-making with a focus on evaluating customer needs. The involvement of all stakeholders and consideration of ideas contribute to development projects and improve operations. One interviewee stated the development needs within the organization are derived from three main sources: the expertise of the personnel, input and ideas from politicians, and ideas and needs from residents as part of the citizen interface.

By connecting innovation to values and strategies, organizations can ensure a coherent and purposeful approach. Strategic priorities guide innovation endeavors, and continuous evaluation of the work done can inform future improvements. This quote from one of the specialists summarizes the situation: *"From the perspective of innovation actions, I consider it extremely important that we, not just in the industry, let alone in the corporation, do not develop things for which there is no substantive need. Instead, it always starts with the organizational culture, it starts with the values that we have defined in the strategy, and our organizations are committed to those values. So, innovation needs arise from those values, and it is our task to take them forward, primarily through a cultural change."*¹⁰

Although every organization that was represented in the interviews had systematic strategic planning process, not every organization has a methodological innovation process. The expert involved in the innovation leadership illustrated the challenge: *"It's not very structured or systematic, but we actually have, of course, the strategic plan for the council term as the guiding document, and then we have these different program documents."*¹¹ It is crucial to acknowledge the various sources of innovation needs, which include input from staff, politicians, and the perspectives of residents. Engaging residents and involving them more deeply in the development process can enhance its overall effectiveness. One of the interviewees described the situation as follows: *"Development ideas or needs can arise and be recognized anywhere...an idea, a thought, an innovation, big or small, from an individual*

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⁹ w3 10/10

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¹¹ w4 6/10

*employee, a team, or it can arise in casual conversations. It can be found in the challenges of work. This thing doesn't work, what can we come up with? We create a better way of doing things."*¹²

In summary, innovation is an essential part of organizational functioning that should be based on real needs, organizational culture, and values rather than random impulses. Innovation ideas can originate from various sources, and consequently involvement of stakeholders, including staff, politicians, and residents, contributes to innovation projects. Furthermore, systematicity, knowledge-driven approaches are crucial for successful development. By connecting innovation to values and strategies, organizations can ensure a coherent and purposeful approach.

4.1.4 Culture and leadership to support innovation

There was a general agreement among the interviewees that to ensure the successful implementation of innovation, ownership and support are critical factors. Building a functional two-way connection within the hierarchical structure allows for effective support and collaboration. Support for innovation is best to come from multiple levels, and it is essential to establish systematic support mechanisms that adapt to different contexts. Organizations are also encouraged to strive for a permissive environment that allows individuals the freedom to be themselves and think creatively. This can be achieved through a flat organizational structure, open decision-making processes, and a culture that embraces new ideas.

The key to successful innovation lies in fostering a dynamic and reciprocal flow of communication within the organizational hierarchy, as one interviewee explained: *"It is important in development to have a functional two-way connection in the hierarchy."*¹³ In other words, in a complex city organization, it's crucial to know who to connect with for specific innovation purposes, without a single prescribed approach. Political guidance tends to focus on individual impulses, resulting in fast-paced and short-sighted development. Furthermore, one of the experts argued that the introduction of the new leadership models such as mayoral program has brought forth a new way of initiating the political process, emphasizing quick responses to individual impulses. A quote from the same expert states that: *"Political guidance focuses on individual impulses, while innovation is faster-paced and*

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¹³ m1 2/10

short-term oriented."¹⁴ Consequently, one tends to lack a thorough evaluation and consideration of long-term consequences, as decisions are made quickly and without extensive assessment rather than a comprehensive and strategic vision for the city's development.

Moreover, there was a strong indicator from the data that the culture plays a significant role in shaping the innovation process. Creating an encouraging and experimental atmosphere is vital, as it fosters a positive and open culture for innovation. An innovation manager emphasized: *"One of our key messages has been that we specifically want each employee to perform their work better and we want to share and lead successful experiences. But also, the second message is that it is okay to fail."*¹⁵ Each interviewee emphasized the importance of empowering every employee to improve their work and share successful experiences, while also acknowledging that failure is allowed. There is desire to have room for a development-oriented mindset in any role, so that new ideas can progress through official decision-making without immediate rejection.

However, resource availability can become a determining factor. The interviews clarified that it is important not to adhere strictly to rules and regulations, but to allow individuals the space to be human in their entirety. One of the specialists made a specific point relating to this issue: *"...we need to let go of different guidelines, rules, instructions, and descriptions that mechanically dictate how things should be done. Now that we have quite advanced AI (artificial intelligence), I think we also need to let go of certain rules in Finland so that we can give people the space to be human in this context."*¹⁶ . To facilitate this, some interviewees stated that the work with innovations needs to undergo significant transformation, prioritizing application, creativity, and problem-solving over rigid processes. Thus, according to the interviewees the objective would be fostering a solution-oriented and permissive culture, where even unconventional ideas can be openly discussed and implemented without excessive reporting, granting individuals the authority to act. A manager involved in the innovation process stressed the following: *"Perhaps a solution-oriented culture that allows for it (new ideas). And a culture that allows for it in the sense that probably due to the flat organization, the channels are smooth enough all the way up, so there aren't many layers blocking ideas. It's not like someone says, 'That's a bad idea.' Instead, even at higher levels, wild ideas can be openly examined. Or, how they can be implemented without reporting everything in great detail but having the authority to act."*¹⁷

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¹⁵ m1 2/10

¹⁶ w2 1/10

¹⁷ w4 8/10

In a summary, establishing a functional two-way connection within the hierarchical structure is crucial for successful innovation. It enables effective support and collaboration, ensuring ownership and support from multiple levels. Organizations should strive for a permissive culture that embraces creativity, allowing individuals the freedom to think innovatively. It's important to prioritize application, problem-solving, and a solution-oriented approach over rigid processes. This fosters an environment where unconventional ideas can be openly discussed and implemented without excessive reporting, granting individuals the authority to act.

4.1.5 Summary of public sector innovation

Public sector innovation requires a holistic approach that considers various factors. The table below provides a concise overview of the pivotal elements and the main findings that underpin successful public sector innovation. As organizations navigate the complex landscape of change, they must intricately balance the scope of innovation, judiciously allocate resources, understand the driving forces of innovation, and cultivate a culture and leadership framework that fosters creativity and collaboration. The components within each category elucidate the nuances and strategies essential for orchestrating innovation within the public sector. By comprehending and synergizing these factors, organizations can construct an environment conducive to innovation and propel substantial transformation in the public sector.

Scope of innovation	Break free from siloed thinking
	Encourage collaboration across areas
	Emphasize mentoring, reflection, diverse perspectives, and constructive dialogue
	Contextualization
	Focus on significant issues and long-term transformations
Resource Allocation	Careful allocation considering budget, expertise, and partnerships
	Seek external funding and collaboration
	Invest in national development initiatives
Drivers of Innovation	Grounded in genuine needs and organizational culture
	Address real needs and development requirements
	Guided by strategic priorities and continuous evaluation
	Influenced by guidelines and shaped by outcomes
Culture and Leadership	Build functional hierarchical connections
	Permissive environment fostering creativity
	Resource availability for human expression
	Solution-oriented and permissive culture

Figure 5: Summary of findings of Public Sector Innovation category

In summary, the interviews highlighted that public-sector innovation requires organizations to consider the scope of innovation, resource allocation, drivers of innovation, and culture and leadership. Collaboration and embracing diverse perspectives are essential for successful innovation. By addressing these factors, organizations can foster a conducive environment for innovation and drive meaningful change in the public sector.

4.2 Value networks

In this chapter, one explores the insights gathered from the data that concerns the importance of aligning values and authority in fostering effective collaboration within networks. The challenges related to authority and resource allocation are discussed as well as the significance of interpersonal relationships, the importance of problem identification and measurement of impacts, and the various challenges encountered during collaboration.

Additionally, the need for thorough preparation and the benefits that network innovation brings is highlighted. According to the interviewees, by addressing these aspects, organizations can enhance their ability to navigate the complexities of collaborative networks and achieve meaningful outcomes.

4.2.1 Aligning values, personal relationships, and authority.

The data indicated that one of the primary challenges in collaborative efforts is the acquisition of necessary authority and resources to drive progress. Despite shared values, the lack of authority and funding prevents the realization of ideas. Often the network deals with issues that possibly only a few individuals within the network can progress within their own organizations. Moreover, even when there is general agreement on the overarching value, it is important to acknowledge that different perspectives on what constitutes value may emerge. An innovation expert put it into words as follows: *“While everyone agrees on the value, perspectives may differ. We all acknowledge the value of promoting well-being, but our interpretations may vary.”*¹⁸

Furthermore, attempting to implant a strict network management model into the existing structure is neither feasible nor sensible. Instead, public sector organizations are advised to consider restructuring to have process leaders or individuals responsible for overseeing networks at different levels within the matrix. One of the interviewees described the challenge: *“Centralized leadership cannot effectively manage a network; matrix-like structure is beneficial. We need political leadership that engages in interaction. We need leadership that aligns and effectively manages...It is not easy for even the city to interact at the leadership level with those who have actual authority.”*¹⁹

Nurturing and maintaining collaboration among individuals require continuous effort and investment as was highlighted by an expert working extensively with networks: *“one must make a concerted effort to achieve productive working relationships. It is quite human-dependent, and we have very few models that work without the active involvement of individuals. How do we maintain the people’s relationship so they can collectively contribute to the work? It is akin to a romantic relationship or marriage; it requires investment if we want to accomplish things. Surprisingly, little attention is actually given to this aspect.”*²⁰ Furthermore, interviewees clearly argued that innovation requires active exchange of ideas, considering different perspectives, engaging in constructive dialogue, and contextualizing

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¹⁹ m1 2/10

²⁰ w2 1/10

discussions within the broader network context. It is not solely an individual endeavor but rather relies on dialogue and understanding how others perceive it. In other words, the city organization alone cannot single-handedly propel progress; collaboration among various stakeholders is essential for success. The significance lies in networks and collaboration.

Moreover, data suggest that engaging in effective network effort demands a significant time commitment. It also requires expert groups that engage in collaborative analysis and interaction. Above all, it necessitates permission from leadership, particularly regarding multidisciplinary collaboration within service clusters, wherein the authority to engage in such collaboration is granted based on substance, rather than just funding and jurisdiction. The expert involved in the field illustrated the issue: *"Network collaboration requires commitment and active participation. The challenge lies in actually doing the work, as it often remains nominal and superficial in such networked contexts."*²¹

As a conclusion, the main challenges in promoting collaborative innovations are the lack of authority and resources. Despite shared values, translating them into action within networks and the city organization remains a challenge. For that reason, implementing a network management model within the current structure is not straightforward nor feasible. Furthermore, people-to-people collaboration requires nurturing and effort; it's necessary to invest in the relationship to achieve fruitful cooperation. Successful collaboration depends on effective time management, expert groups, and permission from leadership to engage in multidisciplinary collaboration. For all these reasons, the city organization alone cannot drive progress; meaningful change requires collaboration and decision-making within networks.

4.2.2 Challenges in Collaboration

The analysis of the data argued that several challenges may hinder collaboration within networks. For example, there can be reluctance towards engaging in large-scale, impactful collaborative efforts due to concerns about individual interests or the perceived complexity of collaboration as one of the experts concluded: *"(There is) reluctance to engage in large joint procurements, big competitions, those kinds of sprints that enable the emergence of innovations."*²²

Moreover, while there may be a shared value foundation, the responsibility for development and decision-making within the network may not always be clear, resulting in extensive discussions without reaching definitive outcomes. One of the specialists remarked: *"We should*

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*have a systematic approach in our thinking, identifying the issues we want to address and where we want to actually use our political weight and power, both within our organization and, frankly speaking, also to direct other stakeholders."*²³ Additionally, some staff members may hesitate to actively participate in collaboration or networking activities due to factors such as time constraints or a lack of awareness about the benefits. A quote from one of the experts represents the view of many other interviewees: *"With this kind of value foundation, we often commit ourselves when everything belongs to everyone, but who ultimately takes responsibility for the development work? Everyone discusses and expresses their views on the matter, but what is the end result? In these developer networks or value networks, responsibility for development work often becomes vague."*²⁴

In network-based innovation, when there is no strong strategic control mechanism, commitment to collaborative development can be loose. According to the interviewees, this is due to the fact the daily work is already burdened with basic line duties. During the interview an innovation manager stressed: *"The pressure from the line organization is too strong, making it difficult to allocate enough resources for networked work or collaborative development as needed. This is also evident in everyone's work, with various meetings and workgroup sessions, resulting in inefficient use of working hours. To truly benefit more from networked collaboration, it would require time to prepare and be better prepared for each meeting, unlike how it tends to be done currently."*²⁵

If organizations could clarify the focus and know what the areas are they need to invest in and want to invest in, it would also help with commitment of network members. Additionally, to facilitate effective collaboration, it is crucial to establish clear goals for every network meeting. The traditional "coffee meeting" model, often characterized by casual and unstructured conversations, is insufficient for driving meaningful outcomes within collaborative networks. One interviewee summed up the issue: *"The impacts of meetings and the group's influence depend on what we want to achieve. Every time we bring something up, what do we want to see as the outcome?"*²⁶

In summary, the interviews emphasized that it is crucial for the organization to identify the underlying problem before initiating any changes or starting innovation process. Additionally, there may be challenges in accurately measuring the value generated by the network using organization metrics. Implementing changes requires time and patience, and individual impact may be limited without going through proper processes and gaining broad

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²⁵ w4 6/10

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commitment. Also, when building new collaboration models involving large projects and alliances, everyone should take responsibility for development, even in the face of decision-making challenges. The goal is to promote practical development. Furthermore, lack of strategic direction and inconsistency can lead to overlapping networks and inefficient use of working hours. Therefore, it is vital to clearly define development objectives and responsibilities. Political influence and power should be utilized for the appropriate purposes, and the purpose and desired outcomes of meetings must be well-defined.

