



UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

Exploring Value Creation in Cross-Sector Collaboration

**A qualitative study of Swedish organisations involved in Research and
Development Consortia**

Bachelor Thesis in Corporate Sustainability

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Abstract

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Background

Cross-sector collaborations (CSC) are increasingly being seen as an effective strategy for solving larger societal problems.

Problem description

Organisations choose to join CSC as a result of potential value they seek to gain from collaboration. However, value creation within CSC is vaguely defined and therefore it may be so that the actual value may be unevenly examined.

Purpose

The purpose of this thesis is to further the practical understanding value creation by exploring a CSC, and comparing the motivations of potential value with actual values created for organisations, to see whether they compare to each other.

Method

This thesis has approached the research with a qualitative study and formed a theoretical framework based upon cross-sector collaboration and value creation. Moreover, the study examined six partners involved in the selected case, LoV-IoT, and conducted semi-structured interviews.

Results and conclusion

The findings suggest that each organisation expressed motivations for joining this CSC and also experienced that values had been created for them during the process of collaboration. In addition, many organisations showed the creation of values beyond their motivations for joining which suggest that there still may exist a vagueness around the values that are created during CSC. As a result of the vagueness, the values created during collaboration can at the most be compared to the motivations of potential value for joining CSC to a degree.

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Sammanfattning

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Bakgrund

Gränsöverskridande samarbeten (CSC) ses alltmer som en effektiv strategi för att möta större samhällsutmaningar.

Problembeskrivning

Organisationer medverkar i CSC eftersom det finns ett potentiellt värde i sådant samarbete. Däremot är värdeskapande inom CSC svagt definierat och det faktiska värdet kan ännu vara underforskat.

Syfte

Syftet med denna uppsats är att bättre förstå hur värdeskapande ser ut i praktiken genom att utforska ett CSC, och jämföra motivationerna av potentiella värden med de värden som har skapats för organisationerna.

Metod

Uppsatsen har använt sig av en kvalitativ studie och byggt upp en teoretiskt ramverk baserat på gränsöverskridande samarbeten och värdeskapande. Studien har undersökt de sex deltagande organisationer för det valda fallet, LoV-IoT, och utfört semistrukturerade intervjuer.

Resultat och slutsats

Resultaten från studien visar att samtliga organisationer hade motivationer till att delta i CSC och att värden hade skapats under samarbetet. Dessutom visade studien att värdeskapande sträckte sig längre än de ursprungliga motivationerna till att samarbete, vilket tyder på att det finns till en viss utsträckning otydligheter runt de värden som skapas under CSC. Till följd av otydligheten runt värdeskapande kan värden som skapats under gränsöverskridande samarbetet till en viss mån jämföras med motivationerna till att delta i CSC.

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1 Introduction

The following chapter will describe the background and problem description of this thesis. Beginning with the emerging form of cross sector collaborations towards sustainable development, followed by the problem description of the vagueness value creation in collaboration across sectors. Thereafter, presenting the purpose, research question, delimitations as well as a disposition of the thesis.

1.1 Background

Larger complex problems, falling across three dimensions of sustainable development, are challenging for all organisations alike. This complexity can mean that collaboration across sectors is more suited to creating innovative ways of responding to these problems (Gray & Stites 2013). *Sustainable development* was first widely articulated in the 1987 Brundtland Report, where it was defined as "the development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Santillo, 2007; WCED, 1987:23). This definition, projects that the only way to truly sustain progress is by addressing the interconnectedness of economic, social and environmental factors of well-being (Santillo, 2007). Emphasis on collaboration also aligns with United Nations [UN] 17th Sustainable Development Goal [SDG] (United Nations, n.d.a), which identifies the importance of multiple partnerships. In an interview with The Guardian, the CEO of Unilever, Paul Polman, expressed the importance for organisations to recognise the need of collaborations when tackling complex challenges, saying;

“The issues we face are so big and the targets are so challenging that we cannot do it alone..... When you look at any issue, such as food or water scarcity, it is very clear that no individual institution, government or company can provide the solution.” (Confino, 2012)

As a result, governments in many countries provide funding and other incentives to support

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collaboration programmes (Quintas & Guy, 1995), and act as triggering entities for collaborative research and development (Doz, Olk & Ring, 2000). Growing public funding for these programmes has led to an increased number of collaborative research partnerships being observed (Arranz & Fernández de Arroyabe, 2008; Huxham & Vangen, 2000). Furthermore, this funding targets and promotes the enhancement and efficiency of partnerships between public, private and civil society (United Nations, n.d.b). Cross-sector collaboration [CSC] is one form of collaboration, which involves two or more actors from business, nonprofit [NPOs] and government sectors (Bryson, Crosby and Stone, 2006). In Sweden, the national innovation agency, *VINNOVA*, acknowledges the increasing role of innovative services and partnerships between public and private players in order to achieve sustainable growth, by providing funding to cross-sector collaborations that focus on competitive global markets for Sweden (Vinnova, 2017). Therefore, organisations from different sectors in Sweden have been given the opportunity to seek public funding for research and development initiatives funded by VINNOVA, and collaborate across differing private, NPOs and public sectors.

1.2 Problem description

In 2016, VINNOVA financed a project called *Air and Water with Internet of Things [LoV-IoT] in Gothenburg* as part of their *National Strategic Innovation Programme* (Vinnova, n.d). The *Internet of Things* [IoT], refers to the networked interconnection of everyday objects, which are often equipped with ubiquitous intelligence, in other words ongoing connection of objects to the internet (Xia, Yang, Wang, & Vinel, 2012). The project, *LoV-IoT* is part of a consortium, commonly used as form of collaboration for developing new technologies (Mothe & Quelin, 2001). Moreover, the consortium is a cross-sector collaboration [CSC]. The vision of the collaboration, LoV-IoT, was to create an inclusive, interactive, mapped-based information platform for the environmental monitoring of air and water pollution within Gothenburg City. Normally, this type of collaboration focuses on pre-competitive Research and Development [R&D] before introduction to the market, also demanding a higher degree of cooperation between business, NPOs and government actors (Mothe & Quelin, 2001). In the LoV-IoT, there has been a wide range of actors involved, including businesses, research

institutes and the local municipality. The expertise of these participating organisations ranges from environmental knowledge to more technical knowledge. The CSC involves relationships that seek to address social issues while also providing benefits to the partners' own organisations (Murphy, Arena & Batista, 2015)

Bryson, Crosby and Stone (2015) highlight how recent studies show how many cases of CSC reported failure and uneven results during the past decade. Despite this, organisations are still motivated to join CSC, with Austin and Reficco (2005) describing how it is the motivations; or the conscious values, that initially drive organisations to collaborate across sectors. According to Le Pennec and Raufflet (2016), existing literature has focused on motivations and key success factors, while both the nature and processes of the creation of value in CSC have been underexamined. At the same time, businesses, researchers and policymakers have expressed a need for value creation through CSCs (ibid). According to Austin and Seitanidi (2012), value creation (i.e. the benefits to be gained) is the central justification to collaborating for all organisations in CSC. Murphy, Arena and Batista (2015) describe value creation in the context of CSC, explaining how the value created for partners as well as society can possibly include a wide range of benefits where profit and market share are not typically the principal goals of collaboration.

Although it is argued that organisations that collaborate create value during the process of collaboration (Le Pennec & Raufflet, 2016), relatively little is still known about value creation spanning across sectors (Austin & Seitanidi, 2012). Austin (2010:13) states, “the beauty is in the eyes of the beholder”, meaning that if the values created are deemed to be fair and reasonable, it will ultimately provide the basis for more sustainable and long-lasting collaboration between partners. On the other hand, the vagueness of value creation in CSC causes a need to analyse and know more about how value creation proliferates within CSC (Austin & Seitanidi, 2012). Therefore, it may be so that values created during collaboration might be unevenly examined and the actual value may go unreported and under acknowledged (Austin & Seitanidi, 2016).

1.3 Purpose

It is the expectations of potential value, that initially motivate organisations to collaborate over sectors. However, value creation is vaguely defined in CSC and can lead to values not even being recognised. Therefore, the purpose of this thesis is to explore the motivations of potential value and compare them to the values created as a result of collaborating in CSC for each individual partner organisation. To enable comparison, it requires investigation into respective motivations to collaborate as well as identification of values create for them during CSC.

1.4 Research question

In order to gain a better scope of the expectations and in what way they are connected to value creation during CSC, this thesis will examine the perspectives of partners involved in the CSC, LoV-IoT, aiming to answer following research question:

- How do the motivations of potential value compare to the values created in CSC?

