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Governance of Construction Project Networks

A case study of construction projects with a manufacturing company as client

Master's thesis in Design and Construction Project Management

JAKOB HALLGREN
DANIEL HERTZMAN

DEPARTMENT OF TECHNOLOGY MANAGEMENT AND ECONOMICS
DIVISION OF SERVICE MANAGEMENT AND LOGISTICS

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Department of Technology Management and Economics
Chalmers University of Technology
SE-412 96 Göteborg
Sweden
Telephone + 46 (0)31-772 1000

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SUMMARY
The construction industry is known for working in projects consisting of many actors specialized within different areas. However, these actors are dependent on and affected by each other within the project network, and project network governance is therefore an important aspect in the execution of projects. The client has a key role in governing this network, establishing structures that the other actors should adapt to. Due to the client´s importance in construction projects, their knowledge and experience have a major impact on the outcome of projects and how the other actors distribute their time performing different activities. Even though it is not uncommon that construction projects are governed by clients from another industry and therefore lack knowledge and experience of the construction industry, research of such projects is lacking. Therefore, finding literature investigating how such projects are organized, governed, and executed is challenging. Further, literature on how entire networks are governed, how governance is applied, and how it affects the organizational work in the projects is also lacking. Bearing this in mind, this master thesis aims to *increase knowledge about how project network governance is applied and influences project execution in construction projects governed by clients from other industries than construction.* To do so, a case study was done investigating three of the observed organization's key projects using a qualitative research approach. 11 deep interviews with respondents who have a leading role representing key actors within the projects was conducted, complemented by 5 observations in one of the projects. The study outlines that the observed organization applies a systemic approach but practices strict control and is heavily involved in decision making, which requires a lot of time and hinders progress since the studied organization lacks knowledge related to construction projects. Therefore, knowledge needs to be sourced from external actors. Both decision mandate and overall role descriptions are unclear to many actors within the project network. Further, all investigated actors in the projects spend time on activities related to coordination, communication, and information sharing, especially related to decision making. By highlighting the importance for organizations to be aware of the construction process and the effects of applied governance practices, even though it is not the main business area, the construction process can be more effective, leading to economical, timely and other resourceful gains, not least as construction projects usually are related to big investments.

Keywords: governance, project network, client, construction project, knowledge

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Jakob Hallgren
Gothenburg
2022-06-02

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Daniel Hertzman
Gothenburg
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Definition of actors and terms in this report

Focal organization – The company on which the case study in this report is performed. Manufacturing company consisting of different entities and different business areas. In this report, **end user** and **client** are the entities that are of interest.

End user – A division/entity of the focal organization responsible for one of the focal organization's main business areas. In this study, they are the parties for which the facilities are being built. Since the end user is the one who orders the facility to be built, they have the most formal authority and are the ones whose requests needs to be fulfilled, but do not take on the traditional tasks and activities for a client/buyer of a facility

Client – A division/entity of the focal organization acting like a support function for the main business areas. Responsible for managing and constructing real estate possessed by the focal organization. Acts on the interests of the end user and takes on the tasks and activities traditionally related to the client. Does however need to take end users interest in regard and cannot make decisive decisions by itself.

Contractor – Company carrying out the construction process and related activities.

Consultant – actor (individual) who in this case works for the focal organization. Hired to get specialized competencies and extra resources required by the focal organization.

Side entrepreneur – Actors who carry out construction related activities at site but are not hired by the contractor. Works parallelly with the contractor and sub-contractors.

Communication – the lowest level of interaction defined in this report. Casual, everyday talks related to the daily operations between actors that does not necessarily nor intentionally contains any valuable information nor requires any actions. Could however potentially give insights and important exchange of information, without this being the reason for interaction.

Information sharing - the medium level of interaction defined in this report. One actor reports to, or in any way informs, another actor with the intention to share information about daily operations, important insights, emerged problems or any type of activity that could be of interest for the recipient, including reporting from an actor to its superior.

Coordination - the highest level of interaction defined in this report. Actors are called for a structured, pre-defined meeting or some other type of forum with the intention to exchange information that could be of interest for other parties, synchronize which tasks that are to be carried out by who and when etc.

Program – portfolio of different, individual but interdependent projects that are connected with the same facility.

1 Introduction

The construction industry is known for applying a temporary project-based way of working in order to handle each unique project in terms of what is being constructed, requirements from clients, preconditions, and different environments (Gluch, 2009; Sousa, Almeida, & Dias, 2014; Lu & Wong, 2007). Due to the increase of globalization the market is getting more competitive, companies have gotten more specialized, and know-how is more widely distributed, thus leading to an increased interest in collaboration between companies (Graça & Camarinha-Matos, 2017; Pulkka, Ristimäki, Rajakallio, & Junnila, 2016). Further, the projects are interorganizational since actors from multiple firms cooperate in order to deliver the projects (Winch, 1998). The construction industry is closely related to all three dimensions of sustainability, e.g., social, economic, and environmental (Durdyev, Kazimieras Zavadskas, Thurnell, Banaitis, & Ihtiyar, 2018). Lately the focus on sustainability, not least the environmental dimension, has increased in the construction industry resulting in additional requirements on processes, materials, measurement, and documentation (Marjaba & Chidiac, 2016). This could be argued as contributing to increasing the project complexity even more.

Construction projects are developing over time and are carried out throughout different phases (Gluch, 2009; Sousa et al., 2014). The phases are fragmentated and many different actors are temporarily involved in order to solve specific project tasks (Ingemansson Havenvid, Hulthén, Linné, & Sundquist, 2016). This, combined with the number of activities, actors, and resources that need to be coordinated at a specific place at a specific time, make construction projects complex (Landin, 2000; Fredericks, Abudayyeh, Choi, Wiersma, & Charles, 2005). All actors are needed in order to reach a successful project since the actors are interdependent and, in this sense, they are connected. A project and its actors can therefore be viewed as a project network. In this sense, project network governance has a critical role in the network´s and project´s effectiveness (Provan

& Kenis, 2007). Since the complexity of projects is increasing (Gorod, Hallo, & Nguyen, 2018) the way a project network is governed may have an even bigger impact on the project efficiency and delivery, and therefore, is becoming even more important.

When considering governance, the client is an important actor within the network and its actions have a major impact on the project outcomes. Moreover, the client is the actor setting the mechanisms and structures for the project governance, which are some of the most important aspects for a successful project (Manley & Chen, 2015; Kometa, Olomolaiye, & Harris, 1994) Therefore, it becomes important that the client understand the other actors in the project network, their processes, activities, and time distribution. Although the client is a very important actor within the network, research has stated that clients often lack experience, management skills and knowledge, which harms the development and negatively impacts the outcome of the project (Kometa et al., 1994; Levander, Engström, Sardén, & Stehn, 2011; Manley & Chen, 2015). This might be especially relevant if the client is not a professional construction client, but operates in another industry than construction. Further, lack in knowledge and experience related to construction may cause problems for the organization to understand and see connections between its decisions and governance practices and how network actors need to distribute their time on different activities.

Even though it is not an uncommon situation that construction projects are governed by clients that are lacking knowledge or experience of the construction industry, research of such projects is lacking and finding literature investigating how such projects are organized, governed, and executed is challenging. In addition, Provan and Kenis (2007) describe that there is a lack in literature looking into multiorganizational structures, i.e., whole networks, and governance of these, since the literature is focusing either on governance within a certain organization or a specific aspect of the network. Further, existing literature is mainly focusing on governance types, dimensions of governance, and how governance could be applied in networks rather than how governance is affecting

the operational work. See for instance Kujala, Aaltonen, Gotcheva, and Lahdenper (2021) or DeFillippi and Sydow (2016). It would therefore be of interest to investigate projects governed by a client unexperienced of the construction industry. Further, it would be relevant to investigate how the governance of the project network affects efficiency, in terms of activities performed by actors within the project network and how they distribute their time conducting these activities.

