



BI Norwegian Business School - campus Oslo

GRA 19502

Master Thesis

Component of continuous assessment: Thesis Master of Science

Fostering high-quality relationships in inter-organizational projects: A case study of relational coordination in the Norwegian construction industry

Navn: Taran Hellenes,
Runa Thrap-Meyer

Start: 02.03.2017 09.00

Finish: 01.09.2017 12.00

Students:

Runa Bjørgen Thrap-Meyer

Taran Enger Hellenes

Programme:

Master of Science in Leadership and Organizational Psychology

Hand-in date:

17.08.2017

“This thesis is a part of the MSc programme at BI Norwegian Business School. The school takes no responsibility for the methods used, results found and conclusions drawn.”

Acknowledgements

First and foremost, we want to express our deep gratitude towards our supervisor, Professor Ragnhild Kvålshaugen, for her time, theoretical and practical guidance, her inclusiveness, and her feedback and support throughout this process.

Secondly, we would like to thank Anna Swärd for sharing her vast knowledge on the construction industry with us. In addition we want to thank her for her time and for giving us valuable and constructive input, theoretical and practical.

Thirdly, we would like to thank our informants and their companies. Our informants are people we greatly admire. It has been a fun learning process and we deeply appreciate the time they have spent with us.

Runa would also like to thank her colleagues at IML for the introduction to relational coordination and for providing her with valuable theoretical discussions, support and encouragement during these past two years.

Last but not least, we would like to thank our families for their love, encouragement and financial support. Runa wants to thank her partner, Erlend, for his continuous love and endless patience. Taran wants to thank her husband, Erik, for his love, patience and financial support. Our lives with you are a constant reminder of things more important.

Content

ABSTRACT.....	III
1.0 INTRODUCTION.....	1
2.0 HIGH-QUALITY RELATIONSHIPS IN INTER-ORGANIZATIONAL PROJECTS.....	4
2.1 INTER-ORGANIZATIONAL PROJECTS IN CONSTRUCTION INDUSTRY	4
2.2 COLLABORATIVE INTERACTION PHASE.....	6
2.3 HIGH-QUALITY RELATIONSHIPS	11
2.4 RELATIONAL COORDINATION	11
2.5 SUB-QUESTIONS	14
2.6 HIGH-QUALITY RELATIONSHIPS AND RELATIONAL COORDINATION IN IOPS.....	14
2.7 PROPOSITIONS FOR RESEARCH.....	18
3.0 METHODOLOGY	19
3.1 RESEARCH DESIGN AND STRATEGY	19
3.2 CASE SELECTION	21
3.3 CASE	22
3.3.1 <i>The project's collaborative interaction phase</i>	22
3.4 DATA COLLECTION METHODS.....	23
3.5 PARTICIPANTS	24
3.5.1 <i>Study 1 - The collaborative interaction phase</i>	24
3.5.2 <i>Study 2 - Coordination in a selected work process</i>	24
3.6 DATA COLLECTION PROCESS	25
3.6.1 <i>Study 1 – The collaborative interaction phase</i>	25
3.6.2 <i>Study 2 – Coordination in a selected work process</i>	26
3.7 DATA ANALYSIS	28
3.8 VALIDITY AND RELIABILITY	29
3.9 ETHICAL CONSIDERATIONS	30
4.0 EMPIRICAL FINDINGS AND ANALYSIS	30
4.1 THE COLLABORATIVE INTERACTION PHASE.....	30
4.2 THE COLLABORATIVE ENVIRONMENT.....	35
4.3 FACTORS THAT INFLUENCE COLLABORATION.....	38
4.3.1 <i>Leadership</i>	38
4.3.2 <i>Trust</i>	39
4.3.3 <i>Personal chemistry</i>	40
4.3.4 <i>Attitudes</i>	40
4.3.5 <i>Type of procurement</i>	41
4.4 RELATIONAL COORDINATION IN BRIDGE CONSTRUCTION	42

4.4.1. *Summary of survey results* 47

5.0 DISCUSSION **48**

5.1 HOW CAN THE GOOD INTENTIONS FROM THE CIP BE EXTENDED AND MAINTAINED THROUGHOUT THE PROJECT?..... 48

5.2 FOSTERING SHARED GOALS, SHARED KNOWLEDGE AND MUTUAL RESPECT 51

 5.2.1 *Shared knowledge*..... 51

 5.2.2 *Shared goals* 53

 5.2.3 *Mutual respect*..... 54

5.3 FOSTERING COMMUNICATION THAT IS FREQUENT, ACCURATE, TIMELY AND PROBLEM-SOLVING..... 55

 5.3.1 *Frequent, timely, accurate and problem-solving communication* 56

5.4 ENABLING FACTORS FOR RELATIONAL COORDINATION AND HIGH-QUALITY RELATIONSHIPS 58

 5.4.1 *Trust* 58

 5.4.2 *Leadership*..... 59

5.5 HOW CAN THE COLLABORATIVE INTERACTION PHASE FOSTER HIGH-QUALITY RELATIONSHIPS IN INFRASTRUCTURE PROJECTS?..... 60

6.0 THEORETICAL CONTRIBUTIONS **62**

7.0 PRACTICAL IMPLICATIONS..... **63**

8.0 LIMITATIONS **64**

9.0 FUTURE RESEARCH..... **65**

10. CONCLUSION **66**

REFERENCES..... **67**

APPENDIX..... **73**

Abstract

In response to the lack of research on coordination and collaboration within temporary inter-organizational projects, and the call to advance research on relational coordination, this thesis aims to explore how a collaborative interaction phase can foster high-quality relationships within inter-organizational projects. The research question is explored through an embedded single case study of an infrastructure project within the Norwegian construction industry. Findings demonstrate that the collaborative interaction phase function as an organizational structure that helps bridge differences between partnering organizations and support the development of high-quality relationships. The authors find that these relationships have been fostered by a well-executed collaborative interaction phase; in particular the combination of joint- and discipline sessions as well as the establishment of communication routines. Through relational coordination, project members have managed to maintain the good intentions that were developed during the collaborative interaction phase. Trust and leadership is identified as enabling factors for developing relational coordination within the project. In sum, this thesis provides insight into what ways a collaborative interaction phase contributes to the development of high-quality relationships, and how this can positively affect the collaboration and coordination of interdependent work in inter-organizational projects. Implications for theory and practice are discussed.

1.0 Introduction

This study examines how high-quality relationships between project members in temporary inter-organizational projects (IOPs) can be fostered by a collaborative interaction phase as defined by the Norwegian Public Roads Administration (NPRA). In addition of being temporary, IOPs consist of multiple organizations and reflect the emerging tendency to organize activities across individual organizational boundaries (Sinha & Van de Ven, 2005). While many industries such as construction or movie and theatre productions have had a long tradition of temporary and project-based organizations, IOPs increasingly represent a common practice in many industries and organizational contexts (Burke & Morley, 2016; Pauget & Wald, 2013; Janowicz-Panjaitan, Bakker, & Kenis, 2009), and are considered an important part of economic and social life today (Lundin & Söderholm, 1995). Bakker (2011) states that “analyzing how complex, temporary, inter-organizational projects function, and what makes them successful, is a formidable challenge to organization science” (p. 13). While recent years have seen an increase in research on IOPs (e.g. Bakker, 2011; Bechky, 2006; Grabher, 2004; Jones & Lichtenstein, 2009; Modig, 2007), this form of organizing is still understudied (Janowicz-Panjaitan, et al., 2009) and there are significant gaps in our knowledge and understanding of IOPs (Burke & Morley, 2016). For example, Bechky (2006) argues that few organizational scholars have systematically examined the internal functioning of IOPs and is supported by researchers such as Bakker (2011) and Pauget and Wald (2013) who observe that little is known about how work and interactions in complex inter-organizational projects are actually shaped and coordinated.

With this thesis, we wish to respond to the call for advancing research on inter-organizational projects (Bakker, 2011; Burke & Morley, 2016; Janowicz-Panjaitan et al., 2009). More specifically, this thesis apply a ‘relational lens’ on the interdependent work processes in IOPs and aim to advance our understanding of complex modes of collaboration and coordination within this context. Relational competence, i.e. the ability to actively create and develop collaborative relationships, is an essential asset for managing inter-organizational work (Pauget & Wald, 2013). Gittell (2012) argues that the effectiveness of coordination is determined by the quality of relationships among professionals (particularly the

extent to which mutual respect, shared goals, and shared knowledge are expressed) and by the quality of communication in a work process. This is called relational coordination and describes a type of professional relationship that is essential for coordinating work that is highly interdependent, uncertain and time-constrained (Gittell, 2002). Relationships that have a high level of relational coordination are defined as high-quality relationships (HQR).

We find that relational coordination seems particularly relevant for coordinating work in inter-organizational projects. IOPs are characterized by work that is cross-functional and have a high level of complexity and uncertainty, with strict budget and time constraints (Bryman, Bresnen, Ford, Beardsworth, & Keil, 1987; Meyerson, Weick, & Kramer, 1996; Janowicz-Panjaitan, et al., 2009). IOPs consist of organizations that are functionally interdependent but legally autonomous, and the performance of an IOP depends on the effective coordination of interdependent tasks and contributions from the partnering organizations (Bygballe, Swärd, & Vaagaasar, 2016). Research has found that work that require high levels of task interdependence benefit from high-quality relationships (Dutton & Heaphy, 2003) and Gittell (2016) argues that relational coordination is a powerful driver of performance when work is interdependent, uncertain and time constrained. High-quality relationships are found to have a positive impact on both individual and organizational outcomes; engaging in high-quality relationships enables project members to manage work tasks and to build resilience for complex environments. Understanding how to achieve and support high-quality relationships that have a high level of relational coordination in IOPs is therefore a fascinating theoretical issue that can have practical implications for organizing work.

Relational coordination does not solely emerge from spontaneous interactions among individuals; rather it depends upon organizations to support its development (Gittell & Logan, 2015). However, many IOPs lack formal organizational structures that facilitate coordination (Meyerson et al., 1996). Moreover, while organizations that form an IOP may have collaborated on previous projects, IOPs often consist of projects members that have not worked together before. The project members represent different professional disciplines and are tasked with solving complex problems (Edmondson & Nembhard, 2009). Their work is highly interdependent and characterized by time constraints to

satisfy cost and budget requirements and agreed date of delivery. (Bakker, 2011; Janowicz-Panjaitan et al., 2009). Developing relational coordination between project members in IOPs therefore requires the design of organizational structures that enable them to understand their differences and bridge across them (Gittell & Douglass, 2012). The temporary forms of collaboration in IOPs further increase the complexity and coordination challenges (Harty, 2005; Klemsdal, 2003); for each new project a new temporary organization is built ‘from scratch’, meaning that structures, routines, and relationships have to be established each time. However, The Norwegian Public Roads Administration (NPRA) has introduced a mandatory collaborative interaction phase (CIP) in their infrastructure projects that takes place before the actual construction work begin. We propose that the CIP can function as an formal organizational structure that fosters relational coordination within inter-organizational projects. The aim of this pre-construction phase is to create shared goals, contribute to mutual understanding of the contract and the work, and create trust and collaboration between project members in infrastructure IOPs (Vegdirektoratet, 2016). By focusing on fostering high-quality relationships at an early stage, one could potentially contribute to a positive spiral that can help reduce the need for monitoring, create better and more open communication, which in turn helps both decision-making and problem-solving (Swärd, 2017).

This study extends existing literature by specifically studying how a collaborative interaction phase, conducted at an early stage in an inter-organizational project, may foster high-quality relationships in terms of relational coordination. The collaborative interaction phase has since 2010 been a requirement in all infrastructure contracts, however as a relatively new practice within the industry it is still subject to improvements and developments. This thesis therefore seek to advance research on CIP and contribute to shaping a sustainable and successful practice. We also respond to the call for advancing relational coordination research (Gittell, 2011) by applying the framework and testing it in an IOP. The aim of this study is to get a more in-depth understanding of how relationships are shaped and how work in complex IOPs can be successfully accomplished and coordinated. Given the growth of IOPs, this contribution appears both important and timely. This lead us to the following research question:

How can the collaborative interaction phase foster high-quality relationships in infrastructure projects?

The thesis is organized as follows: we begin by presenting the theoretical context of the research. This is followed by a review and discussion of literature regarding inter-organizational projects, the collaborative interaction phase, high-quality relationships, and relational coordination. These perspectives are the theoretical underpinnings for how we study collaborative relationships and coordination processes within inter-organizational projects. Thereafter, we present the methodological framework of the study, including research approach and design, case selection and description, data gathering process, and analysis. This is followed by a presentation of the findings. We analyze and discuss the findings; how and whether the CIP has contributed to high-quality relationships between the project members within the infrastructure project. Finally, we discuss theoretical and practical implications and address limitations.

2.0 High-quality relationships in inter-organizational projects

In our pursuit to understand more about how the collaborative interaction phase (CIP) looks like when well-executed, and what role it can play in developing high-quality relationships (HQRs) in inter-organizational projects (IOPs), we turned to organizational research to explore what we already know about IOPs in construction industry, the CIP, and the dynamics between high-quality relationships, relational coordination and inter-organizational projects. This review also helped us uncover what we do not know, and what needs to be researched further. Thus, four sub-questions is also presented. In the final part of this section, we have formulated hypotheses that emerged from our review into propositions that will guide our research along with the research questions.

2.1 Inter-organizational projects in construction industry

An increasing need for flexible ways of production and more ad-hoc and context-specific development of innovative products and services, combined with a tendency to avoid long term resource commitments, could explain why more and more industries turn to temporary organizational forms as a preferred form of organization (Bakker, 2011). Furthermore, IOPs are argued to offer higher levels

of creativity and innovation (Bakker & Janowicz-Panjaitan, 2009), provide superior energy output (Burke & Morley, 2016), in addition to present a “hyper-efficient organizational form freed from any organizational slack” (Grabher, 2004, p. 1491). Despite the increasing use of inter-organizational projects, there is still a lack of research on how these types of organizations function (Bakker, 2011; Burke & Morley, 2016). Given the growing development of IOPs, we find it both critical and important to advance research within this area.

This thesis focuses on inter-organizational projects (IOPs) within the construction industry. The construction industry has a long history of organizing work in inter-organizational projects (Bakker, 2011; Burke & Morley, 2016; Janowicz-Panjaitan et al., 2009) however, the industry still experiences challenges in organizing inter-organizational work (Swärd, 2016; 2017). Construction projects are often complex, challenging, and require planning and design with a large number of actors involved. For each new project an IOP is created, and is usually constructed around a single pre-defined task that needs the combined effort, capabilities and resources of two or more organizations to be completed, in a limited amount of time (Bakker, 2011). Similar to non-temporary organizations, IOPs have vigorous contexts that can both restrict and enable the organizations’ actions, resources, and relations (Modig, 2007). For example, since IOPs consist of multiple organizations tensions can arise if the partnering organizations have different functional goals, leading to challenges for coordination. Furthermore, a key element of IOPs is that they by definition are temporary (Jones & Lichtenstein, 2009). The project organization exists only for a limited period of time and have a pre-established end point. When the project is completed the IOP dissolves, but the separate ‘parent’ structures remain and the resources are reassigned within the individual parent structure to either other IOPs or line functions (Burke & Morley, 2016).

The lack of a traditional hierarchical structure between the partnering organizations in IOPs can have important implications with regard to interdependence and coordination (Bakker, 2011; Jones & Lichtenstein, 2008). An IOP within the construction industry is formed when a project is won by a contractor. Contractors bid on infrastructure projects through a fixed procurement process, and are usually selected based on the criteria of ‘lowest price’. Due to the competitive procurement process that is used for the majority of projects, future

relations are often uncertain. Since the Norwegian construction industry is relatively small it is likely that partners will work together again in the future, however, how and when is not known (Swärd, 2013). Consequently, project work is often influenced by both shadows of the past and shadows of the future. A shadow of the past where the partnering organizations have positive experiences can for example positively influence the development of trust and collaborative relationships, while negative experiences can have a negative impact (Swärd, 2016). A weak future shadow can lead partnering organizations to seek quick and tangible results and focus on their own economic goals rather than to develop relationships and shared goals (Grabher, 2004; Ness & Haugland, 2005; Meyerson et al., 1996). Even though most procurement processes in construction are based on price, proof of competence and the use of references are now increasing. A positive shadow of the future, where there is a possibility or expectation of a common future can thus motivate partnering organizations to build trust (Poppo, Zhou, & Sungmin, 2008). However, Swärd (2016) points out that these arguments are problematic for temporary relations that offer a limited time to build relationships, and research has found that it can be challenging to develop trust in temporary relationships (Meyerson et al., 1996; Ness & Haugland, 2005). For example, Meyerson et al. (1996) argue that in IOPs, there is limited time to “engage in the usual form of confidence-building activities that contribute to development and maintenance of trust in more traditional, enduring forms of organization (p. 167). When studying how trust is developed in IOPs within construction, Swärd (2016) found that early encounters are likely to be especially significant for initiating positive relational processes. Consequently, trust can perhaps function as a coordination mechanism in IOPs but also as an enabling factor for the development of high-quality relationships.

2.2 Collaborative interaction phase

Inter-organizational partnering is a well-known form of organizing that has been used for several years within the construction industry. Historically the construction industry has depended on procurement methods and contractual arrangements that have encouraged clients and contractors to consider themselves as adversaries rather than partners, reinforcing the differences between them (Bresnen & Marshall, 2000). For example, rather than working close and

completing a project *together*, it has often been the contractor that has completed the project while being *controlled* by the client. However, in recent years the industry has moved away from the traditional ‘arms-length’ contracting and towards creating relationships based largely upon cooperation and trust (Bresnen & Marshall, 2000). Collaborative working has been identified as one of the most important and critical success factor for managing construction projects (Xue, Shen, & Ren, 2010).

Collaboration between the partnering organizations has proved to be challenging. The Norwegian Public Roads Administration recognized this, and in 2010 they established a requirement to execute a collaborative interaction phase (CIP) in all infrastructure projects. Chan, Chan, and Ho (2003) argue that the ground principles for collaboration within a partnership are trust, respect, commitment, communication, and equality. Acknowledging that many infrastructure projects lack a focus on these factors is the main reason for why a collaborative interaction phase has been introduced in the NPRA. In the extant literature there are several studies that explore, describe and develop collaboration within partnerships, as well as models for collaboration (Cowan, Gray & Larson, 1992; Larson, 1997; Cheng & Li, 2001, 2004; Aarseth, Andersen, Ahola & Jergeas, 2012). The NPRA’s collaborative interaction phase is arguably such model, introducing the partnering organizations and building a platform for future collaboration. Halvorsen (2015) concludes that NPRA’s CIP conforms with many of the developed models, and reflects the recurring principles, such as the importance of content and topics, roles, responsibilities and team building, continuous follow-ups, and a focus on problem-solving and conflict resolution. Since 2010 the CIP has been part of all NPRA’s construction contracts, with the aim of reducing the number of conflicts by improving the foundation for collaborative relationships, creating trust between the partnering organizations, establishing goal oriented procedures and practices, as well as establishing a shared contractual understanding (Vegdirektoratet, 2016). Challenges within IOPs often occur because project members have no prior individual knowledge of their colleagues or their professional knowledge. In addition, they lack shared knowledge and shared goals with their colleagues. Since these projects often have a short time span, shared knowledge can be difficult to develop (Lindkvist, 2005) and for the same reason ‘superordinate goals’ might be difficult to establish

(Weick, 1993). The CIP enables project members to overcome these challenges, by for example facilitating general introductions and discipline discussions where workers from the different disciplines sit together in groups, allowing the project members to get to know each other on an interpersonal level while planning and discussing execution of the task at hand.