4.2.3 Benefits of Network Innovation

Examining the data revealed that one of the significant benefits of innovation in networks is the opportunity to gain a holistic view of the issues at hand. Collaborative networks bring together diverse perspectives, expertise, and resources, enabling a comprehensive understanding of complex challenges and the formulation of innovative solutions. Networks provide a holistic view of the issues at hand. Moreover, internal networks can provide valuable support in terms of expertise and knowledge sharing. Public sector organizations often face challenging issues related to horizontal collaboration within the network. One interviewee encapsulated the matter: *“Often, when we have demanding horizontal collaborative network issues, our practical workers have said that they are not allowed to observe their colleagues’ work. They don’t know, they aren’t aware, and they don’t have permission from their supervisors to do so, which I find very surprising and sad. And then the fact that we don’t know and aren’t aware of what is being done, these are real and significant challenges in different levels of development.”*²⁷ This lack of visibility and awareness expressed in the quote hampers understanding of ongoing activities and limits insights into what is happening in other parts of the organization. Such restrictions exist and hinder the exchange of information and learning opportunities.

From the interviews, it can be inferred that the inability to observe and understand each other’s work poses significant challenges at various levels of innovation. Without visibility into colleagues’ activities, it becomes difficult to align efforts, share best practices, and foster collaboration. The lack of awareness limits the ability to leverage the collective intelligence and expertise within the network, hindering effective addressing of complex issues and finding innovative solutions. Fortunately, a network can serve as a platform for employees to come together and be inspired by the themes of participation. Furthermore, the importance of staff training can be used to empower individuals to actively participate in their work, and to equip employees with the necessary skills and knowledge to leverage participation in their

²⁷ w3 10/10

daily tasks. By fostering a culture of active engagement and collaboration, the organizational culture can be positively shaped, promoting a sense of shared responsibility for development. In one interview, the issue was succinctly put: *"It is a participation network that meets a few times a year, about four times a year, to be inspired by the themes of participation. It is open to all employees who happen to be interested at that moment...In addition, we organize staff training, both basic training and various themed training sessions, so that each person can utilize participation in their work. The goal is to shape the organizational culture in this way."*²⁸ It is essential to overcome the limitations imposed by restricted observation and lack of awareness. By fostering a culture of transparency, knowledge sharing, and active participation, these challenges can be overcome, unlocking the full potential of the collaborative network.

To sum up the benefits of network innovation, collaborative networks offer the advantage of gaining a holistic view of complex issues by bringing together diverse perspectives, expertise, and resources. By providing opportunities for networking and providing staff training, employees can actively participate in their work, foster a culture of engagement, and overcome limitations and challenges regarding the network innovation. Furthermore, emphasizing transparency, knowledge sharing, and active participation unlocks the full potential of the collaborative network and shapes the organizational culture positively.

4.2.4 Summary of value networks

In this section, the concept of value networks was explored, focusing on the importance of aligning values and authority to foster effective collaboration. The table below encapsulates the multifaceted landscape of value networks, a dynamic realm where collaboration, alignment of values and authority, interpersonal relationships, and challenges converge. The complexities of these networks are distilled into three core categories: Aligning Values, Authority, and Personal Relationships, Challenges in Collaboration, and Benefits of Network Innovation. These categories provide a structured overview of the key considerations and dynamics involved in fostering effective collaboration within value networks.

The first category delves into the critical components of establishing a solid foundation for collaboration, emphasizing the need to harmonize values, recognize authority, and cultivate interpersonal relationships. The challenges inherent in collaboration form the second category, addressing obstacles like engagement hesitancy, accountability ambiguity, and the impact of funding sources. Lastly, the benefits of network innovation are outlined,

²⁸ w4 8/10

showcasing the potential for diverse perspectives, enhanced knowledge sharing, and the transformative power of collaborative platforms.

Aligning values, personal relationships, and authority	Importance of aligning values and authority for effective collaboration
	Challenges in securing necessary authority and resources
	Diverse perspectives on value recognition
	Nurturing productive working relationships
	Active individual involvement necessary
Benefits of Network Innovation	Opportunity for diverse viewpoints, expertise, and resources
	Internal networks enhance expertise sharing and knowledge dissemination
	Lack of visibility hampers comprehension and alignment
	Network as a platform for convergence, best practice exchange, and collaboration
	Workforce training and active engagement foster positive culture
	Transparency and knowledge sharing unlock collaborative potential
Challenges in Collaboration	Reluctance to participate in large-scale initiatives
	Ambiguous accountability and decision-making
	Hesitancy in engagement
	Time constraints
	Influence of funding sources

Figure 6: Summary of findings of Value Networks category

In summary, a network can serve as a platform for employees to converge, exchange best practices, and cultivate collaboration. Workforce training and fostering a culture of active engagement can positively shape the organizational culture and transcend limitations. Transparency, knowledge sharing, and enthusiastic participation unlock the full potential of collaborative networks, fostering a shared sense of responsibility for development. By addressing these aspects, organizations can enhance their ability to navigate the complexities of collaborative networks and achieve meaningful outcomes.

4.3 Facilitating co-creation

From the interviews, it can be inferred that there is a need for creating a culture of participation that extends throughout the entire organization. Open processes, clear communication, and extensive dissemination of information are key elements in this endeavor. Leveraging the advantages of network collaboration facilitates the spread of

knowledge, establishes direct connections with users, and fosters trust-building. By considering these points, organizations can enhance their understanding of participation, create meaningful engagement opportunities, and cultivate a culture of inclusivity.

4.3.1 Engaging citizens

The analysis of the data strongly indicates that engaging residents is a vital aspect of promoting participation and creating more public value. Hence, inclusion is encouraged to become a natural part of the innovation process, extending not only to individuals but also to businesses and associations. The innovation-involved manager depicted: *"It must be very natural for end-users and residents, customers, to be involved. We must find ways to involve them and, on the other hand, make the plan so clear that it is understandable... what we involve them in and what they can participate in. But there are always challenges in other plans of the city, maybe in realizing to involve them adequately at the preparation stage and so on, so that it has an impact."*²⁹

Making innovations visible to citizens allows for their input and involvement. However, it is essential to avoid token gestures and ensure that residents' voices are not overshadowed. There is a need for participation to encompass a wide range of activities, going beyond official and bureaucratic methods. In the words of a specialist: *"In larger contexts, the resident's voice is somehow removed, but on the other hand, in smaller ones, it may be because it also requires work, such as building measurement frameworks or feedback structures, so there may not necessarily be a systematic approach to developing a specific service based on customer needs in the short term."*³⁰

Metrics and tools for translating customer data into service development are still challenging to implement effectively. One expert stated the following: *"...it may be that we initiate a survey and think that by doing so, we make everyone happy, and now we have heard everyone's opinion, so, well, it does not work like in that. Instead, maybe a more systematic collection of customer feedback, would be more feasible."*³¹ It is important to note that one-size-fits-all approaches do not work, nor digital solutions will cover and reach all resident and customer groups. Yet, an electronic platform can serve as a central hub for different participation methods and tools.

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³¹ w4 8/10

The data suggests that cultivating a culture of involvement requires a fundamental shift in mindset, involving residents right from the beginning of initiatives. The organizations are encouraged to strive to support diverse and inclusive resident participation, going beyond formalities and bureaucratic processes. It is crucial to engage with resident groups who may lack the ability or knowledge to understand certain documents.

When selecting a method for resident participation, it is crucial to consider the diverse needs of different demographic groups. The process of fostering participation requires active advocacy efforts and can pose challenges. Additionally, to ensure meaningful involvement, it is essential to reshape the work and organizational culture, placing residents at the forefront from the outset rather than treating them as an afterthought. In one interview, the issue was succinctly put by a participant: *“If you choose one method of engagement, it doesn't necessarily mean that you should already adopt target group thinking, taking into account children, youth, working-age individuals, elderly, and disabled people. It's a vast field, and developing participation requires lobbying and can be demanding nowadays.”*³²

Moreover, officials and elected representatives may have differing views on resident participation, and it is necessary to understand and accommodate various perspectives, including the use of digital tools. Resident participation should not be limited to specific individuals but integrated into every department and role. Effective communication with target groups allows for feedback and tailored service development, fostering trust and interaction. An interviewee encapsulated the issue: *“The most significant task in involving residents is to reshape the work culture and organizational culture. There is often a tendency in official preparations to avoid discussing unfinished matters and stick to certain responsibilities. However, this may no longer be suitable in today's context. We strive to work behind the scenes so that our organizational culture evolves to prioritize involving residents from the very beginning, rather than waiting until the final decision-making stage or the council meeting to realize, 'Oh, we should have asked the citizens.’”*³³

When diverse perspectives on participation exist, it is crucial to strike a balance between soft values and other organizational priorities. The interviews imply that in many organizations, there is often a tendency to downplay the significance of anthropocentric considerations, relegating them to a secondary role. When municipalities develop their budgets, operational plans, and financial statements, their focus is primarily on financial aspects. As a result, softer values like gender equality plans, inclusivity, and equality often extend to municipal enterprises and various sectors. This broader scope poses a considerable challenge in terms of

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³³ w4 8/10

ensuring commitment from all stakeholders. However, by highlighting legal obligations and other relevant factors, it becomes possible to engage people more effectively, although further efforts are still required to achieve comprehensive results. Additionally, efficiently disseminating information to target groups enables organizations to gather valuable feedback and tailor new services accordingly. Leveraging various networks, organizations can directly promote these services to the intended audience, fostering trust and facilitating interaction and the exchange of information.

Lastly, the data reveals that achieving meaningful change requires more than individual effort which implies to both internal and external collaboration. There is a tendency to work independently and alone, but true transformation necessitates the involvement and collaboration of multiple stakeholders. The manager responsible for innovation outlined the following: *"An individual is limited in their competence and can rely very little on themselves. The community of people, collaborative development, and collective ideation have always been and, above all, are the significant factors today, and that is what we strive for..."*³⁴

To summarize the insights from this chapter, engaging residents in participation is crucial, extending beyond individuals to include citizen groups and associations, aiming for a natural and inclusive process. It is important to ensure that residents' voices are not overshadowed. Furthermore, participation should encompass a wide range of activities, going beyond bureaucratic methods. Furthermore, creating a culture of resident involvement requires a mindset shift, involving residents from the beginning and going beyond formalities. Additionally, balancing soft values with organizational priorities is necessary. However, it is crucial to consider the diverse needs of different demographic groups when selecting participation methods. Accommodating different perspectives, including the use of digital tools, is also important. Integrating resident participation into every department and role enhances communication and tailored service development. And yet, developing participation necessitates advocacy efforts and may pose challenges. Therefore, reshaping work and organizational culture is essential to prioritize residents' involvement. On positive side, disseminating information to target groups enables feedback collection and customized service design and leveraging networks facilitates trust-building as well as information exchange.