1.5 Delimitations

The research project is based on one selected cross-sector collaboration and focuses on the perspectives of each organisation involved. These are Swedish organisations including three businesses, two research institutes and one local municipality. Furthermore, the scope of this thesis is limited to the perspectives of respondents. An increased number of respondents or more extensive interviews may give rise to further perspectives with a deeper insight into the experiences of these organisations. Another delimitation of this thesis is that the selected case is examined within a Swedish context and it is a publicly funded R&D project thus monetary incentives to collaborate already exist. Due to the complexity of this CSC such as; the long-run goals and short-term goals and time perspective, the selected case has been simplified in order to maintain a comprehensive data collection.

1.6 Disposition

This thesis is distributed into following chapters. (1) The *introduction* introduces the topic of this paper, presenting the problem description, purpose, research questions and delimitations. (2) This is followed by a *case introduction* which introduces the organisations involved in the selected CSC. (3) The *theoretical framework presents* the selected concepts related to value creation and cross-sector collaborations. (4) The *method* describes the research approach and how the data collection been conducted and analysed. (5) The *empirical findings* present the results from the interviews with the six organisations involved. (6) The *analysis* investigates the motivations and types of values created in CSC in relation to the empirical results and the theoretical framework. (7) Finally, the *discussion and conclusion*, aims to discuss the analysis and answer the research question of this thesis by presenting the concluding remarks. Further, making recommendations for future research on this topic.

2 Case introduction LoV-IoT

The following chapter will provide a brief background description of the CSC, LoV-IoT, followed by the organisations involved, including organisations profile, expertise and role within the CSC.

The selected case is a VINNOVA initiative and funded by them, but organised by *IoT Sverige*, a public agency which is targeting the strategic national goals of Sweden with a ten-year perspective. Although this project received research funding, it still requires independent financing, which is why the project is partly financed by the municipality and the private businesses involved in the CSC. (Vinnova, n.d.). The following case description is derived from VINNOVA's official website of LoV-IoT. The selected case for this thesis is the project, LoV-IoT. The goal of LoV-IoT is to provide a visualisation of the air and stormwater pollution during infrastructure development in the City of Gothenburg. This will allow for simple environmental status updates to the members of the public as well as the opportunity to minimise the potential risk of environmental degradation. The LoV-IoT, involves the participation of experts in IoT as well as environmental surveillance and management. An associated goal of the project is to showcase the results, both nationally and globally, in order to expand and commercialise this solution to other cities.

2.1 Organisations involved

2.1.1 Vinnter

Vinnter is a systems integrator and developer specialising in M2M (machine-to-machine) solutions (also known as IoT). They are based in Gothenburg and are one of the private businesses involved in LoV-IoT. Vinnter is a part of the Vinngroup, consisting of subsidiary companies with a wide base of technical expertise. Their role in the collaboration has been providing their expertise within IoT as well as continual development of their digital platform as used in LoV-IoT.

2.1.2 Talkpool

TalkPool is a telecommunications and IoT specialist who build and maintain telecom

networks in Europe, Africa and South America. The Gothenburg branch of TalkPool is a one of the private businesses participating in LoV-IoT. The role of TalkPool in LoV-IoT is to provide expertise within IoT as well as development and connection of environmental sensors to the internet with their network infrastructure.

2.1.3 Innovation Management and Communication Group (IMCG)

IMCG specialise in the utilisation of research results to meet social challenges. They are a further private business involved in LoV-IoT. IMCG's role description includes taking responsibility for the innovation processes. Further responsibilities include communication activities aimed at contributing to market development.

2.1.4 The Environmental Institute (IVL)

IVL, is an independent, NPOs organisation founded in 1966, that is state and business owned, and conducts research towards new solutions for environmental problems. They are based in Gothenburg. As one of the collaborating research institutes, their role is taking responsibility for the coordination of LoV-IoT and to provide expertise in measurement, validation and data analysis of environmental data.

2.1.5 RISE Acreo

RISE Acreo is an independent, non-profit organisation that focuses on the commercialisation of research results and strengthening the cooperation between business and academia. Based in Gothenburg, they are another research institute involved in LoV-IoT. They contribute to the project with their expertise in development and packaging of sensors and systems.

2.1.6 The Department of Environmental management (Miljöförvaltningen)

Miljöförvaltning is the city department concerned with environmental management for the municipality of Gothenburg. Their role in this project is to improve the city's digital efforts using IoT to monitor the environment and spread information to the local community about this and other projects concerning monitoring the environment around the city. They are the only local municipality involved in LoV-IoT and have the role of project manager.

3 Method

The following chapter explains the selected research approach with a description of how this study has been conducted with respect to the data collection and analysis. This chapter will also discuss the criticism of the research and conclude with the ethical considerations which have been taken into account.

3.1 Research approach

The story behind this thesis has inevitably been of explorative kind. A topic within cross-sectorial collaborations was carefully selected after pre-study. During the process the authors came across the company, Vinnter, and potential collaboration arose, also explaining why this thesis has been writing on behalf of Vinnter. Noteworthy, is that the authors of this thesis, have worked independently with the case selection and topic along with the full support of the assigned company. Possibly due to the selected topic was of relevance to Vinnter, showing interest to further understand their involvement in CSC.

Within social science, there are two distinct choice of research method; a qualitative method and quantitative method. The choice of method depends on the researcher's intention with the research (Patel & Davidson 2011). According to Bryman and Bell (2015), there are differences between a qualitative research and quantitative research. The former puts emphasis on words while the latter, on numbers and figures, when collecting, analysing and interpreting data. This thesis has attempted to explore value creation in CSC, which according to Austin & Seintandi (2012) been under examined. According to Patel and Davidson (2011) this is also the argument why an explorative approach is more appropriate. As the selected topic is something of a recent phenomenon showing certain aspects of novelty. Therefore, a qualitative research approach has been chosen, using interviews to explore the partner experiences within a cross-sector collaboration. Hartman (2004) explains that the objective of a qualitative approach, cannot be measured when the purpose is to study a certain group of individuals' perception of a certain case. A quantitative approach has not been relevant for this study, as the purpose was to examine the partner experiences within the CSC, thus the

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respondent's opinions are subjective and the objectives not measurable. According to Patel & Davidson (2011) a qualitative study embraces the strengths of a subjective research approach. It enables the exploration of a specific phenomenon through the eyes of an individual or a group of individuals. Since this thesis aim to understand the partner's perspectives of value creation within the CSC, it therefore requires a qualitative approach.

In addition, a qualitative method, is known for its flexibility, which allowed the authors to explore the phenomenon throughout the research (Hartman, 2004). A qualitative study with an explorative method, allowed the author to further the understanding of value creation within CSC (Patel & Davidson 2011). Furthermore, the study has the characteristics of an abductive approach, commonly used in qualitative research. An abductive approach, can explain the relationship between the observations and selection of theories during the research. With an abductive approach, researchers use existent theories to explain and describe phenomena observed. (Patel & Davidson 2011) Since this thesis have been using theories back and forth in order to explore the case study it has applied in accordance with an abductive approach. Although, there are risks with an explorative attempt, since the process may be affected by the change of view of the researcher, an abductive approach was still essential to this thesis. The intentions of this thesis was to further the practical understandings of value creation in CSC, and conducted interviews with organisations involved in the selected case, LoV-IoT.

3.2 Data collection

In order to further this research approach, literature and online secondary sources, were continuously used to gain a better understanding of cross-sector collaborations in Sweden, before the start of this thesis. Secondary data was mainly used, for helping the authors gain a better understanding of the phenomenon of CSC and the selected case. Secondary data include data from web pages, research papers and published books. Web pages used during this thesis were original websites belong to respective organisations. Literature engagement was made with the following purposes of identification in accordance with Bryman and Bell (2015); what is already known in the field, relevant concepts and theories, previous research methods and strategies employed within the field, significant controversies, inconsistencies

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within the literature, any unanswered questions within the field. The database, GUPEA was used to search for previous student thesis. While the Gothenburg University database search-engine, GUNDA and Google Scholar were used to search relevant peer-reviewed papers online. The keywords that have been used when searching for literature are; cross-sector collaboration, collaborations, partnerships, motivations, and value creation.

Selection of case study and respondents

This thesis has collected empirical data from qualitative interviews with Swedish organisations participating in the selected case, since the purpose of this thesis was to explore a social phenomenon, with the different perspectives of the project, LoV-IoT. According to Yin (2009), case studies is applicable for explorative research within social science, thus making case studies suitable for this thesis. According to Flyvbjerg (2006) case studies are sometimes even an essential method, as it enables the researcher to gain a deeper understanding of the topic and broader the perspectives. Furthermore, Yin (2009) argue that the benefit of case studies is that it reflects a broader view and important aspects of reality. Therefore, taken into consideration such aspects, although it may be challenging, can help strengthen the results of the research conducted (ibid).