The CIP should be executed in line with NPRA's handbook, "Samhandling V860" (Vegdirektoratet, 2016). First, the management from the partnering organizations should host a joint planning session with their management groups. Second, as a result of the planning session, a joint CIP shall be hosted for all the relevant participants in the project. This should be held ahead of the project's start date. And finally, throughout the project it should exist a continued focus on the CIP and its take-aways throughout the recurring construction meetings and collaboration meetings between the management groups. The joint CIP that is held ahead of the project's start will vary in length depending on the size of the project, however, it should include topics such as procedures for communication, contract review and conflict resolution (table 1). To better help the projects' work on the topics in table 1, "Samhandling V860" provides a template that exemplifies and specifies how this can be done. We propose that the CIP model the NPRA use as part of their contracts can arguably, when executed in line with the guidelines, contribute to introducing and building high-quality relationships in IOPs. This can create a more robust project in the long run, but also ease the first phase of the project, which has been identified as especially challenging in IOPs (Das & Teng, 2002; Swärd, 2017).

Table 1. Main topics that should be included in NPRA's CIP

Topics	Discussion points
Individuals, roles & collaboration	<ul style="list-style-type: none"> - Get to know each other - CIP as a platform for collaboration in the execution of the project - Meeting structures - Roles, responsibilities and mandates - Communication
Review of the contract	<ul style="list-style-type: none"> - Review of project specific assumptions and conditions - Review of the main work operations within the project/contract
Health, safety and environmental (HSE)	<ul style="list-style-type: none"> - Responsibilities of the partners - Inspections and follow-up - How to avoid accidents and other undesired events? - Can the partnering organizations help each other?
Conflict resolutions	<ul style="list-style-type: none"> - Review of the contract's conflict resolution methods - How to handle inter-personal conflicts - Routines for notifications and replies - procedures that does not contribute to escalation of disagreements into conflicts - The objective is that only cases that is a "matter of principle" should be brought to court

The focus of the CIP depends on the organizers. The focus can for example be the contract, challenges and solutions, practical execution, conflict resolution, or procedures for communication in the project. Swärd (2017) found that the more successful projects tend to focus on issues such as critical areas and challenges, ensuring early communication and dialogue.

The CIP is found to have more impact if the participants that attend the CIP are they same as the ones who have been assigned to work on the project in the future. However, the CIP has often been conducted before the contractor and/or subcontractors have staffed all the positions in the project. It is also not unusual that employees are replaced or enter the project at a later stage, as the work is often executed in different stages, with different functional roles and responsibilities. Swärd (2017) found that this is one of the major obstacles for a successful and effective CIP. For example, having the wrong participants present can decrease the value of the CIP as the relationships built and agreements made

will not be owned by the future project members. Despite the guidelines for how the CIP ideally should be conducted, research has found that the implementation and execution of the CIP differs widely, resulting in a continuous level of conflict within in the industry (Swärd, 2015).

In her post-doc study, Swärd (2017) studied how the CIP is carried out, what inhibits a successful execution, what contextual factors affect this phase, and whether the type of contract would affect the success of the CIP. Through this research, Swärd (2017) identified several factors that were present in successful CIPs (table 2).

Table 2. Factors identified in successful CIPs (Swärd, 2017)

Personal chemistry and attitude
Leadership anchoring
Actions (signaling and risks)
"Gift giving"
Involvement of all and communication
Social and informal gatherings
The contract used as a coordination mechanism
External process manager
Concrete action points (easy to follow-up)

Halvorsen's (2015) research supports Swärd's (2017) findings, and emphasize the importance of educating attendees in the CIP process of what it entails.

Furthermore, Swärd (2017) identified what is needed from the participants to contribute to a successful CIP: level of engagement, participation, openness, willingness, and the belief in the competence of the partnering organizations. The quality of the CIP is important as it will ensure a better start of the first phase of the project. A poorly executed CIP may not ease the first phase of the project and could leave the participants in despair perceiving the CIP as a waste of time. Arguably, most actors that partake in an CIP do so with good intentions, such as a wish to collaborate well with their partnering organizations. However, Swärd (2017) found that even though a CIP appeared to be successful, a project could still end in conflict. Conflicts can for example occur due to economic issues or diverging understandings of what was agreed upon during the CIP. This idea leads us into the question of how the CIP can be executed in a way so that it extends and maintains the good intentions throughout the project. We wish to build on the

existing findings and explore further how CIPs can foster HQRs in infrastructure projects.

2.3 High-quality relationships

High-quality relationships are defined as “the dynamic, living tissue that exists between two individuals when contact between them involves mutual awareness and social interaction” (Dutton & Heaphy, 2003, p. 264). High-quality relationships (HQRs) occur in many shapes and forms, however, what they all have in common are the energizing effect on individuals creating a “keen awareness of and attunement to the needs of others” (Gittell, 2016, p. 29). HQRs tend to create a positive cycle, reinforcing other HQRs and serve as a resource to manage work tasks and to build resilience for stressful and complex environments (Gittell, 2016). Low-quality relationships will have the opposite effect, as they will deplete and degrade individuals leaving them with an emotional and physical toll (Dutton & Heaphy, 2003).

HQRs will on an organizational level facilitate better collaboration based on the member’s willingness to go the extra mile, invest more time, and ask the right questions improving the problem-solving. Dutton (2003) states; “when there are high-quality connections between employees and their peers, between employees and their bosses, and in other critical connection points, cooperation is a natural by-product” (p. 13). An important manifestation of high-quality relationships is found in relational coordination (Carmeli, Brueller, & Dutton, 2009). The concept of relational coordination includes three types of HQRs, namely shared goals, shared knowledge and mutual respect (Carmeli & Gittell, 2009). Relational coordination is similar to other HQR concepts, but distinguishes itself by offering specific dimensions, which increases the organization’s information capacity and ability to effectively integrate tasks. This is achieved by supporting high-quality communication between the individuals, focusing on the relationships between roles rather than the individual occupying the role (Carmeli & Gittell, 2009).

2.4 Relational coordination

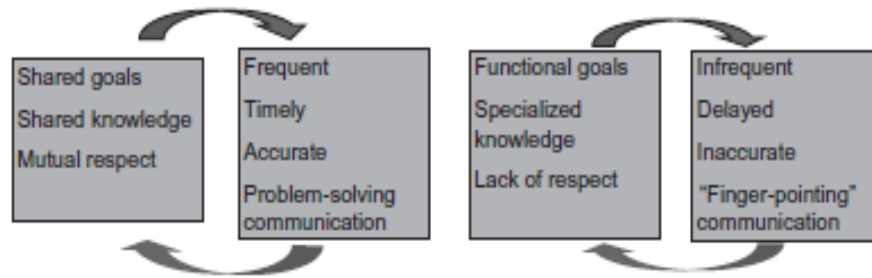
Relational coordination is a concept developed by Jody H. Gittell. The concept describes how high-quality relationships between roles related to work tasks can be created to coordinate interdependent work processes within high-performance

organizations. HQRs can both emerge and be reinforced through the dimensions of relational coordination. Furthermore, these HQRs are essential in order to successfully coordinate highly interdependent tasks; they facilitate the relational chord and mutual adjustment that will produce adaptability within projects (Dutton & Dukerich, 2006). In addition, relational coordination is found to have an overall positive organizational impact such as increased efficiency and financial outcomes, quality and safety outcomes, client engagement, workers outcomes, and learning and innovation (Gittell & Logan, 2015).

The focus of relational coordination is to “counterbalance vertical structures that create silos with forms of accountability that allow and encourage co-workers to coordinate directly with each other” (Gittell, 2015, p. 389). Relational coordination builds on a large body of theory within coordination research, such as Thompson’s work on mutual adjustment of interdependent tasks (1967), Van de Ven, Delbecq, and Koenig’s coordinating mechanisms (1976), Weick’s concept of sense-making (1993) and Faraj and Xiao’s concept of expertise coordination (2006). Gittell (2012) argues that relational coordination complements the coordination-literature, by offering a “unique way to conceptualize the relational dynamics of coordination” (p. 16). Gittell (2000) has identified seven dimensions as crucial for high performance: shared goals, shared knowledge, and mutual respect, which is supported by frequent, timely, accurate, and problem-solving communication. The dimension of shared goals emphasizes the importance that shared goals must exceed the functional goal of the workgroup, meaning that interdependent workgroups should focus on shared goals rather than functional goals to secure a joint effort. Shared knowledge is important to enable employees to recognize their tasks in relations with those of their colleagues, as this will increase understanding of the information flow; who needs to know what, and when? The dimension of mutual respect is crucial between employees, as the success of interdependent work processes are based on equal relations and respect for the work of others. When there is mutual respect, employees are more likely to listen and be receptive to their colleagues independent of status or role (Gittell, 2011). The relationship between shared goals, shared knowledge, mutual respect on the one side and frequent, timely, accurate and a problem-solving communication on the other, is a reinforcing relationship. The same reinforcing relationship can be

seen between the dimensions that reflect low-quality relationships: functional goals, specialized knowledge and lack of respect on one side, and infrequent, delayed, inaccurate and ‘finger-pointing’ communication on the other. Low-quality relationships tend to undermine communication and hinder employees’ ability to effectively coordinate their work (Gittell, 2012). For example, employees who rely on functional rather than shared goals in their interdependent work process are more likely to engage in blaming and finger-pointing when problems occur. Figure 1 illustrates the mutual reinforcement that is expected to occur between the communication and relationship dimensions of relational coordination, and show how this mutual reinforcement can occur in either a positive or negative direction.

Figure 1. Relational coordination and contrasting dynamics



Relational coordination depends upon organizations to support its development (Gittell & Logan, 2015). Gittell (2015) argues that the “traditional bureaucratic way” of organizing, with a focus on vertical control rather than horizontal coordination, limits high performance. Bureaucratic forms of organizing are found to cause employees to work in silos and thereby generating an inability to deal efficiently with ad hoc uncertainties and changes. Organizational structures that encourage employees to continue to work in silos can thus function as a constrainer for developing relational coordination (Gittell, 2016). One example can be employees who do not engage or collaborate with colleagues from other departments or functions, as it might “threaten their power or sense of identity” (Gittell, 2016, p. 11). Another constraining factor can be leaders who do not motivate or support employees to engage in teamwork and do not engage themselves in team work with employees. These factors are not exclusive to non-temporary organizations. For example, researchers argue that the construction industry is characterized by “strongly entrenched attitudes and loyalties” (Walker, 2002, cited in Cicmil & Marshall, 2005). Furthermore, leaders in construction

industry have been found to have a higher task-orientation compared to those in non-temporary organizations (Bryman et al., 1987), meaning that they could be less engaged in teamwork and motivating employees. However, the more relationship-oriented the leaders are, the more effective they seem to be (Bryman et al., 1987). In order to support and enable relational coordination organizations should rather be based on structures that foster shared goals and rewards, and emphasize conflict resolution and shared information. For companies with vertical structures, the focus should be to “counterbalance the vertical structures that create silos with forms of accountability that allow and encourage co-workers to coordinate directly with each other” (Gittell, 2015, p. 389). Organizational structures such as these will develop employees’ awareness and understanding for the context and their contributions to the work process as a whole. Most of the research on relational coordination is within non-temporary organizations. We therefore question whether the same arguments apply in inter-organizational projects, and are particularly interested in factors that can enable or constrain the development of relational coordination and high-quality relationships within this context.

2.5 Sub-questions

Based on our review of the theories above, we have identified gaps and puzzles in the literature that we would like to explore. To guide our quest to answer our research question, we have formulated the following four sub-questions:

1. How can the the good intentions from the CIP be extended and maintained throughout the project?
2. How can shared goals, shared knowledge and mutual respect be developed during the limited time available in inter-organizational projects?
3. How can the CIP facilitate for communication that supports relational coordination in inter-organizational projects?
4. What are the factors that enable or constrain relational coordination in inter-organizational projects?

2.6 High-quality relationships and relational coordination in IOPs

High-quality relationships enable participants to share information, ideas, work through problems, and experiment with solutions. Arguably, HQRs can be vital to

inter-organizational projects as they depend on individuals from different organizations and professions to interact and form relationships to accomplish and execute the work at hand. IOPs have been described as “the organizational equivalent of a one-night stand” (Meyerson et al., 1996, p.167); there are no long-term relationships between project members. However, HQRs can be formed both momentarily or as part of a long-term relationship, and does not necessarily imply a deep or intimate relationship, nor does it require any extensive interaction or that the individuals know each other from before. HQRs can be any point of contact, such as an email, a phone call or one moment of connecting in a meeting infusing individuals with a greater vitality, and giving them a greater capacity to act (Dutton, 2003). This feature of HQRs is an important argument for fostering HQRs in IOPs, given their temporariness and the fact that there are both a limited time to form relationships and an ex-ante defined limited time of interaction between the partners (Bakker, 2011; Jones & Lichtenstein, 2009). In infrastructure projects, HQRs can arguably be crucial as the project members from the partnering organizations work interchangeably on work tasks that are often interdependent. Consequently, the quality of their relations can influence the success of their work and the project as a whole. Given the temporariness of work and relationships in inter-organizational projects, we are interested in exploring how high-quality relationships be can developed at an early stage. We believe that the earlier high-quality relationships are created, the better the collaboration and coordination can become. We therefore propose that the CIP can foster HQRs in IOPs. By introducing projects members to each other at an early stage, allowing them to create relationships and have discussions within and across functions, we hypothesize that the early and in-depth dialogue that is conducted during the CIP will help build a platform for HQRs and inter-personal knowledge, which can in turn improve both the collaboration and coordination. The factors that were identified in a successful CIP (Swärd, 2017) are also reflected in HQRs, and will in the long run enable participants to share information, ideas, work through problems, and experiment with solutions (Dutton, 2003). Consequently, the projects member can develop shared knowledge and mutual respect before the work is started, and by encouraging project members to discuss and create shared goals, these will come in focus. If the CIP is successful in this, we hypothesize

that these relationships will be further manifested and sustained through relational coordination when the project work begin.

IOPs are to a significant extent governed through relationships between organizational members (Pauget & Wald, 2013). Scholars argue that compared to non-temporary organizations, IOPs have to deal with tasks that are more complex, have higher levels of uncertainty and task interdependence, in addition to being characterized by budget and time constraints (Bryman et al., 1987; Meyerson et al., 1996; Morley & Silver, 1977; Janowicz-Panjaitan et al., 2009). Under these conditions, effective coordination is expected to be particularly dependent on the quality of communication and relationships that exist among project members (Gittell, 2012). Coordination is a central purpose within organizations as it integrates collective interdependent tasks (Okhuysen & Bechky, 2009). According to Thompson (1967), there are three different types of task interdependence that describe the intensity of interactions and behaviors within an organization: pooled, sequential and reciprocal. IOPs in the construction industry involve tasks that require each of Thompson's three types of interdependence, but most of the work can be described as in need of reciprocal coordination (Bankvall, Bygballe, Dubois & Jahre, 2010). Reciprocal interdependence is the most challenging to coordinate as it involves tasks that relate to each other both as inputs and outputs; each task depends on completion of the other in order to be completed (Thompson, 1967).

In order to be effectively managed, reciprocal interdependencies require constant information sharing and mutual adjustment (Thompson, 1967), and relational coordination is found to be particularly effective for work that is highly interdependent (Gittell, 2012). However, it is not easy to bridge differences within a complex web of interconnected, yet separate actors (Ospina & Foldy, 2010). IOPs consist of members that represent different specialties and are recruited on the basis of their task-relevant knowledge (Edmondson & Nembhard, 2009). Employees from different functional backgrounds often tend to adhere to different 'thought worlds' due to their different expertise and training, which can undermine effective coordination of work and create obstacles to effective communication (Dougherty, 1992; Edmondson & Nembhard, 2009; Gittell, 2012). Each has its own language, terminology, beliefs about relative importance of performance attributes, mechanisms for information exchange, problem-solving,

and goals (Edmondson & Nembhard, 2009). Consequently, groups in IOPs tend to be less developed, as they operate on a minimal basis of shared knowledge (Lindkvist, 2005). Jones and Lichtenstein (2009) argue that uncertainty in inter-organizational transactions can be reduced by “shared understandings and relations that facilitate knowing what and how interactions are most effectively coordinated among participating members” (p. 249). Arguably, we hypothesize that a CIP focusing on creating shared knowledge where mutual goals and understanding of the different interdependencies are discussed and defined for the IOP can be important criteria for success. The dimensions of relational coordination increase the “informational processing capacity by connecting employees who play distinct yet interdependent roles in the organizational division of labor” (Carmeli & Gittell, 2009, p. 713). Shared knowledge with colleagues and of their work tasks enables the employee to communicate timely, as he or she would have an understanding of who needs to know what, at what time. This also enables accuracy of information sharing, as the employee knows his or her colleagues’ work tasks (Gittell, 2011). In addition, Edmondson and Nembhard (2009) found that interdepartmental transfer of information and ideas in cross-functional and temporary teams resulted in cost savings. In highly complex situations, relational coordination has also been shown to be positively related to quality and safety. Given the complexity of IOPs’ environments and projects, such as construction projects, we suggest that the same outcomes can be achieved when applying the theory to IOPs.

Research on IOPs within the construction industry has found that when challenges or conflicts arise, one often resorts to blaming members from the partnering organizations, especially if there is a lot at stake such as economic consequences (Swärd, 2017). However, Gittell (2011) argues that shared goals will motivate employees to participate in high-quality communication as well as pursue a problem-solving approach rather than a ‘blaming’ approach when problems occur; the success of others will benefit the larger whole. We therefore hypothesize that by establishing shared goals, the conflict level within IOPs can be reduced. Furthermore, mutual respect is found to increase the quality of communication, as employees will be more “receptive to communication from their colleagues in other functions, irrespective of their relative status” (Gittell, 2011, p. 401). Gittell (2002) thereby define relational coordination as “a mutually

reinforcing process of interaction between communication and relationships carried out for the purpose of task integration” (p. 301). For example, through the familiarity that grows from repeated interaction, frequent communication helps to build relationships (Gittell, 2012). Moreover, both timely and accurate communication plays a critical role in task group effectiveness; if communication is inaccurate it can have implications for trustworthiness and affect the likelihood of seeking knowledge from others, while untimely communication can have negative implications for organizational outcomes (Gittell, 2012).