³⁴ m1 2/10

4.3.2 Collaborative innovation

The data emphasized that a successful network collaboration require a light and informal approach, promoting free-flowing interactions that foster the cross-pollination of thoughts and ideas. Furthermore, creating spaces for encounters is essential for functional ecosystems, enabling trust, freedom to generate ideas, and open discussions. The interviewees stated how innovative collaboration models are emerging as drivers of successful development and innovation. These models require diverse and flexible approaches that prioritize social impact over organizational goals. A quote from one of the innovation experts enhances the message: *"There is an alliance mindset that focuses on public-private hybrid models. It is not solely about what the public sector or other entities do individually but about building new collaboration models."*³⁵

Interviewees argued that innovation processes differ from other administrative procedures by being less standardized and hierarchical and it make them more diverse and flexible. Hence, it is important to explore and adapt to various approaches as one of the interviewees highlighted: *"Different models need to be utilized, focusing on social impact goals rather than organization-specific goals, to work collectively towards larger objectives and understand the creation of customer value."*³⁶

There was consensus among the interviewees that to achieve successful network collaboration, two key elements come into play: social cohesion and self-governance. By fostering an environment of social cohesion, organizations can strengthen the bonds between stakeholders, enabling effective collaboration and mutual support. This was emphasized by one of the experts: *"I believe in the usefulness of social cohesion, even during times like the pandemic. People get to know each other and create a psychologically safe space within networks, where self-directed actions and the rejection of ideas can occur. Besides coordination, clarity, and effective communication, there should also be room for lightheartedness."*³⁷ Additionally, promoting self-governance empowers individuals and teams to take ownership of their development initiatives, allowing for more innovative and autonomous decision-making. This quote from an interview illustrates the particular point: *"There should be lightness and, well, what I find challenging in network leadership is, for example, in open task networks or our participation network, which is a place for*

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*inspiration. It's difficult to generate discussions beyond just through me. Making the network self-directed, if it's used as part of it, is more challenging."*³⁸

To summarize insights from the interviews, effective innovation requires informal interaction for the exchange of ideas. Building a functional two-way connection within networks and organizations is crucial and therefore encounters and meeting places are essential for ecosystem functionality. Moreover, collaboration models should focus on social impact rather than individual goals. To break away from too strict organization-orientation it is advised to embrace a permissive culture that allows for creative thinking and experimentation. Furthermore, network leadership faces challenges in generating discussions beyond centralized channels and resource availability, flexible development processes and committed and active participation are necessary for to achieve successful network collaboration.

4.3.3 Summary of facilitating co-creation

Facilitating co-creation is essential for organizations to create a culture of participation and inclusivity. To achieve meaningful change, it is necessary to move beyond individual efforts and engage multiple stakeholders in collaborative development and collective ideation. Moreover, engaging residents and making innovations visible to them encourages their input and involvement, but it is important to ensure that their voices are not overshadowed. Further, participation should encompass a wide range of activities, going beyond bureaucratic methods.

The figure below encapsulates the intricate interplay between two pivotal dimensions in the realm of facilitating co-creation: Engaging Citizens and Collaborative Innovation. Within these domains, the figure delineates a path of transformative progress through the convergence of citizen participation and collaborative approaches. The engaging citizens facet explores the dynamic processes of co-creation, involving residents right from the outset of initiatives. It addresses the nuances of effective communication, the cultivation of a participatory culture, and the imperative to balance diverse voices while reshaping organizational dynamics.

On the other hand, collaborative innovation traverses the terrain of informal interactions, the establishment of permissive cultures, and the importance of flexible participation. The figure accentuates the significance of collaborative models designed for social impact and the strategic leverage of networks for disseminating critical information.

³⁸ w4 8/10

Engaging citizens	Engaging Residents & Ensuring Voices Aren't Overshadowed
	Diverse & Inclusive Participation
	Reshaping Work & Organizational Culture
	Effective Communication for Trust & Interaction
Collaborative innovation	Light and informal approach
	Prioritize social impact over organizational goals
	Permissive Culture for Creativity
	Flexible Development & Active Participation
	Leveraging Networks for Information Dissemination
	Balancing Soft Values & Organizational Priorities
	Successful network collaboration relies on social cohesion and self-governance

Figure 7: Summary of findings of Facilitating Co-Creation category

In summary, organizations can facilitate co-creation by creating a culture of participation, engaging residents, and fostering inclusivity. This requires involving residents from the beginning, considering diverse needs, reshaping work culture, and prioritizing communication and tailored service development. By implementing these strategies, organizations can enhance participation, gather valuable feedback, and cultivate trust and inclusivity.

4.4 Innovation in complex networks

A commonly reiterated view in the interviews was that in today's interconnected world, networks play a crucial role in city organizations by fostering collaboration and achieving common goals. However, building commitment within a network can be challenging due to conflicting interests and varying levels of autonomy. Cities serve as valuable partners in overcoming these challenges and promoting collaboration. This chapter explores the importance of a common goal, the value of networked collaboration, the challenges and prerequisites for success, and the role of innovation and urban policies in network development. By understanding these dynamics, city organizations can leverage networks for sustainable and innovative initiatives.

4.4.1 Common goal and mission

According to the data a common goal is crucial for fostering commitment within a network. The network's mission ought to hold significance and provide opportunities for influencing its direction. Was emphasized in the interviews that it is important to view things broadly and find a common goal that all network members perceive as worth promoting. When common goals are established, members can truly commit themselves and enhance their contributions.

Interviewees stressed that during the initial stages of network building, it is crucial to establish a clear and defined task. This serves as the foundation for effective collaboration and ensures that all participants are aligned in their objectives. However, it is equally vital to allow flexibility and space for innovation and creativity within the network. This enables individuals to contribute their unique perspectives and ideas, fostering a dynamic and productive environment. One of the experts pondered the following: *"When common goals are found, then the network members can genuinely attach themselves to it and improve their work contribution. Experiences from organizations that are really somehow very difficult to involve, then somehow, I think that our goal may not necessarily be common."*³⁹

However, challenges arise when organizations have different interests and power dynamics, which can complicate collaboration. It is crucial to have clear responsibilities, delegation of tasks, and meaningful engagement within networks. A manager with vast experience on the matter emphasized: *"Well, it (problem) probably comes from our somewhat incomplete ability to decide what to do and when. And really, whether we have the opportunities for it."*⁴⁰ Contrary view also emerged during the interviews as exceeding one's authority and utilizing resources effectively for a common goal can also be a challenge. For anyone holding a managerial position, with official responsibility and authority in a particular matter, it becomes necessary to subject it to general scrutiny and evaluate how and when one should allocate one's resources to gain maximum benefit.

The general perception from the data was that the innovation process aims to benefit the city and its residents, but conflicting interests and goals within networks can hinder progress. Collaboration, particularly in certain themes, is necessary as resources alone are insufficient. Hence, a clear common goal and commitment are vital for successful collaboration and innovation. However, sharing resources within the network requires a willingness to delegate power and contribute resources towards collective endeavors. As one of the experts

³⁹ w3 9/10

⁴⁰ w3 10/10

succinctly stated: *"We would at least feel the desire or the idea that we are on a common cause. If we are not on a common cause, then we will never develop collectively."*⁴¹

The data indicates that successful network management entails creating an environment that encourages collaboration, experimentation, and continuous learning. By fostering an open and inclusive culture, the diverse expertise and perspectives of network members can be harnessed. This enables the collective tackling of complex challenges and seizing of opportunities in the ever-evolving operating landscape. One specialist summarized the issue: *"That collaboration, common analysis, interaction, and the most important thing is the service concentration at the customer interface. How the development and multidisciplinary work are done in that service concentration, and it requires leadership from there. Yeah, above all, it requires permission to engage in multidisciplinary collaboration."*⁴²

In conclusion, the early stages of network formation and setting a common objective lay the groundwork for fruitful collaboration. A common goal is crucial for fostering commitment within a network. Further, clear responsibilities, delegation of tasks, and meaningful engagement are essential for successful collaboration. Creating an environment that encourages this collaboration and harnesses diverse expertise enables tackling complex challenges and seizing opportunities. Hence, leadership from this standpoint is required to facilitate the development and implementation of multidisciplinary work.

4.4.2 Value creation in networks

It became apparent from the interviews that the level of autonomy within the network varies between voluntary participation and the obligation to engage actively. Sharing knowledge through the network adds value to individual work, and networks facilitate the exchange and accumulation of information. An interviewee described: *"The working hours, how much one can dedicate to it, and then the other thing is maybe that because here, there is a kind of given network from above, there is not really a certain way, at least development managers don't really have the opportunity to be away from that network because it is defined in their job description."*⁴³ The effectiveness of a network relies on participants perceiving tangible benefits. However, citizens may not always recognize the practical value of networked collaboration.

⁴¹ w3 10/10

⁴² w2 1/10

⁴³ w3 9/10

The role of innovation managers within the network is crucial, requiring a high level of dedication and involvement. Their commitment is essential for the network's seamless integration and effective functioning, highlighting the importance placed on the designated network framework. To maximize collaboration and value creation, it is imperative that each innovation manager possesses a vested interest in the network. This shared commitment among all participants cultivates a conducive environment for fruitful collaboration and facilitates the realization of mutual benefits. Furthermore, by aligning their objectives and recognizing the personal gains derived from active participation, innovation managers contribute to the overall success of the network. A manager responsible for innovation outlined the following: *"Of course, as a network, it would work best if each development manager had an interest and they felt that they gain benefits from what they need, then it feels to me that somehow that kind of operation would be the best in that context."*⁴⁴

It emerged from the interviews that the provision of a platform for citizens or communities to address their specific needs and rectify existing market gaps exemplifies the commitment to innovation activities. By catering to unmet demands and offering novel solutions, the network would ensure that citizens' contributions are maximized and that the long-term benefits of networked collaboration are realized. Emphasizing the establishment and advancement of shared goals of the network, continuous development, and the delivery of services that effectively address the needs of diverse stakeholders, the network is encouraged to prioritize inclusiveness, and accessibility. By adhering to these principles, the network aims to create value and foster a sustainable and human-oriented environment. One of the experts summed the issue: *"Certainly, the human-centric approach is there, as well as the consideration of special groups and accessibility, inclusiveness, these types of things, but everything is related to the fact that our services would better serve different people."*⁴⁵

Networked innovation offers the advantage of incorporating a wider range of perspectives through engagement with third-sector organizations, incorporating the voices of members and experiential experts. This inclusive approach enhances service provision, particularly for marginalized groups, promoting inclusivity and equitable treatment within the network. In line with this, it is essential to recognize the significance of understanding customer value and the values we aim to create. It is imperative not to neglect this aspect and view it as selfish and lazy thinking as one of the interviewees stressed. By actively seeking to understand and deliver value to customers, we contribute to the overall success of the

⁴⁴ w3 9/10

⁴⁵ w1 5/10

network and ensure that our efforts are aligned with the needs and expectations of the individuals and communities we serve.

In summary, value creation in networks is driven by the active engagement and commitment of participants. Innovation managers play a crucial role in ensuring seamless integration and effective functioning. By aligning their objectives with the network's goals and recognizing personal gains, they contribute to fruitful collaboration and overall success. Furthermore, inclusivity, understanding customer value, and prioritizing the needs of diverse stakeholders are essential for maximizing the network's potential and creating a sustainable and human-oriented environment. Neglecting these aspects can be seen even as selfish and lazy thinking, emphasizing the importance of actively seeking to understand and deliver value to drive network success.

4.4.3 Network innovation

A frequently echoed belief in the interviews was that networked innovation poses challenges and inefficiencies, necessitating shared understanding and effective cooperation. As one of the interviewees put it: *“So it (network innovation) raises quite a lot of skeptical and critical voices, not only within the industry leadership but also among the elected officials.”*⁴⁶

According to the interviewees the understanding of the entire ecosystem and the need for genuine network management is still lacking in many areas. While there may be some examples in the business sector, city organizations are encouraged to prioritize developing the entire innovation ecosystem and engaging in deeper collaboration with other organizations and stakeholders. Furthermore, within network environment moving forward with innovations is slower, more challenging, and requires a deep understanding before reaching consensus with all collaborators or network members. This short quote from one expert sums up the challenge: *“It takes time for all reforms and changes. One must be very patient. Nothing can be achieved instantly.”*⁴⁷ Perhaps, that is one reason that innovation networks have not fully realized their potential in public sector. To prove their effectiveness, they should account to more than the sum of the individual parts. Interviewees argue that it is still a work in progress to integrate expertise from various fields into successful collaboration.