1.1 Aim

The aim of this study is to increase knowledge about how project network governance is applied and influences project execution in construction projects governed by clients from other industries than construction.

1.2 Research questions

How does the project network governance influence project execution?

- What does the current project network governance look like?
- How does the client's competence affect project execution?
- How is governance potentially related to the time spent on activities by the project network actors?

To answer these questions, this study will research projects ordered, initiated, and governed by a focal organization operating in the manufacturing industry. The client, as a group function of the focal organization, is supporting the business areas of the focal organization when ordering construction projects of new facilities and is responsible of the maintenance of existing facilities. In each construction project, the end user decides how they want the facility, and has

responsibility for the financial aspects and overall project governance. However, the manufacturing industry is differentiating from the construction industry. Since the focal organization is used to, has in-depth knowledge in, and extensive understanding of another industry, support from other actors is required to possess necessary knowledge to manage the project (Kometa et al., 1994; Ingemansson Havenvid et al., 2016).

1.3 Limitations

In this report the scope is primarily on time spent for key actors carrying out the project due to project governance. It does not consider the economical or quality aspects of delivering a project, only time. Also, governance is a broad term, so this report is limited to the aspects of monitoring, coordination, and roles and decision making. In the projects, there are many more roles and individuals involved than has been mentioned in this study. Only roles with a leading position for key actors connected to the focal organization and people in the focal organization have been subject to research.

2 Theoretical framework

The following chapter presents relevant theory and theoretical models and is divided into three sections. The first section relates to network, the second relates different types of governance, and the last relates to the client´s role in project governance.

2.1 Network

2.1.1 Construction project networks

While reviewing the construction industry, the networks are huge since multiple highly specialized actors with different competencies, carrying out different activities are involved in each project (Pulkka et al., 2016). An exception is the client, that is more of a generalist, for which the level of specialization can vary between different projects. However, experienced clients with higher standards have a positive impact on the performance of the network. Even though a high level of specialization make the actors experts within their area, it entails some complications. For instance, it may lead to fragmentation and a lack of cooperation, due to the difference in tasks conducted by the actors. However, one way to achieve the positive effects from the input of different actors is through standardization (Kadefors, 1995), since this makes it easier to fit each specific actor's processes together.

How members within a network can be controlled and influenced also varies. Depending on the network´s characteristics, networks can be either permanent or temporary. For permanent networks, control is more often based on informal relations, while it is more commonly transactional in temporary networks (Dubois & Gadde, 2000; Bresnen & Marshall, 2000). To relate this to the construction

industry, a construction project has been described as “a specific temporary network within the permanent network.” (Dubois & Gadde, 2000, s. 212).

One issue of the relationships within a project setup is that as the project has an end, the relationship between actors is often disrupted (Havila & Salmi, 2009). However, research has shown that this does not necessarily mean that the relationship is definitely over. After a project ends, the interorganizational relationships can enter one of the three following stages: Terminated business relationship, dormant business relationship, and recurring business relationship (Bengtsson, Havila, & Åberg, 2018). Since actors who have worked together in the past might keep in contact in other settings, the relationship is still there but in an inactive phase, and in some cases the actors might still work together but in a different project. Some advantages with this are that it is generally cheaper to reactivate a dormant relationship than to establish a new one, and the participants can among each other develop knowledge of who is good at what (Tähtinen & Vaaland, 2006; Schwab & Miner, 2008).

2.1.2 Network theory

Yusuf, Adams, and Dingley (2016) describe social relations within networks as dependent on other aspects. Therefore, it is not possible to separate social aspects and technical aspects into different networks. Instead, all networks are heterogeneous since they consist of, and are formed by, both types of aspects (Hanseth, Aanestad, & Berg, 2004; Dwiartama & Rosin, 2014; Law & Callon, 1988). This means that all types of elements, i.e., humans, organizations, and technology are included in a network (Yusuf et al., 2016; Hanseth et al., 2004; Dwiartama & Rosin, 2014). The allocation of the aspects, as well as the links between them, is different in each network, thus each network is unique (Hanseth et al., 2004).

Even though networks can´t be divided into social and technical networks, Law and Callon (1988) present different types of networks called global and local

networks which both are interdependent. The global network can be seen as the relations outside the project that enables the project to take place by providing its context and resources (Heeks & Stanforth, 2014). Further, the local network consists of both social and technical aspects and can be understood as the relations inside the project, necessary for the execution of a successful project (Law & Callon, 1988; Heeks & Stanforth, 2014). According to Law and Callon (1988) the global network should to some extent give actors within the local network autonomy, called negotiation space, in order to let them work undisturbed and efficiently. However, this given space is closely related to performance and is not guaranteed for more than shorter time periods at the time. On the other hand, the global network is expecting specific returns on their investments (Law & Callon, 1988). The relation between the networks and the negotiation space is shown in Figure 1.

Via flows of information and resources the two networks are connected. The global network´s requirements of returns are provided from the local to the global network and in turn, the global network provides resources (Heeks & Stanforth, 2014). Further, a small number of intersections between the two networks, mainly through the project management, is desirable to avoid misunderstandings and ineffectiveness. However, accomplishing this in complex organizations and projects is challenging and actors are easily jointly developing ideas without involving and informing the other actors (Law & Callon, 1988). In turn, this undermines both development of local networks and the negotiation space since it creates skepticism within the global networks.

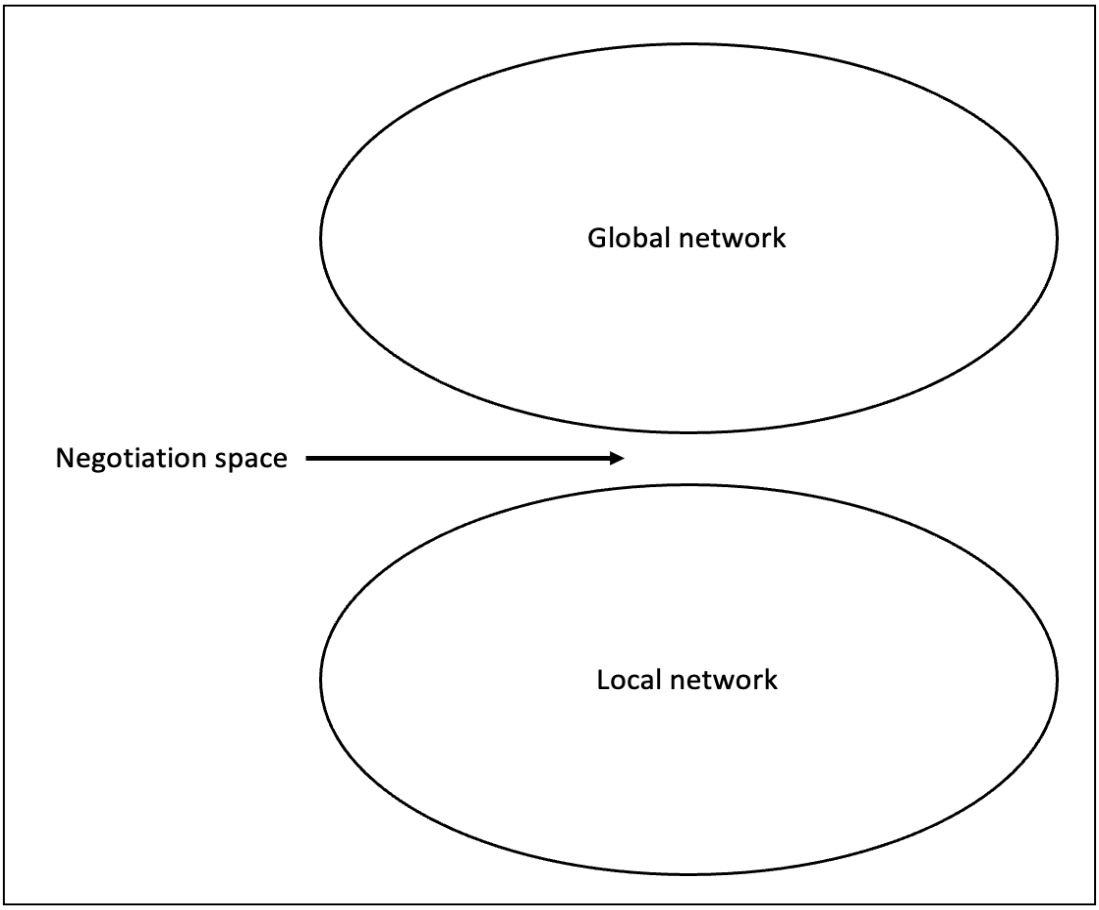

Figure 1: Relation between global network, local network, and negotiation space (authors´ own figure).