In sum, relational coordination arguably seems to be both relevant and important for fostering high-quality relationships within inter-organizational projects. While relational coordination theory has been widely subjected to empirical testing, it has mainly been researched in non-temporary organizations, such as the airline industry and hospitals (Gittell & Logan, 2015). There is to our knowledge, no existing research on relational coordination within IOPs. Furthermore, Janowicz-Panjaitan et al. (2009) argue that coordination rarely is a primary focus in the IOP literature. In existing literature, we found that IOPs are considered to require more interpersonal and less formal processes of coordination (Bechky, 2006), such as social mechanisms, including reciprocity, socialization, and reputation (Jones, Hesterly, & Borgatti, 1997). Bankvall et al. (2010) found that the reciprocal interdependencies within construction projects require more direct and frequent interaction among the involved actors in order to enable mutual adjustments among the organizations involved. Gittell (2012) argues that relational coordination “is a form of coordination that enables workers to ‘mutually adjust’ in the sense intended by Thompson, enabling them to coordinate their work ‘on the fly’” (p. 28). More specifically, relational coordination can improve work processes by improving the quality of work relationships between employees who perform different functions in those work processes, which could lead to higher quality communication. Thus task interdependencies are managed in a more seamless way, with fewer redundancies, lapses, errors, and delays (Gittell, 2012).

2.7 Propositions for research

This study aims to examine how shared goals, shared knowledge and mutual respect can be developed in inter-organizational projects. We hypothesize that

conducting a CIP at an early stage will foster relational coordination in IOPs. We further seek to examine how the CIP can facilitate for communication that supports relational coordination in inter-organizational projects. We propose that the shared goals, shared knowledge, and mutual respect developed in the CIP will reinforce and be reinforced by communication that is accurate, timely, frequent, and problem-solving. Furthermore, we believe that a CIP with a focus on communication routines will allow the project members time to create and agree on mutual routines for coordinating their interdependent work. Finally, we hypothesize that the collaborative environment in inter-organizational projects will be influenced by contextual factors and structures that either enable or constrain the development of relational coordination.

The overarching proposition in this study is based on our research question: *A successful collaborative interaction phase can positively influence and enhance the quality of relationships (in terms of RC) in infrastructure projects.* In addition, we have the following sub-propositions derived from the sub-questions listed above:

Proposition 1: *When well-executed, the CIP can extend and maintain the good intentions throughout the project.*

Proposition 2: *The CIP facilitates interaction at an early stage and provides a platform for developing shared goals, shared knowledge and mutual respect in IOPs.*

Proposition 3: *Through joint sessions, discipline sessions and discussions about routines and procedures, the CIP facilitates for communication that supports relational coordination in inter-organizational projects.*

Proposition 4: *The development of relational coordination within inter-organizational projects can be enabled or constrained by contextual factors and/or organizational structures.*

3.0 Methodology

3.1 Research design and strategy

The aim of this study is to look at how the collaborative interaction phase can foster relational coordination in infrastructure projects within the context of the Norwegian construction industry. Consistent with other relational theories, our

research is situated within a social constructionist epistemology, meaning that we believe individuals both shape, and are shaped by, their social experiences through everyday conversations and interactions (Cunliffe & Eriksen, 2011; Gergen, 2009). Individuals seek understanding of the world they live in and develop subjective meanings of their experiences (Creswell, 2003); truth is relative and dependent on one's perspective (Baxter & Jack, 2008). Consequently, to capture the nuances of the individuals' constructed understandings, the data collection in this study is largely based on interviews, supported by survey data. Cunliffe and Eriksen (2011) argue that the social constructionist perspective can have practical consequences for leading and managing organizations because "it suggests that organizational members actively create their organizational world through their relationships with one another; that what we say is important; and that it is the nature of those relationships that are important" (p. 1433). This study aims to address the 'processes' of interaction among individuals (Creswell, 2003). We are interested in how the project participants subjectively view and experience the collaboration between each other. Further, we are interested in how their interactions, shaped by the collaborative interaction phase and their organizational context, influence the collaborative work in relation to the dimensions of relational coordination theory. This approach builds on an interpretivist point of view, where the intent is to interpret the meanings others have of the world (Creswell, 2003).

Due to the nature of our research question, we find the most appropriate research design to be an embedded single case study. We chose this research design as our case can be characterized as an "extreme or unique case" (Yin, 2003, p. 40). Furthermore, we wanted to study the phenomenon in depth and at different points in time to increase our understanding but also capture the development of the collaborative work environment. An embedded single case study is used to describe a phenomenon and the real-life context in which it occurs (Yin, 2003). Yin (2014) argues that case study research is especially suitable when 'how' or 'why' questions are asked about "a contemporary set of events over which the researcher has little or no control" (Yin, 2014, p. 14). Case studies can give answers to 'how' questions of phenomenon in social settings where there are no clear boundaries between the phenomenon and context (Yin, 2014). Our research is conducted with an unique single case study of an ongoing

infrastructure project in Norway. This means that there are qualities or circumstances of the chosen case that are unique to this particular case (Baxter & Jack, 2008), and that we trade breadth for depth in our research (Yin, 2003).

3.2 Case selection

Purposeful sampling is a commonly used method for identifying cases that are rich on information and relate to the phenomenon the researchers are interested in (Palinkas, Horwitz, Green, Wisdom, Duan, & Hoagwood, 2015). Research conducted on information rich cases can also give a more in-depth understanding of the phenomenon (Patton, 2002). Given the temporary and inter-organizational characteristics of NPRA's infrastructure projects and their collaborative interaction phase, we believe that the NPRA's infrastructure projects are suitable case organizations for this purpose.

The empirical context for this study is infrastructure projects conducted by the Norwegian Public Road Administration (NPRA). The NPRA is state owned and the contracting entity for over 50% of the contracts within road construction in Norway (Halvorsen, 2015). We conducted a study of the CIP and relational coordination in one of NPRA's infrastructure projects. By focusing on one project rather than several we are able to study the project in depth and over time. Our case organization was selected based on several criteria. First, the project should be an ongoing and well-performing, medium-sized project. The selected infrastructure project started in the summer of 2016 and ends in 2019. It is a medium sized project, and have so far shown both good progress and successful collaboration. Secondly, the project should have a low conflict level and already have completed their CIP. The selected project completed the main part of the CIP in August 2016, and has, despite challenges, kept a low level of conflict. These criteria were set in line with the purpose of exploring how a CIP can foster HQRs in infrastructure projects. This meant that the completion of the CIP and the low level of conflict were important in order to see how a CIP would play out in an 'exemplary' case. Therefore, this case was chosen as it is currently a successful project with an CIP executed in line with the recommended standards of SVV (Swärd, 2017). The circumstances of this project allow us to explore how the CIP can influence the quality of the relationships within the project.

3.3 Case

Our selected case is an ongoing infrastructure project in the middle of Norway, with a scheduled duration of three years. The project started in the summer of 2016 and constitutes 11 kilometers of infrastructure, such as roads, tunnels and bridges. At the time of our study the IOP in this infrastructure project consisted of members from the client (NPRA), contractor, advisor and two subcontractors. One of the subcontractors have since then completed their part of the contract and is no longer a part of the project.

The procurement process within the construction industry is usually based on the criteria of lowest price. This project's procurement process differs from the industry 'norm' in that it was not solely based on the criteria of lowest price, but rather a 'two-envelope' system combined with the criteria of lowest price. This entails a two-step process where the client assessed the contractor's project description prior to reviewing the price. The client awarded points based on both the contractor's project description and external references. These points were then deducted from the contractor's total price. Consequently, the contractor was chosen not solely on price, but on a combination of competence, references and price.

Our focus in this case has been on the CIP and a chosen focal work process. The work process that we chose was the construction of one of the bridges involving several of the partnering organizations. The bridge construction was chosen in collaboration with the project managers as it was an ongoing and particularly complex work process characterized by reciprocal interdependence. The project has experienced several challenges with this bridge construction, in terms of differing understandings of the execution between the client and the contractor, unexpected ground conditions and delayed technical drawings.

3.3.1 The project's collaborative interaction phase

The project's CIP was held over seven days prior to the project's start date. The CIP was split into three intervals and led by an external process manager from a consulting firm that operates in the same industry, and both the client and the contractor participated in shaping the agenda. The CIP was held at a remote location, and the client, the contractor and its main subcontractors attended. Most of the participants were accommodated at the location and were able to spend

afternoons and evenings together. The participants in the CIP were also the ones that would work on the project in the future.

The CIP's mandatory topics were presented and discussed during the first days. Both the client and the contractor presented and participated in discussions. Furthermore, the contractor had prepared a presentation on how they understood the setup, focus areas, concerns, and progress plan. In this session, they discussed the details of the progress plan and possible critical factors in the project. These critical factors were also discussed in groups and several were identified, such as the construction of one of the bridges (our focal work progress). Following the joint sessions and the mandatory topics, there were separate sessions for each discipline. For example, the informants that would work on constructing bridges sat together and discussed the details of the execution, potential problems, alternative solutions, and planned progress. The CIP also included exercises for the group to get to know each other, but they had set aside enough time to do both team building and in-depth technical discipline discussions. At the end of the CIP, the parties created a CIP-poster. The poster is a formal requirement and summarizes the concrete terms the group agreed upon during the CIP and is present in both the client's and the contractor's office (see appendix 3 for a summary of the CIP-poster)

3.4 Data collection methods

The embedded single case study methodology allows us to integrate quantitative and qualitative methods into a single research study (Yin, 2003). We chose this approach as embedded designs are found to be useful when qualitative research (or quantitative) is insufficient for understanding all aspects of the phenomenon of interest (Bryman & Bell, 2015), and it enables us to get insight into different levels or units of analysis (Creswell, 2003). By applying the Relational Coordination Survey (RC Survey) in addition to conducting interviews, we gain knowledge not only about the individual's subjective experiences and perceptions but also about the measured quality of the relationships between the participants, whether the right people are communicating with each other, and to what extent they communicate through high-quality communication. Combining qualitative research with quantitative methods can also keep us as researchers from being carried away by vivid, but false, impressions in qualitative data, and findings can

be strengthened if it corroborate findings from qualitative evidence (Eisenhardt, 1989).

We use triangulation and combine a variety of information sources in our data collection. We do this to be able to develop “convergent lines of inquiry” (Yin, 2003, p. 98), and thereby help our study become more accurate by basing its story on several data sources (Yin, 2003). Our qualitative research is conducted with archival data, observations and semi-structured interviews and are used to explore the participants’ subjective experiences and interpretations of the CIP and their collaborative relationships. The observations helped us observe how the participants interacted with each other, whilst the interviews enabled us to capture the individual perceptions and descriptions of their experiences and relationships. We applied the Relational Coordination Survey (RC Survey) as a quantitative method, as we are interested in measuring the quality of those relationships in terms of relational coordination.

3.5 Participants

The data collection is based on purposive sampling, meaning that the participants were selected according to criteria relevant to our research topic and stage of the data collection (Willig, 2013). The main criteria for each of the three stages of data collection was that the participants represented the different partnering organizations in the IOP. In general the participants varied in age, educational background, tenure in the organization(s) and section in which they worked.

3.5.1 Study 1 - The collaborative interaction phase

Twelve participants (eleven men and one woman) from three different parent organizations were selected for the first part of our study. The informants were selected with the criteria that they had participated in the collaborative interaction phase. During the first part of our study, we also observed one construction meeting with ten project members from the client, contractor and subcontractor, all of whom we had interviewed.

3.5.2 Study 2 - Coordination in a selected work process

For the second part of our study, the project managers from the client and the contractor helped us identify all the project members that were involved in the

bridge construction. There were twenty-two participants (all male), and all of them were invited to respond to the RC Survey.

After conducting the RC Survey and presenting the results to the group, five of the participants completing the RC Survey were selected for follow-up interviews. They were selected based on their role in the focal work process and their formal position. All of them were interviewed in the first round of interviews. In addition, we interviewed one manager that joined the project during our data collection and was therefore not part of the earlier stages. We also interviewed a top manager from the client that is not involved in the project's daily work, but functions as a centralized manager.

3.6 Data collection process

The qualitative data is gathered through semi-structured interviews, observation and archival data/documents (i.e. reports/notes from the CIP) to capture the participants' experiences, thoughts and attitudes. Semi-structured interviews allow us to obtain descriptions of "the life world of the interviewee" so that we can interpret the meaning of the described phenomena (Kvale & Brinkmann, 2009, p. 327), while observations allow us to study how the project members communicate and interact in a natural setting (Willig, 2013). Archival data provide us with background information about the collaborative interaction phase. The interviews were conducted and transcribed in Norwegian. The quantitative data was gathered through the RC Survey. The data gathering process was conducted in two studies.

3.6.1 Study 1 – The collaborative interaction phase

In our first study, archival material and documents were studied to obtain an understanding of the collaborative interaction phase that was conducted at the start of the infrastructure project (see appendix 2 for overview of archival data). In-depth interviews were conducted with open-ended questions about experiences of the collaborative interaction phase, the current collaboration climate, and leadership practices within the organizations. See appendix for interview guide (appendix 4). We conducted twelve interviews that varied somewhat in duration, ranging from 25 minutes to 65 minutes. The interviews were audio-recorded, with the permission of the interviewees. All of the interviews have been transcribed verbatim, and the names of the participants have been removed to ensure anonymity. The transcribed text is 132 pages in total. After the interviews had

been conducted, we attended one construction meeting as non-participatory observers, which allowed us to observe how the project members interacted and communicated ‘in action’.

3.6.2 Study 2 – Coordination in a selected work process

In our second study, the selected participants were invited to respond to the RC Survey. Demographic questions such as age, organizational tenure, and experience within the industry were added to the survey. The work process that was selected as the survey focus was one of the bridge constructions, which involved project members from different parent organizations, with different functional roles and on different hierarchical levels. This work process was characterized by the project managers as challenging, due to the interdependent and complex work. Five groups of functional work roles connected to the bridge construction were defined in collaboration with the project managers: Grunnarbeid, Kontroll Byggherre, Ledelse, Planlegging og kontroll Entreprenør, Planlegging Byggherre, and Spunkasse. The participants were distributed into these groups, based on their functional role in the work process. Out of the invited, one declined to respond to the survey, consequently our end-result consisted of twenty-one responses.

The RC Survey is considered a reliable and fully validated survey instrument based on the theory of relational coordination (e.g., Gittell, Seidner, & Wimbush, 2010; Kenaszchuk, 2013; Valentine, Nembhard, & Edmondson, 2015). Relational coordination is measured by surveying participants in a particular work process about their communication and relationships with other roles in the same work process (Gittell, 2012). The survey consists of seven questions based on the seven dimensions of relational coordination; three questions about relationships (shared goals, shared knowledge, mutual respect) and four questions about communication (timeliness, accuracy, frequency, problem-solving). Responses are recorded on a five-point Likert-type scale (see appendix 6 for questions and response-scale). Relational coordination is an equally weighted average of all seven dimensions. The scores are reported as weak, moderate and/or strong. The norms are based on terciles of relational coordination data collected in 2012-2015. The average of ratings across the seven dimensions provides scores ranging from 1-5 for each functional role (Gittell, 2012). The between workgroup scores are

based on responses given by participants about workgroups of which they are not a part, while the within workgroup scores are based on responses given by participants about their own workgroup. For example, ratings for the management-role assess respondents' perceptions of how the manager or managers with whom they work, communicate and relate to them. Higher scores indicate that respondents perceive the manager(s) to engage in more problem-solving, timely, accurate, and frequent communications, and as more likely to have knowledge about the respondent's work, share goals, and demonstrate mutual respect (Gittell, 2012). The norms are higher for the within workgroup scores than they are for the between workgroup scores. This is because within workgroup scores are expected to be higher due to the greater similarity of the tasks, professional identities and training within workgroups, and because there are often fewer differences to be bridged within workgroups than between workgroups (Gittell, 2012).

Prior to distributing the survey we arranged an information meeting for the respondents where we explained the process, the survey questions and we could answer questions regarding the survey. The survey was then distributed via an online-form, however, since many of the participants do not have access to computers in their daily-work, we set up 'survey-stations' at their offices, so that the participants could stop by and respond to the survey during their work-day. The participants that were prevented from attending the day we were on location were either sent a link to the survey or responded by telephone.

After the RC Survey was completed, follow-up interviews with selected participants from the RC Survey were conducted. The aim with conducting these interviews were to investigate the participants initial thoughts about the survey and the results, how they perceived the results, and if something in their collaborative environment had changed following the study. The interviews were semi-structured and open-ended, and guided along topics related to the survey results and the current collaborative climate. We conducted seven interviews that varied in duration, ranging from 22 minutes to 59 minutes. The interviews were audio-recorded, with the permission of the interviewees. All the interviews have been transcribed verbatim, and the names of the participants have been removed to ensure anonymity. The transcribed text is 50 pages in total.

3.7 Data analysis

The analysis and interpretation of the data are guided by the research question and four sub-questions presented in section 2.5. The data is analyzed using a pattern-matching approach, which is one of the most desirable techniques for case study analysis (Yin, 2003). Pattern-matching is used to identify and compare patterns evident in the data against one or more propositions generated from theory (Almutairi, Gardner, & McCarthy, 2014). If the patterns found in the data coincide with the predicted patterns in the propositions, the results can enhance study's internal validity (Yin, 2003). If the patterns do not match, the researcher must explore alternative explanations for the findings (Almutairi et al., 2014). The aim of this approach is not to confirm or dispute the proposition itself, rather it is about building explanations on whether and why the patterns are matched or not (Yin, 2003).

Each data source was initially collected and analyzed independently. Our approach to analyzing the interview data involved an iterative process of inductive and deductive analysis for generating inferences. After transcribing and interpreting the nineteen interviews, we organized the interviews in line with the topics in our interview guides. We further identified similarities, patterns and differences, and arranged them into categories. We continuously revisited our theoretical foundations and propositions, and moved back and forth between the data and theory to preserve our flexibility and not risk making any hasty conclusions. The patterns derived from the deductive and inductive analysis were then combined with the patterns from the survey analysis and compared with the predicted patterns.