⁴⁶ m1 2/10

⁴⁷ w3 4/10

Furthermore, accurately identifying the actual problem at hand is crucial for effective network collaboration. It requires a comprehensive understanding of the underlying issues and the ability to distinguish between symptoms and root causes. In the words of a specialist:

"First, we should identify what problem we have, what problem we are trying to solve. If we don't really have a genuine problem at the interface with the residents or in their services, then why are we making changes just for the sake of the organization?"⁴⁸

Similar problems arise with assessing the success of network as traditional organizational metrics may not effectively capture the value created by collaborative networks. Therefore, the multifaceted nature of network work demands a long-term perspective and patience when measuring impacts and results. Advocacy across various stakeholders is necessary to drive change and secure commitment to the collaborative endeavor. Furthermore, existing structures do not always support networked work adequately, and the complexity of networks can present difficulties in their description and modeling. The problem of misaligned policies and procedures is highlighted in this quote: *"But I have to say that our funding and governance structures do not support this type of thinking. Even the ministries do not discuss with each other in any way these days."*⁴⁹

Despite all the challenges, collaboration within a network is a prerequisite for success, as individual actors can no longer thrive in isolation. Networks possess a competitive advantage through their decision-making and implementation capabilities. The need for multidisciplinary collaboration is evident when dealing with wicked and complex problems, as it is clear that they cannot be solved within isolated domains. To address these challenges effectively, public sector needs to leverage the power of networks, as one of the interviewees expressed: *"In those cases, it's really evident that they cannot do it alone, even something like segregation or disruptive behavior. They are such big issues that no one even imagines they can be solved just within their own little domain. But this would probably be the process that we should be able to do better in this network, to use the leverage it could have."*⁵⁰ So inviting interested parties who can create value and understanding the customer's needs are key factors for success. Public sector is encouraged to avoid treating collaborations as mere opportunities to create new services or products but rather focus on creating customer value. An innovation expert with extensive experience in the field stresses this particular issue on value creation: *"Now we come to this point that if we believe this, then we shouldn't really do anything alone. So, we should practically do everything with different collaboration models. Invite all the interested parties who can create value. And even those should not be taken for granted; they should not come just to sell their own product from the*

⁴⁸ m1 2/10

⁴⁹ m1 2/10

⁵⁰ w3 10/10

organization's perspective, but they come specifically to understand the need and create customer value."⁵¹

It was highlighted in data that networks can serve as dynamic innovation environments, although ensuring the sustainability of initiatives until completion can be challenging. Innovation and urban policies can then play a supportive role in networked innovation. The need to deepen innovation-friendly urban politics and establish strong policies is evident. However, there is a lack of clear strategic choices and targeted development efforts in specific areas. To think of the city as more than just an organization but as an environment requires focused development and progress: *"Clearly, there is no specific focus on directing development efforts, no strong strategic choices made regarding what aspects of this city we should consider, what areas we should prioritize for development, if we think of it as a city, not just as an organization but as a city, for example, as an environment, and to develop and move forward."*⁵² In leading such endeavors, two crucial factors emerged during the interviews. Firstly, a comprehensive understanding of the appropriate timeframe and realistic opportunities for effecting change is essential. Secondly, a strong and enduring motivator such as common objectives and shared values acts as the glue that guides progress and successful innovation.

There were some contrasting views during the interviews regarding the beneficial role of politicians and their influence on network innovation but nevertheless there was an agreement that political decisions and guidelines play a significant role in driving and supporting urban initiatives. Factors such as regional development, housing, transportation, investments, and major projects shape the direction of urban development. Simultaneously, there is a focus on customer orientation and the development of operational environments. This involves creating innovation hubs, testing platforms, development projects, service platforms, learning environments, and utilizing events as platforms. Collaboration with various ecosystems and networks further enhances the vitality of urban life, extending beyond administrative networks. One of the specialists shared reflections on the topic: *"And we saw that these political decisions and guidelines, such as regional development, housing production, transportation and mobility, investments and major projects, attractiveness issues, and various guidelines, drive and provide strong support for what we are doing. On the other hand, how we ourselves influence the vitality ecosystem, and of course, we see customer orientation at the core, such as developing different operational environments. There is an innovation environment, testing platforms, development projects, service platforms, learning environments, and, of course, events are seen as platforms. Then there*

⁵¹ w2 1/10

⁵² m4 7/10

are these partnerships... different ecosystems and networks to which it is connected. It's living life, they are not just administrative networks..."⁵³

Moreover, ensuring commitment and perseverance throughout the network journey is crucial. Overcoming the temptation to give up or assume things will resolve themselves requires dedication and a willingness to stake one's credibility. Successful collaboration necessitates partnerships across the city, as resources are limited, and innovative ideas require support from diverse stakeholders. This can foster a culture of collaboration, agility, and creative problem-solving. Rather than a disadvantage, this flexible and effective approach propels progress. Furthermore, interviewees described how resource scarcity often drives collaboration within networks as organizations recognize the benefits of pooling their resources. The manager responsible for innovation outlined the following: *"Yeah, and perhaps that partly explains that when resources are reasonably tight and you can't afford to be boxed in and retreat to your own trenches, it means that if good ideas emerge, you need partners from all over the city to move them forward, so it kind of forces us to collaborate. And in my opinion, that's definitely not a bad thing, but rather a flexible and effective way to get things done."*⁵⁴

This chapter addressed the theme of network innovation in the public sector. The interviewees highlighted the challenges and inefficiencies posed by networked innovation, including the skepticism and critical voices it often faces. The understanding of the entire ecosystem and the need for genuine network management was emphasized as lacking in many areas. The importance of leveraging networks, deep collaboration, and moving beyond isolated domains to address complex issues effectively was also brought forward. Furthermore, there was a recognition of the potential of networked innovation, the need for comprehensive problem identification, and the role of collaboration in creating value and driving change.

4.4.4 Summary of Innovation in complex networks

It became apparent from the interviews that innovation in complex networks is a crucial aspect of city organizations in today's interconnected world. To foster collaboration and achieve common goals, it is important to establish a shared objectives and mission within the network. This provides a sense of purpose and allows members to commit themselves and contribute effectively. However, challenges can arise due to conflicting interests and power

⁵³ w2 1/10

⁵⁴ w4 8/10

dynamics, requiring clear responsibilities and meaningful engagement within the network. Flexibility and space for innovation and creativity are also vital to create a dynamic and productive environment.

The following diagram presents a structured overview of key findings surrounding the dynamic realm of innovation within complex networks, particularly in the context of city organizations. The content has been categorized into three primary themes: Common Goal and Mission, Value Creation in Networks, and Network Innovation. This visual representation aims to elucidate the critical interplay between these themes and provides a framework for understanding the multifaceted challenges and opportunities inherent in fostering collaborative innovation within interconnected city networks. Each theme is elaborated upon with key points derived from the data, offering insights into the essential components of successful networked innovation.

Common goal and mission	Establishing shared objectives and mission within the network for collaboration
	Providing purpose for members
	Ensuring commitment and effective contribution
	Addressing challenges arising from conflicting interests and power dynamics
	Requiring clear responsibilities and meaningful engagement
Value creation in networks	Active participation and knowledge sharing
	Perceived tangible benefits for participants
	Tangible outcomes not immediately visible to citizens
	Role of innovation managers in integrating the network
	Aligning personal objectives with network's goals
	Maximizing potential through inclusiveness and understanding customer value
Network innovation	Challenges and cooperation in network innovation
	Need for comprehensive ecosystem understanding
	Genuine network management
	Slower and more challenging innovation process
	Accurate problem identification and success evaluation
	Long-term perspective for measuring impacts
	Multidisciplinary collaboration for complex problems
	Leveraging urban policies for networked innovation

Figure 8: Summary of findings of Innovation in Complex Networks category

All in all, collaboration within networks is necessary for success, as individual actors cannot thrive in isolation. Multidisciplinary collaboration is particularly important when addressing complex problems. Public sectors should leverage the power of networks to tackle these challenges effectively. Inviting interested parties and understanding customer needs are key factors for success. Furthermore, innovation and urban policies can support networked innovation by deepening innovation-friendly urban politics and establishing strong policies. To sum up, innovation in complex networks requires a common goal and mission, effective collaboration, and value creation. Overcoming challenges and fostering an inclusive and sustainable environment are vital for leveraging networks to drive innovation.

4.5 Innovation leadership

An often-repeated perspective in the interviews was that navigating the challenges of network leadership is crucial for unleashing the full potential of the ecosystem. Failure to lead effectively within networks hampers value creation and limits the realization of collective goals. By embracing participatory leadership, networks can harness the power of collaboration, innovation, and collective action to address complex challenges and create meaningful impact.

4.5.1 Innovation leadership in networks

According to the interviewees effective innovation leadership within networks presents the challenge of possessing the necessary authority and resources to drive progress. Attempting to fit a network leadership model into the existing organizational and innovation structure can be impractical, as centralized leadership may prove ineffective in managing innovations in a network. Instead, a matrix-style approach to leadership works better, allowing for flexibility and adaptability. Moreover, in the networked context, innovation leadership manifests at various levels, necessitating a flow of leadership that may encounter challenges. While formal authority is not always present, leadership without formal power is possible and indispensable. These insights highlight the commitment of leadership in terms of the importance of time, active involvement, leadership, support, ownership, and agility in network functioning and innovation leadership.

The interviews provided insights into the context of managing innovation in a networked environment. To achieve success with innovation in networks, it is important to consider the type of leaders required for effectively managing innovation networks within organizations. As one of the experts pointed out: *"If success is desired, what kind of leaders are needed to*

manage networks in organizations? In my opinion, there is currently a significant shift in leadership... the profile of a future leader might be different from the traditional one, with different qualities. Perhaps the ability to let go of personal interests for the advancement of the whole."⁵⁵ The interviewees also highlighted the importance of the ability to make decisions and implement them effectively. However, they also noted a lack of willpower and understanding, hindering the adoption of network leadership and collaborative approaches. Communication alone was deemed insufficient for effective leadership, and a shared vision and willingness to detach personal interests for the benefit of collective discussion and guidance are necessary.

Furthermore, an innovation leader in a network act as an enabler, creating a platform and setting loose boundaries. Thus, the role of leaders is empowering. One interviewee stated that to ensure the functioning of the network, it is necessary to keep practical pieces together and leverage the expertise of the workgroup's professionals. An inclusive working approach and diverse methods are crucial to achieve the best results by utilizing everyone's skills. The responsibility for coordinating the work within the network can be assigned to someone, but the expertise of all members in the network should be utilized. Additionally, the interviewees argued that the leader's investment and commitment significantly impact the network's effectiveness. Strong dedication, motivation, and support from top management are essential for the success of the network's endeavors. The leader plays a vital role in engaging and mobilizing participants by proactively investing in building commitment and allocating resources, coaching decision-makers, and advancing the network's agenda.

Additionally, fostering a positive attitude towards innovation was described as vital by the experts. Collaboration, continuous improvement, and an open mindset that encourages learning through trial and error was emphasized by the interviewees. It is important to create an environment where individuals are not penalized for mistakes but rather, those mistakes are seen as opportunities for growth and development. The experts acknowledged that embracing and learning from mistakes can be a strength in driving innovation forward. Also, when driving innovation with diverse group of collaborators, not everything can be delegated to authority. Instead, the personality, values and the competence of the network leader plays a role in leading the innovation in network. Thus, interpersonal relationships play a vital role in creating a psychologically safe environment within the network, enabling open and facilitative leadership, and embracing uncertainty. One manager responsible for innovation outlined the following: *"Perhaps in network management, it is important to support the*

⁵⁵ w2 1/10

creation of a safe environment where open discussions can take place, and it is encouraged to respectfully exchange ideas and provide constructive feedback.”⁵⁶

These insights from the data provide a comprehensive view of leadership in networks and organizations, highlighting inclusive working approaches, the role of network leaders, personal qualities, development, collaboration, and organizational flexibility. Innovation leadership within networks poses challenges in terms of authority and resource allocation. Rather than trying to fit a centralized leadership model into a networked environment, a matrix-style approach that prioritizes flexibility and adaptability could be more effective. Consequently, the role of an innovation leader in a network is to empower and enable collaboration, leveraging the expertise of all network members. It is essential to foster a positive attitude towards innovation, embracing mistakes as opportunities for growth, and emphasizing trust, values, and the leader's personality in driving innovation within the network.

4.5.2 Participatory leadership

In the context of participatory leadership, the network leader's role becomes paramount. Interviewees recommended the organizations and decision makers to examine the existing leadership system, reassess responsibilities, and adapt to the networked environment. This new form of leadership brings renewed courage and boldness, recognizing the needs of stakeholders and creating shared goals that align with the network's purpose.