The selected case was decided after months of pre-study, with a mix of contacts with professors at the local university, public-and local agencies, to even attending events in urban development and open innovation. Several cases were then evaluated by its potential, whereas the final case was evaluated by being a CSC in Gothenburg related to VINNOVA, and the degree of commitment from all partners. Involving each partner was a criterion in order to examine the research questions of this thesis. The perspectives of each partner organisation was therefore required in this research as it contributes to a better understanding of the relationships to collaborate and the values the partner organisations create in the CSC. The selection of respondents was based upon their involvement within the CSC. Early contact was made with the different organisations within the CSC and the majority of partners replied also showing an interest to be contacted at a further undecided date. Previous contact was therefore made with respondents who could be considered main actors, receiving direct funding from VINNOVA. The chosen respondents were representatives from their

organisations also involved in this specific case. Although contact was not made with every individual involved in this case, the selected respondents were either managers or business developers representing their organisations involvement in the selected case.

Interviews

The majority of the data collection for the empirical results is derived from primary sources, in the form of semi-structured interviews, allowing the authors to keep an open mind while letting concepts or theories emerge from the interviews (Bryman and Bell, 2015). In accordance with Bryman and Bell (2015), limited structure during a qualitative enquiry allows for more flexibility during the investigation. As part of a preliminary research study, helping compare the topics identified during the collection of secondary data, participants were contacted for a semi-structured interview, whereby 4/6 respondents were involved. This type of interview invited the respondents to elaborate and interpret the interview in a way it correspondence with their opinions. The interview topics included; about the collaboration in general, role, experiences during involvement in CSC and administrative questions. These interviews had no time limitations and were conducted with the presence of both authors. While one of the authors held the interview, the other author was writing notes during these meeting. After each interview, the authors were discussing potential themes for this thesis.

A second semi-structured interview was conducted with the respective respondents, also offering slight flexibility, but also with a more structured approach to collection of qualitative data (Bryman and Bell, 2015). However, as previous contact has been made with respondents, the flexibility of semi-structured interview technique allowed the interviewers to adapt to each organisation, possible already answered during previous interviews; or even confirm and develop on questions with more detail to specific cases. Each interview lasted approximately 30-45 minutes. Participants not involved in the first interview were therefore interviewed more deeply, with regards to the interview guide, firstly drawing on themes like collaboration, role, experiences during involvement in CSC. These themes were built into the first and second part of the interview guide and more time was allowed with consideration to this. These interviews lasted approximately 60-75 minutes.

The questions were prepared in advance (see *appendix A*), following a similar formulation method to Bryman and Bell (2015). This include moving from a general research area to more focused specific research questions forming our interview topics. Here a combination of the literature review and unstructured interviews helped derive more specific research questions and interview topics. They were then revised, reformulated, put into a pilot guide and revised once again looking for flow and cohesion between the questions. Furthermore, to help address any uncertainties surrounding more novel terms, respondents were given the opportunity to express any queries before the interviews were conducted as well as during the interviews. In total, the primary sources derive from ten interviews with six partners within the selected case, four of the interviews were pre-research and the other six were the official interviews. The official semi-structured interviews used the following themes as the basis to the interview guide:

- 1) *General questions*, discussing the respondent's role in their organisations and the organisations as a whole.
- 2) *Collaboration questions*, focusing on the organisations role in the CSC, goals and motives for collaborating.
- 3) *Perceived values and experiences*, focusing on the values created in CSC.

Each interview was recorded with a recording device, followed by transcribing under the presence of both authors in order to interpret the respondents correctly and minimise the risk of, as Bryman and Bell (2015) describe, errors creeping in to transcriptions. According to Heritage (1984:238) recording and then transcribing has the following advantages; correcting memory limitations, more thorough and repeated examination, secondary scrutiny and counter accusations of interviewer bias as well as use within future research. Final transcriptions, translated into English, were then sent to respective respondents for approval. This is in alignment with the concept called *respondent validation* as recommended by Bryman and Bell (2015), which increases the credibility of the research. Other forms of primary data collected were official data files provided by the participants which included initial application forms, preliminary budget reports and project descriptions.

3.3 Data analysis

Large amount of various information and text from qualitative data, can sometimes be overwhelming during data analysis (Bryman & Bell 2011). Therefore, continuous analysis throughout the research is commonly used in qualitative study (Patel & Davidson 2011). The advantage with qualitative research is that it has provided the authors, with the opportunity to iterate when in need of modification for any further data collection, which has been beneficial in order to gain a deeper understanding of the case study. The data analysis of the collected data in this thesis, can be divided into two stages (Hartman, 2004), firstly the collected data material needed coding which means relevant data was selected and categorised. Secondly, the coded data needs to be interpreted. The coding process, firstly, transcribed each interview and organised the collected data in the following categories; motivations to collaborate; and perceived values of collaborating in CSC. Since the interview guide was based upon the theoretical framework, the collected data could be extracted to the appropriate category, which then was presented as the results. The data collected has therefore been relevant for the interpretation during the analysis. Because this thesis was seeking to explore the variation of organisations involved in the selected case study, the respondents contributing to the data collection were presented anonymously, and instead referred as representatives of each organisations in the following chapters.

Implementation

Below is a summary of the various steps taken during the process of this thesis:

- 1) Secondary data collection which created the foundations for preliminary study.
- 2) Primary data collection in the form of qualitative semi-structured interviews.
- 3) Theoretical framework chosen.
- 4) Qualitative data collection in the form of semi-structured interview.
- 5) Further contact made with respondents if necessary.
- 6) Analysis conducted with collected primary and secondary data

3.4 Criticism of the method and sources

The selected method can be criticised for its specific context which does not necessarily represent the general context (Holme & Solvang, 1997) However, “in social science, a greater number of good case studies could help remedy this situation” (Flyvbjerg, 2006; 242), meaning, single case studies does contribute to the field of research. Another criticism towards a qualitative method is its limited replicability, as it examines the perspective of the respondents which cannot be captured in another moment, meaning the research cannot be done again. (Bryman & Bell, 2011) However, the benefits with a qualitative method have been relevant to this thesis as it aimed to explore the perspectives of the partners involved in the selected case.

The authors have been aware of the vast literature within cross-sector collaboration combining different research disciplines due to the involvement of several sectors. Thus during the literature review it has required careful selection of sources in order to validate their applicability to the research question. By discussing the different research approaches and reviewing references, the source's trustworthiness and reliability the sources was thus validated. In addition, the authors have been using secondary data from official documents to confirm the interviews, and asked the respondents to confirm, which also increases the validity (Patel & Davidson 2011).

While the authors may understand value from a theoretical background, the intrinsic nature of value makes it harder to understand and therefore analyse in accordance. Hereby, another criticism involves the judgement of the authors and their ability to comprehend the novelty of value. Finally, this thesis examines Swedish organisations involved in a cross-sector collaboration and conducted the interviews in Swedish, as both authors are local students at the School of Business, Economics and Law, Gothenburg University, and the the respondents are fluent in Swedish as well. Translation of the collected data, from Swedish to English, was therefore needed in order to write this thesis. Since this thesis is written in English, the authors are aware of the linguistic challenges and errors due to translation. Because one of the authors is native speaker in English and the other one in Swedish, the linguistic barriers have been carefully considered throughout this thesis.

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3.5 Ethical considerations

This research interviewed individuals representing participating organisations, therefore ethical aspects were needed to be taken into consideration during the research process. The authors have had contact with all respondents throughout this research and conducted the research in a respectful manner combined with transparency presenting the author's background, the involvement of Vinnter, explaining the purpose of this research and the expectations of each participant. Each contact has been informed of the purpose with their participation and how it is related to this thesis, which have all been voluntarily and based upon mutual agreements. Thus, the authors believe each contact have been participating on their own decision showing an openness and willingness to contribute to this thesis. Ever since the first contact with the respondents, the authors have had contact before and after each meeting in order to maintain a common understanding of the following activities. Before meetings the authors have been informing each participant of the intentions of the study and with their permission, recorded and document the meetings and interviews. Since the interviews are recorded, the respondents received the coded data from their interviews, with the opportunity to correct or change any uncertainties. In addition, the respondents have been assured that their personal information will be anonymised throughout this thesis. However, since the case study selected for this thesis, is an official collaboration with the public sector, making this case a transparent, the respondents are thus aware of their participation as representatives of their organisation.

4 Theoretical Framework

The following chapter will present the theoretical framework which is the foundation of this thesis. It begins with defining the concept of value creation and cross sector collaboration, followed by the motivations for collaborating across sectors and the types of value created in CSC and ends with a summary of the theoretical framework used.