Descriptive statistics were used in the analyses of the survey data. Matrix diagrams were built from the relational coordination data to identify the weak and strong ties among participants in the focal work process. How each workgroup is rated by the other groups is shown vertically and how they rate other workgroups is shown horizontally, while the diagonal shows how each workgroup rates itself. The matrices enabled us to observe the strength of ties both between and within each of the functional workgroups that we surveyed, and to assess where ties are weakest, and where they are strongest. These patterns were then analyzed and used to examine the correctness of the propositions in terms of the quality of the relationships between and within the functional groups. The pattern derived from

the survey data were then combined with the pattern in the data derived from the qualitative analysis and compared to the propositional patterns.

3.8 Validity and reliability

We have followed Yin's (2003) recommendation of case study tactics to test the quality of our research design. In order to ensure construct validity, we have used triangulation and collected information from multiple sources such as archival data, observations, interviews and survey data. By relying on multiple sources of information, we have approached the case from different perspectives, which add richness and depth to our data (Willig, 2013). This can in turn increase the validity and credibility of our results (Yin, 2003). Interview data can be biased in terms of retrospective sense-making and/or impression management (Eisenhardt & Graebner, 2007). Thus, in order to reduce bias, we have used numerous and knowledgeable informants who view the phenomena from diverse perspectives, as suggested by Eisenhardt and Graebner (2007). The informants in this study include project members from different parent organizations, hierarchical levels, functional areas and groups. It is unlikely that these different informants have engaged in convergent retrospective sensemaking and/or impression management. In order to ensure reliability in our case study, we have developed a case study database (Yin, 2003). This improves the reliability of the case study as it enables us to track and organize data sources such as key documents, notes and audio files. By creating a database, all our material can easily be retrieved at a later date (Baxter & Jack, 2008). We have also described the methodological processes in an in-depth and detailed way in the previous sections. The database and in-depth descriptions makes it possible for future researchers to trace our steps and replicate the study (Yin, 2003). Furthermore, the RC Survey has been successfully assessed for structural validity, content validity, internal consistency, inter-rater agreement, and reliability (Gittell et al., 2010; Kenaszchuk, 2013; Valentine et al., 2015). A recent analysis of teamwork measures has also found that relational coordination is one of only two teamwork measures that is both fully validated and 'unbounded', which indicate the survey's ability to measure teamwork across multiple organizational boundaries (Valentine et al., 2015). The analyses were done by each of us separately and then inspected and checked by both of us to secure an agreement. The aim of exploratory research is to produce analytical

rather than statistical generalizations (Yin, 2014), and we have thus not attempted to generate a representative sample.

3.9 Ethical considerations

This research project is approved by the Norwegian Centre for Research Data in terms of storing personal data. Both the project and the persons involved are therefore anonymized. Participation in the study was voluntary and all participants were informed about the purpose of the study and asked to sign a consent form. The transcriptions and results from the survey will remain within the departments of LOP and Strategy at BI Norwegian Business School and will not be used for any other purposes than stated in the consent form.

4.0 Empirical findings and analysis

This section presents the empirical findings from our research. In the first section we present our interview findings on the CIP, both the general attitude towards CIP and the CIP that was executed in this project. The second section contains findings that describe the project's collaborative environment, whilst the third section presents factors that the informants point to as influential on their collaboration and collaborative environment. The fourth section presents the findings of the RC-mapping. The quotes that are used in this paper are translated into english, however we have tried to be as true to the original content as possible and thus some of the wording might be somewhat 'off'.

4.1 The collaborative interaction phase

The informants expressed a positive attitude towards collaborative interaction phases in general. Many of them said that they appreciated the opportunity to be thoroughly briefed about the project before they started working. The informants viewed the process as valuable, for example, one of our informants reflected upon the potential cost of not having a CIP compared to the cost of having it:

"... half a day up there (CIP) costs a lot less compared to what it would if you start the project and something come up and you have a bunch of machines and people waiting. [...] I believe in it "(Client 5)

All of the informants expressed an understanding for the rationale of the CIP; a phase where they could ask questions, get to know their colleagues and become familiar with the 'chain of command' as well as agreeing on formal procedures and routines both to ease and improve the collaboration in the first part of the project. One informant said:

"It's a bit frustrating if two parties start doing things in different ways and it takes half a year before you find a routine, then it's easier to set up routines in advance. To use such a phase for it. It makes things easier and there is a greater chance that things will slide well and you get a good start "(Client 4)

The informants expressed appreciation that most of their future colleagues were present and participating in the CIP. Most of the project members were accommodated at the location and were able to spend afternoons and evenings together. The quality of the food and the beautiful surroundings were recurring topics in our interviews, creating a casual atmosphere at the CIP allowing them to get to know each other in an informal way. The informants also expressed that they had felt a positive 'vibe' in the group. All parties were pleased with each other and expressed that they were looking forward to collaborate. Our informants were very positive to meeting their colleagues prior to their first day of work and said that the good vibe had helped them in the first phase of the project:

"[...] this CIP was positive, it really was! We got the chance to get to know the contractor, that's an advantage [...]. No, I think the CIP is important, really! Instead of moving right into work when you don't know anyone it's an advantage having met before. Really"(Client 2)

The CIP's mandatory topics were discussed during the first two days (see table 1). In the session on communication, they focused on creating guidelines for good communication within the project. Several of these were later reaffirmed on a CIP-poster. Some of the topics that were discussed were the importance of keeping an open and continuous dialogue with an informal tone. This would allow the project members to reach out to each other when needed and to be open and honest. This quest was reflected in our interviews, where one of the informants said:

“...and a bit about communication, how we would like it. That we speak up, both ways. That we don’t sit around being angry at each other without saying anything. It has worked out pretty well actually. We have had informal meetings where we can speak about things we like and don’t like without getting into a fight. That has worked really well” (Client 3)

Both the client and the contractor had presentations and actively participated in the discussions during the CIP, and the informants from the client highlighted that the contractor seemed well prepared and showed in-depth knowledge about the project. The contractor held a presentation on how they understood the setup, focus areas, concerns, and progress plan. In this session, they discussed the details of the progress plan and possible critical factors in the project. In addition, the project members had the time and opportunity to establish and agree on work procedures and routines on how they should work throughout the project:

"[...] we agreed on routines on several things. How we should communicate. Like how to notify about things, controller notifications and technical clarifications. We agreed on what we could expect from each other and that has been useful. And we've kept to these agreements as far as I know "(Client 4)

In addition to the joint sessions where all the project members attended, the CIP included separate sessions for each discipline. For example, the project members that would work on constructing bridges sat together and discussed the details of the execution, potential problems, alternative solutions and the planned progress. This secured that relevant topics and specific information were discussed and shared within the relevant workgroups, and informants highlighted this as something they particularly valued:

"I think this was a very good CIP. We got to spend time on the disciplines. Usually, these CIPs are more general, but this time we got to discuss and resolve questions (in the disciplines sessions). We usually don’t get time to do that...but we need to at some point. The CIP was time well spent I think" (Client 1)

In the discipline sessions, the project members were able to discuss and agree on formal requirements in terms of documentation and execution, work roles in the

project, their expectations, and possible challenges. In sum they were able to create a mutual understanding of ‘what’ and ‘how’.

"We got a good start on the issues concerning the construction part. This part was a bit unfinished and unclear – a bit fuzzy. It was good that we got on to that early and developed it. This was perhaps the most important issue. But everyone had meetings and it was ... yes, it was good"(Client 4)

The discipline sessions contributed to uncovering critical phases and factors early, creating a mutual understanding of possible implications. The project members could further clarify misunderstandings and initiate dialogues about how they should collaborate to find solutions. For example, during discussions about one of the bridges it became clear that the contractor had planned a different approach to the construction process than what the client had in mind. Since this came up in the discipline sessions it gave the client time to re-engineer the technical drawings prior to the project start date:

“It was initiated a discussion about the bridge early, a construction that had challenges, which we in our offer had solved slightly different than how the client had described it. If that discussion had not started during the CIP, the delays as per today, in the project, would have been much much larger "(Contractor 2)

The discipline sessions have been a recurring topic in all of our interviews. Although many of the informants have highlighted the CIP as a very positive experience, many of them express that they would prefer more time allocated to discipline sessions, rather than spending time on team-building activities, since “one gets to know each other anyway when you start discussing” (Subcontractor).

The CIP was highlighted as useful; the informants said they were able to gain insight into what the other party had planned and what their expectations were, as well as being able to share their own point of view, questions and expectations. Furthermore, the informants expressed confidence in the project’s CIP and how it was executed. In our interviews, it has emerged that the informants perceive the CIP as beneficial for the project in the long run. The CIP enabled the project members to get to know each other on a personal basis, but also on a professional level. It was expressed that since they had gotten to know each other so well on different levels, a relationship of trust had been developed.

Two informants expressed that due to the CIP, the current relationship between the partners was stronger than what it would have been without the CIP:

“I think we have developed a very good trust relationship, and that makes everything much easier. Nobody believe we want to trick or fool each other. That is a part of the CIP, that we created this, that we trust each other on a whole different level than we would have if we didn’t get to know each other so well” (Client 4)

“It was the CIP [...], we got to know each other very well and we were very open...I can’t imagine that anyone stood there and held any information back. Not us, and not the contractor. And then you get a trust relationship, and it has to be. If you don’t trust each other, everything is hopeless. [...] I think it is important [...]. And nobody has abused the trust yet! If somebody have abused it they have for sure done it in a way that nobody has noticed...” (Client 5).

The CIP also brought forward challenges that could potentially have resulted in a conflict if it had not been uncovered and discussed during the CIP. As mentioned, the contractor and the client had diverging ideas about the construction of one of the bridges. The CIP enabled a goal oriented discussion on how to come up with a joint solution at an early stage, a dialogue that has continued throughout the project:

“In the CIP, we discussed and got to review a lot, but it is...that talk during the CIP when we were seated in the discipline groups, I think that is why we had an early and good dialogue and that we have been able to maintain this dialogue...that is, it sort of sets the “frames” and we execute in line with that” (Contractor 2)

Hence, the emergence of trusting relationships and the early dialogues that were established during the CIP have helped the project members through the process of joining forces and work towards a solution that benefits everyone without slowing down the progress in the project.

To finalize the CIP the parties created a CIP-poster. This is a formal requirement of the CIP and summarizes the concrete terms the group agreed upon during the CIP. The CIP-poster is present in both the client’s and the contractor’s office (see summary of the main points in appendix 3). The poster and the CIP-report show that the parties achieved a mutual agreement during the CIP. One example of such agreement is that conflicts should be solved at the lowest

possible level and that everyone should approach issues and challenges with a problem-solving attitude, which were also reflected in several of our interviews. The poster contains five established goals for the project: (1) We shall avoid damage to humans, the environment and materials, (2) We must be open and honest about our production and economy, to create trust and safety, (3) We will deliver a product we are proud of, (4) We will have mutual respect for each other's roles and tasks, (5) We will have a good cooperation and maintain a good reputation with the local community. These goals were developed in groups during the CIP. The groups were instructed to discuss internally and come up with what they perceived as the four most important goals of the project, and present them to the other groups. When each group had presented their goals, they voted, and the five most popular goals were included in the poster. These goals now serve as guidelines for how the project members should behave and work during the project. One of the leaders in the project expressed how working towards a shared goal is crucial to ensure good results:

“We have to work towards the same goal, otherwise it stops! It can't be anyone that delays and run around doing other stuff than what we have agreed. Everyone needs to be single-minded and we have to collaborate across the organizations to succeed with this. A good collaboration usually gives good results (Contractor 1).

4.2 The collaborative environment

The inter-organizational project, consisting of a client, contractor and subcontractors, has been able to take advantage of their positive collaborative environment. The project members seem motivated and determined to solve conflicts and continue with their well-functioning collaboration. Overall, the informants were very positive and one informant said:

“I think it works very well, I really do! And that's nice, the vibe is good and everyone is happy, and if you have something that is not accounted for everyone is so honest that they will tell the truth and you're done with it” (Subcontractor)

In our interviews it became apparent that it existed an awareness between the project members about how their actions and how they behaved towards each other would influence the other party. The informants seemed concerned with

conveying information and communicating in the best way possible to not create any trouble or misunderstandings. For example, informants from the client explained that they always try to discuss controller-notifications directly with the contractor prior to submitting them via formal channels. This is done to ensure that the recipient understands the essence of the notification and to avoid misunderstandings. More importantly, it also allows the recipient to provide an explanation or solution to the problem:

“Then he don’t have to misunderstand. He knows, and then they can say “ok, send it over and we’ll think about a reply[...]”. Maybe they just call us back and answer [...]. We might have to formalize it in writing, but if you just write a long list without informing verbally it can easily occur misunderstandings” (Client 1)

In addition to this, many of the informants stated that they communicate frequently with their colleagues, not only their peers but also the subordinates in the partnering organization, through in-person interaction, per phone, and in meetings. Furthermore, they were particularly concerned with giving correct information to avoid misunderstandings that could possibly result in friction or conflicts:

“It is about giving them as accurate information as possible, with little reason to doubt. As fast as possible. We are very concerned with this, not to create any conflicts and frictions...” (Contractor 2)

By discussing the controller-notifications directly with the contractor, the client demonstrates respect for the work of the contractor and that they are willing to discuss the situation. This practice also enables a prompt handling of issues rather than resulting in a conflict that could delay the project’s progress, or even worse, that the contractor would have to redo some of their work. The focus on communication between project members from the different partnering organizations, as well as the guidelines established during the CIP seem to have been kept throughout their collaboration. One of the informants told us that without good communication, nothing would work:

“We have to have good communication with the other parties, all the time. We have to be open, honest and have trust in each other. Really, if we don’t have that in place it will go bad” (Contractor 1)

Many informants said that the CIP contributed to creating an information flow between project members. Both the joint sessions and separate discipline sessions facilitated knowledge sharing and a mutual understanding of the practical execution of the work and formal requirements such as documentation:

“They talked (the contractor) about for example how they have planned to build the bridge. That was really important insight. And we did the same with all the constructions, how they have planned it and how we want the documentation to be submitted into E-room, like it was about the future progress. That was very...that was very nice to get insight into, prior to starting the work” (Client 2)

Our informants expressed that there is a mutual agreement to ensure that everyone in the project have the same information. This was reflected by one of the leaders who expressed that he perceived it as one of his main tasks to share all relevant knowledge and information with his subordinates: *“nothing of what we do is secret, [...]the more people that are informed, the easier it is to do a good job”* (Contractor 1). This attitude of transparency and knowledge sharing was also demonstrated by the client when they encountered challenges with the deliverance of technical drawings for one of the bridge constructions. While this situation could have caused friction and potentially conflict between the parties, the client was concerned with being fully transparent and continuously shared information they had with the contractor:

“We were very open in the process, we said that the technical engineering had not gone according to plan and we did not hold back any information towards the contractor. They have been aware of the situation all the time, and we managed to make a few changes so that it has become a smaller problem” (Client 5)

Furthermore, the contractor expressed the same attitude when they encountered challenges on their side:

“We have asked and talked to them. Showed them what we see as challenges and we have been able to solve it. We have called them and had them in the office to get a mutual understanding of what is really the challenge” (Contractor 4)

The interviews further illustrated a willingness to partake in problem-solving behavior and problem-solving communication. In terms of the missing technical drawings for the bridge construction, such behavior and communication became explicit. For example, one of the leaders in the project said that their good collaboration and the fact that they dared to be open, honest, and transparent to find good solutions, as well as the problem-solving attitude amongst the project members determined the outcome of the challenges with the bridge construction. This was supported by another informant that said:

“[...] if it hadn't been for him [Client] and him [Contractor], and that it is a trend that you should collaborate and try to solve problems in the best possible way, the work would be standing still. I am convinced about that” (Client 6)

Another informant also expressed that there was little presence of resentment in the project:

“It's nice here, if you have disagreed but solved it, you move on to the next thing, you don't walk around being annoyed that you had to “swallow a camel” and want revenge on the next case...no, we move on! That is important” (Subcontractor)

4.3 Factors that influence collaboration

The informants described several factors as influential on their collaboration and the collaborative environment. These factors were leadership, trust, attitudes and personal chemistry.

4.3.1 Leadership

The two project managers in the project (one from the client and one from the contractor) are described as being hands-on, practical, and solution-oriented. They work closely together when it comes to inter-organizational decisions and challenges that affect the project, while also maintaining autonomous roles as leaders in their respective organizations. The subordinates expressed that the managers in general are easy to approach and that there is room to speak up. When they do, the subordinates feel that they are taken seriously. Furthermore, some informants emphasized how the leaders' behavior impacts the rest of the organization. In our interview with one of the middle-managers, the manager explained that he tried to influence his subordinates to approach their work and

collaboration with professionalism and a problem-solving attitude. One of his most important messages was that the subordinates should be open and honest towards their partnering organizations and focus on solving problems rather than creating friction and conflicts. In addition to this, in our interviews it emerged that it existed an awareness within the top-management of how they should support their leaders to perform at their best:

“It is important that we are available and have good contact with them, [...] discuss disciplines, solutions, that we are well informed and support them. That both sides are informed and support and give them the security they need, and that we have good dialogue between us, that’s really important. It is, if any of these ties clug, it will create uncertainty” (Client 7)

4.3.2 *Trust*

“You don’t have be anxious that there exists an underlying strategy behind actions [...]. I think trust is key” (Client 4)

Throughout the series of interviews trust was repeatedly emphasized as an important factor for both establishing and maintaining a good collaborative environment. One of our informants expressed that without trust there would be nothing, and framed trust as essential for working together. Further it was said that everything would be difficult without trust, and that the organizations had focused on this during the CIP while identifying what it would take to achieve a successful completion of the project.

The informants expressed that trust is present in the project and that its presence directly influence the way they work:

“But it is crucial that you get this platform of trust that you can build on, otherwise it will not work. You have to have trust in your partnering organizations, without it it gets really tricky. And I feel we have that - mutual trust. It gives you a bit more leeway” (Client 4)

In addition to this, they acknowledged that trust is something that has to be continuously maintained. In our interviews, it emerged an awareness that in order to maintain trust one had to continue to be transparent, honest and show that you are willing to trust the relationship. This also relates trust to the leadership group.