According to the interviews, working with the value network shares similarities with general innovation work, necessitating a fresh examination of the leadership system and more precise delineation of responsibilities. One interviewee explained how with a newly organized leadership, a noticeable difference has emerged compared to previous approach—mainly a heightened level of audacity. With fewer constraints and burdens, progress can be remarkably swift. As demands arise, officials are compelled to act; they have no alternative. This impetus has injected significant drive and velocity into the realm of innovation.

Good network leadership involves acknowledging the diverse needs of stakeholders, including the target group associated with the network. It became apparent from the interviews that not only comprehending the complexities involved but also discerning the motivations driving each individual or group is necessary. While people may instinctively navigate these dynamics, there may be a lack of shared discussions or misconceptions about the motivations

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of other participants. Thus, it becomes imperative to pay increased attention to this aspect and foster a shared sense of purpose. The innovation-involved manager depicted the following: *"Effective network leadership recognizes the needs of different stakeholders, including the target group associated with the network. It requires understanding the nuances and motivations of each party involved, which may not always be openly discussed or have a shared understanding. It's an aspect that deserves more attention, along with building a common consensus."*⁵⁷ Additionally, the interviewees emphasized that it is important to understand that motivation and the ability to encourage others to participate can be a form of leadership without traditional authority dynamics. The matter succinctly described by an innovation manager: *"It must be recognized that you are the one who motivates others to participate, which is probably, on the other hand, a form of leadership without power that occurs in the role of an expert."*⁵⁸

Moreover, a flexible organizational structure is essential for the collaboration to be viable. The structural agility allows for an organization to assess whether pursuing collaboration opportunities are worthwhile or not. Additionally, one interviewee argued that leadership approach that is open and facilitative can be particularly effective, especially in loosely defined networks. However, it was stated by other interviewees that it is necessary to tolerate ambiguity and uncertainty regarding both tasks and objectives. Often, excellent outcomes are achieved when the collaboration is approached in a more flexible manner. While some networks may have predefined tasks, in networks with less predefined assignments, this approach could also be fruitful in leading innovation and partnership in network. It involves allowing space for ideas, facilitating discussions, asking pertinent questions, and actively listening.

At its core, successful network leadership relies on effective communication and harnessing opportunities with the stakeholders. Conversely, there is often a hesitancy to fully leverage these possibilities in various leadership forums, whether managing internal or external networks. Overcoming this hesitation requires courage, embracing the potential that lies within reach.

4.5.3 Centralized vs. shared leadership

A frequently echoed belief in the interviews was that centralized development leadership can hinder progress within networks, as overreliance on such approach limits flexibility and

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agility. Additionally, external-led development efforts often fall short of expectations, emphasizing the importance of decentralized control and empowering network members to contribute innovatively and creatively. Furthermore, the data revealed that traditional leadership models tend to fall short in networked environments, making shared leadership the preferred approach.

The centralized leadership carries the risk of developing things without a thorough understanding of the actual needs of customers. Moreover, centralized, or external-led innovation is likely to yield situations where people responsible for the implementation of innovation have insufficient understanding and commitment to the cause. During the interview, one participant summarized the issue: *“There is often the danger to develop things without understanding what we are doing or why we are doing it, let alone taking ownership or leadership in it... it must start from the fact that me and my organization (innovation leadership) are so close to the actual field of operations.”*⁵⁹ Hence, it is essential to recognize the starting points and resources of the staff implementing innovation, as without their adoption and commitment, development efforts become futile.

The data implies that when there is a collectively agreed direction and a shared commitment to development, it paves the way for successful outcomes. Additionally, fostering agile and innovative actions at the everyday level within the organization often leads to the emergence of new services, service innovations, and novel ways of operating. It is noteworthy that employees can take independent initiatives without requiring explicit permission from managers or leaders, fostering a culture of autonomy and initiative. One of the specialists reflected on the issue: *“I dare not say that we are very strategic, but maybe the good side is then that we are agile and, in a way, innovative on an everyday level, and it is from these that often-new services and novel service innovations and new ways, you know, emerge into this world.”*⁶⁰

Findings from the data show that while shared leadership is often discussed and appreciated, networked work may still require a stronger form of leadership that goes beyond shared accountability. This type of leadership involves taking on responsibilities and moving towards a shared leadership approach that maximizes the potential of the work. Traditional leadership models may not fully apply in networked environments and embracing aforementioned approach can lead to more fruitful outcomes. According to one of the interviewees there is need for increased leadership: *“Well, there has been a lot of talk about shared leadership, and maybe a working group is just that, where all members of the working group do produce the material and so on, but in network work, I would need more leadership. I mean, I don't*

⁵⁹ m1 2/10

⁶⁰ m 4 7/10

mean that there should be leaders sitting there, but rather towards more shared leadership, where roles other than producing material for the working group are taken, and leadership is about taking responsibility."⁶¹ While there was general agreement among the interview participants on the value of participatory and shared leadership, different perspectives on what constitutes value may arise. It is essential to acknowledge and navigate these varying viewpoints to ensure effective collaboration within the network. Moreover, network work demands a significant time commitment, as nurturing and maintaining collaboration among individuals require continuous effort and investment.

To summarize the interview insights, shared leadership is crucial in networked environments, where traditional models may not fully apply. Motivation and encouraging participation are forms of leadership without authority, but a stronger form is needed in networked work to maximize potential. Challenges arise from differing perspectives on value and external funders' influence, requiring effective navigation and collaboration strategies. A centralized leadership approach can hinder progress, while a decentralized approach that empowers network members fosters successful development. Recognizing diverse perspectives, fostering collective commitment, and encouraging autonomy can lead to agile and innovative outcomes, including new services and operational strategies.

4.5.4 Leading the continuous improvement

The interviewees argued that incorporating innovation as an integral part of daily work routines fosters a culture of continuous improvement. It goes beyond merely promoting innovation and encourages employees to act innovatively and creatively, ensuring that development is everyone's responsibility. Collaboration and teamwork are central to successful development efforts, fostering a sense of shared purpose and collective ownership.

The interviews convey the core meaning of the importance of continuous improvement and innovation within everyday work in the organization. In some cities most innovation work occurs outside of project funding, as it is integrated into the regular operations of each employee. The goal would be to foster a culture where every employee feels empowered to contribute to the development of their work and actively seeks ways to improve processes and outcomes. An interviewee encapsulated the idea as follows: *"...we aim to instill this mindset in every employee, encouraging them to do things differently and better, allowing each individual to shine."*⁶² Furthermore, to implement the culture of continuous innovation,

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interviewees advised organization to push regular inner reflection and search for areas of improvement. Moreover, the approach continuous improvement includes taking responsibility for one's own work, being knowledgeable and passionate about making a difference, and having a low threshold for sharing ideas. Innovation was seen by the several experts participating in the interviews as an intrinsic part of daily work, with projects serving as opportunities for piloting and further embedding successful practices. There was even a common belief that the success or failure of the city is largely determined by the commitment of its employees to ongoing development and improvement in their work. The matter was eloquently expressed by one of the interviewees: *"Taking responsibility for our work, being knowledgeable, and being wholeheartedly engaged enable us to go beyond what our supervisors ask of us. I recognize these qualities in our employees, and it is fundamental to the success or failure of the city."*⁶³

These insights from the data emphasize the importance of continuous improvement and innovation within the everyday work of the organization. They highlight the integration of development efforts into regular operations, the significance of collaborative initiatives, and the need for proactive engagement and a supportive culture that encourages sharing and implementing ideas.

4.5.5 Summary of innovation leadership

This section discussed innovation leadership in networks and emphasized inclusive leadership, shared leadership, committed leadership, and the importance of continuous improvement. These key points highlight the importance of inclusive working approaches, flexible leadership models, empowerment of network members, fostering a positive attitude towards innovation, participatory and shared leadership, commitment from top management, and a culture of continuous improvement in driving innovation within networks.

The following table distills essential data findings in innovation leadership within networked environments. It elucidates the dynamic landscape of leadership within collaborative networks, emphasizing inclusivity, flexibility, empowerment, and a commitment to continuous improvement. Four pivotal themes emerge: Innovation Leadership in Networks, Participatory Leadership, Centralized vs. Shared Leadership, and Leading Continuous Improvement. Each theme encompasses critical insights into effective leadership strategies, the significance of collaborative engagement, and the fostering of a culture conducive to

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innovation within networked settings. This table serves as a valuable reference for comprehending the multifaceted dimensions of leadership in the pursuit of innovation.

Innovation Leadership in Networks	Importance of inclusive working approaches
	Flexibility in leadership models
	Empowerment of network members
	Fostering a positive attitude towards innovation
	Commitment from top management
	Cultivating a culture of continuous improvement
Participatory Leadership	Reevaluation of roles and responsibilities
	Co-creation of shared objectives
	Understanding stakeholder motivations
	Leadership commitment and dedication
	Support from upper management
Centralized vs. Shared Leadership	Decentralization of control for active member participation
	Shared leadership transcending accountability
	Valuing diverse perspectives
	Encouraging a culture of continuous improvement
Leading Continuous Improvement	Leaders as catalysts, enablers, and boundary-setters
	Creating enabling platforms
	Fostering autonomy within perimeters
	Nurturing a culture conducive to innovation
	Embracing mistakes as growth opportunities
	Spotlighting core values and personal attributes of leaders

Figure 9: Summary of findings of Innovation Leadership category

In conclusion, the traditional centralized leadership model can hinder progress within networks. Instead, decentralization of control emerges as the potent strategy, as it empowers network members to contribute to innovation actively. In this intricate tapestry of networked collaboration, shared leadership emerges as the preferred paradigm. This transcends mere shared accountability, amplifying the synergy of the collective effort, all while valuing the multiplicity of perspectives. A culture of continuous improvement germinates from the seamless integration of innovation into everyday workflows. Encouraging employees to embrace innovative action and fostering collaboration for shared ownership become pivotal in this pursuit.

5 Conclusion

This concluding chapter will bring together the findings from the empirical research and the insights derived from the application of relevant theoretical frameworks to shed light on the management of public sector innovation in networks and the facilitation of value co-creation in multi-actor networks. This study aimed to address key research questions related to how public sector innovation can be effectively managed in the context of complex networks, and which leadership theories are most relevant in guiding innovation efforts. By analyzing the data collected through interviews and examining the theoretical underpinnings, there was the objective to gain a deeper understanding of the intricacies involved in fostering innovation within the public sector as well as to advance workplace development and to uncover actionable insights for instilling a culture of continuous improvement, addressing complex challenges through collaboration, and enhancing innovation processes to drive positive societal change.

Furthermore, in this chapter, the synthesis of the findings, explore the implications for practice, and outline areas for future research. By doing so, this study aims to contribute to the existing knowledge base and provide practical insights for public sector leaders and practitioners seeking to navigate the challenges of innovation in complex networks. These insights can inform policymakers and practitioners in developing effective strategies and practices to drive innovation and collaboration within the public sector.

The literature review section provided a comprehensive overview of the theoretical foundations relevant to public sector innovation, innovation leadership, collaborative innovation, and value co-creation in complex networks. It established a framework for addressing the research questions and set the stage for analyzing the interview results in relation to the existing theory. Below are the research questions with answers based on the research:

HOW TO MANAGE PUBLIC SECTOR INNOVATION IN NETWORKS?

Mobilization of diverse actors: It is essential to bring together various stakeholders to foster diverse perspectives and solutions. This diversity can contribute to the development of innovative solutions and service models.

Interdependence within value networks: Collaboration and mutual accountability among actors in value networks are crucial for fostering innovation. This entails setting common goals and effectively allocating resources.

Leadership and facilitation: Effective coordination and management of collaborative arenas require strong leadership and facilitation. Creating conducive conditions for collaboration and innovation is vital.

Challenges and their management: Innovation involves challenges related to authority, resource allocation, interpersonal relationships, and problem identification. Proactive identification and addressing of these challenges are essential.

Creating spaces for collaborative innovation: Public sector institutions should establish interactive and innovation-friendly spaces with a focus on co-creation, collaboration, and shared value creation among participants.

Balancing discretion and control in governance: Striking a balance between flexibility and control is crucial. Creating spaces where market or network actors can operate within supportive regulatory, normative, and discursive frameworks is important.

Collaborative governance approaches: Involving stakeholders in decision-making processes, co-creating policies, and engaging in multi-stakeholder partnerships are vital for fostering innovation.

Socially constructed process of innovation and negotiation of meanings: Recognizing that innovation is a socially constructed process and acknowledging multiple interpretations of value and the significance of benefits and costs are important considerations in promoting innovation.

HOW TO FACILITATE VALUE CO-CREATION IN MULTI-ACTOR NETWORKS?