2.2 Governance

Governance is a wide concept, and the literature suggests different definitions, aims, and interpretations for the concept (Kujala et al., 2021). For instance, governance can be divided into contractual and relational governance which in turn relates to what is explicitly stated in the contract contra what values and processes that are established in interactions and through relations (Kujala et al., 2021). Provan and Kenis (2007) on the other hand describe two other types of network governance in terms of participant governed networks and lead organizational governed networks. These represent two extremes, either the network is jointly governed by all involved actors and all organizations are

interacting with each other, or the network is governed by a single or a few organizations (Provan & Kenis, 2007). However, according to Kujala et al., (2021), it is not always clear what type of governance applied in the practices that are used in real and complex projects. Provan and Kenis (2007) describe that actors involved in the network seldom have formal responsibility of contributing to the general targets of the project. Similarly, their adaption to standardized rules and processes to some extents are voluntarily. Therefore, Provan and Kenis (2007) describes that a network needs to be able to manage without support from hierarchies and ownership. This view is contrasting to Fama and Jensen (1983) who describe that traditionally governance has been a tool used by boards and directors in order to satisfy the interests of the shareholders. Through this view the essence of governance is to monitor and control the people leading the daily operations. Aligned with this understanding Gorod et. al. (2018) introduce the command-and-control approach.

2.2.1 Command-and-Control management approach

According to Bourne and Walker (2005) the approach is commonly applied. The approach itself is, according to Gorod et al., (2018), based on an understanding of organizations as stable, rational, and predictable entities. Decisions are made and activities are initiated on a high hierarchy level without involvement of subordinates and employees. Instead, the role of a subordinate is to execute and follow instructions and orders from their superiors and give reports of the status since they are the actors that finalizes the tasks. In turn, superiors' main tasks are to control the performance of their subordinates and make sure that targets are met (Gorod et al., 2018). In this sense, there are flows of demand and control down throughout the organization structure while information flows in the opposite direction (Lenfle & Loch, 2010). The demand-and-control approach and its flows are shown in Figure 2. Therefore, the command-and-control management approach is hierarchical in its nature which can be seen as beneficial for, and aligned to, activities such as controlling, monitoring, and to make sure targets are

met, which often is related to a common understanding of management (Gorod et al., 2018). According to Bourne and Walker (2005) such way of working brings clearness in terms of clear roles, responsibilities, and requirements.

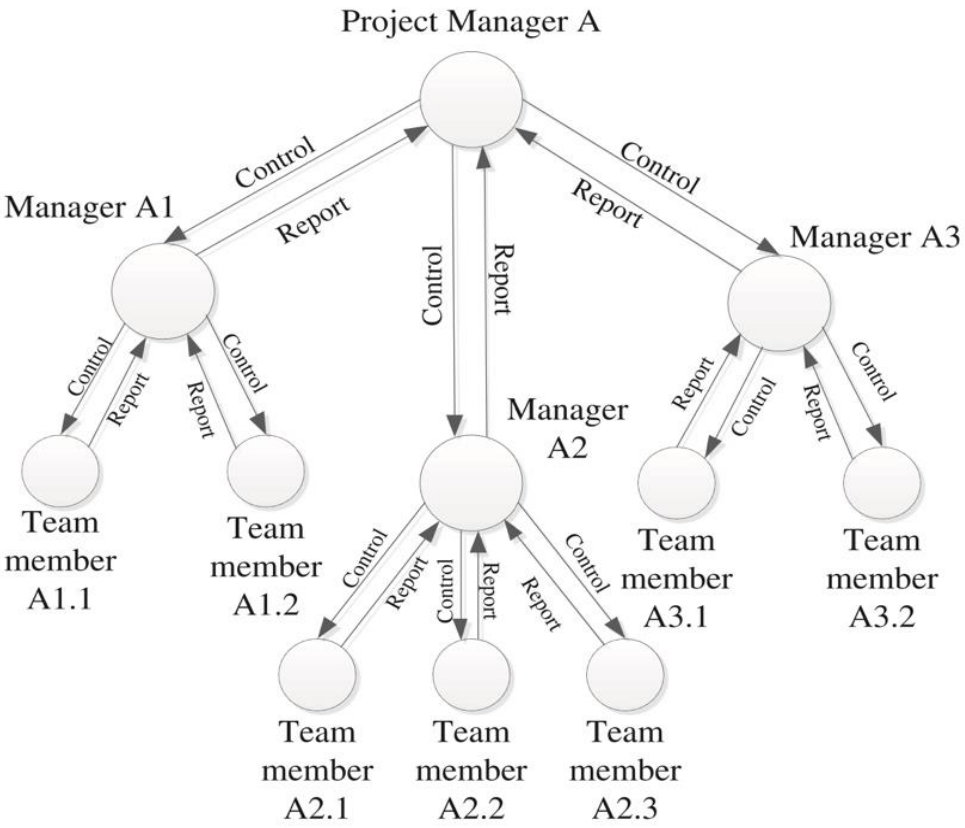

Figure 2. The Command-and-Control Management approach (Gorod et. al., 2018, p.815)

Pulkka et. al. (2016) and Liu, Fellows & Fang (2003) describe that for the governance system, the most common situation is that the main client has the formal authority. Kujala et al., (2021) state that usually there are one or a few focal actors in a project, e.g., client or main contractor, who have more power and possibility to affect the process in terms of formal governance commonly stated in the contract. However, contracts and formalities do not show the whole picture of the power and relationships between the actors (Pulkka et al., 2016; Liu et al., 2003). An example of this, given by Liu et. al (2003), is expert knowledge. This can be interpreted as a legitimate reason for informal authority. Within the network, targets are mainly set by the client and if there is a powerful central organization,

it has the chance to put its own view upon the other actors (Briscoe, Dainty, Millett, & Neale, 2004). However, all involved actors are contributing and affecting the outcome of the project (Kujala et al., 2021) and should therefore be taken into consideration and be included in order to increase likelihood for a successful project (Clegg, Pitsis, Rula-Polley, & Mrosszeky, 2002).

Moreover, it is not only between the actors that governance and authority are issues. Even within one or more of the individual actors that are part of the network, there can be conflicts due to varying demands and ambitions since all actors have their own individual goals related to the project (Cherns & Bryant, 1984; Kujala et al., 2021). Further, actors involved in the project are changing throughout the project´s different phases (Kujala et al., 2021). Therefore, it is hard for a single organization to have total control of, and manage, an entire network (Kujala et al., 2021). Handling these challenges via having all involved actors working towards a common goal is the essence of network governance (Kujala et al., 2021; Turner & Simister, 2001).