One participant suggested that the presence of trust within the leadership group influenced the IOP as a whole:

“Trust isn’t something that just comes along, so when they [Client & Contractor managers], internally as well, talk openly about having trust in each other it seems very safe and influences the rest of the organization. I think it is an attitude. It becomes stronger within others as well” (Client 7)

4.3.3 Personal chemistry

The collaborative relationship between the project members seem to be supported by positive personal chemistry. The informants highlighted that they experienced positive relationships with their colleagues. For example, one informant told us that his closest colleague (from the partnering organization) was the type of guy he gets a good connection with; they collaborate very well, have the tensility to openly discuss the more difficult topics and it is easy to ‘speak your mind’. One of the other informants said:

“Even though we have good contracts, a lot gets solved if you have good personal chemistry. It (personal chemistry) always lurks in the back and regulates a lot. So if the people leading have good personal chemistry, that is a success factor. No doubt about it” (Client 4)

Furthermore, a positive personal chemistry was also highlighted as an important factor to establish good relationships during the CIP and that this would have a long-term effect for the project:

“It was very obvious this time that we had good chemistry. A lot of people hit it off. That is still very apparent and very helpful for the project” (Client 4)

4.3.4 Attitudes

The informants expressed a positive attitude towards each other. Furthermore, the informants expressed an attitude of understanding of partnering organization’s ultimate goal. For example, informants from the client acknowledged that the contractor needs to make money and pointed out that it could be more to gain by working *with* the contractor rather than fight them on every economic issue:

“It is a bit more to gain by talking to them...I mean...they are allowed to make money! The contractor! Right, they have to make money! We are not to arrest them on everything. If they are entitled to a supplement, they should get that! We are not supposed to fight with them if they are entitled. Then they should get it” (Client 2)

This attitude was reciprocated from the contractor, who acknowledged that they were hired to do a job and that the client should be satisfied:

“[...] we shall do what the Client has asked us to, and if we think it is outside of our contract we have systems to manage that [...], but we are doing a job for a customer, and the customer shall be satisfied. I am concerned with that” (Contractor 2)

Throughout our interviews it also emerged that the problem-solving attitude of the project members was exceptional; it seems the project members made an active choice to be accommodating and problem-solving when challenges arise. This attitude was explicitly shown when we asked informants from the contractor about the challenge the project had met when constructing one of the bridges:

“It would have been completely different if we had said ‘ok, we are here with our equipment and workers, we expected a certain turnover that we have now lost and we want to be reimbursed for this’ - that would have changed the situation a lot. But in many ways that would have been more profitable for us” (Contractor 2)

Our interviews uncovered that this attitude is present in all of the partnering organizations. Furthermore, it was expressed that this attitude and their willingness were strengthened when the other partnering organization showed initiative, took risks and assumed responsibility to conquer a challenge or solve a problem.

4.3.5 Type of procurement

The procurement process was a repeated topic in the interviews. The overall impression from our interviews is that most informants were extremely positive to this way of announcing projects and emphasized the procurement process’ role in contributing to a better quality of the CIP and collaborative environment in general. One informant said:

“Yes, [...] we chose the contractor based on their qualifications, in addition to price. So yes, I think that influenced the contractor, that they didn’t just get picked because they were the cheapest, but also because they were the best. Bringing that into a project like this, I think is important. For both parties. We can be confident that we have chosen the best” (Client 4)

It emerged that the procurement process increased the contractor’s ownership, and forced both the client and the contractor to do an extensive amount of work prior to both announcing and winning the bid; resulting in them being better prepared to enter the CIP and the project in general. One informant also said that when the contractor, during the CIP, elaborated on how they have planned the progress and execution of project, the client became more respectful of the contractor’s knowledge and skills:

“Our organization is better prepared, they have more insight into the project and the fact that the contractor has been able to show what they have planned [...], just that gives more respect” (Client 7)

4.4 Relational coordination in bridge construction

The RC Survey was conducted in order to further explore our propositions, particularly whether the good intentions from the CIP have been maintained and executed in the project through the relationships between and within workgroups in the bridge construction. The survey results denote the quality of their relationships and give us an indication of how these workgroups coordinate their work and collaborate in practice in the IOP in terms of the relational coordination dimensions: shared goals, shared knowledge, and mutual respect, which are supported by communication that is timely, frequent, accurate, and problem-solving.

Table 3 shows scores for relational coordination and each of its seven dimensions, both between workgroups and within workgroups. The scores >4.6 (within groups) and >4.0 (between groups) denote characteristics of teams with high-quality relationships, any areas that are not green are target areas for improvement.

Table 3. Relational coordination and its seven dimensions

Dimension	Between Workgroups	Within Workgroups
	Mean	Mean
Frequent Communication	4,57	4,83
Timely Communication	3,50	4,06
Accurate Communication	3,60	3,94
Problem-Solving Communication	3,80	4,16
Shared Goals	3,99	4,40
Shared Knowledge	3,53	3,89
Mutual Respect	3,93	3,87
Relational Coordination	3,84	4,17

Within workgroups: Strong: >4.6, Moderate: 4.1-4.6, Weak: <4.1

Between workgroups: Strong: >4.0, Moderate: 3.5-4.0, Weak: <3.5

The mean scores in table 3 show that the scores between groups are higher than within groups. All scores on the dimensions between workgroups are rated moderate (3.5-4.0), with the exception of one dimension, frequent communication, which is rated strong (>4.0). Within workgroups, the scores on the dimensions shared knowledge, mutual respect, timely communication and accurate communication are rated weak (<4.1), while shared goals and problem-solving communication are rated moderate (4.1-4.6). Similar to the results between groups, frequent communication is the only dimension that is rated strong (>4.6).

The following matrices (tables 4 -11) show patterns of relational coordination between the workgroups in the selected focal work process.

Table 4. Relational coordination matrix

	G.arb	KBH	Ledel	P&KENT	PBH	S.kas
Grunnarbeid	4,21	3,82	4,29	3,93	2,33	3,07
Kontroll, Byggherre	4,14	3,95	4,29	3,36	4,24	4,29
Ledelse	3,77	4,03	4,40	4,29	3,83	4,21
Planlegging og kontroll, Entreprenør	3,25	2,33	4,25	4,25	3,00	3,89
Planlegging, Byggherre	3,13	3,43	3,79	3,43	3,57	3,34
Spuntekasse	3,37	3,43	4,57	4,39	2,93	4,61

Within workgroups: Strong: >4.6, Moderate: 4.1-4.6, Weak: <4.1

Between workgroups: Strong: >4.0, Moderate: 3.5-4.0, Weak: <3.5

The matrix in table 4 indicates the workgroups' divergent perception of their relationship across all dimensions of relational coordination. The matrix shows

that many of the relationships are rated weak or moderate and give room for improvement. Some workgroups have asymmetric relationships with each other, for example ‘Spuntekasse’ rates the relationship with ‘Kontroll Byggherre’ (3.43) as weak, while ‘Kontroll Byggherre’ rates the relationship with ‘Spuntekasse’ as strong (4.29). Both ‘Kontroll Byggherre’ (3.95) and ‘Planlegging and Kontroll Byggherre’ (3.57) show weak scores within their groups.

In table 5 to table 11, the matrices show how each workgroup is rated by the other groups across each of the seven dimensions.

Table 5. Relational coordination - Frequent communication

	G.arb	KBH	Ledel	P&KENT	PBH	S.kas
Grunnarbeid	5,00	5,00	5,00	5,00	--	4,00
Kontroll, Byggherre	5,00	4,00	4,00	5,00	5,00	5,00
Ledelse	5,00	4,60	5,00	5,00	4,60	5,00
Planlegging og kontroll, Entreprenør	3,50	2,00	5,00	5,00	3,00	5,00
Planlegging, Byggherre	3,00	4,00	5,00	4,00	5,00	3,00
Spuntekasse	3,67	5,00	5,00	5,00	5,00	5,00

Within workgroups: Strong: >4.6, Moderate: 4.1-4.6, Weak: <4.1

Between workgroups: Strong: >4.0, Moderate: 3.5-4.0, Weak: <3.5

The matrix in table 5 shows that frequent communication is overall rated as strong both within and between groups. There are a few exceptions, for example ‘Planlegging og Kontroll Entreprenør’ rates ‘Kontroll Byggherre’ as weak (2.00). ‘Kontroll Byggherre’ also show a weak score within their group (4.00). The matrix also shows that ‘Grunnarbeid’ has not rated ‘Planlegging Byggherre’ but rather selected the “not applicable” option in the survey. This is consistent in table 4-6 that covers all dimensions of communication and can reflect ‘Grunnarbeid’s’ perception of ‘Planlegging Byggherre’ as a group they do not communicate with.

Table 6. Relational coordination- Timely communication

	G.arb	KBH	Ledel	P&KENT	PBH	S.kas
Grunnarbeid	4,50	3,00	3,50	4,00	--	3,00
Kontroll, Byggherre	4,00	3,67	4,00	3,00	3,67	4,00
Ledelse	3,20	3,80	4,20	4,00	3,60	4,00
Planlegging og kontroll, Entreprenør	2,50	1,50	4,25	4,00	2,00	3,50
Planlegging, Byggherre	3,00	3,50	3,00	2,50	4,00	3,00
Spuntekasse	3,33	4,50	4,00	4,33	3,00	4,00

Within workgroups: Strong: >4.6, Moderate: 4.1-4.6, Weak: <4.1

Between workgroups: Strong: >4.0, Moderate: 3.5-4.0, Weak: <3.5

The matrix in table 6 shows that timely communication is mostly rated weak or moderate. Weak scores, are found in ~50% of the groups (both between and within), while moderate scores are found in the other 50% of the workgroups (both within and between). There are a few exceptions, for example 'Planlegging og Kontroll Entreprenør' rates 'Ledelse' (4.25) as strong, and 'Spuntekasse' rates 'Kontroll Byggherre' as strong (4.50).

Table 7. Relational coordination - Accurate communication

	G.arb	KBH	Ledel	P&KENT	PBH	S.kas
Grunnarbeid	4,00	3,50	4,00	4,00	--	2,50
Kontroll, Byggherre	4,00	4,00	4,33	4,00	4,00	4,00
Ledelse	3,40	3,60	4,40	4,20	3,80	3,80
Planlegging og kontroll, Entreprenør	3,00	2,00	3,75	4,00	3,00	3,50
Planlegging, Byggherre	3,00	3,00	3,50	3,00	3,00	4,00
Spuntekasse	3,25	3,50	4,00	4,00	3,00	4,25

Within workgroups: Strong: >4.6, Moderate: 4.1-4.6, Weak: <4.1

Between workgroups: Strong: >4.0, Moderate: 3.5-4.0, Weak: <3.5

The matrix in table 7 shows that accurate communication is mostly rated moderate between workgroups while 4 out of 6 groups show weak results within their groups. There are some weak ratings between groups, the most apparent is that 'Grunnarbeid' is rated weak (3.00-3.40) by all of the other groups except 'Kontroll Byggherre'. 'Ledelse' is rated strong (4.33) by 'Kontroll Byggherre' and 'Planlegging og kontroll Entreprenør' is rated strong (4.20) by 'Ledelse'.

Table 8. Relational coordination - Problem-solving communication

	G.arb	KBH	Ledel	P&KENT	PBH	S.kas
Grunnarbeid	4,00	4,00	4,00	4,00	--	4,00
Kontroll, Byggherre	4,00	4,33	4,67	4,00	4,33	4,00
Ledelse	3,80	4,00	4,40	4,00	3,80	4,20
Planlegging og kontroll, Entreprenør	3,25	3,00	4,00	3,75	3,00	3,50
Planlegging, Byggherre	2,50	3,50	3,50	3,50	3,50	3,50
Spuntekasse	3,75	3,00	4,75	4,25	2,50	5,00

Within workgroups: Strong: >4.6, Moderate: 4.1-4.6, Weak: <4.1

Between workgroups: Strong: >4.0, Moderate: 3.5-4.0, Weak: <3.5

The matrix in table 8 shows that problem-solving communication is mostly rated moderate within and between groups. There are some exceptions, for example 'Planlegging Byggherre' rates 'Grunnarbeid' as weak (2.50), while 'Kontroll Byggherre' rates 'Ledelse' very strong (4.67). 50% of the groups show weak results within their own groups with scores ranging from 3.50-4.00.

Table 9. Relational coordination - Shared goals

	G.arb	KBH	Ledel	P&KENT	PBH	S.kas
Grunnarbeid	4,50	4,00	4,50	4,00	2,00	4,00
Kontroll, Byggherre	4,00	4,00	4,67	4,00	4,33	4,00
Ledelse	3,60	4,20	4,40	4,40	3,80	4,25
Planlegging og kontroll, Entreprenør	3,75	3,50	4,50	4,75	4,00	4,00
Planlegging, Byggherre	4,00	4,00	4,50	4,00	4,00	4,00
Spuntekasse	3,00	3,00	4,75	4,50	2,50	4,75

Within workgroups: Strong: >4.6, Moderate: 4.1-4.6, Weak: <4.1

Between workgroups: Strong: >4.0, Moderate: 3.5-4.0, Weak: <3.5

The matrix in table 9 shows that the dimension of shared goals is rated mostly strong and moderate, both within and between groups. There are a few exceptions, for example 'Spuntekasse' rates both 'Grunnarbeid' (3.00) and 'Kontroll Byggherre' (3.00) as weak, and both 'Kontroll Byggherre' (4.00) and 'Planlegging Byggherre' (4.00) have weak scores within their workgroup.

Table 10. Relational coordination - Shared knowledge

	G.arb	KBH	Ledel	P&KENT	PBH	S.kas
Grunnarbeid	3,50	3,50	4,50	3,50	3,00	4,00
Kontroll, Byggherre	4,00	3,67	4,00	3,67	4,00	4,50
Ledelse	3,40	3,60	4,20	4,00	3,40	4,00
Planlegging og kontroll, Entreprenør	3,50	2,33	4,50	4,50	3,00	4,00
Planlegging, Byggherre	2,50	3,00	3,00	3,00	3,00	2,50
Spuntekasse	2,50	2,00	4,50	4,00	2,00	4,50

Within workgroups: Strong: >4.6, Moderate: 4.1-4.6, Weak: <4.1
Between workgroups: Strong: >4.0, Moderate: 3.5-4.0, Weak: <3.5

The matrix in table 10 shows that the dimension of shared knowledge is rated weak in ~50% of the groups while both moderate and strong are found in the other half. The matrix also shows that half of the workgroups have weak results within their groups. ‘Ledelse’ has been rated strong (4.50) by three other groups and ‘Spuntekasse’ has been rated strong (4.50) by ‘Kontroll Byggherre’.

Table 11. Relational coordination - Mutual respect

	G.arb	KBH	Ledel	P&KENT	PBH	S.kas
Grunnarbeid	4,00	4,00	4,50	3,00	2,00	4,00
Kontroll, Byggherre	4,00	4,00	4,33	4,50	4,33	4,50
Ledelse	4,00	4,40	4,20	4,40	3,80	4,50
Planlegging og kontroll, Entreprenør	3,25	3,00	3,75	3,75	3,00	3,75
Planlegging, Byggherre	3,50	3,00	4,00	4,00	2,50	3,50
Spuntekasse	3,75	3,00	5,00	4,75	2,50	4,75

Within workgroups: Strong: >4.6, Moderate: 4.1-4.6, Weak: <4.1
Between workgroups: Strong: >4.0, Moderate: 3.5-4.0, Weak: <3.5

The matrix in table 11 shows the dimension of mutual respect. We see that most groups show weak results within their groups, except ‘Ledelse’ (4.20) and ‘Spuntekasse’ (4.75). ‘Planlegging og kontroll Entreprenør’ (3.75) and ‘Planlegging Byggherre’ (2.50) have the weakest results within their respective groups. The results are slightly better between groups where most are rated moderate, however, ‘Kontroll Byggherre’ and ‘Planlegging Byggherre’ are rated weak by three other workgroups.

4.4.1. Summary of survey results

The survey results show that overall, the respondents report moderate scores between groups and somewhat weaker score within groups. The dimensions with

the highest score between groups are frequent communication and shared goals, while timely communication and shared knowledge have the lowest scores. Within groups, frequent communication and shared goals have the highest scores, while mutual respect and shared knowledge have the lowest scores.

We presented a summary of the results to the respondents where we focused on the scores between groups. The informants in the follow-up interviews were then asked about their reactions to the results. Most of the informants responded that the results were as expected and that they were not surprised about the low scores. A few of the informants suggested that some of the low scores could be due to the fact that respondents had forgone to reply “not applicable” in questions where this could be relevant. While this could be true, it can also be an attempt to try to explain and/or justify the low scores. The feedback on the survey results is something we need to consider when analyzing and discussing the results.

5.0 Discussion

The aim of this thesis has been to explore how a collaborative interaction phase can foster high-quality relationships in infrastructure projects. The following section discusses the empirical analysis of the gathered data. The discussion of our findings is divided into five main sections: the first four sections discuss findings in light of each of our sub-questions and propositions, while the fifth section discusses our main findings in light of our research question.

5.1 How can the good intentions from the CIP be extended and maintained throughout the project?

The predicted pattern based on proposition 1 was: *When well-executed, the CIP can extend and maintain the good intentions throughout the project.* Our empirical findings support this proposition. The following section will discuss whether this form of CIP can extend and maintain the good intentions throughout the project.

Research has found that the execution of CIP varies between projects. Thus, a CIP can have different outcomes, and the perception of the importance of CIP differs between project members (Swärd, 2017). It is therefore not given that a CIP is successful. Recent research on CIPs has found that when the phase is well executed and followed up on, the CIP is more likely to have a long-term positive

effect on collaborative climate in infrastructure projects (Halvorsen, 2015; Swärd, 2017). Swärd (2017) identified several factors that were present in projects that had succeeded with executing a good CIP. In order to assess the execution we find it useful to compare this project's CIP with Swärd's (2017) findings. Our data compiles with Swärd's (2017) findings of what a successful CIP should contain and how it should be executed. In table 12, we have compared the identified factors with our findings

Table 12. Comparison of factors within the CIP

Identified factors in successful CIPs	Comparison of current findings
Personal chemistry and attitude	Present in the project
Leadership anchoring	The CIP was anchored within the leadership group
Actions (risks and signaling)	<i>No findings</i>
"Gift giving"	<i>No findings</i>
Involvement and communication (everyone contributes)	Our findings confirm extensive involvement from all parties
Social and informal gatherings	The location the CIP was held at offered a social and informal environment
The contract used as a coordination mechanism	<i>No findings</i>
External process manager	The CIP was led by an external process manager
Concrete action points (easy to follow-up on)	The CIP resulted in a comprehensive CIP-poster that is present in the respective offices

We see that the majority of Swärd's factors (2017) are identified in our study. For example, personal chemistry was repeatedly mentioned in our interviews, and the informants said they experienced good personal chemistry with their colleagues. Furthermore, Swärd (2017) concludes that personal chemistry in large determines whether the project will succeed or not with the CIP. In addition to the factors identified in table 12, we argue that this project's form of procurement process increases the quality of the CIP. Swärd (2017) found that lack of sufficient preparation from the contractor often decreases the quality of the CIP. However, the procurement process enabled the contractor to be well prepared. Informants from the client expressed appreciation of the preparedness of the contractor, and said that this had increased their respect and initial trust in the contractor. Since

both parties were well prepared, concrete discussions and dialogues about project-execution could be initiated at an early stage. Furthermore, preparation and an early involvement of the contractor are found to increase their ownership of the CIP and the project in general (Swärd, 2017). This is supported by our findings. Consequently, we argue that the CIP in this project can be characterized as successful.