Establishing dedicated innovation teams: Creating specialized teams focused on innovation can foster a culture of creativity and idea generation. These teams can work collaboratively with various actors to co-create value.

Encouraging idea generation: Promoting a culture where all network participants are encouraged to contribute ideas and suggestions can lead to a broader range of innovative solutions.

Providing resources for experimentation and implementation: Allocating resources to support experimentation and implementation of ideas can incentivize network participants to actively engage in the co-creation process.

Creating favorable conditions for collaboration: Organizations should play a role in cultivating an environment that supports and encourages collaboration among network actors. Balancing flexibility, openness, and control is important in this regard.

Fostering a culture of trust and cooperation: Building trust among network participants is crucial for effective value co-creation. A culture of openness and knowledge sharing can enhance collaboration and mutual learning.

Engaging in collaborative initiatives with external partners: Leveraging the expertise and resources of external partners can enrich the co-creation process and lead to innovative solutions with broader social impact.

Promoting light and informal approaches: Creating spaces and platforms for free-flowing interactions can facilitate the cross-pollination of thoughts and ideas among network participants.

Prioritizing social impact over organizational goals: Emphasizing larger shared objectives rather than individual organizational goals can align the efforts of network participants towards meaningful value creation.

Building trust and relationships: Successful facilitation of value co-creation requires building trust among network participants and understanding their resources, capabilities, and interactions.

Acting as facilitators: Public sector leaders can act as facilitators, creating an environment that encourages active participation, knowledge exchange, and mutual learning among network participants.

Enhancing understanding of the ecosystem: Improving the understanding of the entire network ecosystem can lead to more effective value co-creation strategies.

Addressing challenges of networked innovation: Recognizing that innovation within the network environment can be slower and more complex, efforts should be made to address challenges and provide adequate support.

WHAT ARE THE MOST RELEVANT INNOVATION LEADERSHIP THEORIES FOR THE PUBLIC SECTOR THAT CONSIDER INNOVATION IN COMPLEX NETWORKS?

Adaptive Leadership: Innovation networks require leaders who can adapt to changing circumstances and embrace ambiguity. These leaders can mobilize collective action and navigate the dynamics of multi-actor networks effectively.

Network Leadership: This theory emphasizes the importance of understanding the structure of the network and being able to facilitate communication and collaboration among different stakeholders. Network leaders act as conveners, intermediaries, and catalysts to bring various actors together.

Decentralized Leadership: The need for matrix-like structures and decentralized leadership is highlighted as an effective way to manage networks. Strictly imposing a network management model into existing structures may not be feasible.

Supportive and Permissive Culture: Leaders should establish a culture that encourages creativity, allows for experimentation, and empowers employees to improve their work. Creating an environment that fosters open communication and values innovation is crucial.

Understanding Perspectives and Building Trust: Leaders must have a profound comprehension of the various perspectives, interests, and needs of participants within innovation networks. Building trust and aligning goals are essential for successful value co-creation.

Two-Way Communication: Ensuring a dynamic flow of communication within the organizational hierarchy is important. Leaders should actively foster communication and create a positive and open culture for innovation.

Shared Leadership with Nuances: While shared leadership is valuable, there may be a need for stronger forms of leadership within this context. Addressing challenges posed by external influences is also crucial.

HOW TO IMPLEMENT THESE THEORIES IN PRACTICE?

Leadership Development and Training: Provide leadership development programs and training that focus on adaptive leadership, network leadership, and fostering a supportive culture for innovation. These programs should equip public sector leaders with the necessary skills and mindsets to navigate complex networks and promote a culture of creativity and experimentation.

Identifying and Empowering Network Leaders: Identify individuals within the public sector who possess the qualities of network leadership. Empower these leaders to act as conveners and intermediaries, facilitating communication and collaboration among diverse stakeholders. Encourage them to bridge different interests and perspectives to co-create value effectively.

Promoting Flexibility and Decentralization: Embrace matrix-like structures and decentralized decision-making processes to enable efficient management of networks. Provide the necessary autonomy and resources for network leaders and teams to respond adaptively to changing circumstances and drive innovation.

Cultivating a Culture of Innovation: Foster a culture that values innovation and supports risk-taking. Encourage open communication and knowledge sharing within the organization and among network participants. Celebrate and reward innovative efforts to reinforce the importance of creativity.

Building Strong Relationships and Trust: Emphasize the importance of building trust and strong relationships among network participants. Invest in nurturing people-to-people relationships within and outside the organization to foster a collaborative environment for innovation.

Encouraging Experimentation and Learning: Encourage experimentation and learning by providing resources for testing new ideas and approaches. Emphasize the importance of learning from failures and successes to continuously improve innovation practices.

Aligning Goals and Incentives: Ensure that the goals and incentives of network participants are aligned with the larger objectives of value co-creation. Encourage a shared understanding of the vision and mission to mobilize collective action towards common goals.

Continuous Improvement and Learning: Emphasize the importance of continuous improvement and learning. Be open to adapting strategies based on lessons learned and feedback from network participants.

Table 4: Answers to research questions

Through an analysis of empirical data and the application of theoretical frameworks these research questions focused on understanding the significance of networks, collaboration, and shared values in fostering innovation and tackling complex public challenges. The aim was to explore how these factors contribute to the production of public value and the development of innovative solutions within the public sector.

5.1 Integration of Data and Theoretical Frameworks

The integration of data and theoretical frameworks in this study yielded valuable insights and enhanced our understanding of the research questions. The main theoretical frameworks employed, namely the innovation network approach, the innovation leadership and collaborative innovation theories complemented with the complexity theory served as guiding principles for the analysis.

Overall, the interview results supported the theoretical framework by providing empirical evidence of the importance of networks, collaboration, and shared values in driving innovation and addressing complex societal challenges. The findings emphasized the dynamic and socially constructed nature of innovation processes, as well as the need for multidisciplinary approaches and diverse perspectives to tackle large-scale problems.

This following figure illustrates the connections between theory (grey boxes) and discoveries from the data (yellow boxes) as well as the key findings (purple boxes). The core theme of the framework “Public sector innovation” is in the blue box in the center of the figure and is surrounded with the complimentary theories in grey boxes. The main characteristics of these theoretical concepts are described in smaller grey boxes. The yellow boxes are findings derived from the data and the purple boxes represent the main findings from the analysis. The theoretical framework elucidated in the Literature Review section serves as the foundational underpinning for this research endeavor. The empirical data collected throughout the study has subsequently contributed to the refinement and enrichment of these theoretical concepts, enhancing their practical applicability and depth. The key insights derived from this process have emerged as central focal points, garnering significant attention and interest among experts in the field of public sector innovation

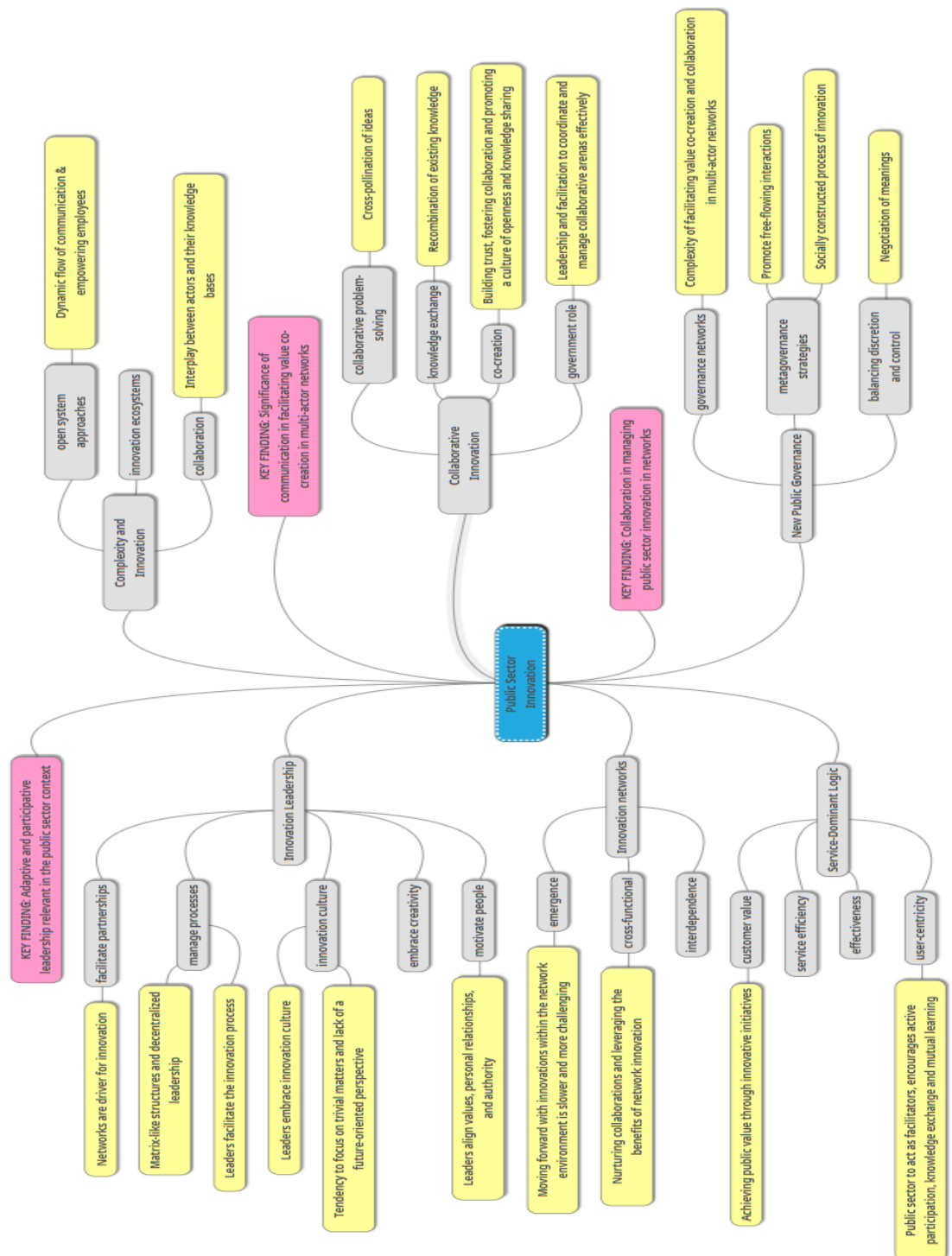


Figure 10: Integration of theoretical framework & data findings

The subsequent sections of this conclusion chapter will delve deeper into the specific findings and implications derived from the integration of data and theoretical frameworks. This will enable to draw meaningful conclusions, provide recommendations for practice, and identify potential avenues for future research in the field of public sector innovation and leadership in complex networks.

5.1.1 Managing public sector innovation in networks

The data suggests that public sector organizations recognize the importance of networks for driving innovation. These networks consist of multiple stakeholders, including government agencies, non-profit organizations, private sector entities, and citizens, who collaborate to create and deliver public value.

Theoretical frameworks such as the New Public Governance model provide a lens to understand how value is created through the active involvement of multiple actors in the network (Klijn & Koppenjan 2012; Österberg & Qvist 2020). The model emphasizes the strategies of “meta governance”, where the role of public sector institutions is to manage interactive and innovation friendly spaces with focus on co-creation, collaboration, and shared value creation among participants (Österberg & Qvist 2020). The data reveals that public sector organizations are indeed adopting policies like fostering partnerships, engaging stakeholders, and leveraging citizen participation to manage innovation in network environment effectively. Furthermore, the interviewees highlighted the need to balance discretion and control in governance, creating spaces where market or network actors can operate within supportive regulatory, normative, and discursive frameworks. They shared examples of collaborative governance approaches, such as involving stakeholders in decision-making processes, co-creating policies, and engaging in multi-stakeholder partnerships.

When further comparing research findings to theory it can be observed that issue networks theory (Ritvala & Salmi 2010) aligns with the concepts of collaboration (Eppel & Rhodes 2018; Ind et.al. 2017; Sørensen & Torfing 2012; Voorberg et.al. 2014), and network innovation (Bloch and Bugge 2013; Eppel & Rhodes 2018; Laitinen et.al.2016; Torfing 2018; Voorberg, Bekkers & Tummers, 2014) that were brought out during the interviews. The mobilization and engagement of diverse actors in issue networks resonate with the idea of cross-pollination of ideas and knowledge exploration in co-creative innovation (Laitinen et.al. 2016; Voorberg, Bekkers & Tummers, 2014). Similarly, the emphasis on shared values and common norms in issue network mobilization (Ritvala & Salmi 2010) reflects the socially constructed process of innovation and negotiation of meanings highlighted in the data.