2.2.2 Network Governance approach

By putting together multiple articles Gorod et. al. (2018) describe that the traditional use of governance as a tool used to meet financial targets and make sure that shareholders remain pleased, has changed and been extended. Nowadays governance also involves stewardship and leadership (Gorod et al., 2018), also known as relational governance (Ferguson, Paulin, & Bergeron, 2005). For instance, Robichau (2011) describes that the ability to influence networks is an important element within governance. In this context, Gorod et. al. (2018) introduce the Network Governance approach. This approach differentiates from the Command-and-Control approach in a bunch of aspects where the superior's lack of direct control of each actor is the most distinguishing. Instead, the governing body, i.e., leading organization, project manager, or focal actor(s) (Kujala et al., 2021), influence the environment for the network via establishing

guidelines, policies, and regulations (Gorod et al., 2018). In turn, this has an indirect influence on the project leader for each team and further each team member in the network. However, the Command-and-Control approach may still be used within the teams. Applying this approach enables involved teams to cooperate, coordinate, and share information among themselves on their own since they are all on the same hierarchical level (Gorod et al., 2018). Moreover, both project managers and involved teams, can contribute and affect how a project is executed by contributing with ideas and feedback which enables efficiency and flexibility in the project. In addition, network and governance processes are affected by external factors, e.g., external environment, technology, regulations, economic crises, constraint factors, e.g., limited accessible resources related to workforce, knowledge, and experience (Gorod, White, Ireland, Gandhi, & Sauser, 2014). The Network Governance approach in its entirety is shown in Figure 3. However, even though the approach has many strengths, Gorod et. al. (2018) point out that the involvement and flexibility make it challenging for the project manager to monitor and control the project. In addition, Jemielniak (2016) addresses that a flat organization where all actors have the possibility to influence decisions may contribute to more complex and ineffective decision-making processes. This would especially be the case if involved actors have differentiating understandings, personal values, and cultures.

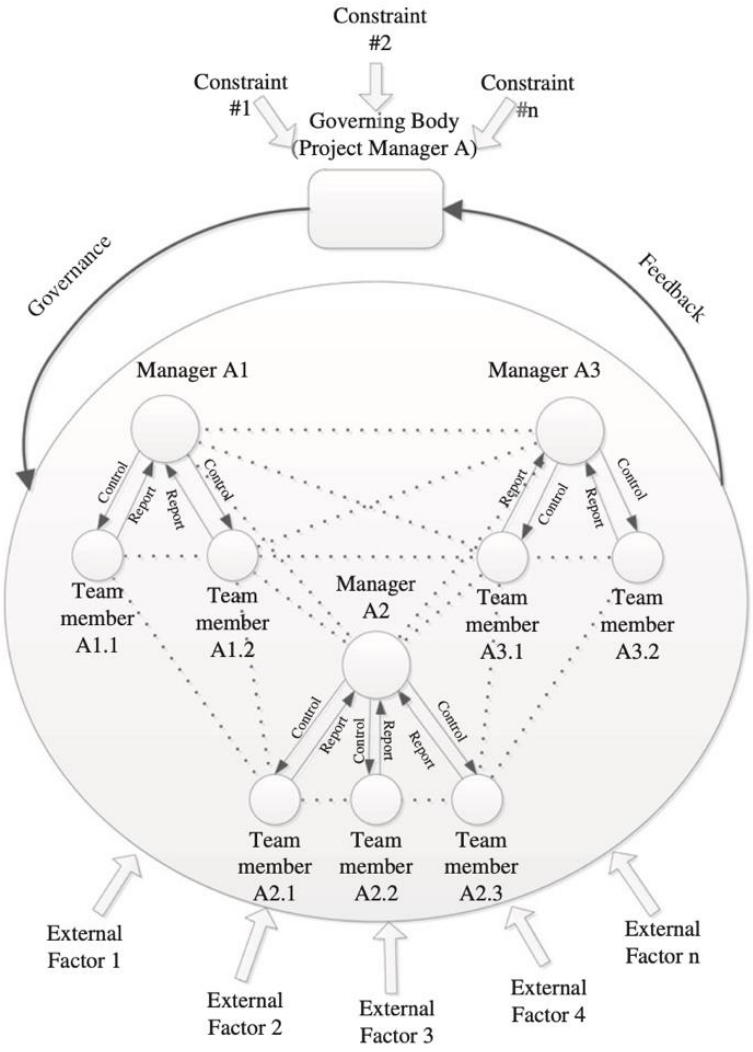

Figure 3: The Network Governance approach (G*orod et. al*., 2018, p.817)

2.2.3 Systemic approach

It is hard to apply one of the two approaches mentioned above in its pure essence in real projects (Ireland, Gorod, White, Gandhi, & Sauser, 2013). One can imagine these as two extremes. To be able to handle adjustments for the real settings, such as the environment and specific circumstances, Gorod et al., (2018) present what they call the systemic approach. The approach is a combination of the Command-and-Control approach and the Network Governance approach and composes the benefits from the two approaches, i.e., flexibility and control. When applying the

Systemic approach, the governing body, i.e., leading organization, can manage certain project managers on top level through use of command-and-control approach. Meanwhile, the governing body can influence actors down the hierarchy through governance and thereby affecting the environment and context as mentioned in the Network Governance. Governance is part of a feedback-loop starting with the actors within the network giving feedback in terms of information of how the project is proceeding to the governing body. The governing body then uses this information in decision making, which is then realized through governance (Gorod et al., 2018). The systemic approach and its flows are shown in Figure 4.

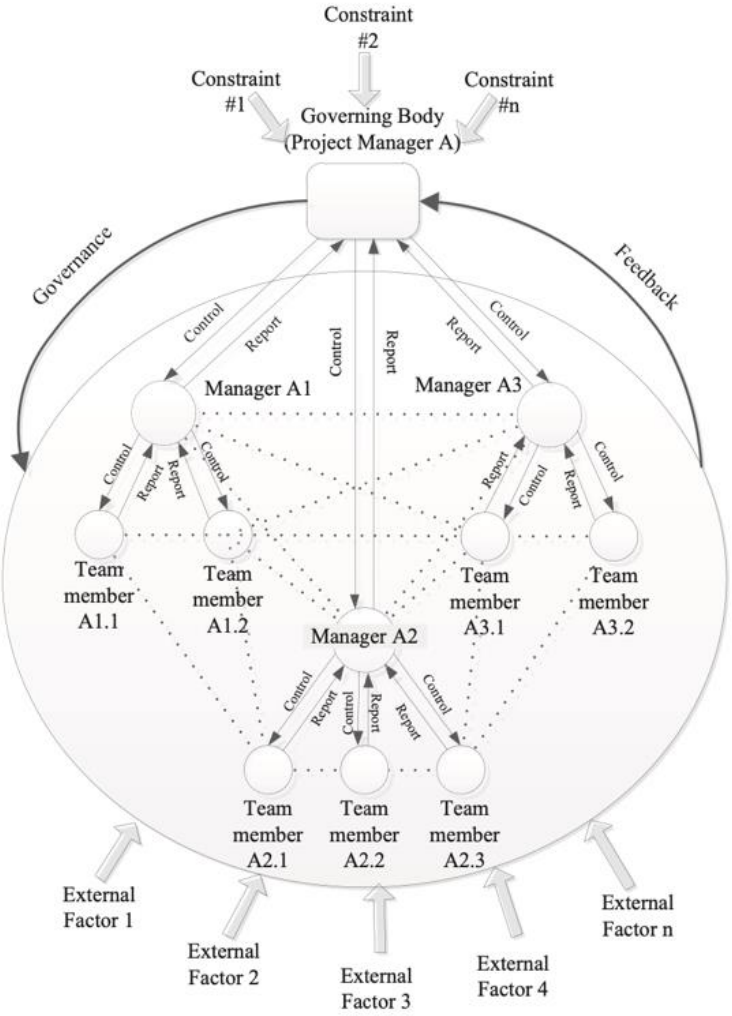

Figure 4: The Systemic approach. (Gorod et. al., 2018, p.820)

2.2.4 Dimensions of governance

Kujala et al., (2021) describe a complementary understanding of important aspects within governance. Through an extensive literature review of governance approaches, six important dimensions have been identified. Out of the six dimensions, *Monitoring*, *Coordination*, and *Roles and decision making* are of relevance in this study. Thomson and Perry (2006) highlight that administrative structures are an important part of a well-functioning governance which enables collaboration. Such structures involve clear working roles, areas of responsibility, areas of knowledge, and reachable goals. These aspects are also covered within, and aligned with, the three dimensions presented by Kujala et al., (2021).