4.1 Defining the concept of value creation

The term “value” is something central to businesses and society, therefore it has been addressed from different angles (Le Pennec & Raufflet, 2016). Friedman (1970; 2007) proposes in his article, *The Social Responsibility of Business is to Increase its Profit*, that the economic value of business is separate from its social values and solely for shareholders. However, the narrowness of this definition of value and how it is created has received criticism from other researchers, with many proposing alternative definitions of value as a consequence (Le Pennec & Raufflet, 2016). Freeman (1984; 2010), upholds that the purpose of businesses is to maximise the value created for shareholders by recognising the broader interrelationships between business and external environment.

While there are many definitions of value and how it is created from within the business sector (Le Pennec & Raufflet, 2016); NPOs and government sectors have different views as well. For NPOs the creation of value is focused around the achievement of social purposes as opposed to gaining economic value, as they receive it from other sources rather than customers, i.e. funding (Moore, 2000). With governmental organisations, value tends to focus around gaining sources of legitimacy and support, the creation of value for society and operational capacity to deliver value (ibid).

Le Pennec & Raufflet (2016) note how two sources of divergence can be seen in the notion “value”; the incomparability between sectors and the level of analysis with respect to theoretical discipline. The different research focuses have made it difficult to find a common definition of value and how it is created (ibid), especially with respect to different sectors.

However, Austin and Seitanidi (2012: 728) capture the multifaceted term of value creation and apply it in the context of collaboration across sectors, defining value creation as the “transitory and enduring benefits relative to the costs that are generated due to the interaction of the collaborators and that accrue to organisations, individuals, and society”.

4.2 Cross-sector collaboration, CSC

Both theoretical frameworks and empirical studies within collaborations, show the complexity of cross-sector collaboration, as it applies to broad and dynamic environments which reflect the various research disciplines (Bryson et al., 2015). Theories in partnerships and collaborations are therefore used interchangeably in this thesis due to their diverse use in the literature.

4.2.1 Defining cross-sector collaborations

Gray (1989: 5), often quoted to in the literature, defines collaboration as a process by which “parties who see different aspects of a problem can constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible”. While collaboration in itself is not new, it has however, lead to difficulties for researchers trying to refine and define such a broad concept. Volumes of multidisciplinary literature, rich case studies with a wide variety of competing definitions has led to a lack of coherence across disciplines (Thomson, Perry & Miller, 2009). Provan, Fish and Sydow (2007) note that in spite of multiple definitions, they all have common themes including social interaction, connectedness, relationships, collective action, cooperation and collaboration.

The term “cross-sector collaboration” is widely and variously defined, thus showing inconsistencies in the literature (Hardy, Phillips and Lawrence, 2003), also in accordance with the explanation from Provan et al. (2007). While much of the literature focuses on CSC between business and nonprofit sectors, the term is not mutually exclusive to other sectors. Bryson et al. (2006:44) take consideration to this and define CSC as “the linking or sharing of information, resources, activities, and capabilities by organizations in two or more sectors to achieve jointly, an outcome that could not be achieved otherwise”, further noting that CSC can include collaborations involving business, NPOs as well as philanthropies, governments,

communities and the public. Pilemalm, Lindgren and Ramsell (2016) share this definition, seeing CSC as partnerships involving business, NPOs, governments, communities, civil citizens and the public sphere. This thesis acknowledges the various definitions of CSC and we have determined, in accordance with the definitions of Bryson et al. (2006), to apply it between; private sector, NPOs organisations, and governmental organisations.

4.2.2 Motivations to collaborate across sectors

Working together and collaborating across sectors is being sought after as a strategy for addressing many of society's most difficult public challenges (Bryson et al., 2006). However, it is motivations that are seen as important preconditions to collaboration and then often interpreted as a combination of self-interest and altruism in CSC (Selsky & Parker, 2005).

Jost, Dawson and Shaw (2005) state how business is often motivated for the purpose of political lobbying, public relations management, brand building as well as visible associations. For business, the chance to attain credibility is often a motivation to collaborate (Seitanidi, Koufopoulos and Palmer, 2010) and can be more important than the actual efficiency gains (Jost et al, 2005). While this might be so efficiency remains an important aspect, with many businesses motivated by the potential gains from economies of scale, risk sharing, product or service development, as well as gaining access to new markets and technology (ibid). Moreover, these business motivations to enter collaboration can be to 'exploit an existing capability or to explore for new opportunities' (Koza and Lewin, 1998, p. 256). The motives of NPOs tend to be more altruistic, in comparison to the motives of businesses (Iyer, 2003). According to Seitanidi et al. (2010), NPO motivations for joining CSC can include their desire to improve public relations, receiving scarce technical assistance, or even to enhance the reputation of their own business. Selsky and Parker (2005) describe how NPOs are often motivated by demands for improved efficiency as well as gaining accountability. Further, they are driven to enhance their own resources and credibility, improve their access to networks and facilitate the acquisition of information, contacts and technical expertise (Seitanidi et al. 2010). NPOs also face turbulent funding environments which motivate them to seek to collaborate across sectors as a means of

increasing fiscal stability, for example through government funding, and even stretching out funding (MacIndoe & Sullivan, 2014). Governments joining CSC are often motivated to provide a public service they cannot create by themselves. This motivates them to gain additional expertise, technology, relationships and financial resources (Bryson et al., 2015). Domberger and Fernandez (1999) suggest that governments enter these types of partnerships as a result of the pace that innovation develops, whereby internal public sector operations cannot keep up with the quicker moving organisations closer to the market. They point to the market development of information technology, marketing and communications, and corporate advisory services. These are used by governments motivated to provide greater benefits and services while being more transparent and less intrusive to the public (Selsky and Parker, 2005).

While the motivations for collaborating across sectors may differ depending on organisational sector, Austin & Reficco (2005) argue that it is a motivation which is built up of conscious values that initially drive organisations to explore the possibility of working across sectors. In addition, Austin and Seitanidi (2012: 728) state that value creation is the “central justification” for partnerships. One of the prime reasons organisations collaborate, is the potential value they can expect to gain from combining resources, knowledge and skills towards solving various problems, creating value themselves and their stakeholders (Le Pennec & Raufflet, 2016; Gray and Stites, 2013, Austin, 2010).

4.2.3 Types of values created in CSC

While monetary donations, i.e. research funding, are often a necessary component of value in CSC, it is when organisations deploy their core resources and competencies across sectors that greater value creation is achievable (Austin, 2010). Value creation in CSC has been poorly investigated by researchers as a result of a focus on key success factors and the motivations of single organisations to collaborate (Le Pennec & Raufflet, 2016). To address the limited understanding of the differences of value creation in collaborative relationships, Austin and Seitanidi (2012) bring clarity to the lack of common language and definitional preciseness of value creation within cross-sector collaborations. While value creation, generated as a result of collaboration can be economic, social or environmental, Austin and

Seitanidi (2016) suggest that there are more types of values created during the process of CSC. These precursor types are; *associational value, transactional resource value, interactional value and synergistic value* (see Table 1). Identifying these values allows for comparison, context and specificity to the value creation during CSC. Table 1 (see below) provides a summary of the definitions the types of value created during collaboration in CSC.

<i>Types of value</i>	<i>Summary</i>
<i>Associational value</i>	Which can be seen as the value gained just by being in a collaborative relationship with another organisation. These can include, for example; reputation, credibility, desirability, legitimacy, visibility, employee motivation and recruitment, client loyalty, community and government support, attractiveness to investors and donors.
<i>Transferred resource value</i>	Referring to the value gained by one organisation receiving a resource from another. Distinguishing what type of asset is being transferred is important. Assets which are depreciable, like money or a service get used up more regularly, whereas assets which are durable, like equipment or skills last for longer periods of time, even after collaboration has finished.
<i>Interaction value</i>	The emergence of intangible resources and capabilities coming from the processes of collaboration. These can continue to develop into capabilities that create value even after the collaboration. Examples of these intangibles include; relational capital, access to networks, trust building, joint problem solving, conflict resolutions, collaborative leadership, risk reduction, communication and coordination.
<i>Synergistic value</i>	Builds upon the basic assumption that if organisations combine their resources during collaboration, as it allows them to achieve more than if they were to act individually. However, focusing more on the sustainable development aspects of collaboration, where social and environmental value in turn generate economic value, which leads to further social and environmental value. This leads to the further advancement of individuals, organisations and society as a whole.