Our data show that good intentions are present in the project. This is reflected in the project's CIP-poster and the project members' attitudes towards each other. The presence of positive attitudes can increase the quality of the CIP (Swärd, 2017), but arguably also contribute to extend and maintain the good 'vibe' that was created during the CIP. We found that the project members' positive attitudes were directed towards professional competence and capacity, but also in terms of their organizations' individual goals. For example, it was expressed that one should respect the fact that the contractor had to earn money. We also found that the project members were concerned with doing a good job and achieving a good collaborative environment. The CIP-poster represents the good intentions that were brought into and developed during the CIP. We found that the work with the CIP-poster was thorough and in-depth. Swärd (2017) highlights the importance of clarification and concretization of what the partnering organizations agree upon during the CIP, such as a jointly anchored CIP-poster. This is arguably important in order to ensure that the good intentions are maintained throughout the project. The project members seem to have complied with the CIP-poster in their work so far in the project. Although the CIP-poster can function as a guideline for behavior we argue that the poster alone cannot extend the good intentions into the project.

From the start of the project and until now, the partnering organizations have shown a persistence to maintain the good communication, the openness and the problem-solving behavior. Arguably, the platform for these good intentions were created during the CIP, and especially within the discipline sessions that facilitated early professional discussions on challenges. The project members have been able to solve challenges during the project which implies that the relationships and dialogues created in the CIP have had a long term effect on the collaborative environment.

5.2 Fostering shared goals, shared knowledge and mutual respect

The predicted pattern based on proposition 2 was: *The CIP facilitates interaction at an early stage and provides a platform for developing shared goals, shared knowledge and mutual respect in IOPs.* Our empirical findings support this pattern when it comes to the findings from the interviews, however, the survey results indicate somewhat weaker results than expected on the measures of shared knowledge and mutual respect between and within workgroups in bridge construction. The following sections provide a discussion of our findings.

5.2.1 Shared knowledge

The interview findings suggest that the CIP did facilitate shared knowledge between the project members. Shared knowledge enables employees to recognize their tasks in relation to the tasks of their colleagues (Gittell, 2011). Developing a shared knowledge of who needs to know what, and when, is especially important in IOPs, where most project members represent different specialities and knowledge domains (Edmondson & Nembhard, 2009) and the work is characterized by a high level of reciprocal interdependence. Swärd (2017) found that the CIP often function as an ‘information session’ where the client informs about their expectations and requirements, which can possibly facilitate knowledge sharing, but arguably only one-dimensional. We found that the CIP in this project was executed as a mutual process where the contractor was invited to contribute to the information sharing. During the seven days the project members spent together, they discussed relevant topics such as execution and progress plans, procedures and routines, as well as agreeing on for example routines for communication. This seems to have established a shared understanding of the project between the project members. We further suggest that the procurement process have resulted in the contractor being well-prepared with detailed plans of their execution, which contributed to a platform for shared understanding that the CIP could build on.

Shared knowledge was also facilitated by the discipline sessions, which our informants highlighted as especially rewarding. Swärd’s (2017) findings suggest that parts of the CIP should be divided into disciplines as it can create more involvement, ownership and interest in the project and the CIP. We found that in addition to increased engagement and ownership to the project, the

discipline sessions created mutual understanding and helped bridge the differences between the project members that represented different task-relevant knowledge but operated within the same construction area, such as tunnel or bridge. Gittell (2012) argues that effective coordination depends upon participants having a high degree of shared knowledge regarding each other's tasks. We propose that the discipline sessions created interactions that enabled the project members to learn about the work of their colleagues in the group and how their tasks fit together. In other words, the discipline sessions gave them a context for knowing who will be impacted by any given change and therefore for knowing who needs to know what, and with what urgency (Gittell, 2012). We also argue that the CIP created shared knowledge which enables project members to communicate in a way that make sense to everyone involved in the same work process. It therefore seems that the discipline sessions play an important role in facilitating shared knowledge between project members.

Our interview findings further illustrate how the shared knowledge that was created during the CIP became particularly important when the project encountered challenges with one of their constructions. The shared knowledge enabled project members to reach a mutual understanding of the challenges at an early stage, allowing them to adapt and make changes prior to the start date of the project. We go as far as suggesting that without the extensiveness of the CIP, the outcome of these challenges could have resulted in delays and conflicts. This example illustrates the importance of both shared knowledge and a mutual understanding in an infrastructure project, hereby facilitated by a thoroughly executed CIP.

While the interviews indicate that there is generally a high level of shared knowledge between members in the project, the survey results indicate that the shared knowledge between project members working on the bridge construction could be improved. The survey shows that shared knowledge is rated higher between groups than within groups. Some of the project members in two of the three groups that have the lowest within-group scores are located at different locations, and could therefore have less information about each other's work. In addition, some of the respondents commented during the presentation of the results that they rarely interact directly with other members in their group, nor are they supposed to, which naturally explain the low scores in some of the groups.

Although some of the workgroups might not need the direct interaction between all group members to operate, the potential for improvement is present in other workgroups that are more reciprocally interdependent.

5.2.2 Shared goals

IOPs such as infrastructure projects often contain an element of competition, since project members represent different organizations with individual goals (Svärd, 2017). However, in order to achieve effective coordination, project members need to have a high level of shared goals for the work process in which they are engaged (Gittell, 2012). Given the natural existence of individual organizational goals in an IOP, tensions can arise if these goals are diverging. Finding a way to create shared goals that exceed functional or organizational goals in inter-organizational projects therefore is particularly important. However, there is little research on how IOPs can achieve shared goals, which makes it difficult to compare our findings. One of the aims of the CIP is to create shared goals (Vegdirektoratet, 2016), and Gittell (2012) argues that when participants have a set of shared goals for the work process, they can more easily find compatible conclusions about how to respond as new information becomes available. Our interview findings suggest that while the partnering organizations have individual goals, the CIP helped project members develop shared goals that to a large extent have shaped the way they work in the project. For example, the discipline sessions seem to have contributed to shared goals between project members within each discipline. Furthermore, during the CIP everyone agreed that conflicts should be solved at the lowest possible level and that everyone should approach issues and challenges with a problem-solving attitude. So far in the project, our findings show that this is how they have solved most of the challenges.

The survey results show that the dimension of shared goals is one of the highest rated, which indicates that there is a consensus about the shared goals concerning the bridge construction. The survey focused on shared goals concerning one work process, however, when combined with the findings from our interviews it seems that there is a high level of shared goals in the project as a whole. Furthermore, we argue that the CIP contributed to each of the project members' ownership of the five goals that were developed during the CIP. Lindkvist (2005) states that in IOPs, "the explicitly stated, specific project goals

are of great importance in enabling coordinated activity” (p. 1201). By voting individually on the suggested goals for the project, we propose that the process can have increased the project members’ commitment to the shared goals. Furthermore, by signing the CIP poster at the end of the CIP and explicitly supporting them, project members made an even stronger commitment to the goals.

5.2.3 Mutual respect

Lindkvist (2005) argues that due to the temporariness of IOPs, groups are often less developed compared to non-temporary organizations. Each new project consists of new project members, meaning that they have to establish new collaborative relationships within a relatively short period of time. Serva, Fuller and Mayer (2005) suggest that behavior in the early phase of an inter-organizational project is particularly important for how relationships develop. Building relationships at an early stage creates a positive spiral that could increase the level of trust and create a better and more transparent communication, which in turn can help resolve problems and ease joint decision making (Svärd, 2017). Arguably, mutual respect can help this process and might function as a first stage in developing trust. Our findings suggest that the CIP helped the project members develop mutual respect across organizations at an early stage of the project.

Gittell (2012) argues that “respect for the competence of others creates a powerful bond, and is integral to the effective coordination of highly interdependent work” (p. 20). Our findings indicate that since the contractor was well prepared for the CIP and was able to demonstrate their competence, the client’s respect for the contractor increased. This can in large be due to the procurement process, in which the contractor was required to provide a detailed project plan. The respect was further enhanced through the inter-organizational discussions during the CIP, both the discipline sessions and the joint sessions. Furthermore, respect for the work of others can encourage project members to consider the impact of their actions on others, which can further reinforce the inclination to act with regard for the overall work process (Gittell, 2012). For example, our findings illustrate how the client informs the contractor and opens up for a discussion before submitting controller-notifications. By acting this way, the client shows respect for the work of the contractor. When there is mutual respect,

project members are more likely to listen and be receptive to their colleagues independent of status or role (Gittell, 2011). The project members also voted that one of their shared goals should be to treat each other with mutual respect. Our findings further demonstrate that the project members have continued to treat each other with respect during the project.

The interviews indicate that there is generally a high level of mutual respect between members in the project. Nonetheless, the survey results show that mutual respect was rated moderate between groups, which indicates that while there is a moderate level of respect between participants across workgroups, this could be strengthened further. Furthermore, the survey results show a higher level of mutual respect between groups than within groups, which is an interesting result. There are often fewer differences to bridge within groups than between groups (Gittell, 2012), hence one would assume that mutual respect would be higher within groups than between groups. In our case only two of the six groups have moderate or strong scores on mutual respect within their group. Our interviews did not provide us with any understanding of why there would be a difference within groups in terms of mutual respect, but rather left us with the impression that there was a high level of respect between most of the project members involved in the bridge construction. This is therefore something that we would have investigated further in a future project.

5.3 Fostering communication that is frequent, accurate, timely and problem-solving

The predicted pattern based on proposition 3 was: *Through joint sessions, discipline sessions and discussions about routines and procedures, the CIP facilitates for communication that supports relational coordination in inter-organizational projects.* Our empirical findings support this pattern to some extent. We have found that the CIP did contribute to a reinforcing relationship between the relationship- and communication-dimensions of relational coordination, however, the survey results indicate somewhat weaker results than expected on the measures of timely and accurate communication between and within workgroups in bridge construction. The following section provides a discussion of our findings.

5.3.1 Frequent, timely, accurate and problem-solving communication

High-quality communication is an integral part of coordinating interdependent work (Thompson 1967; Gittell, 2012). Gittell (2016) argues that there is a reinforcing relationship between shared goals, shared knowledge, mutual respect and communication. We found that the CIP enabled project members to discuss and establish routines for communication. This is exemplified by how they communicate changes, challenges, and formal messages such as controller-notifications. Arguably the routines that were established during the CIP, which involve recurring phone conversations, informal meetings and more formal meetings such as the bi-weekly management meeting emphasizing verbal communication, reinforce the relationship of shared goals, shared knowledge and mutual respect between the project members. Furthermore, timing can be critical when coordinating highly interdependent work; delayed communication could result in errors or delays, which can have negative implications for organizational outcomes (Gittell, 2012). For example, when it comes to controller-notifications, timing is crucial as a delayed controller-notification could, in the worst case, result in the contractor needing to redo the work. Such scenario will infuse unwanted costs on the contractor and may cause friction between the partnering organizations.

Both the survey results and the findings from the interviews show that project members engage in frequent communication. For example, the managers from the partnering organizations communicate with each other several times a day, and many informants described frequent phone calls, meetings and face-to-face conversations regarding their work and work processes. Furthermore, frequent communication is the dimension that is rated highest both within and between groups in the survey, which indicates that most of the respondents agree that they engage in frequent communication regarding the bridge construction. However, Gittell (2016) argues that the coordination of interdependent work can not only depend on frequent communication; the communication also needs to be timely and accurate. For example, if the information that is shared is accurate it will decrease the chances of delaying a work process. Our interviews indicate that the project members were very concerned with providing both timely and accurate information to all project members, and established routines for information sharing during the CIP. Such routines are important in order to avoid possible

consequences of inaccurate information as well as the risk of facing a misunderstanding or conflict. During the discussions in the CIP, the project members learned how important it is with timely and accurate communication. For example, the discussions concerning the bridge construction can arguably have made them aware of their different 'thought worlds' (Dougherty, 1992) and lack of mutual understanding on how the bridge would be constructed. Consequently, the project members now know how important it is to communicate in an accurate and timely manner in order to avoid future misunderstandings. We suggest that these discussions facilitated by CIP created a precedent for how to communicate and approach challenges. We therefore find it interesting that the survey results show weaker scores than expected on both timely and accurate communication. Timely and accurate communication is scored moderate between groups, but weak within groups. When scores regarding the communication dimensions of relational coordination are low, it is often due to a lack of clarification of expectations (Gittell, 2016). The low scores of accurate and timely communication between project members within the same workgroups could therefore indicate that there are differences in what the project members perceive as accurate and/or timely. It also interesting that the communication is perceived as frequent by most respondents but not timely or accurate. This indicates that the content of the communication might not always be perceived as relevant for the work they do. Furthermore, some informants argued that the low scores were natural and that the communication was not necessarily supposed to go directly between every group. Given the lack of research on relational coordination in inter-organizational projects, these results could indicate a weakness in the theoretical assumptions that the concept and the survey are built on. It could seem that relational coordination does not consider different types of organizational structures and that these could vary from workflow to workflow. For example, due to the organizational structures between the contractor and subcontractor, much of the communication to and from the subcontractors is supposed to go through the leadership group and not directly to the other groups or client.

Interdependent work can result in challenges that require joint problem solving. Effective coordination therefore requires that the project members engage in problem solving communication (Gittell, 2012), and one of the aims of the CIP

is to discuss how project members can best work together (Vegdirektoratet, 2016). We found that project members agreed that all interactions should be approached with mutual respect and a problem-solving attitude. This was also thoroughly discussed during the CIP. Our findings show several examples of how they engage in joint problem solving and problem-solving communication in the project. One example is how the project members dealt with the challenges around the construction of one of the bridges. Problem-solving communication is further illustrated in their daily work. For example, both the client and contractor engage in problem-solving communication and show mutual respect when they discover a deviation and address it directly rather than merely submitting controller-notifications or change-notifications without discussing it verbally. The latter is often the case in construction projects (Svärd, 2017). The survey results also show that problem-solving communication regarding bridge construction is rated moderate both between and within groups. This thus further supports the findings from the interviews and indicate that most project members engage in problem-solving communication in the project.

5.4 Enabling factors for relational coordination and high-quality relationships

The predicted pattern based on proposition 4 was: *The development of relational coordination within inter-organizational projects can be enabled or constrained by contextual factors and/or organizational structures.* We could not find support for a pattern of specific constraining factors in our data. While there were some low scores in the survey, we do not have any data that can directly attribute these results to constraining contextual or organizational factors. However, we found that trust and leadership emerged as factors that seem to have enabled the development of relational coordination and high-quality relationships in this project. The following section discusses the importance of these factors and how they have influenced the collaborative climate in the project.

5.4.1 Trust

One of the goals of the CIP is to build trust between the project members. Trust is defined as “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party” (Mayer, Davis, & Schoorman, 1995, p. 712). Extant literature shows that

trust is an important and often critical successfactor for coordinating work within inter-organizational projects (Ness & Haugland, 2005; Meyerson et al., 1996) and the construction industry (Bresnen & Marshall, 2000; Serva et al., 2005; Swärd, 2016). However, researchers have argued that it can be challenging to develop trust in temporary relationships (Meyerson et al., 1996; Ness & Haugland, 2005). Nonetheless, our findings indicate that trust was established during the CIP. We suggest that the activities during the CIP such as the discipline sessions, combined with socializing in more informal arenas, enabled the project members to engage in ‘confidence-building’ during the formation of relationships. We further argue that this enabled high-quality relationships to be developed at an early stage of the project. For example, the informants said that their current trust relationship is largely due to the fact that they got to know each other so well during the CIP, both on a personal and professional level. Our findings indicate that this trust-relationship is maintained through mutual respect and the frequent, timely and problem-solving communication that the project members continuously engage in. Many of the informants highlight these factors as crucial for maintaining trust. In addition, there has yet to be a situation where the trust has been violated by any of the project members.

Consequently, we suggest that the CIP contributes to creating a reinforcing relationship between trust and relational coordination. Participants in high-quality relationships are less likely to suspect hidden agendas and experience an increased willingness to invest in the relationship (Dutton, 2003; Swärd, 2016). In addition, it can be easier to share information and be open once trust is established, and uncertainty between partnering organizations can be reduced (Swärd, 2017).

5.4.2 Leadership

Our findings indicate that leadership has functioned as an enabling factor for fostering high-quality relationships within the project. Facilitating for or supporting relational coordination requires reciprocal relationships between workers and managers (Gittell, 2016). Denis, Langley, and Sergi (2012) argue that leadership is “fundamentally more about participation and collectively creating a sense of direction than it is about control and exercising authority” (p. 44). Previous research has found that while leaders in IOPs tend to be highly task-oriented, the more relationship-oriented the leaders are, the more effective they

seem to be (Bryman et al., 1987). Our findings indicate that the leaders in the project are relationship-oriented and engage and behave in a way that influence relational coordination both with and between their subordinates. For example, one of the leaders expressed that he tried to influence his colleagues and employees to approach their work with a problem-solving attitude. Our findings further show that the managers of both the client and the contractor are very clear about what they deem important for successful collaboration, such as trust, openness and transparency, mutual respect, and good communication. The managers live by these values, and expect their subordinates to do the same. We thus suggest that the leaders engage in relational leadership, creating influence in two ways; “by developing shared goals, shared knowledge and mutual respect *with* others - and by developing shared goals, shared knowledge and mutual respect *among* others” (Gittell, 2016, p. 52). This is supported by the survey results which show that the leadership group has moderate to strong scores on all dimensions of relational coordination. This indicates that the leaders have high-quality relationships both within their group and with the other project groups in bridge construction.

5.5 How can the collaborative interaction phase foster high-quality relationships in infrastructure projects?

The overarching proposition in this study is based on our research question and is as follows: *A successful collaborative interaction phase can positively influence and enhance the quality of relationships (in terms of relational coordination) in infrastructure projects.* Our empirical findings support this proposition. The following section discusses how the collaborative interaction phase has fostered high-quality relationships.

Each new IOP or construction project consists of new project members with different attitudes and preferred ways to work. This means that mechanisms for interaction and coordination must be re-established every time, and new collaborative relationships have to be formed (Svärd, 2017). Mutual respect and trust are crucial in this process, but can be challenging to develop ‘from scratch’. Our findings support extant literature in that early development of mutual respect and trust increases the likelihood of a positive collaborative climate. Most project members meet for the first time at the CIP. The execution of the CIP can therefore

influence how the relationships are established. It can be challenging to determine what comes first of trust and mutual respect. However, in IOPs where project members do not know each other from before, we suggest that respect functions as a prerequisite for developing trust, and that trust is maintained during the project through the display of continuous mutual respect.