Within monitoring, the most essential is to make sure processes are running correctly and required output are delivered. The monitoring- and follow up process should be based upon reachable and realistic goals and milestones. Within coordination, all approaches encircle to enable all actors to efficiently cooperate (Kujala et al., 2021). Whitin this, information sharing is an important aspect and is, according to Kujala et al., (2021), done in two ways. Either through formal approaches, such as contracts, processes, and tools, either through informal approaches, such as shared values and behaviors. Within the roles and decision making the most essential is to make sure actors have relevant and appropriate information to make a decision, but also its consequences, in order to enable good decisions. Decentralized decision making, where decision power is appropriately divided within the project team, is therefore desirable in order to reach effective governance (Kujala et al., 2021; Nisar, 2013; Eriksson, 2010). However, Thomson and Perry (2006) describe that it is challenging and complex to successfully implement these structures in practice since firm´s internal hierarchies, standardized processes, and routines creates problems, tensions, and distance between firms and actors when they are working externally in intraorganizational projects.

2.3 Client's role in construction project

Because of the construction industry´s distinguishing characteristics, industry relevant knowledge could be argued as fundamental in order to deliver construction projects of good results. However, Kometa et al., (1994) argue that it is common that clients lack management skills and experience. This could be critical since experience is a characteristic of the client that affects the project´s outcome the most (Manley & Chen, 2015). Further, the client plays an important role and the way it organizes and manages the project will have significant impact on the project´s outcome (Kometa et al., 1994; Ingemansson Havenvid et al., 2016).

In contrast to other industries, in which many clients usually are operating, the client´s direct involvement in the project and the client´s individual impact on the project is far more extensive in construction projects (Love, Mistry, & Davis, 2010; Nam & Tatum, 1997). For instance, the client selects the procurement method, which in turn affects how the work is organized, the work processes, scope, deliverables, and outcomes (Manley & Chen, 2015). Further, the client is an important actor within the project network and all other actors are adjusting their work to the client´s decisions (Ingemansson Havenvid et al., 2016). The client therefore plays a crucial role in order to create innovation and change among other actors in the projects (Ingemansson Havenvid et al., 2016), but also in the construction industry itself (Levander et al., 2011).

Moreover, uncertainty is embedded in the projects, (Landin, 2000; Fredericks et al., 2005). Therefore, the client needs to deal with a lot of uncertainty in their work, and since they have such a huge impact on the projects' outcomes it is important that they can handle this uncertainty in an appropriate way. However, Levander et al., (2011) describe that the uncertainty does not necessarily need to be related to lack of information, rather the client could be unaware of what information to request, similarly, how to interpret existing information in order to enable correct and efficient decision making. Moreover, Levander et al., (2011) imply that clients

harm development of projects due to lack of knowledge and lack of a frame of reference which they can use to interpret information. Levander´s et. al. (2011) case was related to new construction methods, i.e., industrial construction, however, it could be argued that a similar situation arises if a client lacks knowledge and experience of the construction industry and construction processes. Ingemansson Havenvid et al., (2016) identify differences between actors used to work as clients in construction projects compared to clients who are not. The most significant differences were that the clients more used to construction projects had a better ability to enable innovation, change, and successful projects.

3 Methodology

The following chapter presents the methodology applied in this study. The chapter is divided into five sections focusing on research approach, research design, how data have been collected, how data have been analyzed, and lastly on trustworthiness and ethics related to the study execution.

3.1 Research approach

Bryman (2018) and Kvale & Brinkmann (2017) describe that the research approach and the research methods are closely related to perceptions about how the social reality works, what knowledge is, and how it should be studied. In this study, we wanted to understand different people´s understandings, and how they experienced their profession and role in the project from their perspective. Further, how they together constructed the project network they were a part of. To answer such questions, an interpretivist research philosophy is suitable since it is focusing on interpreting and understanding people´s behavior and what factors affect it (Bryman, 2018). The reality within the projects, which this study is looking into, is constantly changing, and involved actors could understand it and experience it differently. In turn, this forms his or her actions, which in turn contribute to the development of the social reality. Therefore, a constructivist research philosophy was appropriate and applied in this study.

As earlier mentioned, understandings of knowledge and the social reality are basis on which the research approach and design is formulated (Bryman, 2018; Kvale & Brinkmann, 2017). Moreover, if the study aims to try existing theories or generate new ones, either by using a deductive or inductive research approach is affecting as well (Bryman, 2018). The two research approaches are not necessarily needed to be distinctly separated (Bryman, 2018). In this study parts associated with a deductive and parts associated with an inductive approach have been used. This

is according to Patel and Davidson (2011) called an abductive approach. During the study, theory and results alternately have been developed where the specific case has been basis for initial interviews and discussions. Further, gathered information has been basis for initial theory, which has been basis for empirical gatherings. In turn, gathered empirical material has been basis for new theory, which has been basis for further empirical gatherings. Similarly, an initial analysis has been basis for additions in the theory section. The process can be seen in Figure 5.

According to Bryman (2018), the underlying understandings of this study are commonly associated with a qualitative research approach. This approach aims to develop a deep understanding of the studied area according to Patel and Davidson (2011). Therefore, a qualitative research approach has been used in this study.

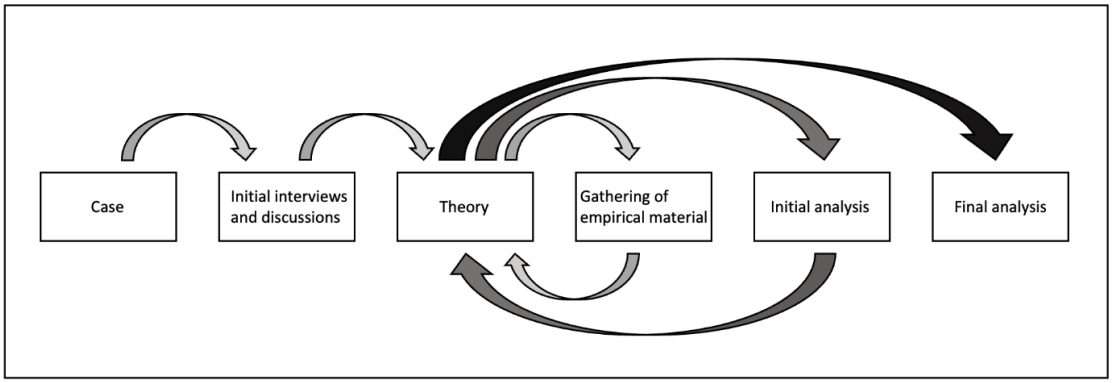

Figure 5: The research approach applied in study (authors´ own figure)

3.2 Research design

The following section presents why a case study design was chosen, how the cases were selected, and a briefly overview of the cases.

3.2.1 Case study

Our research questions aim to increase knowledge about how project network governance is applied and influences project execution in construction projects governed by clients from other industries than construction. Since we wanted to understand these complex processes and their interdependence, using case studies were a suitable research design according to Patel and Davidson (2011). Moreover, Bryman is describing case studies as differentiating from other research approaches since the researcher wants to investigate and illustrate distinctive characteristics and nature for a specific case. Using case studies gives the ability to investigate specific cases in depth through a holistic perspective (Patel & Davidson, 2011). Contrasting to Bryman (2018), who is describing case studies as a research design focusing on a single specific case, Patel and Davidson (2011) are describing that several case studies can be made on several organizations. In our case we did three case studies in three different projects, but with the same focal organization involved in all three.

Based on the reasoning above, we believe case studies were an appropriate research design to meet our intensions for the study. In addition, both qualitative and quantitative methods, as well as inductive and deductive approaches, can be used within case studies (Bryman, 2018), which made case studies suitable for our research approach as well.

3.2.2 Selection

Bryman (2018) is describing that levels of selection are extra important in qualitative studies, related to case studies of single case design, or multiple case design. In this study, selections have been made through two levels of selection, projects and respondents, which is a common structure and strategy in qualitative research according to Bryman (2018).