Table 1. *Summary of the types of value, Austin and Seitanidi (2012;2016)*

4.3 Summary of the theoretical framework

While there exist many perspectives on what value actually is and how it might be created, less is known about the scale of this value creation within CSC. Identifying the motivations for collaborating and the types of values perceived by the organisations involved in any CSC, can build a better understanding of value creation in CSC. Although the motives for joining CSC vary, the motivational factors observed within a CSC could be described as a combination of self-interest and altruism. Furthermore, the motivations are linkable to value

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creation, as it is the motivations of potential value that propel organisations to seek collaboration across sectors. Motivations to collaborate therefore are important to gain an understanding of what values are sought by each organisation going into CSC. While it is argued that value creation is vague, it could be that organisations may miss actual values created during collaboration. Values created during CSC are split up into four types; associational value, transferred resource value, interactive value and synergistic value. These categories are used in order to better understand and highlight qualities of the values achieved by each organisation involved in the CSC.

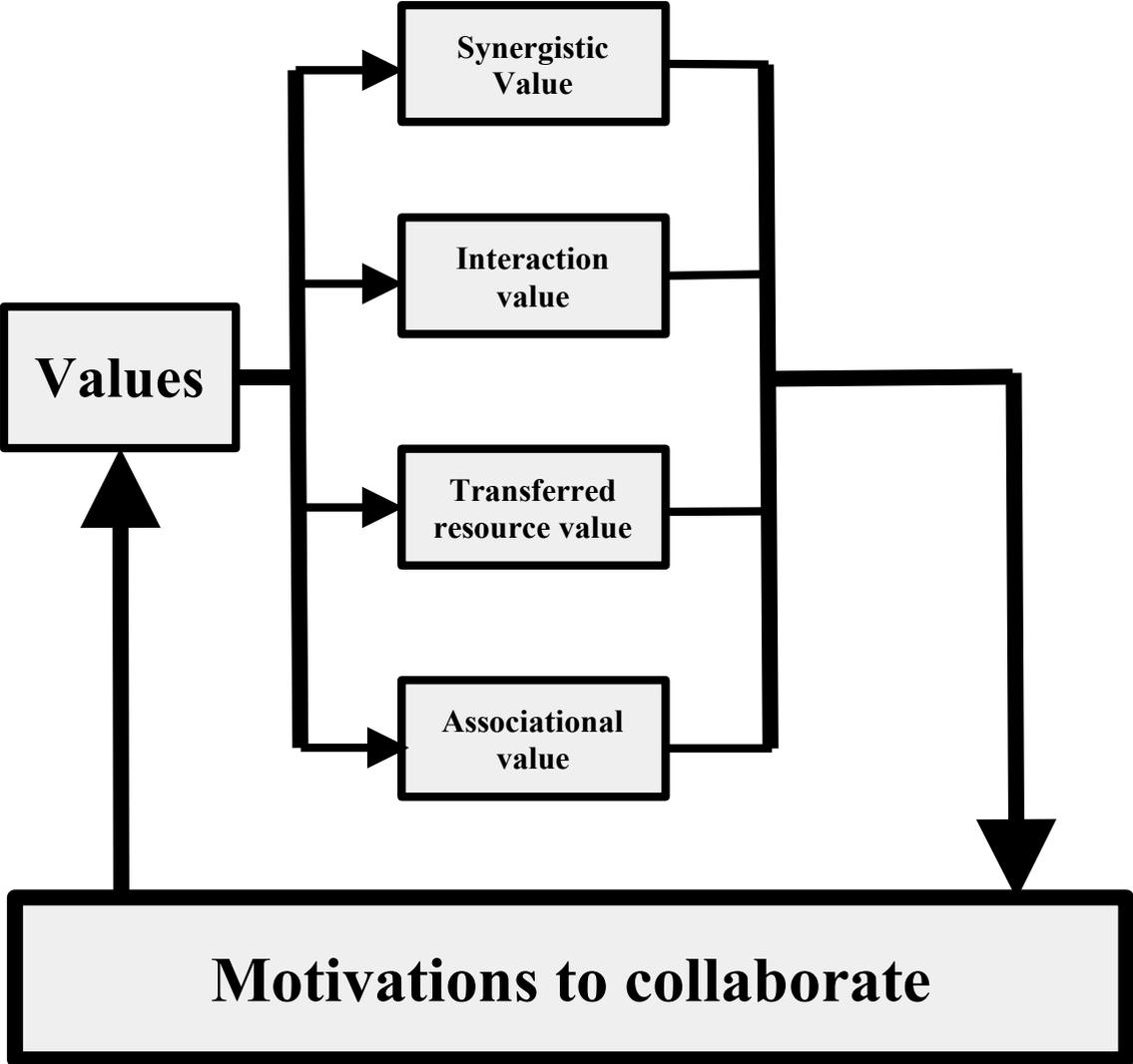


Figure 1. A model of the theoretical framework for evaluation of motivations and values created in CSC, made by the authors.

5 Empirical Results

This chapter presents the results from the interviews conducted with representatives from all partners involved in the selected case. In total, six formal interviews have been conducted with the organisations involved in the selected CSC. These interviews are related to the theoretical framework and will be structured and presented in the following two themes; motivations to collaborate in LoV-IoT and the perceived values from collaborating in LoV-IoT.

5.1 Motivations to collaborate in LoV-IoT

5.1.1 Vinnter

As an established business, Vinnter explained that they entered this CSC as an example of how they could develop both their own business and society. “This is something that we aim for, we want in the following years work with more of this type of collaboration... using technologies and our knowledge to improve the life quality of the citizen”. They expressed their desire to drive forward the digitalisation of society, using technologies and their knowledge in order to improve the life quality of citizens. Further, they stated that there was an explorative component to their motivations for joining the CSC.

5.1.2 Talkpool

Talkpool puts emphasis on a “connected society”, identifying the potential role IoT will play in providing benefits to the society as a whole. Talkpool explained that IoT will affect how business and cities may fully integrate with IoT in the future, and that they view themselves as being part of an ecosystem of solutions, with development and delivery of sensors and building IoT radio networks. Such a role in society requires partnerships as expertise is needed from several disciplines to achieve success in this CSC. Talkpool also mentioned that they have a broad network internationally arising from previous work, but are interested in developing better contact with the cities of Sweden, which has the potential to offer local business opportunities.

5.1.3 Innovation Management Communication Group (IMCG)

In contrast to the IT specialists, IMCG specialise in the utilisation of research results to address larger societal challenges. They view themselves as linking business, research institutes and government by offering their knowledge in green innovations, financing and communications that address larger societal challenges. Furthermore, IMCG explained that they have had previously established partnerships with IVL, and joined this collaboration on the strength of the prior relationship.

5.1.4 The Environmental Institute (IVL)

As a research institute, IVL conduct research towards new solutions for environmental problems and also help assist business development within the health and environmental sectors. IVL explained that they have an interest in finding improvements for current data analysis techniques. In addition, they have recently been investigating the potential of using sensors, similar to those used in this CSC, as a data collection tool for their future research programmes. IVL frankly admit that they could work solely, but that having the resources of diverse partners allows for greater pace and scale of research and development (R&D).

“...value [to us] is that we have access to a lot of knowledge and experiences...We could do a lot of this on our own since we have the knowledge, in-house sensors, environmental data, and a few other things. However, it would be on a much smaller scale. Having more partners, you get access to the likes of IMCG who have another way of looking at civil information and RISE Acreo which have deeper knowledge within sensor technology” (IVL)

Having partners like IMCG and RISE Acreo allows IVL to take on projects of a larger scale. LoV-IoT, is what IVL described as a combination of their interest in research and development and the access to more experiences and competencies. IVL explained that they are working close with Miljöförvaltningen, helping with supportive project management and the selection of key organisations, creating what they refer to as a “value chain of partners”. This makes collaborations across sectors work.

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5.1.5 RISE Acreo

RISE Acreo explained that it is their goal to be at the scientific forefront by developing competence within sensor technology. This includes research, practical use, improvement and integration of novel sensors and systems. Further, they emphasise that funding is an important priority for them as a research institute and that joining in these types of CSC provides that. Another motivation factor for RISE Acreo is to make new techniques available and accessible for small- and medium sized enterprises (SME), students and the general public. RISE Acreo also explained that having business in these types of collaboration is important in order for them to stay closer to the market and better understand the need of the market.

5.1.6 Miljöförvaltningen

Miljöförvaltningen, the local municipality, explained that they see opportunities with using IoT to provide the public services of tomorrow, by monitoring the environment and making information available to the local community together with partners in the CSC. They expressed further motivations to make this service available to businesses and industries, thereby also allowing the individual organisations to track their emissions as a means of prevention. However, the city acknowledges that they do not possess enough technical knowledge to achieve this on their own and values the input of partners, as it improves their understandings of public solutions using IoT. Miljöförvaltningen further specified the importance of the diversity of partner knowledge brought to the collaboration:

“Another example is the air monitoring, only a few have the knowledge but in the future.... tracking air quality will help the public both for the purpose of research and also, in the long term, contributing to the welfare of the society” (Miljöförvaltningen)

Miljöförvaltningen recognised the advantages of this collaboration, but also admit that the project is “too big for one organisations to manage themselves” and there is the need for other partner resources. Similarly, research institutes such as RISE Acreo develop products but also

need a market in which to sell their expertise. Miljöförvaltningen see themselves as one such potential market.