Our findings indicate that the CIP in this project to a large extent has been successful and that it has been executed in line with Swärd's (2017) identified success factors. Furthermore, we argue that the way the CIP was executed, along with the topics that were focused on, have resulted in high-quality relationships. The discipline sessions seem particularly important, as they enabled early dialogues about work processes and contributed to shared knowledge and mutual respect. The joint sessions and the CIP-poster resulted in shared goals. By getting to know each other early, the CIP contributed to that the project members could establish trust, which we suggest has further reinforced high-quality relationships. The CIP was also fundamental for establishing routines and procedures for communication and problem-solving that are in line with relational coordination. We thus argue that the CIP functions as an organizational structure that bridges the partnering organizations and supports the development of relational coordination and high-quality relationships. We find that the CIP develops the project members' awareness and understanding for the context and their contributions to the work process as a whole. We further suggest that both trust and leadership have functioned as enabling factors for both fostering and maintaining relational coordination between the project members in the project. Finally, we propose that the type of procurement process also has had an effect on relational coordination in terms of shared knowledge and mutual respect.

Our informants were very positive in their descriptions of their collaborative relationships with both external and internal co-workers. A high level of mutual respect and trust, good personal chemistry, openness, a problem-solving attitude were just some of the words that were used. In other words, the informants described high-quality relationships. However, the survey reveals that there is some room for improvement, especially regarding timely communication (between groups), shared knowledge (both within and between groups) and mutual respect (both within and between groups). We have argued that mutual respect is a prerequisite for trust, meaning that this dimension should be

prioritized in terms of improving relationships in the project. Nonetheless, we find it positive that all of the dimensions were rated moderate and above between groups, since it usually takes more effort to achieve high scores between groups (Gittell, 2012). The scores between groups indicate a general satisfaction of the collaboration in the relationships that are inter-organizational and cross-functional. Based on our discussion above, we suggest that this is due to the CIP. The survey results give us a quantifiable measure of how the respondents view their relationships in terms of relational coordination, and is thus an important indicator of the quality of the relationships in the project. Gittell (2016) emphasizes that the RC Survey should be used for the purpose of learning rather than punishment. While some of the scores in our project were lower than we expected it does not necessarily mean that the relationships have poor quality, but rather that there is a need for improvement and/or a clarification of expectations between some of the project members and workgroups in the project. The focus of this thesis has not been to improve the quality of the current coordination and collaborative environment in our case project. Nonetheless, our results can be utilized by the project managers to further improve the current coordination between groups.

6.0 Theoretical contributions

Despite an increase in industries that turn to temporary and inter-organizational forms as a preferred form of organization, IOPs are still significantly understudied. While relational coordination is a concept that is increasingly being researched in non-temporary organizations, there is a lack of research on relational coordination in IOPs. With this thesis we have responded to the calls for advancing research within inter-organizational projects and relational coordination. The aim has been to advance our understanding of complex modes of collaboration and coordination within IOPs by applying a 'relational lens' on interdependent work processes.

First, this study contributes with research on how interdependent work in complex inter-organizational projects can be shaped by conducting a collaborative interaction phase. Fostering high-quality relationships can arguably be relevant for any type of inter-organizational project that is characterized by highly interdependent and reciprocal work. Moreover, this study contributes to the IOP

literature with our focus on coordination. Second, this study advances relational coordination research by applying the concept and framework in an IOP. We find that relational coordination is a relevant approach for understanding how high-quality relationships function in IOPs and how they can be fostered and/or improved. In addition, we find that relational coordination lack flexibility in terms of accommodating contingency factors and various types of organizational structures. Finally, this study contributes to the CIP literature, which is relatively lacking in research. In addition to building upon and supporting findings from previous research, this study extend current knowledge of how the CIP can be executed in order to foster high-quality relationships that are needed to maintain the good intentions and well-functioning collaborative work processes.

7.0 Practical implications

This study has demonstrated how a collaborative interaction phase can foster high-quality relationships within infrastructure projects and which factors that are important in order to extend the good intentions from the CIP into the daily work. Due to the common characteristics of IOPs (i.e. temporary, highly interdependent and complex work with time and budget constraints) the findings in this thesis have practical implications for professionals aiming to increase coordination and collaboration within this context. It also contributes to how to best design CIPs, particularly emphasizing the importance of combining joint sessions with discipline sessions. Additionally, to further support high-quality relationships in IOPs, it argues for focusing on communication routines that supports relational coordination.

The practical implications of the study's findings on relational coordination are threefold. First, this study demonstrates how the CIP can function as an organizational structure that support and foster high-quality relationships. Thus practitioners can use this knowledge to develop CIPs or similar structures in inter-organizational projects. Second, this study shows that the concept of relational coordination is applicable to projects and thus opens up for practitioners to use relational coordination within this context. However, some limitations regarding contingency factors needs to be considered. Finally, this study show that the RC Survey can function both as a measure of the quality of relationships in an IOP, and as an indicator of where "the shoe pinches". For

example, the survey can provide information of whether it is a lack of accurate communication or mutual respect that is impeding the coordination of work. By using the RC Survey practitioners can map and assess the current status of the relationships and use this information to plan and develop organizational interventions if needed.

8.0 Limitations

This study contains some limitations. First, the study is mainly based on interviews and survey-data. Due to the complexity and nature of construction work it was difficult for us to do observations of how the participants interacted and collaborated ‘in-action’, and thus we had to rely on their own descriptions and recollections of how they interact and engage in interdependent work. Although we did conduct one observation of a construction meeting, this is not sufficient to generalize and more observations could have further strengthened our findings. Second, during the presentation of survey results we became aware that there might be some respondent errors in the data from the RC Survey. The feedback from the respondents suggests a possibility that the discrepancy between the interviews and survey results is due to respondent error, for example that some respondents did not choose “not applicable” as a response in cases where this was relevant but rather gave a low score. While we conducted a pre-survey information session to ensure that all of the respondents fully understood how to respond to the survey, it can be difficult to rule out respondent errors completely. But it is important to note that this could also be an attempt from the project members to try to explain and/or justify the low scores. Third, we only measured the quality of one work process. Thus the RC Survey results describe only one part of the infrastructure project, and it might not give the ‘full’ picture of the quality of relationships within the project as a whole. In addition to bridge construction, the infrastructure project includes work with roads and tunnels, which involves project members that were not included in our study. It is therefore a possibility of different results if we had measured everyone involved in the project and/or conducted a survey for each work process. Fourth, the focal workgroups composed for the RC Survey might not be as representative as we initially believed. For example, some of the group members expressed that they do not directly interact with everyone in their group due to the nature of their

work. This could explain why some of the results were stronger between groups than within groups. While we did corroborate the selection of participants and group composition with the project managers of both the client and the contractor, we could perhaps have ensured a better validation of the group composition if we had asked the project members as well. Fifth, we also found that a limitation with relational coordination as a concept is that it does not seem to take into account contingency factors such as different types of work and task and/or different organizational structures. The subsequent implications for the survey results have been discussed. Finally, it could also be that there are other factors involved that we have not been able to capture via the interviews or survey, that influence the way the project members perceive their relationships in the bridge construction

9.0 Future Research

In the light of this study and its limitations, there are certain aspects that could benefit from more in-depth and further research. Since the current study is a unique single case study, we recommend that future research either replicate our study or conduct comparative studies of the effect of CIP on relational coordination within infrastructure projects. Moreover, while we measured and surveyed only one work process within the project, future research could define and survey all of the work processes within a construction project to get an even better measure of the quality of relationships. Given the lack of research on relational coordination within temporary and inter-organizational contexts, we recommend more research to further advance the literature and research on relational coordination. This could give new insight into the above-mentioned contingency factors that we find lacking in the current literature discussing relational coordination. In addition, since our findings indicate that the procurement process influenced both the CIP and the development for relational coordination, we suggest that future studies conduct comparative studies of different procurement processes and the quality of relationships within infrastructure projects. If more research support our findings, it could provide important information about the effect of procurement processes. Finally, since our study indicates that there is a relationship between trust and relational coordination, future research should explore this connection further.

10. Conclusion

This study set out to explore how the collaborative interaction phase could foster high-quality relationships within infrastructure projects. The study supports previous research stating that a well-executed CIP can improve the collaborative environment within infrastructure projects (Halvorsen, 2015; Swärd, 2017). The findings indicate that a well-executed CIP can foster high-quality relationships. High-quality relationships seem to be beneficial for maintaining a collaborative climate within the project, especially when facing challenges. In addition, the reciprocally interdependent work seem to be well coordinated. We thus emphasize the importance of spending time and energy on shaping the CIP, as well as making sure that all relevant parties are involved and motivated. Our findings demonstrate that the CIP has facilitated the development of shared goals, shared knowledge and mutual respect in the infrastructure project. Moreover, we have found that while there is room for improvement, the shared goals, shared knowledge and mutual respect developed in the CIP have reinforced and are reinforced by communication that is accurate, timely, frequent and problem-solving. Consequently, we argue that CIP creates shared goals, shared knowledge and mutual respect that facilitate for communication that supports relational coordination in inter-organizational projects. Furthermore, the CIP have contributed to the development of routines that support high-quality communication.

Previous research has found that many of the characteristics of IOPs can pose challenges for fostering coordination and good collaboration between project members. Nevertheless, we conclude that it is possible to foster high-quality relationships in a project with the use of the CIP, as it provides project members the opportunity to develop trust, shared knowledge, shared goals and mutual respect at an early stage. Although the CIP might not be the entire solution for developing high-quality relationships it seems to speed up the process and thus play a significant role in improving coordination and collaboration.

References

- Aarseth, W., Andersen B., Ahola, T. and Jergeas, G. (2012). Practical difficulties encountered in attempting to implement a partnering approach. *International Journal of Managing Projects in Business*, 5(2), 266-284.
- Almutairi, A., Gardner, G., & McCarthy, A. (2014). Practical guidance for the use of a pattern-matching technique in case-study research: A case presentation. *Nursing & Health Sciences*, 16(2), 239-244.
- Bakker, R. M. (2011). *It's only temporary: Time and learning in inter-organizational projects*. Ridderkerk: Ridderprint
- Bankvall, L., Bygballe, L. E., Dubois, A., & Jahre, M. (2010). Interdependence in supply chains and projects in construction. *Supply Chain Management: An International Journal*, 15(5), 385-393.
- Baxter, P., & Jack, S. (2008). Qualitative case study Methodology: Study Design and Implementation for Novice Researchers. *Qualitative Report*, 13(4), 544-559.
- Bechky, B.A. (2006). Gaffers, Gofers, and Grips: Role-Based Coordination in Temporary Organizations. *Organization Science*, 17(1), 3-21.
- Bresnen, M., & Marshall, N. (2000). Building partnerships: case studies of client-contractor collaboration in the UK construction industry. *Construction Management and Economics*, 18(7), 819-832.
- Bryman, A., & Bell, E. (2015). *Business research methods (4th ed.)*. Oxford: Oxford University Press.
- Bryman, A., Bresnen, M., Ford, J., Beardsworth, A., & Keil, T. (1987). Leader orientation and organizational transience: An investigation using Fiedler's LPC Scale. *Journal of Occupational Psychology*, 60(1), 13-19.
- Burke, C., & Morley, M. (2016). On temporary organizations: A review, synthesis and research agenda. *Human Relations*, 69(6), 1235-1258.
- Bygballe, L. E., Swärd, A. R., & Vaagaasar, A. L. (2016). Coordinating in construction projects and the emergence of synchronized readiness. *International Journal of Project Management*, 34(8), 1479-1492.
- Carmeli, A., Brueller, D., & Dutton, E. J. (2009). Learning Behaviours in the Workplace: The Role of High-quality Interpersonal Relationships and Psychological Safety. *Systems Research and Behavioral Science*, 26, 81-89.

- Carmeli, A. & Gittell, J., H. (2009). High-quality relationships, psychological safety, and learning from failures in work organizations. *Journal of Organizational Behavior*, 30, 709–729.
- Chan, A. P. C., Chan, D. W. M. & Ho, K. S. K. (2003). Partnering in Construction: Critical Study of Problems for Implementation. *Journal of Management in Engineering*, 19 (3), 126-135.
- Cheng, E. & Li, H. (2001). Development of a conceptual model of construction partnering. *Engineering, Construction and Architectural Management*, 8 (4), 292-303.
- Cheng, E. & Li, H. (2004). Development of a Practical Model of Partnering for Construction Projects. *Journal of Construction Engineering and Management*, 130 (6),790-798.
- Cicmil, S., & Marshall, D. (2005). Insights into collaboration at the project level: complexity, social interaction and procurement mechanisms. *Building Research & Information* 33(6), 523-535.
- Cowan, C., Gray, C., & Larson, E. (1992). Project Partnering. *Project Management Journal*, 23(4), 5.
- Creswell, J. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Los Angeles: SAGE.
- Cunliffe, A., & Eriksen, M. (2011). Relational leadership. *Human Relations*, 64(11), 1425-1449.
- Das, T., & Teng, B.S. (2002). Alliance constellations: a social exchange perspective. *Academy of Management review*, 27(2), 445-456.
- Denis, J., Langley, A., & Sergi, V. (2012). Leadership in the Plural. *The Academy of Management Annals*, 6(1), 211-283.
- Dougherty, D. (1992). Interpretive barriers to successful product innovation in large firms. *Organization Science*, 3(2): 179-202.
- Douglass, A., & Gittell, J. H. (2012). Relational Bureaucracy: Structuring Reciprocal Relationships into Roles. *Academy of Management Review*, 37(4), 709-733.
- Dutton, J., E. (2003). *Energize your workplace: How to Create and Sustain High-Quality Connections at work*. Jossey-Bass: San Francisco
- Dutton, J., E. & Dukerich, J., M. (2006). The relational foundation of research: an underappreciated dimension of interesting research. *Academy of Management Journal*, (49), 1: 21–26.

- Dutton, J., E. & Heaphy (2003). The Power of High-Quality Connections. In: Cameron, K., Dutton, J. E., & Quinn, R. (Eds). *Positive organizational scholarship: Foundations of a new discipline*, 263-278. San Francisco, Calif: Berrett-Koehler.s.
- Edmondson, A. C., & Nembhard, I. M. (2009) Product development and learning in project teams: The challenges are the benefits. *Journal of Product Innovation Management* 26(2): 123–138.
- Eisenhardt, K. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), 532.
- Eisenhardt, K., & Graebner, M. (2007). Theory building from cases: opportunities and challenges. *Academy of Management Journal*, 50(1), 25-32.
- Faraj, S., & Xiao, Y. (2006). Coordination in fast-response organizations. *Management Science*, 52(8), 1155-1169.
- Gergen, K. (2009). *Relational being : Beyond self and community*. Oxford: Oxford University Press.
- Gittell, J.H. (2000). Organizing work to support relational co-ordination. *International Journal of Human Resource Management* 11(3), 517-539.
- Gittell, J. H. (2002). Coordinating Mechanisms in Care Provider Groups: Relational Coordination as a Mediator and Input Uncertainty as a Moderator of Performance Effects. *Management Science*, 48(11), 1408-1426.
- Gittell, J. H. (2011). New Directions for Relational Coordination Theory. In: G. M. Spreitzer and K. S. Cameron (Eds.), *The Oxford Handbook of Positive Organizational Scholarship*, 400-411. Oxford: Oxford University Press.
- Gittell, J.H., (2012). Relational coordination: Guidelines for theory, measurement and analysis. *Relational Coordination Research Collaborative*: Boston, MA. Retrieved from: http://positiveorgs.bus.umich.edu/old_site/Positive/PDF/rcgtma2011825.pdf
- Gittell, J. H. (2015). How Interdependent Parties Build Relational Coordination to Achieve their Desired Outcomes. *Negotiation Journal*, 387-391.
- Gittell, J. H. (2016). *Transforming relationships for high performance : The power of relational coordination*. Stanford: Stanford Business Books.
- Gittell, J.H. & Logan, C. (2015). Outcomes and predictors of Relational Coordination. *Working Paper*. Brandeis University.
- Gittell, J. H., Seidner, R., & Wimbush, J. (2010). A Relational Model of How High-Performance Work Systems Work. *Organization Science*, 21 (2), 490-506

- Grabher, G. (2004). Temporary architectures of learning: Knowledge governance in project ecologies. *Organization Studies* 25(9): 1491–1514.
- Halvorsen, K. (2015). *Hvilke faktorer spiller inn for å lykkes med ekstern samhandling i prosjekter i Statens Vegvesen?* (Masteroppgave). NTNU, Trondheim.
- Harty, C. (2005). Innovation in construction: a sociology of technology approach. *Building Research & Information*, 33(6), 512-522.
- Janowicz-Panjaitan, M., Bakker, R. M., & Kenis, P. (2009). Research on temporary organizations: the state of the art and distinct approaches toward ‘temporariness’. In: Kenis, P., Janowicz-Panjaitan, M., & Cambré, B. (eds). *Temporary Organizations. Prevalence, Logic and Effectiveness*. Cheltenham and Northampton: Edward Elgar, 56-85.
- Jones, C., & Lichtenstein, B. (2009). Temporary Inter-organizational Projects: How Temporal and Social Embeddedness Enhance Coordination and Manage Uncertainty. *Oxford Handbooks Online*. Retrieved 20 May. 2017, from <http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199282944.001.0001/oxfordhb-9780199282944-e-9>.
- Jones, C., Hesterly, S. W., & Borgatti, S. B. (1997). A General Theory of Network Governance: Exchange Conditions and Social Mechanisms. *Academy of Management Review*, 22(4), 911-945.
- Kenaszchuk, C. (2013). An inventory of quantitative tools measuring interprofessional education and collaborative practice outcomes. *Journal of Interprofessional Care*, 27(1).
- Klemsdal, L. (2003). Organisasjonsutvikling i innviklede organisasjoner: En litteraturstudie om bygg- og anleggsbransjen (Vol. 1/2003, *AFIs rapportserie (trykt utg.)*). Oslo: Arbeidsforskningsinstituttet.
- Kvale, S., & Brinkmann, S. (2009). *Interviews: learning the craft of qualitative research interviewing*. Los Angeles, Calif.: Sage.
- Larson, E. (1997). Partnering on construction projects: A Study of the Relationship Between Partnering Activities and Project Success. *IEEE Transactions on Engineering Management*, 44(2).
- Lindkvist, L. (2005). Knowledge communities and knowledge collectivities: A typology of knowledge work in groups. *Journal of Management Studies* 42(6): 1189–1210.
- Lundin, R., & Söderholm, A. (1995). A theory of the temporary organization. *Scandinavian Journal of Management*, 11(4), 437-455.