3.2.2.1 Projects

The projects were selected by target-steered selection, since the aim of the study and the research questions were basis for selection (Bryman, 2018). This to ensure that the projects could contribute with information relevant for the research. Bryman (2018) describes that such a selection process is carried out by setting selection criteria, which all analytical units have to meet, in order to make it possible to answer the research questions. Since the aim of the study is "to increase knowledge about how project network governance is applied and influences project execution in construction projects governed by clients from other industries than construction", we developed three selection criteria which all projects needed to meet to be selected for the case studies. The criteria were developed and set early in the study and did not change during the study. Likewise, the projects were selected and set early in the study and did not change during the study. The three selection criteria are shown below:

1. Since our study is focusing on the Swedish market the projects needed to be located and executed in Sweden.

2. Since involved actors mainly can contribute with information about the current situation in the project, due to the challenges in predicting the future and remembering the past, i.e., project memory, the project needed to be in different project phases or stages within a phase.

3. To make valid comparison of the projects possible, they all needed to be purchased on equal contract from.

3.2.3 Case description

The focal organization can be divided into 2 parts, end user and client. Internally, there is kind of an informal hierarchy. There is no contract between the end user and the client since they represent the same organization. The end user and the client are different entities so there is nothing internally saying that the end user has more formal power. However, they are the ones who are going to use the building and therefore need to have their needs fulfilled, while the client´s job is more to make sure that it is possible to build a building that fits the needs. The client's role is to support the end user by managing the construction project on behalf of the end user. In this study, three different projects have been investigated. A short overview of the projects is presented in Table 1.

Table 1: Overview of studied projects.

Project	**Project A**	**Project B**	**Project C**
Project´s location	Sweden	Sweden	Sweden
Contract form	Partnering	Partnering	Partnering
Type of project	Demolition and construction of new industrial facility	New industrial facility	New production facility for existing factory
Project duration time (investment decision – project handover to end user)	2-3 years	4-5 years	3-4 years
Current project stage	End of final development/construction documents	End of industrialization /execution phase	Beginning of industrialization /execution phase

3.3 Data collection

The following section presents how respondents for interviews and situations for observations were selected, how interview guideline was developed, and how interviews and observations were performed.

3.3.1 Respondents

The respondents in each project were selected via snowball method which according to Bryman (2018) means that a few people relevant for the research were selected. In turn, these people propose, recommend, and introduce other people with appropriate knowledge, experience, professions, or positions for the study. Firstly, contact was established with our supervisor at the focal organization. This person has experience from previous projects, knowledge of ongoing projects, and has a broad contact network within the focal organization and the projects. Our supervisor helped us reach out to people having key roles in each project, who in turn helped us to reach out to further people in the project relevant for our study related to our criteria. This way of selection was seen as appropriate since Coleman (1958) describes it as recommended when the study focuses on networks of individuals, which is the case in this study. The selected respondents needed to work in leading roles and cover different actors involved in the project, i.e., end user, client, and consultant, and contractor.

3.3.2 Interview

3.3.2.1 Interview guideline

According to Bryman (2018) interviews are the most common method within qualitative research. Moreover, the respondent´s own experiences and understandings are the most essential within qualitative research and it is therefore important to give the respondent possibility to describe what he or she thinks is important in an interview. Therefore, the interviewer needs to be flexible and able to adjust during the interview situation in order to get extended and detailed answers from the respondent (Bryman, 2018). However, an interview can be structured in different ways. In this study, a semi-structured interview template was developed which according to Bryman (2018) is suitable for research aiming to find answers on specific research questions, similarly, for research where different cases will be compared to each other. This was true for this study, in which both projects and professions were compared to each other.
The research questions were the basis for the guideline, two general themes, *working activities* and *governance*, were developed, and related to each theme suggestions of specific questions of opened character were developed in accordance with Bryman (2018) and Kvale and Brinkmann (2017). The interview questions were what Patel and Davidson (2011) describe as highly standardized and lowly structured. This means that the questions, and in which order they were asked, were similar in all interviews while the type of questions did not restrict the respondent´s answers. Moreover, the first questions were neutral and were focusing on background facts (Bryman, 2018; Patel & Davidson, 2011) and the interviews were ended with a question where the respondent had the possibility to add information and comments related to the questions or other that he or she thought was important (Patel & Davidson, 2011; Kvale & Brinkmann, 2017).

As an interviewer, you are dependent of the respondent´s willingness to answer the questions (Kvale & Brinkmann, 2017; Patel & Davidson, 2011). Therefore, the questions contribution to information and knowledge gaining as well as to flow in the conversation were considered. The questions were initially kept short and wide then complemented by suggestions of follow-up questions (Bryman, 2018; Kvale & Brinkmann, 2017). No leading questions were asked and why-questions were only asked as follow-up questions (Bryman, 2018; Kvale & Brinkmann, 2017; Patel & Davidson, 2011). In addition, the questions were formulated in daily and easy understandable language in order to avoid barriers and misunderstandings (Bryman, 2018; Kvale & Brinkmann, 2017).

Patel and Davidson (2011) describe that the interview questions should be tried via a pilot-study before they are used. Therefore, the questions were viewed by our supervisor at Chalmers in order to get an academical perspective and by our supervisor at the focal organization in order to get a practical perspective.

3.3.2.2 Interview situation

The interviews were made either on site or online during the period of March 22, 2022, and April 25, 2022. In total, interview requests were sent out to 14 actors involved in the project. 11 deep interviews were made with 11 respondents distributed over 1 interview round. The respondents were distributed over the three projects studied in this study. All on site interviews except one were made on the respondent´s workplace in order to ease the process for the respondent and make sure the interview was done in a familiar environment for the respondent. One on site interview was made at Chalmers on request of the respondent. Online interviews were made via Microsoft Teams, a medium all respondents were familiar with and used to use. Information about the interviews and respondents can be seen in Table 2.

Before the interviews, information about us as interviewers, the aim of the study, how the answers were going to be used, and confidentiality was given to the respondents. The information was provided in two steps, firstly via email, secondly in the beginning of the interview, in accordance with Patel and Davidson (2011). In the beginning of each interview, permission to record the conversation was also asked for. According to Patel and Davidson (2011) this type of information is important to increase the respondent´s attitude towards the study and willingness to answer the questions.

As the interviewer needs to be flexible and alert for interesting answers, decide what paths to go deeper into, which follow-up questions to ask, and relate answers throughout the interview to each other (Bryman, 2018) both the authors were present at all interviews, with two exceptions. One of the interviewers was focusing on driving the conversation related to the interview guideline while the other interviewer was focusing on listening carefully, adding follow-up questions, and taking notes. In this sense, the interviews became better, and the notes quickened the transcription process which otherwise is time consuming according to Bryman (2018).

Table 2: Information about respondents and interviews. A, B, and C stands for the different projects investigated in this study.

Respondent	**Role**	**Company**	**Interview type**	**Date**	**Duration**	**Interviewer**
Respondent A1	Resident engineer	Consultant for client	On site	March 22, 2022	90 min	Hallgren & Hertzman
Respondent A2	Project manager	Contractor	On site	March 22, 2022	65 min	Hallgren & Hertzman
Respondent A3	Project owner	End user	Online	March 31, 2022	60 min	Hallgren & Hertzman

Respondent A4	Project leader	Client	On site	March 31, 2022	60 min	Hallgren & Hertzman
Respondent A5	Site manager	Contractor	On site	April 25, 2022	50 min	Hallgren & Hertzman
Respondent B1	Project manager	Contractor	Online	March 24, 2022	55 min	Hallgren & Hertzman
Respondent B2	Project leader	Client	Online	March 24, 2022	45 min	Hallgren & Hertzman
Respondent B3	Assistant project leader	Consultant for client	Online	March 29, 2022	45 min	Hallgren & Hertzman
Respondent C1	Project leader (requirement specification production)	End user	Online	March 28, 2022	55 min	Hallgren & Hertzman
Respondent C2	Project Manager	End user	Online	March 28, 2022	65 min	Hertzman
Respondent C3	Assistant project leader	Consultant for Client	Online	March 30, 2022	45 min	Hallgren

3.3.3 Observation

Observations were made in order to complement the information gathered during the interviews, for which it is appropriate. Through the observations it was possible to gather information and knowledge related to behavior in specific

situations in real time (Patel & Davidson, 2011). Further, the observations were of unstructured character and information from the interviews were basis for in which situations and contexts observations were performed.