5.2 The values created from collaborating in LoV-IoT

5.2.1 Vinnter

By being involved in this cross-sector collaboration, Vinnter has benefited from media response, including the local news and Swedish radio, due to the activities organised by Miljöförvaltningen and IMCG on behalf of the CSC. During the collaboration, Vinnter was approached by Gothenburg Energy and Stena Metal, thereby receiving external and positive feedback for their involvement in the collaboration. This then provided them with access to potential new clients. Further, they explained how they were not direct customers beforehand and were provided an inlet to other customers who have heard of Vinnter's involvement with the CSC in a positive light. Once more, by being able to showcase what they did in the CSC, Vinnter have been able to use the project as a transparent example of what they can offer as a company to the market. Vinnter are proud of their participation and how it is viewed by the public and they have also received positive internal feedback from other business units within Vinngrupp. For example, "Person X, heard about this [collaboration] from one of our presentations and thought that we were exciting and applied for a job with us".

Vinnter has also gained new skills by working with Talkpool's telecom infrastructure. The CSC has helped them to develop skills, offering future use in other projects and collaborations. They also learned how to collaborate more effectively, taking into account differences between sectors. Vinnter describes how they have become better with handling these type of collaborations, understanding of how it works and what Vinnter is actually signing up for. Specifically, they have learnt to specify goals and requirements in order for them to deliver in response. The more Vinnter understands about the application processes in this CSC, the more they also learn about the research institutes operate.

5.2.2 Talkpool

Talkpool stated that this collaboration has provided them with new potential business

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relations and prospects, further explaining how they have become more visible as a company after their involvement in this collaboration. As Gothenburg is expanding with new construction and city development plans, this makes the municipality of Gothenburg an important partner for Talkpool. They state “by having these types of discussions with the Municipality of Gothenburg [Miljöförvaltningen], you create credibility.” They continued to explain that the degree of credibility from being associated with partners depends on their reputation within their own fields. Furthermore, mentioning that IVL has a well established reputation within their field, thus collaborating with them has led to an enhanced business reputation as well. Moreover, they have learnt to deliver new and more relevant IoT solutions to cities from collaborating with partners like the municipality. In addition, the relationships and contacts Talkpool has gained from this collaboration have been expressed as valuable. They explained that Talkpool have broad network internationally due to previous work at global companies, but expressed they also need to develop better relationships to cities as they are potential customers offering local business opportunities. Of which Talkpool expressed they have gained access to new networks through this CSC. In particular, with IVL and Miljöförvaltningen, as well as other cities in Sweden.

5.2.3 Innovation Management Communication Group (IMCG)

Because IMCG work with larger societal project as their business, and IVL has a well established reputation within their field, IMCG explained that collaborating with them enhances their business reputation as well. IMCG also noted how new contacts have been made with partners and other cities involved in the strategic programme within, IoT Sverige. In particular, with Vinnter and Talkpool, since IMCG have not worked with them before. Furthermore, IMCG explained the focus have mostly been on the technical partners and Miljöförvaltningen, whereas IMCG will have more activities when their collaboration are closer to commercialisation.

5.2.4 The Environmental Institute (IVL)

By working close with Miljöförvaltningen, IVL explained they learned more about the needs of the public, which has helped them produce more relevant research applicable to the real world. IVL explained they have also learnt more about the potentials with IoT from the IT

specialists, and having two “heavy partners” that work within this area, has helped IVL to learn a lot about the technical opportunities within IoT.

“we live in a world where we have institutions and regulations which we need to comply to... and then we enter another world [business] which have a more flexible relation to this...but then we realise and ask ourselves, what do we actually need the exact data for?...we have learned to use data other ways...and quickness is sometimes to be preferred before the highest accuracy.” (IVL)

Moreover, IVL explained they have increased their knowledge about the “productifying”, like how long it can take to commercialise these products from the technical partners. The involvement of schools, organised by RISE Acreo and IMCG, have also allowed IVL to reach out further to families using their children as “ambassadors”. IVL emphasised on the importance of younger generations, and having previously not known how they could reach out to schools and educational units. In addition, IVL has even received international recognition, being asked to present work done within the project at international conferences. Moreover, Miljöväder, the project related to LoV-IoT, have been presented as Sweden’s example of informing the public around environmental pollution for environmental ministers from around the world, which IVL recognised have received positive response from the ministers.

5.2.5 RISE Acreo

RISE Acreo explained how they work with similar projects like this CSC, either as the manager or partner, and that receiving government support via research funding is valuable for them as a research institute. RISE Acreo explained that “technology-wise”, their involvement in these types of cooperation provides them with a better knowledge of the market, also keeping them updated with latest research and gain new skills and knowledge from workshops, demonstrations, and prototypes of technology. RISE Acreo expressed their contact with the municipality, sharing their needs as a potential end user, have been important in order for them to better understand how the municipality functions and how RISE Acreo can support with their expertise in information technology.

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“... we learn a lot from IVL and the municipality, from only one discussion we came closer the problem they are facing and in what context our sensors was needed.... and we need communications like this because otherwise we never know what is really required as lack of communication creates uncertainties and misunderstandings.”
(RISE Acreo)

With the collaboration in LoV-IoT, RISE Acreo explained they have gained a lot of knowledge and experience and further developed relationships both with IVL as a research institute, and the municipality as stakeholder and the industry partners Talkpool and Vinnter representing the industry needs and commercial customers. RISE Acreo also expressed the CSC as rewarding with IMCG as a communication partner in the project since they have successfully created advertising for the project in different media throughout the project which in turn creates valuable publicity for RISE Acreo. They also mentioned being able to get to know Talkpool (as the most recent addition to this CSC) as well as building on their relationships with other partners from previous mutual research projects (Vinnter, IVL, IMCG and Miljöförvaltningen). Further naming how stronger relationship with all partners in the CSC has been developed during collaboration.

5.2.6 Miljöförvaltningen

The collaboration has brought also new opportunities for Miljöförvaltningen as it enables them to reach out to a broader audience and create new networks through for example workshops held by IoT Sweden. As a result of this collaboration, Miljöförvaltningen have received a certain attractiveness to other potential future collaboration. They have also received internal admiration within the municipality due to their involvement in LoV-IoT. Miljöförvaltningen also mentioned how they learned more about partnerships and networking from IVL and were approached by Ericsson, who showed interest in the CSC.

“They made first contact with us, showing an interest. For us, having a large actor [Ericsson] means the field [IoT] will grow a whole lot quicker” (Miljöförvaltningen)

Miljöförvaltningen admits collaborating better now as a result of their involvement, saying that the organisation has improved their routines as they were used to working on their own, which meant they were less effective in collaborating. However, concentrated efforts to work closer with the other partners has resulted in more efficient resource use during administration and a more productive collaboration. Furthermore, Miljöförvaltningen mentioned they have gained new technical knowledge like signal processing from the partners as well.

6 Analysis

The following chapter will analyse the results from the interviews with the Swedish organisations involved in the selected case, in relation to the theoretical framework. This chapter will begin with the motivations to collaborate in CSC, identification of values created in CSC followed by a comparison of motivations to values.

6.1 Motivations of potential value

Motivations for entering CSC collaboration were present from all partners and clear forms of self interest emerged. Vinnnter's motivation to enter this CSC was to *explore* new opportunities in accordance with Koza and Lewin (1998). Talkpool was motivated to increase contact with cities and other partner's *expertise from several fields*, which could be seen as motivation for gaining access to new markets as well as technology in accordance with Jost et al. (2005). Further, IMCG had motivation to follow up on the *previous established relationships with IVL*, which could be seen as a motivation of visible association in accordance with Jost et al. (2005). Both research institutes were motivated to facilitate the acquisition of information in accordance with Seitanidi et al. (2010). IVL was motivated by *finding improvements for current data analysis techniques* from this CSC and RISE Acreo had motives *lie closer to the market*, by gaining market information through businesses involved. IVL also noted the motivation of enhancing their own resources from gaining *access to partner's experiences and competencies in accordance* with Seitanidi et al. (2010). While RISE Acreo also named the importance of *government funding* as a motivation to joining CSC in accordance with MacIndoe & Sullivan (2014). Furthermore, it was also notable that all organisations showed signs of altruistic motivations. Vinnnter entered this collaboration to help with the *digitalisation of society*. Additionally, Talkpool saw themselves as a part of the solution to *integrating IoT into cities benefiting society* in the future. Whereas, IMCG, who specialised in working with this type of CSC, wanted to *address larger societal challenges*. IVL had motivations to develop their partner businesses within other fields of expertise and RISE Acreo wanted to *make new techniques available and accessible to small and medium enterprises, students and the general public* while collaborating. Miljöförvaltningen was motivated to help deliver a *public service of tomorrow*, and even

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expressed how solution of type this could be made available to businesses and industries as well. Further, in accordance with Bryson et al., (2015) and Domberger and Fernandez (1999), Miljöförvaltningen was motivated to join this CSC as it was public service within information technology field which they could not produce and deliver by themselves. Notably they mentioned the motivation of gaining *technical input from partners* as a way of producing more benefits and services to the public as mentioned by Selsky and Parker (2005).