Additionally, the theory of value networks (Jalonen 2011) provides insights into the complexity of innovation networks and the interdependence among actors. The recognition of multiple interpretations of value and the importance of cultural values in determining the significance of benefits and costs (Jalonen 2011; Laitinen et.al. 2016) aligns with the research results that innovation occurs through the recombination of existing knowledge and the interplay between actors and their knowledge bases. Hence, based on both the theory and the data, it can be argued for the importance of collaboration, co-creation, and value exchange among multiple actors within a network.

The research findings suggest that issue networks and value networks play important roles in collaborative innovation and the production of public value. The mobilization of diverse actors in issue networks (Ritvala & Salmi 2010) and the interdependence within value networks (Jalonen 2011) can contribute to the development of innovative solutions and service models. The findings also highlight the need for institutional design, leadership, and facilitation to coordinate and manage collaborative arenas effectively. Overall, the data strongly supports the theoretical concepts of innovation networks. It acknowledges the challenges related to authority, resource allocation, interpersonal relationships, and problem identification, which are consistent with the theory (Dyer et.al. 2009; Ind et.al 2017; Jalonen 2011; Ritvala & Salmi 2010). The data also provides insights into the importance of nurturing collaboration, overcoming challenges, and leveraging the benefits of network innovation. However, it is essential to note that the data represents a specific context and may not capture the full range of experiences and perspectives within innovation networks.

5.1.2 Public sector innovation leadership

In addition to the value network approach, the integration of innovation leadership theories further enriched the synthesis of this research. These theories (De Vries et.al. 2016; Jones et.al. 2016; Kim & Shin 2021; Nambisan 2008; Torfing & Sørensen 2012) offered insights into the role of leadership in fostering innovation and navigating the challenges associated with complex networks. By leveraging these perspectives, one was able to discern from the data various leadership practices and strategies that facilitated value co-creation and supported innovation initiatives within the public sector. The alignment between the data and the innovation leadership theories highlighted their significance in guiding effective leadership interventions and promoting a culture of innovation.

The data supports the theoretical concept of Nambisan (2008) that leadership and collaboration within networks requires aligning values, personal relationships, and authority. It highlights the challenge of acquiring necessary authority and resources to drive progress. The data also emphasizes the need for matrix-like structures and decentralized leadership to

effectively manage networks. This supports the idea that a strict network management model implanted into existing structures may not be feasible (Ind, Inglesias & Markovic 2017). The importance of nurturing people-to-people relationships and investing in collaboration is highlighted, emphasizing that successful collaboration depends on active involvement and effort from individuals. The data also reinforces the notion that collaboration and decision-making within networks are essential for driving progress, as the city organization alone cannot achieve meaningful change (Bloch & Bugge 2013; Klijn & Koppenjan 2012; Tani et.al 2018; Torfing 2018).

Furthermore, the data highlights the need for innovative leadership approaches that are responsive to the complexities of the public sector and its networks which supports the idea of open-system framework (Laitinen et.al. 2016). The interviewees recognize that innovation networks require leaders who can adapt to changing circumstances, embrace ambiguity, and mobilize collective action. These leaders encourage experimentation, learning from failures, and continuous adaptation to promote innovation in complex environments. The data promotes leaders who can navigate and influence the dynamics of multi-actor networks. These leaders understand the network's structure, facilitate communication and collaboration, and bridge different interests and perspectives.

Moreover, the data also reinforces the significance of innovation leadership in facilitating the innovation process in the public sector. The interviewees highlighted their role as leaders in driving and managing innovation. They emphasized the need for leaders to act as conveners, intermediaries, and catalysts, bringing together various stakeholders and fostering an environment conducive to innovation, much in the way that Kim & Shin (2021) had defined the collaborative innovation leadership. The interviewees also shared their experiences in implementing innovative management practices, such as establishing resolute innovation teams, encouraging idea generation, and providing resources for experimentation and implementation.

Culture and leadership play a significant role in supporting innovation, according to the data. The importance of establishing a supportive and permissive culture that encourages creativity and allows for experimentation is highlighted in both the interviews and the theoretical framework (Johnson 2000; Kim & Shin 2021; Laitinen et.al 2014; Torfing & Sørensen 2012). The interviews also emphasize the need for a dynamic flow of communication within the organizational hierarchy and the importance of empowering employees to improve their work. These findings align with the theoretical concept of building a functional two-way connection and fostering a positive and open culture for innovation (Kim & Shin 2021; Voorberg et.al. 2014; Österberg & Qvist 2020). However, the interviews also mention resource availability as a determining factor, indicating a potential difference in the implementation of supportive culture and leadership.

To synthesize the theory and data, it becomes evident that effective innovation leadership in the public sector requires a profound comprehension of the various perspectives, interests, and needs of participants within innovation networks. Leaders must actively foster communication, build trust, and align goals to facilitate the successful co-creation of value. Nevertheless, certain nuances and discrepancies may arise, such as the necessity for stronger forms of leadership within the context of shared leadership, as well as the challenges posed by external influences. However, overall, the data supports the theoretical framework and offers valuable insights into leadership within networked environments.

5.1.3 Facilitating value co-creation and collaboration in multi-actor networks

The data highlights the complexity of facilitating value co-creation and collaboration in multi-actor networks within the public sector. It identifies challenges such as conflicting interests, power imbalances, and coordination difficulties which are echoed in theoretical frameworks as well (Eppel & Rhodes 2018; Sørensen & Torfing 2012). Moreover, the interviewees emphasized the organizations' role in creating favorable conditions for collaboration, balancing flexibility, openness, and control, and fostering a culture of trust and cooperation among stakeholders. They mentioned engaging in collaborative initiatives with external partners, including businesses, non-profit organizations, and academic institutions, to leverage their expertise and resources.

The interviews argued for collaborative innovation and for the importance of light and informal approaches that promote free-flowing interactions. This aligns with the theoretical concept that highlights the need for innovative collaboration models and the cross-pollination of thoughts and ideas (Ind et.al. 2017; Voorberg et.al. 2014). The interviews also mentioned the emergence of collaborative models that prioritize social impact over organizational goals, which corresponds to the theoretical concept of exploring diverse approaches and working collectively towards larger objectives (Lee et.al. 2012; Nambisan 2008). However, the interviews did not provide detailed insights into the specific collaborative models employed by the organizations, indicating a potential difference in the level of implementation of collaborative innovation. This could be a topic for future research.

Theoretical framework like the Service-Dominant Logic (Vargo & Lusch 2004) offer valuable insights into how value co-creation can be facilitated in such networks. Theory emphasizes the importance of understanding the resources, capabilities, and interactions among network participants to create value collectively (Osborne & Strokosch 2013; Vargo & Lusch 2004). Consequently, the data suggests that successful facilitation of value co-creation requires building trust, fostering collaboration, and promoting a culture of openness and knowledge sharing among the actors involved. Furthermore, the data advice public sector leaders to act

as facilitators, creating an environment that encourages active participation, knowledge exchange, and mutual learning among network participants which again aligns well with the theory (Ind et.al. 2017; Klijn & Koppenjan, 2012; Sørensen & Torfing 2012). The aim would be to build relationships and promote a shared understanding of value creation goals.

The data supports the notion that collaboration and shared resources are necessary for successful networked innovation (Bloch and Bugge 2013; Eppel & Rhodes 2018; Torfing 2018; Voorberg, Bekkers & Tummers, 2014). The value creation in networks relies on participants perceiving tangible benefits and sharing knowledge through the network as argued by Laitinen et.al. (2016). Furthermore, the data promotes the role of innovation managers in ensuring seamless integration and effective functioning of the network. Their commitment and shared interest in the network contribute to fruitful collaboration and the realization of mutual benefits.

There were also challenges and inefficiencies in networked innovation that were acknowledged in the data. The understanding of the entire ecosystem and the need for genuine network management were identified as areas that require improvement. The same sentiment was echoed in the study by Voorberg et.al. (2014) when they argued for the systematic understanding of the conditions that encourage citizens to participate in social innovation. Moreover, the interviewees revealed how moving forward with innovations within the network environment is slower and more challenging, requiring a deep understanding and consensus among all collaborators or network members. The complexity of networks and inadequate support from existing structures pose difficulties for networked innovation.

In conclusion, the data supports the theoretical framework of this study regarding the innovation collaboration and co-creation. The importance of creating a culture of participation, involving multiple stakeholders, engaging citizens, and reshaping work and organizational culture is emphasized by the interviewees. However, some challenges and differences are also identified, such as the difficulty of making rapid progress and building collective understanding within the network.

5.1.4 Public sector innovation & complexity

The data strongly supports the concept of public sector innovation as the creation and implementation of latest ideas, processes, products, or services in the public sector and for the public benefit (Bommert 2010) and that the public sector is more innovative than generally is conceived (De Vries et.al.2016). The interviewees emphasized the importance of improving service performance and achieving public value through innovative initiatives. They

mentioned specific examples of innovative projects and initiatives that were undertaken to address existing challenges and enhance the delivery of public services.

The data backs the understanding of complexity in the context of public sector innovation (Dyer et.al. 2009; Laitinen et.al. 2016). The interviewees emphasized the importance of open system frameworks, innovation ecosystems, and organizational learning in fostering innovation. They highlighted the significance of collaboration and information flow across networks and sectors. The interviewees also stressed the role of experience and process-based learning in facilitating innovation, such as learning from previous projects and adapting approaches based on feedback and evaluation.

Regarding the scope of innovation, the interviews reveal that organizations often tend to focus on trivial matters and lack a future-oriented perspective. This finding aligns with the theoretical concept that emphasizes the need for organizations to adopt a broader perspective and engage in discussions for larger-scale changes (Bloch & Bugge 2013; Dyer et.al. 2009). However, the interviews also point out that organizations get caught up in insignificant issues, diverting resources away from meaningful progress. This suggests a potential difference between the theoretical concept of focusing on larger-scale changes and the actual implementation in organizations.

In conclusion, the comparison between the theoretical concepts and the data demonstrates a strong alignment in the context of public sector innovation. The research reinforces the importance of developing new ideas, fostering collaboration, managing innovation effectively, embracing complexity, and adopting a service-dominant mindset. The insights from the interviews provide valuable evidence of how these theoretical concepts are put into practice in real-world public sector settings, offering useful guidance for policymakers and practitioners aiming to promote and leverage innovation in the public sector.

5.2 Summary of Findings of the study

The findings of this study shed light on various aspects of managing public sector innovation in networks and facilitating value co-creation in multi-actor networks. The analysis revealed several key themes and patterns that emerged from the data. The key findings of this study are the following:

1. The importance of collaborative partnerships,
2. The role of trust and communication,
3. The need for adaptive and inclusive leadership.

5.2.1 The importance of collaborative partnerships

One of the key findings of this study is the critical role of collaboration in managing public sector innovation in networks. The data revealed that effective collaboration among diverse stakeholders, including government agencies, non-profit organizations, private sector entities, and citizens, is essential for generating innovative ideas, pooling resources, and implementing solutions that address societal challenges. The theoretical framework of network governance (Klijn & Koppenjan 2012; Sørensen & Torfing 2012; Österberg & Qvist 2020) provided a lens through which to understand the dynamics of collaboration and the importance of building and maintaining trust among network participants.

5.2.2 The role of trust and communication

Another important finding is the significance of communication in facilitating value co-creation in multi-actor networks. The data highlighted the need for clear and open channels of communication that enable information sharing, knowledge transfer, and the alignment of goals and objectives among network actors. The theoretical framework of value co-creation (Kristensson et al., 2008; Voorberg et.al.2014) emphasized the role of communication in creating shared understanding, fostering engagement, and promoting collaborative decision-making processes.

5.2.3 The need for adaptive and inclusive leadership

Furthermore, the analysis of the data in the context of innovation leadership theories (De Vries et.al. 2016; Jones et.al. 2016; Kim & Shin 2021; Nambisan 2008; Torfing & Sørensen 2012) shed light on the most relevant theories for the public sector in managing innovation in complex networks. The findings suggested that adaptive and participative leadership approaches are particularly relevant in the public sector context, as they emphasize flexibility, empowerment, and the mobilization of diverse talents and resources. These leadership theories provide a framework for public sector leaders to navigate the challenges of innovation in complex networks and inspire and motivate stakeholders towards a common vision.