During the observations notes were taken in terms of key words which we reviewed together after finished observation. According to Patel and Davidson (2011) this is important in order to avoid loss of important information. During the observations we as observers were non-participating and our roles as researchers was known for involved actors. This avoided facing problems of changing the dynamics in the group by participating, challenges of taking notes, asking questions at unclarities, and ethical issues of using information gathered without knowledge approval from involved actors (Patel & Davidson, 2011). Bryman (2018) describes it can be problematic to get access to closed environments, such as companies, as known researcher, however, we did not experience this problem.

In total 5 observations were made, and information about them can be seen in Table 3. Observations were performed only in project A.

Table 3: Information about observations.

Type of observation	Description of observation	Attending actors	Medium	Date	Duration	Type of collected data	Observers
Meeting	Design meeting	A1, A2, A4, A5, actors outside scope of the study	Hybrid meeting participated from contractor´s office	March 22, 2022	60 min	Notes	Hallgren & Hertzman
Site visit	Got the project and the working methods showed and described	A1, A5, actors outside scope of the study	On site at construction site	April 7, 2022	90 min	Notes	Hallgren & Hertzman
Meeting	APD meeting	A1, A3, actors outside scope of the study	On site at construction site	April 7, 2022	30 min	Notes	Hallgren & Hertzman

Meeting	Morning/information sharing meeting contractor	A5, actors outside the scope of the study	On site at contractor´s site office	April 25, 2022	20 min	Notes	Hallgren & Hertzman
Meeting	Morning/information sharing meeting end user	A3, A5, actors outside the scope of the study	On site at end user´s facility	April 25, 2022	15 min	Notes	Hallgren & Hertzman

3.4 Data analysis

The huge amount of data generated through qualitative research, in this study in terms of transcriptions and notes from observations, causes challenges during the analysis phase (Bryman, 2018; Patel & Davidson, 2011). Moreover, well-structured, and broadly accepted methods or routines to perform analysis within the qualitative research field is lacking. It is often up to the researcher to find a suitable way. However, some guidelines (Bryman, 2018) or advice (Patel & Davidson, 2011) exists and those we found suitable have been followed.

All interviews were transcribed in accordance with Bryman´s (2018) recommendations. The process is time-consuming and in order to shorten the process notes were taken during the interview as earlier mentioned. Patel and Davidson (2011) describe that documentation of thoughts and reflections to performed interviews are important in order to avoid losing important aspects when doing the analysis. In addition, they can be input in further interviews. Therefore, each interview was discussed once it was completed. Thoughts and reflections were documented in a separate document.

Further, the empirical material was processed via a thematical analysis, which involves dividing the data into specific themes and is, according to Bryman (2018), one of the most common methods. Coding was the starting point of the analysis and was initiated early in the process (Bryman, 2018). When all interviews were

completed and transcribed, the transcripts were read. We started coding by adding notes based on our literature and research questions, thoughts, addressed themes, keywords, repeated words or themes. In turn, the notes were compounded into themes related to the research question and the field of study, which Bryman (2018) points out as important. The transcripts were read digitally, and notes were added by using the comment function in Microsoft Word. Further, the empirical material was processed via a thematical analysis, which involves dividing the data into specific themes and is, according to Bryman (2018), one of the most common methods. The themes we ended up with were the following: *knowledge about construction, tech-social networks, coordination, and activities & time*. When having the themes, interviews and the theory section were read once again. This time notes with reflections and potential analysis related to the themes where added, which further worked as basis when the analysis was performed.

3.5 Trustworthiness and ethics

The following section presents trustworthiness and ethics related to the execution of the study.

3.5.1 Trustworthiness

Schreier (2012) points out that it is important to communicate how results were created and make it easy for the reader to follow the process in terms of validity. A single clear definition of validity in qualitative research is lacking, however Lincoln and Guba´s (1985) concept of trustworthiness is the most widely used in

these contexts (Elo, et al., 2014). The concept provides credibility, dependability, conformability, and transferability as four criteria to increase validity within qualitative research (Lincoln & Guba, 1985). The credibility criterion is focusing on making sure that the actors participating in the study are carefully identified and described while the dependability criterion is paying attention to if and how data is changing over time and space (Elo, et al., 2014). Moreover, the conformability criterion is related to if the gathered information is consistent between two or more independent people. Lastly, the transferability criterion is focusing on the finding´s ability to be generalized and used in other contexts.

During the study we have taken actions related to these criteria in order to increase the trustworthiness, but also reflected on how our choice of method approaches and practices may have impact on the trustworthiness. We have tried to carefully describe which actors that have been interviewed in this study, how they were selected, and why they were selected. Further we have used figures to visualize and provide information, e.g., chosen respondents and results, in an easy understandable way as suggested by Elo, et al., (2014). Since the study has a qualitative approach interpretation of interviews, notes, literature is impossible to totally avoid (Graneheim & Lundman, 2004). However, we have interviewed several people which have given us different perspectives on the same project and ability to compare answers. We have also made observations which we also have been able to compare to the other information. Both of us were participating when doing the analysis and we had continuously dialogue about the gathered material, aligned with Schreier´s (2012) and Graneheim and Lundman´s (2004) recommendations. In addition, the gathered material has been discussed with our supervisor at the focal organization. The actions mentioned above could be argued as contributing to increased trustworthiness in terms of credibility and conformability.

As this study is based on case studies, some drawbacks related to trustworthiness in terms of dependability and transferability are hard to avoid. Each respondent was only interviewed once, its answers could have been affected by mood, project

specific activities, problems, etc. It is also likely that the answers would change throughout the project which we have tried to overcome by selecting projects currently operating in different project phases or stages. Further, we do not intend to produce results and find generic cases that can be generalized, spread, and directly implemented in other businesses, business areas, or contexts, for which the case study is an impropriate research design according to Bryman (2018). However, a client working in different industries than construction is a common situation. Therefore, we believe and hope that our results will highlight some critical areas within project management related to project governance, which in turn, can bring knowledge and inspire other companies working with project management and project governance within construction projects to investigate their own processes.

3.5.2 Ethics

In addition to trustworthiness, Bryman (2018) describes that ethics is an important aspect in all research. It is important to be aware of which ethical principles that are relevant in the research study since it otherwise is easy to break ethic rules (Bryman, 2018). Therefore, the ethical dimension has been taken into consideration, aligned with Bryman (2018), Kvale and Brinkmann (2017).
Bryman (2018), Kvale and Brinkmann (2017) describe requirements for information sharing and approval. This means that respondents are attending the research project voluntarily, are informed about the aim of the research and its proceeding, how the data will be used, and who will have access to the data (Bryman, 2018; Kvale & Brinkmann, 2017). As described in 3.3.2.2, interview situation, this type of information was shared with the respondents both before and at the interviews. In connection with the first contact the respondent had possibility to choose to attend the interview or not. This worked as a form where the respondents were getting information in text and approved by answering the email. In this sense the formal signing process which, according to Bryman (2018), may discourage respondents was avoided.

However, ethical aspects and quality of the research can be contrasting (Bryman, 2018), for instance by sharing to much information with the respondents in qualitative research (Kvale & Brinkmann, 2017). According to Kvale and Brinkmann (2017) the researcher needs to decide how much information that should be shared at what time. Therefore, the themes which were going to be addressed in the interview were shared with the respondents, rather than detailed descriptions and questions. Via the activities described above the information requirement and approval requirement was considered related to the interviews. According to Bryman (2018) observation where the researcher´s role is unknown by the participating actors is contrary to the approval requirement. By attending the observations as known researchers the problem with approval was avoided.