6.2 Identification of values created

Associational value

The results show the presence of associational values which is the value gained from collaborative relationships (Austin and Seitanidi, 2012; 2016), have been found in all partners involved in LoV-IoT. Vinnter, explained how the *media response* as well as the possibility to showcase the results from this CSC, to other potential clients has built both credibility and even legitimacy. The internal response from presentations within Vinngroup has in turn has helped Vinnter with employee recruitment resulting in the *recruitment of a new employee member*. Talkpool explained that they have benefitted from increased visibility during their involvement in this CSC, creating *new potential business relations and prospects*. Also noting the importance of having the municipality of Gothenburg as it creates credibility being associated with the municipality. Furthermore, the reputation of IVL, as an established partner within their area of expertise, has led to *enhanced reputation* of Talkpool and IMCG's as partners as well. IVL explained how they been able to build community support by *reaching out to local communities*, as well as received international recognition from their participation in international conferences which resulted in increased visibility. In addition, IVL have developed an *international reputation* as the collaboration has been used as a national example presented to environmental ministers worldwide. Further, RISE Acreo recognised the value of government support in terms of the *funding* they receive by being involved in these types of collaborations. The *publicity* due to IMCG's communication activities in media and marketing on behalf of the CSC, has resulted in visibility which has been beneficial for RISE Acreo. Miljöförvaltningen mentioned how they had been approached by Ericsson as a result of this collaboration, which shows signs of desirability, as Ericsson expressed interest in becoming *a potential future partner*.

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Transferred resource value

The values gained from transferring resources between partners in the cross-sector collaboration can be both depreciable and durable assets (Austin and Seitanidi, 2012; 2016). The depreciable assets within this CSC have been financing coming from both the businesses and the municipality which has been transferred to the project and thus benefitted all partners involved. For instance, Vinnter explained how they have gained *new skills working with Talkpool's telecom infrastructure*. This has helped Vinnter to develop new durable skills within this CSC, offering future use in other projects and collaborations. In addition, Talkpool have developed new durable skills as they described how they have *learnt to deliver new and more relevant IoT solutions* from collaborating with the the municipality. IVL explain how they have learnt a lot about the *technical opportunities within IoT* and “productifying”, or how long it can take to commercialise these products. Both examples of IVL gathering a new durable skill. IVL also mentioned how they had learnt to better understand the need of the public, producing *more relevant research*, which can be seen as durable skills gained from collaborating with Miljöförvaltningen. RISE Acreo portrays the importance of being involved in these types of constellations as they gain *better knowledge of the current market*, thus benefiting from a depreciable service. Miljöförvaltningen mentioned they gained new durable skills within IoT, with *new technical knowledge* like signal processing which they have developed from the technical business involved.

Interaction value

Interaction value is the emergence of intangible resources derived from the processes of the collaboration. These can continue to develop into capabilities which creates value even after the collaboration. (Austin and Seitanidi, 2012; 2016) The business partner, Vinnter has learned to *collaborate more effectively* across sectors which has helped them in a number of ways. By understanding the requirements of these type of CSC this could be seen as the development of risk reduction capabilities. Vinnter has also benefited from accessed to networks through the positive response from external parties which has provided an *access to new clients*. Talkpool have also benefited from access to new networks by gaining *contacts with other cities* in Sweden and relational capital, having *built up their relationship with IVL*

and Miljöförvaltningen in particular. IMCG also noted how they benefited from access to new networks with other cities and partners involved in VINNOVA's strategic program within IoT Sverige gaining *new contacts*. Furthermore, IMCG noted how they have developed relational capital with the business partners, Vinnter and Talkpool. RISE Acreo also mentioned developed relational capital, having *built up their relationship with Vinnter and Talkpool* as well as all the other members to which they further built upon previous relationships from other collaborations. Moreover, Miljöförvaltningen have been able to reach out to a broader audience gain access to *new networks* through their involvement in this collaboration. Their *ability to collaborate has improved* which in turn resulted in improved coordination due to resource and process efficiencies.

Synergistic value

This type of value comes from the basic assumption that if organisations combine their resources during collaboration, it will allow them to achieve more than if they were to act individually (Austin and Seitanidi, 2012; 2016). Here the simultaneous creation of economic, social and environmental values during collaboration, leads to the further advancement of individuals, organisations and society as a whole. While all partners involved showed areas of awareness towards the existence of such values, it was notable that the creation of synergistic values failed to be identified in any of the partner organisations.

6.3 Comparison of motivation and value created in CSC

The motivations to collaborate can be a combination of self-interest and altruism (Selsky and Parker, 2005), however, in accordance with Austin and Reficco (2005), these motivations can be seen as potential value that motivate organisations to collaborate over sectors. Further, it is mentioned by Austin and Seitanidi (2012) that there exists a certain vagueness behind the value creation in CSC, theorizing four types of values to bring clarity. Once more, suggesting that values may go amiss in CSC without consideration taken to them. Table 2 presents a summary showing the analyses of motivations for joining CSC and types of value found in each organisation. The motivations to collaborate and types of values, intend to present the exploration of value creation in the selected CSC.

Organisation Motivations of potential values Values identified from CSC

Vinnter	<i>Digitalisation of society Exploring</i>	<i>Media response Able to showcase what they do Recruitment of new employee member New skills working with TalkPool's telecom infrastructure Collaborative more effectively Access to new clients</i>
Talkpool	<i>Integrating IoT into cities benefiting society Expertise from several fields working Increase contact with the cities</i>	<i>New potential business relations and prospects Enhanced reputation Credibility being associated with the municipality. Learnt to deliver new and more IoT solution Access with other cities in Sweden Built up relationship with IVL and Miljöförvaltningen</i>
IMCG	<i>Address larger societal challenges Previously established partners with IVL</i>	<i>Enhanced reputation New contact Built up relationship with Vinnter and Talkpool</i>
IVL	<i>Help businesses to develop within the health and environmental sectors Finding improvements for current data analysis techniques Access to more experiences and competencies</i>	<i>Reach out further to families Internationally reputation Learnt about the technical opportunities within IoT, more relevant research</i>
RISE Acreo	<i>Make new technology available and accessible for small and medium sized enterprises, students and the general public Government funding Lie closer to the market</i>	<i>Funding Publicity Better knowledge of the current market Stronger relationship with all partners</i>
Miljöförvaltningen	<i>Public services of tomorrow Technical inputs from partners</i>	<i>A potential future partner New technical knowledge New networks, ability to collaborate has improved</i>

Table 2. Summary showing organisations motivations for joining CSC and categorisations of value identified from CSC.

Vinnter showed no connections between their motivations to collaborate and the values they had received. Their motivation to better society through digitalisation and explore does not specifically correspond to any of the values created; media response, able to showcase what they do, recruitment of new employee member, new skills working with Talkpool's telecom infrastructure, collaborate more effectively and access to new clients. Therefore, suggesting that there is a vagueness around the values created during collaboration, in accordance with Austin and Seitanidi (2012). However, the presence of no connection suggests that the values created within this CSC indicates vagueness due to explorative motivations. Hence the values created did not can be compared to Vinnter's motivations of potential value.

Further analysis of Talkpool revealed a connection between the motivation of increased contact with cities, and the value; access to other cities. Another connection was found between the motivation of gaining further expertise from partner's respective fields and the value; where they learned to deliver newer and more relevant IoT solutions. Talkpool's motivations of integrating IoT into cities did not correspond to any of the other values; new potential business relations and prospects, enhanced reputation, credibility from being associated with partners, built up relationship with IVL and Miljöförvaltningen. Therefore, suggesting that there still exist a vagueness around the values created during collaboration in accordance with Austin and Seitanidi (2012). However, the presence of two connection suggests that the values created within this CSC can be compared to Talkpool's motivations of potential value to a degree.