5.3 Implications for Practice

The insights derived from the findings have important implications for practitioners in the public sector. Successful implementation requires a tailored approach that considers the unique characteristics and context of the public sector and its complex networks. Firstly, it is crucial to foster collaborative partnerships and establish innovation networks that enable stakeholders to co-create value and drive innovation. This includes creating an enabling environment that encourages collaboration, building strong relationships among stakeholders, and implementing effective communication channels.

Hence, this research aims to provide practical recommendations for decision-making, policy formulation, and strategies to promote future vision of innovation and collaboration within the public sector, directly addressing workplace development needs. Additionally, the study highlights the need for adaptive and inclusive leadership that promotes a culture of innovation, embraces diverse perspectives, and empowers employees to contribute their ideas and expertise. It is recommended that public sector organizations adopt a holistic approach to managing innovation in networks.

The following list of suggestions can be used by public sector organizations to enhance their capacity for managing innovation in networks, facilitate value co-creation, and leverage relevant innovation leadership theories to drive meaningful and impactful change within their complex networks.

PRACTICAL SUGGESTIONS	DESCRIPTION
Foster collaboration and partnership	Public sector organizations are urged to actively seek collaborations and partnerships with diverse stakeholders in innovation networks. This can be achieved through establishing formal agreements, creating platforms for dialogue, and engaging stakeholders in joint problem-solving activities.
Develop network leadership capabilities	Public sector leaders are encouraged to acquire the necessary skills and competencies to effectively lead in multi-actor networks. This includes understanding the network's structure, facilitating communication and collaboration, and mediating conflicts. Training programs, workshops, and mentoring can be implemented to develop these leadership capabilities.
Create an enabling environment	There is a need for public sector organizations to create an environment that encourages innovation, experimentation, and

	learning. This involves fostering a culture of trust, openness, and knowledge sharing. Leaders are encouraged to provide resources, incentives, and recognition to support innovative initiatives and create an atmosphere that rewards risk-taking and learning from failures.
Implement innovation labs	Establishing dedicated innovation labs can provide a structured approach to managing innovation in complex networks. These labs can serve as spaces for experimentation, collaboration, and co-creation, bringing together diverse stakeholders to work on specific innovation challenges. They can also act as catalysts for knowledge sharing and best practice dissemination.
Embrace adaptive leadership	Public sector leaders are urged to embrace adaptive leadership practices that enable them to navigate through uncertainty and complexity. This involves being open to new ideas, encouraging flexibility and adaptability, and fostering a culture of continuous learning and improvement. There is a need for leaders to be willing to challenge the status quo, embrace innovation, and support innovative ideas from within their organizations and networks.
Develop implementation frameworks	Public sector organizations can develop implementation frameworks or guidelines that provide a systematic approach to applying the identified theories in practice. These frameworks can be tailored to the specific context and needs of the organization and provide practical steps, tools, and resources for leaders and practitioners to follow.

Table 5: Practical suggestions for public sector innovation

As described above this study offers several practical recommendations for implementing theory in real-world settings, thus supporting public sector organizations in their efforts to manage innovation. Next sections illustrate what are this research's contributions to theoretical knowledge and possible future research topics. The engagement of experts from major Finnish cities ensures the relevance and applicability of the research results, which ultimately serves to guide public sector organizations in their pursuit of innovative approaches to address resource constraints and complex challenges.

5.4 Contributions to the Theory

This study makes several contributions to the existing literature on managing innovation in the public sector and complex networks. Firstly, it provides empirical evidence and insights

into the dynamics of innovation networks and the factors that influence successful value co-creation. Additionally, by integrating innovation leadership theories, it contributes to the understanding of leadership practices that are most relevant in the public sector context and can effectively drive innovation in complex networks.

5.5 Limitations and future research topics

This study is not without its limitations. Firstly, it was exclusively carried out within a single cultural context, specifically in Finland. Consequently, there may be concerns about the external validity and the applicability of the research findings to other geographical locations, as per the principles outlined by Yin (2009). Secondly, the results of this study were derived from selected organizations and experts that met specific criteria favoring public sector innovation. It is important to recognize that these outcomes might not necessarily be replicable in different contexts, and the findings may not be directly transferrable to other scenarios. Thirdly, the bulk of our interviews were centered around leadership level. It is conceivable that incorporating interview data from individuals at various organizational hierarchy levels could have enriched our understanding of the operational aspects within the research context, offering a broader perspective. Similarly, input from diverse stakeholders collaborating with the organizations could have provided a different dimension of insight. In sum, while this study contributes valuable insights into public sector innovation leadership, it is essential to bear in mind these limitations, which could affect the generalizability and depth of the findings.

Based on the findings of this study, further research opportunities can be explored. Firstly, as the interviews lacked detailed insights into the specific collaborative models utilized by the organizations, it suggests a potential variation in the level of implementation of collaborative innovation in public sector. This aspect could serve as a valuable topic for future research.

Additionally, an interesting avenue for investigation would be to explore how public sector organizations effectively facilitate, manage, and steer interactive governance arrangements. The focus would be on identifying strategies that avoid top-down command while preserving the self-regulatory capacity of networks, partnerships, and quasi-markets. Understanding how these organizations strike a balance in their approach could provide valuable insights for enhancing collaborative innovation practices in the public sector. The author of this thesis intends to further explore and advance this research topic as an integral component of his doctoral studies. This extended research endeavor will encompass data collection from not only Finnish cities but also various other European urban centers.

In summary, future research could delve into the examination of variations in the implementation of collaborative innovation within organizations, as well as investigate effective strategies employed by public sector organizations to navigate interactive governance arrangements while maintaining the autonomy of networks and partnerships.

5.6 Reflections on Research Process

Throughout the research process, one encountered certain challenges, such as data collection limitations and the complexity of analyzing multi-actor networks. However, these challenges were addressed through careful data interpretation, and triangulation of findings. It is important to acknowledge the limitations of this study, including the specific context and sample size, which may impact the generalizability of the findings. Future research could explore these topics further in different contexts and include a larger and more diverse sample to enhance the external validity of the findings.

5.7 Summary

In conclusion, this study provides valuable insights into leadership of public sector innovation in network context and facilitating value co-creation in multi-actor networks. By integrating theoretical frameworks with empirical data, a deeper understanding of these complex phenomena has been achieved. The practical recommendations derived from these insights can guide public sector organizations in navigating the complexities of innovation and fostering a culture of continuous improvement and collaboration. By doing so, they can better serve the needs of citizens, stakeholders, and society as a whole.

The research questions focused on the significance of networks, collaboration, and shared values in fostering innovation and tackling complex public challenges. The aim was to explore how these factors contribute to public value creation and the development of innovative solutions within the public sector.

The theoretical framework served as a solid foundation for the research questions, emphasizing network innovation, and collaborative practices. The interview findings provided empirical support by demonstrating the crucial role of collaboration and diverse actor mobilization. Successful network mobilization was found to be catalyzed by shared values, while integrative leadership and institutional design were identified as vital factors for establishing successful collaborative arenas.

The following key findings: **the importance of collaborative partnerships, the role of trust and communication and the need for adaptive and inclusive leadership** emphasize the importance of collaboration, trust, communication, and adaptive leadership in managing innovation within networks. Adopting a holistic approach that incorporates these elements enables public sector organizations to create an environment conducive to innovation and value co-creation.

The data supports the theoretical concept that network innovation offers several benefits, including gaining a holistic view of complex issues, utilizing diverse perspectives and expertise, and fostering internal networks for knowledge sharing within public organizations. The findings also highlight the challenges of restricted observation and lack of awareness, which can be addressed through networking, staff training, and cultivating a culture of active engagement and collaboration.

This study contributes to the field by providing empirical evidence and insights that expand our understanding of managing public sector innovation within complex networks. The findings not only add to the theoretical body of knowledge but also offer practical guidance for practitioners seeking to enhance innovation processes in their organizations.

While the research findings offer valuable insights, it is important to acknowledge limitations such as sample size and participant diversity. Expanding the sample to include various public sector actors and exploring the perspectives of private sector actors, civil society organizations, and citizens would enhance the research's validity and applicability.

Future research could include specific case studies or comparative analyses to examine how distinct types of networks emerge and contribute to innovation in various contexts. Investigating the long-term sustainability and impact of collaborative innovations in addressing complex societal challenges would also be a valuable avenue for further exploration.

In conclusion, this study provides a comprehensive understanding of the interplay between networks, collaboration, and shared values in driving innovation within the public sector. While acknowledging its limitations, the study paves the way for further research and highlights the potential for positive change and societal well-being through the exploration of public sector innovation.

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Appendix 1: Interview questions

The interviews were conducted in Finnish and consequently the interview questions were originally constructed in Finnish. The questions are listed here both in Finnish and in English with the Finnish version in bold font.

1. Background
 - How long you have worked in this organization?
 - **Kauanko olet työskennellyt nykyisessä organisaatiossa?**
 - What is your current role?
 - **Mikä on tämän hetken roolisi/ tehtäväsi?**
 - What does your work consist of?
 - **Mistä työsi koostuu?**
2. Innovation
 - How is your work related to innovation?
 - **Miten työsi liittyy kehittämisen ja innovaatioihin?**
 - How do you organize your innovation activities?
 - **Miten organisoitte innovaatio/kehittämistoimintanne?**
 - What goes smoothly or what is easy concerning innovation?
 - **Mitkä asiat teillä toimivat hyvin innovaatio/kehittämistoiminnan osalta?**
 - Where do you find challenges in innovation?
 - **Mitkä asiat ovat taas haastavia?**
 - How would you describe your innovation process?
 - **onko teillä prosessia? onko kuva/kirjallinen? voinko saada sen?**
 - **Miten kuvailisit innovaatio/kehittämisprosessianne?**
 - When developing innovations is the process open?
 - For the 2020-2022 period, did your workplace introduce new or significantly changed services / Processes or methods of organization?
 - **Onko organisaationne innovaatio/kehittämisprosessia kehitetty tai muutettu merkittävästi viimeisen kahden vuoden aikana?**
 - Please provide a short description of the most recent innovation that your workplace implemented in 2020-2022
 - **Kuvaile lyhyesti organisaationne uusimpia innovaatioita viimeisen kahden vuoden ajalta.**
3. Value based networks / Arvoverkko
 - Is the term value-based network innovation familiar to you?
 - **Onko arvoverkon termi sinulle tuttu?**
 - **Entä kehittämisverkosto?**
 - **Entä verkostomainen kehittäminen?**
 - What kind of meaning network innovation has in your organization?
 - **Oletko itse toiminut kehittäjäverkostossa? Jos olet, niin kuvailisitko rooliasi ja verkoston työskentelyä?**
 - **Minkälaisia hyötyjä ja haasteita olet kohdannut kehittäjäverkoston työskentelyssä?**
 - **Miten haluaisit parantaa verkostomaista kehittämistä?**
4. Miten verkostomaista kehittämistä teillä johdetaan?
 - **Mikä on kehittäjäverkostonne suurin onnistuminen?**
 - **Onko arvonaluonnin käsite tuttu?**
 - **Minkälaista arvoa verkostomaisessa kehittämisessä on syntynyt?**
 - **Miten arvonaluontia on johdettu**
5. Network innovation
 - During the development of the most recent innovation, did your workplace collaborate with any of the following?
 - Other municipal workplaces in your municipality

- Municipal workplaces outside your municipality
- Central government workplaces (excluding higher education and research institutions)
- Higher education and research institutions
- Regional workplaces
- Citizens
- Voluntary associations/ organisations
- Private companies (e.g., consultants, suppliers and/or other private partners)
- Foundations
- Foreign partners
-
- To what extent do you agree or disagree with the following statements about your workplace?
 - We are good at collaborating across the workplace.
 - We want to try new solutions, even though there is a risk that we might make mistakes.
 - We systematically work towards learning from our mistakes.
 - We acknowledge people who suggests new ideas, even though they are not applicable.
 - We find it easy to reuse good ideas from other workplaces.
 - We systematically incorporate the citizens' and/or companies' perspectives into our work.
 - We systematically try to find and reuse others' new solutions.
 - Whenever we introduce new solutions, we always ensure that the implementation is complete.
 - We systematically examine whether our solutions are useful.

End questions

- To whom should I speak to better understand innovation in your organisations?
- Is there anything else you would like to tell me or ask from me?

Appendix 2: Anonymous interview coding

The number of interviewees was in total 9 people. The code for the interviews used in this study consist of the following symbols with make the code key used as a reference for the anonymous interview material:

w = woman

m = man

x = non-binary

1 = City of Oulu

2 = City of Tampere

3 = City of Turku

4 = City of Vantaa

For example, a female interviewee from Vantaa that was second person to be interviewed would be coded as: w4 2/9