- Mayer, R., Davis, J., & Schoorman, F. (1995). An Integrative Model of Organizational Trust. *The Academy of Management Review*, 20(3), 709-734.
- Meyerson, D., Weick, K. E., & Kramer, R.M. (1996). Swift trust and temporary groups. In: Kramer, R.M., & Tyler, T. R. (eds) *Trust in Organizations: Frontiers of Theory and Research*. Thousand Oaks, CA: SAGE, 166–195.
- Modig, N. (2007). A continuum of organizations formed to carry out projects: Temporary and stationary organization forms. *International Journal of Project Management*, 25(8), 807-814.
- Morley, E., & Silver, A. (1977). A film director's approach to managing creativity. *Harvard Business Review*, 55(59).
- Ness, H., & Haugland, S. (2005). The evolution of governance mechanisms and negotiation strategies in fixed duration interfirm relationships. *Journal of Business Research*, 58, 1226–1239.
- Okhuysen, G.A. and Bechky, B.A. (2009). Coordination in organizations: an integrative perspective. *The Academy of Management Annals*, 3(1): 463-502.
- Ospina, S., & Foldy, E. (2010). Building bridges from the margins: the work of leadership in social change organizations. *The Leadership Quarterly*, 21(2), 292-307.
- Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research*, 42(5), 533-544.
- Patton, M. Q. (2002). *Qualitative research and evaluation methods (3rd ed.)*. Thousand Oaks, CA: Sage.
- Pauget, B. & Wald. A. (2013). Relational competence in complex temporary organizations: The case of a French hospital construction project network. *International Journal of Project Management*, 31(2), 200-211.
- Poppo, L., Zhou, K. Z., & Sungmin, R. (2008). Alternative origins to interorganizational trust: An interdependence perspective on the shadow of the past and the shadow of the future. *Organization Science*, 19,39–55.
- Serva, A., M., Fuller, M., A., & Mayer, R.,C. (2005). The reciprocal nature of trust: a longitudinal study of interacting teams. *Journal of Organizational Behavior*, 26, 625-648.

- Sinha, K. K., & Van de Ven, A. H. (2005). Designing work within and between organizations. *Organization Science*, 16(4).
- Swärd, A. (2013). *Trust Processes in Fixed-duration Alliances: A Multi-level, Multi-dimensional, and Temporal View on Trust*, Handelshøyskolen BI, & Bedriftsøkonomisk institutt, 2/2013, 165.
- Swärd, A. (2015). Samhandling og betydningen av tidlig-fase. *Delrapport 06.02.2015*. Senter for byggenæringen, Institutt for Strategi og Logistikk, BI.
- Swärd, A. (2016). Trust, Reciprocity, and Actions: The Development of Trust in Temporary Inter-organizational Relations. *Organization Studies*, 37(12), 1841-1860.
- Swärd, A. (2017). Samhandling i samferdselsprosjekter. *Forskningsrapport 1/2017*. Senter for Byggenæringen. Handelshøyskolen BI.
- Thompson, J. D. (1967). *Organizations in Action: Social Science Bases of Administrative Theory*. New York: McGraw-Hill.
- Valentine, M. A., Nembhard, I. M., & Edmondson, A. C. (2015). Measuring Teamwork in Healthcare Settings: A Review of Survey Instruments. *Medical Care*, 53(4)
- Van de Ven, A., Delbecq, A. & Koenig, R. Jr. (1976). Determinants of coordination modes within organizations. *American Sociological Review*, 41, 322-338.
- Vegdirektoratet (2016). *Samhandling*. (Nr. V860 i Statens vegvesens håndbokserie). Oslo: Vegdirektoratet. Retrieved from:
http://www.vegvesen.no/_attachment/1436784/binary/1121306?fast_title=Håndbok+V860+Samhandling.pdf
- Weick, K.E. (1993). The collapse of sense-making in organizations: The Mann Gulch disaster. *Administrative Science Quarterly*, 38, 628-652.
- Willig, C. (2013). *Introducing qualitative research in psychology* (3rd ed.). Open University Press.
- Xue, X. L., Shen, Q. & Ren, Z. (2010). Critical Review of Collaborative Working in Construction Projects: Business Environment and Human Behaviors. *Journal of Management in Engineering*, 26(4), 196-208.
- Yin, R. (2003). *Case study research: Design and methods* (3rd ed.). Thousand Oaks, CA: Sage.
- Yin, R. (2014). *Case study research: Design and methods* (5th ed.). Los Angeles, Calif: SAGE.

Appendix

Appendix 1. Overview of interviews

Date	Role	Round 1	Round 2
20 March 2017	Byggeleder (a), Byggherre	x	x
20 March 2017	Prosjektleder, Entreprenør	x	x
20 March 2017	Kontraktssingeniør, Byggherre	x	
20 March 2017	Kontrollingeniør KS, Byggherre	x	
20 March 2017	Teknisk Byggeleder Tunnel, Byggherre	x	
21 March 2017	Produksjonsleder Betong , Entreprenør	x	x
21 March 2017	Produksjonsleder, Under Entreprenør	x	x
21 March 2017	Teknisk Byggeleder Konstruksjon, Byggherre	x	
21 March 2017	HMSK-leder, Entreprenør	x	
21 March 2017	Produksjonsleder Tunnel, Entreprenør	x	
21 March 2017	Stikningsingeniør, Entreprenør	x	
7 June 2017	Kontrollingeniør Veg/HMS, Byggherre	x	x
9 June 2017	Byggeleder (b), Byggherre		x
9 June 2017	Prosjektleder, Byggherre		x

Appendix 2. Overview of archival data

Name	Description
Document 1	Organizational Chart, Client
Document 2	Procurement document
Document 3	Presentation, Contractor
Document 4	Allocation document, Byggherre Execution document,
Document 5	Contractor
Document 6	CIP report, Client
Document 7	CIP report, Client CIP poster, Client &
Document 8	Contractor

Appendix 3. CIP-Poster

5 mål for prosjektet	<p>Vi skal unngå skader på mennesker, miljø og materiell</p> <p>Vi skal være åpen og ærlig om produksjon og økonomi, for å skape tillit og trygghet</p> <p>Vi skal levere et produkt vi er stolt av</p> <p>Vi skal ha gjensidig respekt for hverandres roller og oppgaver på prosjektet</p> <p>Vi skal ha et godt samarbeid og omdømme ovenfor nærmiljø og lokalbefolkning</p>
Vi kommuniserer bra når vi...	<p>Gir hverandre konstruktiv tilbakemelding</p> <p>Har gjensidig tillit til hverandre</p> <p>Forsikrer oss om at vi har felles forståelse</p> <p>Viser at vi bryr oss om hverandre</p> <p>Framsnakker hverandre</p>
Vi samarbeider bra ved...	<p>Å få til en god tone og felles forståelse av prosjektet på anlegget</p> <p>Å ha god møtekultur og god møtestruktur</p> <p>Å sikre god kommunikasjon og overholde/videreføre avtaler</p> <p>At vi utvikler gjensidig respekt og tillit</p> <p>Har gode saklige samtaler</p>
Vi leverer kvalitet når vi...	<p>Har riktig produkt til rett tid og riktig kostnad</p> <p>Gjør jobben rett første gang</p> <p>Når produktet er trygt og sikkert for fremtiden</p> <p>Setter av tid til planlegging og utførelse</p> <p>Dokumenterer utførelse og produkt</p> <p>Leverer riktig dokumentasjon til avtalt tid</p>
Vi holder fremdrift ved at vi...	<p>Har ferdig prosjektert i god tid før aktivitet/oppstart</p> <p>Har gode planer på alle nivå, samsvar mellom ukeplaner og hovedframdriftsplan – slakk i planen</p> <p>Bygger riktig ved første forsøk</p> <p>Har riktig kapasitet på maskiner og mannskap</p> <p>Har samarbeid og fleksibilitet mellom fag</p>
Vi har fokus på SHA/YM ved at vi...	<p>Jobber sikkert eller ikke i det hele tatt - tørr å si i fra</p> <p>Unngår uønskede hendelser ved alltid å planlegge risikovurderende tiltak</p> <p>Skal aldri si «skal bare» eller ta snarveier</p> <p>Tar ansvar for egne og andres sikkerhet ved å være gode forbilder for hverandre – ikke gå forbi</p> <p>Prøver å forbedre eksisterende grunnlag og retningslinjer</p>
Vi forhindrer konflikter ved at vi...	<p>Har god kunnskap om kontraktsgrunnlag, planer og tegninger</p> <p>Er i forkant med planlegging</p> <p>Lytter til partenes synspunkter</p> <p>Tar opp saker/endringer tidlig</p> <p>Aksepterer avtalte endringer</p>

Appendix 4. Interview guide – round 1

I denne intervjujurunden er det viktig å avdekke hvilke holdninger deltakerne hadde innledningsvis + hva har man gjort / hva situasjonen er nå? Få et godt grep om samhandlings-forholdene nå.

Introduksjon:

- Kort om oss og formålet med studiet
- Informert samtykke/ konfidensialitet
- Be om tillatelse til opptak
- Introduksjon av informanten
 - Kan du fortelle litt om deg selv og jobben din?
 - Hvor lenge har du jobbet her?
 - Hva er din stilling/ditt ansvar nå, og hva er din rolle i prosjektet?
 - Har du jobbet med noen av de andre på dette prosjektet før?
 - (UE, byggherre, rådgivere etc.)

Innledningsspørsmål: Kartlegge holdning

- Hva tenkte du når du begynte på dette prosjektet med disse aktørene?
- Hvordan tenkte du at dette skulle bli?
- Visste du hva samhandling var eller var det nytt for deg?
- Er det noe man kunne forbedret seg? Er det noen det skurrer mellom? Hvordan påvirker dette? på

Om samhandlingsprosessen: Kan du fortelle om hvordan du opplevde samhandlingen på dette prosjektet?

- Har du vært med på en samhandlingsprosess før? Var dette annerledes?
- Kan du fortelle om samhandlingsprosessen i dette prosjektet?
 - Hvordan ble samhandlingen gjennomført (slik du husker)?
 - Ble du invitert til å gi innspill til agenda/program?
- Har du noen tanker rundt samhandlingen og i hvilken grad man unngår konflikter ved å gjennomføre en slik samhandling?
- Hva tror/mener du er nytten med samhandling? Tror du det kan bidra til å unngå konflikter / skape bedre samarbeid?
- Hva er viktig for deg for å kunne samarbeide godt med andre på et byggeprosjekt?
 - Evt. oppfølgingsspørsmål: Er det noe av dette du mangler/savner på dette prosjektet?

Om samhandlingen i vegprosjektet Bagn-Bjørge:

- Det dere diskuterte i samhandlingen, har dere brukt/reflektert over dette i etterkant?
- Kan du fortelle om hvordan du samarbeider med de andre på dette prosjektet?
 - Hvordan gjør dere det når dere kommuniserer etc?
 - Blir det tilrettelagt?
- Til vegvesenet: Dere har brakker på forskjellige steder, hvorfor tror du det er slik?
 - Kunne det vært lettere å snakke sammen oftere om dere hadde brakker på samme sted?
- Til vegvesenet: I dette prosjektet, er det et stort behov for å følge opp entreprenøren tett? Gjør entreprenøren det de har lovet at de skal gjøre uten at dere må mase?
- Er det noen du synes du samarbeider bedre med enn andre? Er det noen du helst/heller ringer til en andre?
 - Tror du det hadde funket like bra om det var en annen person?

Appendix 5. Interview guide – round 2

Introduksjon

1. Hvordan opplevde du resultatene?
 - a. Var de overraskende, eller var det forventet?
 - b. Har du tenkt til å gjøre noe med det? Ta noen form for action?
 - c. Hva slags innsikt har RC undersøkelsen gitt deg?
2. Har fokuset på samhandling og koordinering som denne har gitt hatt noen påvirkning på hvordan dere samarbeider?

Ledelse

1. Ledelse ser ut til å være godt koordinert, tror du dette gjør at det blir lettere å løse problemer? Kan det ha en smitteeffekt?
2. Kan du beskrive hva du mener er god /dårlig ledelse?
Eksempler/erfaringer fra tidligere prosjekter?
3. Hva slags rolle spiller ledelse på slike prosjekter? Komme med konkrete eksempler som de selv har opplevd

Om resultatene fra kartleggingen:

4. Hva tenker du om de dimensjonene som kom ut som forbedringsområder?
 - a. Kommunikasjon i rett tid
 - b. Delt kunnskap
 - c. Presis kommunikasjon
 - d. Problemløsende kommunikasjon
5. Hvorfor tror du dere skårer lavere på disse punktene?

Til ledelsen

1. Er det noen ting du som leder tenker det er spesielt viktig å ta tak i?
Hvordan vil du gjøre dette?
2. Beskrive hva de tenker er god og dårlig ledelse? erfaringer fra tidligere prosjekter?
3. Hva slags rolle spiller ledelse på slike prosjekter? Komme med konkrete eksempler som de selv har opplevd

Til lederen

1. Hvordan jobber du med ledelse?
 - a. Gjør en sammenligning mellom dette og andre prosjekter - hva tror du er forskjellen?
 - b. Kan du si noe om samhandlingen her, hva er det du tror gjør at ting fungerer bra i dette prosjektet?

Appendix 6



RCS: Kartlegging

Organisasjonens Navn:

Hei!

Takk for at du tar deg tid til å besvare denne kartleggingen. Gi dine svar basert på at du er med i Grunnarbeid. Når det gjelder spørsmål om kommunikasjon kan du ta i betraktning all form for kommunikasjon, møter (ansikt-til-ansikt, videomøter), telefonsamtaler, mail, etc.

Det tar maks 20 min å besvare kartleggingen. Dine svar vil bli behandlet konfidensielt.

Vi ber om at du besvarer kartleggingen innen May 2, 2017.

Hyppig kommunikasjon

Hvor **hyppig** kommuniserer personene i hver av disse gruppene med deg om **brubygging**?

Når du svarer på dette spørsmålet, inkluderer alle typer for kommunikasjon som møter, videomøter, telefonsamtaler, mail, etc.

Velg *Ikke relevant* som svaralternativ hvis det ikke er nødvendig for deg (i din rolle) å ha samhandling med gruppen/personen som er listet opp.

	Ikke på langt nær nok	Ikke nok	Tilstrekkelig	For ofte	Alt for ofte	Ikke relevant
Grunnarbeid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kontroll	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ledelse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Planlegging og kontroll	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Planlegging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spuntekasse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Kommunikasjon i rett tid

Kommuniserer de med deg **til rett tid** om **brubygging**?

Når du svarer på dette spørsmålet, inkluderer alle typer for kommunikasjon som møter, videomøter, telefonsamtaler, mail, etc.

Velg *Ikke relevant* som svaralternativ hvis det ikke er nødvendig for deg (i din rolle) å ha samhandling med gruppen/personen som er listet opp.

	Aldri	Sjelden	Noen ganger	Ofte	Alltid	Ikke relevant
Grunnarbeid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kontroll	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ledelse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Planlegging og kontroll	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Planlegging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spuntekasse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Presis kommunikasjon

Kommuniserer de med deg **presist nok** om **brubygging**?

Når du svarer på dette spørsmålet, inkluderer alle typer for kommunikasjon som møter, videomøter, telefonsamtaler, mail, etc.

Velg *Ikke relevant* som svaralternativ hvis det ikke er nødvendig for deg (i din rolle) å ha samhandling med gruppen/personen som er listet opp.

	Aldri	Sjelden	Noen ganger	Ofte	Alltid	Ikke relevant
Grunnarbeid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kontroll	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ledelse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Planlegging og kontroll	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Planlegging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spuntekasse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Problemløsende kommunikasjon

Når det oppstår et problem i **brubygging**, skylder personene i hver av disse gruppene på andre/hverandre eller samarbeider de med deg for å **løse** problemet?

Velg *Ikke relevant* som svaralternativ hvis det ikke er nødvendig for deg (i din rolle) å ha samhandling med gruppen/personen som er listet opp.

	Skylder Alltid på andre/hverandre	Skylder ofte på andre/hverandre	Verken skylder på andre/hverandre eller er løsningsfokusert	Ofte løsningsfokusert	Altid løsningsfokusert	Ikke relevant
Grunnarbeid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kontroll	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ledelse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Planlegging og kontroll	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Planlegging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spuntekasse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Felles mål

Er det slik at personene i hver av disse gruppene **deler samme mål som deg** for **brubygging**?

Velg *Ikke relevant* som svaralternativ hvis det ikke er nødvendig for deg (i din rolle) å ha samhandling med gruppen/personen som er listet opp.

	Ikke i det hele tatt	I liten grad	Delvis	I stor grad	I svært stor grad	Ikke relevant
Grunnarbeid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kontroll	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ledelse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Planlegging og kontroll	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Planlegging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spuntekasse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Delt kunnskap

Har personene i hver av disse gruppene **kunnskap** om arbeidet du gjør med **brubygging**?

Velg *Ikke relevant* som svaralternativ hvis det ikke er nødvendig for deg (i din rolle) å ha samhandling med gruppen/personen som er listet opp.

	Ikke i det hele tatt	I liten grad	Delvis	I stor grad	Fullstendig	Ikke relevant
Grunnarbeid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kontroll	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ledelse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Planlegging og kontrol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Planlegging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spuntekasse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Gjensidig respekt

Har personene i hver av disse gruppene **respekt** for arbeidet du gjør med **brubygging**?

Velg *Ikke relevant* som svaralternativ hvis det ikke er nødvendig for deg (i din rolle) å ha samhandling med gruppen/personen som er listet opp.

	Ikke i det hele tatt	I liten grad	Delvis	I stor grad	I svært stor grad	Ikke relevant
Grunnarbeid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kontroll	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ledelse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Planlegging og kontroll	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Planlegging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spuntekasse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Demografi: Alder

Hva er din alder?

- 18-24 år
- 25-34 år
- 35-44 år
- 45-54 år
- 55-64 år
- 56-74 år
- 75 år eller eldre

Demografi: Antall år i organisasjonen

Hvor lenge har du jobbet i din organisasjon?

- Mindre enn 1 år
- 1 år
- 2 år
- 3 år
- 4 år
- 5 år
- 6 år
- 7 år
- 8 år
- 9 år
- 10 år
- 11-15 år
- 16-20 år
- Mer enn 20 år

Demografi: Antall år i bransjen

Hvor lenge har du jobbet i bygg- og anleggsbransjen?

- Mindre enn 1 år
 - 1 år
 - 2 år
 - 3 år
 - 4 år
 - 5 år
 - 6 år
 - 7 år
 - 8 år
 - 9 år
 - 10 år
 - 11-15 år
 - 16-20 år
 - Mer enn 20 år
-

Demografi: Erfaring fra andre organisasjoner i bygg- og anleggsbransjen

Har du jobbet i andre typer organisasjoner i bygg- og anleggsbransjen enn den du jobber nå?

- Ja, har jobbet på entreprenørsiden
 - Ja, har jobbet på byggherresiden
 - Nei, har kun jobbet i entreprenørorganisasjoner
 - Nei, har kun jobbet i byggherreorganisasjoner
-