Analysis of IMCG revealed one connection between the motivation to collaborate with their previously established partner, IVL, and the value; business reputation, of which has been created as a result of IVL's involvement. IMCG's motivations to address larger societal challenges did not correspond to the only other value created for them; new contacts. Therefore, suggesting the existence of vagueness around the values created during collaboration in accordance with Austin and Seitanidi (2012). However, the presence of one connection suggests that the values created within this CSC can be compared to IMCG's motivations of potential value to some degree.

Analysis of IVL revealed a connection between their motivation of finding improvements for data analysis and the value; more relevant research. Another connection was found between their motivations to gain access to more partner's resources and the value; learnt about the technical opportunities within IoT. IVL's motivation to help businesses to develop within the health and environmental sectors did not correspond to any of the other values; reach out further to families and international reputation. Therefore, suggesting the existence of vagueness around the values created during collaboration in accordance with Austin and Seitanidi (2012). However, the presence of two connections made suggests that the values created within this CSC can be compared to IVL's motivations of potential value to a degree.

Analysis of RISE Acreo revealed a connection between the motivation of funding and the value; government support. Another connection was found between their motivation to lie closer to the market and the value; better knowledge of the market. RISE Acreo's motivations to make new techniques available and accessible for small and medium sized enterprises, students and the general public did not correspond to any of the other values; publicity or stronger relationships with all partners. Therefore, suggesting the existence of vagueness around the values created during collaboration in accordance with Austin and Seitanidi (2012). However, the presence of two connection suggests that the values created within this CSC can be compared to RISE Acreo's motivations of potential value to a degree.

Analysis of Miljöförvaltningen revealed a connection between the motivation of gaining inputs from other partners and the value; new technical knowledge. Miljöförvaltningen motivation of providing a public service of tomorrow did not correspond to any of the other values; approached by a potential future partner, new networks and ability to collaborate has improved. Therefore, suggesting the existence of vagueness around the values created during collaboration in accordance with Austin and Seitanidi (2012). However, the presence of one connection suggests that the values created within this CSC can be compared to Miljöförvaltningen's motivations of potential value to some degree.

6.4 Summary of the analysis

All organisations showed motivations to join this CSC, with some showing more specific motivations than others. Motivations of an altruistic nature were present in all organisations. However, this was more noteworthy for the businesses involved as they tend to have motivations of self-interest when entering CSC. Analysis of the types of value found in CSC showed that Vinnter, Talkpool, RISE Acreo and Miljöförvaltningen experienced value creation on associational, transferred resource and interaction levels, while IMCG experienced on associational and interactive, and IVL experienced value creation on associational and transferred resource levels.

Further analysis of possible connections between motivations for joining CSC and values created from CSC (see Table 2) revealed that Vinnter connections were weaker due to explorative motivations. IMCG, IVL, and Miljöförvaltningen showed one connection, thus values created within this CSC reflected their motivations of potential value to some degree; while Talkpool and RISE Acreo showed two connections, indicating that values created within this CSC reflected their motivations of potential value to a greater degree.

7 Discussion and Conclusion

This is the ending chapter of this thesis, presenting a discussion followed by concluding remarks of the findings, answering the research question; “How do the motivations of potential value compare to the values created in CSC?”. Lastly, presenting recommendations for future research.

7.1 Discussion

It is argued that collaboration creates value for organisations involved (Le Penneec & Raufflet, 2016), however, our analysis showed that the values created cannot fully reflect the organisations motivations to collaborate which goes back to the vagueness of value creation in CSC. One reason, can be the way in which organisations measure their performance and quantify these values. This could possibly explain the amount of connections made between values created and potential value to collaborate, as organisations have different values which are of different importance to them. If an organisation presented motivations exactly the same as the values created for them, it could more thoroughly be suggested that value creation was fully understood. Furthermore, value creation in CSC can also be seen as a dynamic process due to the involvement of several organisations from different sectors, with actors coming and going. As a result, identifying value may prove to be difficult and therefore requires continuous reflection from managers involved in CSC.

However, as mentioned by Austin and Seitanidi (2012), it may have to do with the vagueness of value creation, plainly put the inability of organisations to comprehend and assess the existence of value created within CSC. Austin (2010) describes if the perceived values of collaboration are deemed to be fair and reasonable, it will provide the basis for sustainable collaboration in the long-run. Once again, our analysis suggests that only a few connections were made between the values gained and motivations of potential value. Therefore, there may exist a lack of awareness of the values that can be created, in accordance with Austin and Seitanidi (2016), which could in turn also affect the motivations of gaining these values from collaboration across sectors.

Taking this further out to a societal level, collaborating over sectors is increasingly being seen as an effective way of solving some of society larger and more complex problems (Bryson et al., 2006). Public funding for these collaboration programmes is growing (Arranz & Fernández de Arroyabe, 2008; Huxham & Vangen, 2000) which is targeting and promoting enhancement and efficiency of partnerships between public, private and civil society. Although, the vagueness of value creation in CSC, could possible result in less organisations being motivated to collaborate over sectors. In addition, Bryson et al. (2015) highlighted how many cases of CSC have reported failure and uneven results, of which, further illustrates the complexity and volatility of these collaborative environments. Identifying the types of value created during collaboration allows for further analysis for comparison, context and specificity, which in turn could have a larger effect on organisations motivations to join collaborative partnerships across sectors in the future. For society, this may mean more organisations with more specific knowledge or greater resources, may opt to join CSC as their motivations mirror identified values created from previous experiences of collaborations, which could in return benefit the development of the society. Since these types of collaborations are increasingly growing in Sweden, the motivations and values found in this thesis could also provide relevant context to other Swedish organisations interested or involved in CSC.

7.2 Concluding remarks

This thesis has been exploring the case, LoV-IoT, and by doing so, also furthering the practical understandings of value creation in CSC. Our analysis showed that all organisations involved in LoV-IoT, expressed motivations for joining this CSC, ranging in amount and specificity. While the self-interest and altruistic motivations were used more for identification, one trend arose, that all organisations showed the presence of altruistic motivations. Furthermore, all organisations experience that values had been created for them during the process of collaboration. The four types of value were used to help identify which values had been created for the participants, however, only three types; associational value, transferred resource value and interaction value were present, whereas the synergistic value was missing.

With value creation as the central justification for collaborating across sectors; our analysis revealed that although organisations join CSC with motivations of potential value, there still seems to be vagueness around value creation within these types of collaborations. Five of the organisations showed one or two connections between the values created and respective motivations of potential value going into this CSC. What was interesting was that only one organisations showed no connection between the values created and motivations of potential value. However, it was named that they saw this CSC as more explorative which suggest that, once again, there may be vagueness of value creation in this CSC. Furthermore, all organisations showed values created during the process of collaboration that did not correspond with any of other motivations of potential value, and vice versa. With consideration to above, it would seem the values created during this CSC would can be compared to the motivations of potential value at the most to a degree.

7.3 Recommendations for future research

We see that there are clear differences between the motivations for going in and the values created coming out of collaboration in a CSC. As further research, we suggest looking at the definitions of values across sectors and how value develops in CSC while attempting to further quantify such value. Although connections were made between motivations and values, the degree in which these motivations were satisfied was less measurable. However, the degree of satisfaction experience between the motivations of value and value gained may provide better insight into motivations of organisations into CSC, and in what way it is connected to the values they seek. Another recommendation is to investigate relationships by focusing on the organisational culture and dynamics, both within a CSC as well as within each organisation. Furthermore, how it affects organisations ability and willingness to collaborate across sectors. Since our research material is confined to the perception of managers in the participating organisations, as the representatives of CSC, further research concerning how entire organisations are affected by cross-sector collaboration may help to understand motivations and values created in CSC. Our final recommendation is an in-depth study of individual organisations involved in multiple CSC, which could reveal how organisations learn from past experiences of value creation in CSC and in what way they are reflected in their current practices and motivations to join future CSC.

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Appendix A: Interview guide

Interview Guide

Exploring Value Creation in Cross-Sector Collaboration - A qualitative study of Swedish organisations involved in Research and Development Consortia

General topics

- Describe your organisation briefly
- Role in the organisation

Motivations to collaborate

- What role did your organisation have in this collaboration?
- What are the motivations of your organisation for participating in this collaboration?

Values created

- What have been achieved for your organization as result of the collaboration?

In order to answer the above cues from the following areas of interest were used in conjunction with the above question:

- **Associational value**
 - Values from being associated with the other partner
- **Transferred resource value**
 - Values received from the other partner
- **Interaction value**
 - Intangible resources created together
- **Synergistic value**
 - Value that they only could have produced together.