Bryman (2018) and Kvale and Brinkmann (2017) are also describing requirement for confidentiality which means to make sure that a respondent´s answers can´t be connected to him or her when the research is shared. In this study both respondents and projects were confidential to make sure the respondents were not able to be identified. It was done by using letters instead of the project´s names, numbers instead of the respondent´s names, and combining these. To use made up names is a commonly used technique (Bryman, 2018). In addition, it is important to make clear who will have access to the information, especially when doing interviews with multiple actors in an organization or a project (Kvale & Brinkmann, 2017). This was relevant in this study and therefore the respondents were informed that their answers only would be accessible for us and our supervisor at the focal organization. Moreover, collected data was only used in this study and was deleted after this report was approved, aligned with Bryman (2018).

4 Results

The following chapter presents the findings from the empirical study based on both interviews and observations. The chapter is divided into three sections where each section represents one of the studied projects.

4.1 Project A

In order to help, brief information about relevant respondents is shown in Table 4.

Table 4: Brief information about respondents in project A

Project A	**Role**	**Company**
Respondent A1	Resident engineer	Consultant for client
Respondent A2	Project manager	Contractor
Respondent A3	Project owner	End user
Respondent A4	Project leader	Client
Respondent A5	Site manager	Contractor

4.1.1 Governance

The contractual setup between the identified core actors within this project can be seen in Figure 6. The client is the actor with the main responsibility for the

contractual relations, but do not need a contract with the end user since they are both part of the same organization.

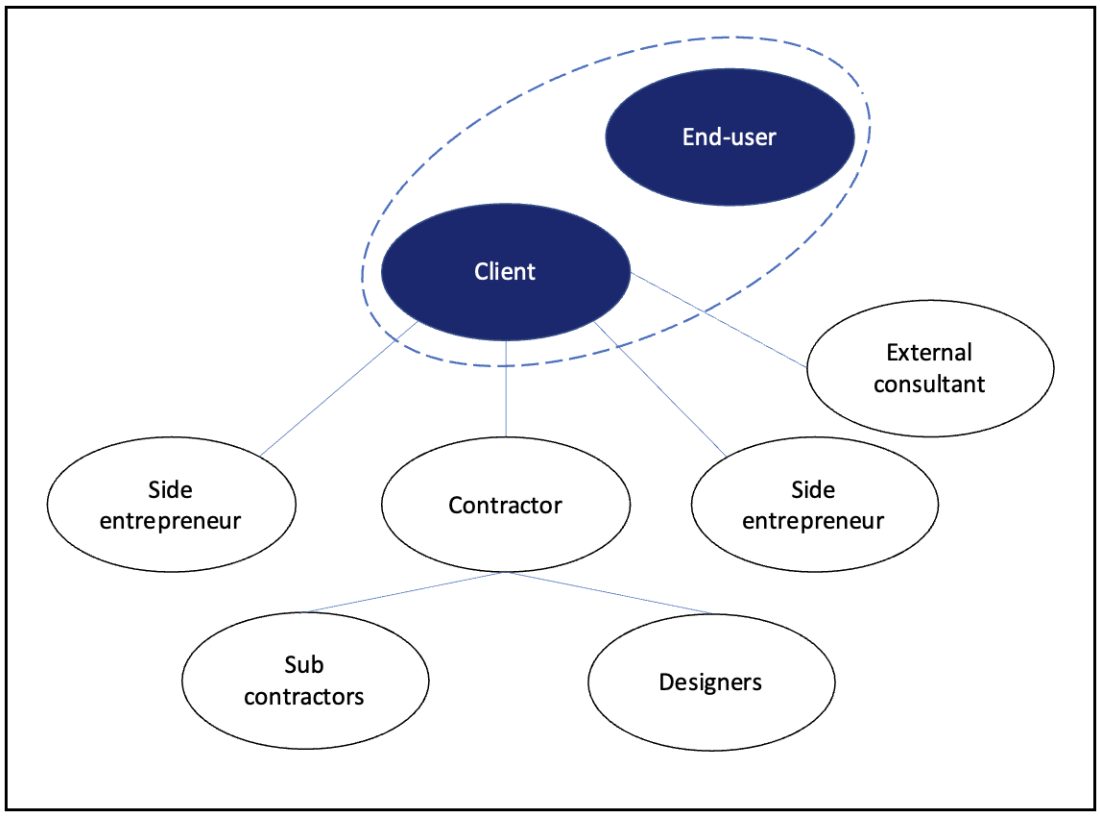

Figure 6: Contractual setup between actors in project A (authors´ own figure)

The communication ways do not strictly follow the contractual setup. Even though A1 only has contract with the client, the respondent has contact and shares information with all actors within the project. A2 mostly interacts with people from the internal organization that are responsible at the construction site (A5), respondent A1 and respondent A4. A3 interacts with many actors, including the contractor, the client, the side entrepreneurs, the external consultant, and everyone involved from the end user. Most often, the purpose of the interactions is related to purchasing and most interaction is done with the project manager of the client. Except from the actors that the client has a contract with, A4 also collaborates with the facility managers, that will take care of the facility once it is in use, and representatives from the end user. A5 mostly interacts with the people on site, i.e., A1 and the side entrepreneurs, and with those that the contractor has

a contractual relationship with. Most of the communication is handled through formal meetings. Email contact and texts are also common, and A1 has daily contact with A5 through phone calls. The side entrepreneurs are part of the contractor´s morning meetings so they can share what activities each party will conduct throughout the week, to make sure that they both do not disturb each other´s operations. A5 also says that the focal organization, that has contract with the side-entrepreneurs, has invited the contractor to their meetings in order to stay informed.

Information and knowledge sharing tends to follow a more formal, hierarchical structure. The exchange of information is mostly done through meetings and alternative ways of sharing information is through e-mails and texts, and documents are shared through IT-platforms. The focal organization has one internal IT-platform, and the contractor has one that is open for everyone. A1 sees it as there's a lot of information being shared internally at the focal organization, and that they need to collect this information through a one-way channel from the project. According to A4, information often flows from the sub-contractors through the contractor, to the client's project manager who then informs the end user. This is also how the contractual setup stands, and how the formal decision chain is built up. However, recently a new routine was set up so that the contractor can go directly to the end user for smaller requests, to avoid long lead times. Mentioned lead times is something that A2 thinks is a problem. A3 has the mandate to decide if this routine should be used or if an extra steering group meeting should be arranged. A3 needs to share a lot of information between the contractor and the end user, so that those involved in the daily operations know how the construction will affect them every week. The client still needs to be informed about this though, to not be excluded.

A1 cannot identify any gatekeeper, all actors are good at sharing knowledge when it comes creating a basis for decisions. If a problem would occur on site, A5 mentions that they have a whiteboard where the actor who is affected by the problem should write it down, so that it can be discussed on the following morning

meeting. If the error cannot be solved within 24h, it is registered in a log to be discussed at the site management meeting and if it cannot be solved there, A5 takes it to the meeting with the sub-contractor´s project leaders to see if they can agree on a solution. Often when it reaches this level, it is because the error requires a change that is either expensive or a noticeable change of design. The information that A5 receives from sub-contractors and designers is often related to how the other actors are doing on time and economy.

Coordination of the project is mostly done through meetings. According to A4, coordination of the project is done in different steps. There is a recurring meeting held by the client including all actors, where everyone has a slot time when they are supposed to attend, in order to not waste time at meetings with info not needed. This requires skills and knowledge from the design leader of who need to know what and what type of information should be shared between whom. A4 shares tasks with A1, where the A1 is more on site and A4 spends more time in meetings related to more administrative tasks. Every week, these two actors meet to share information and inform the end user about the progress of the project. The end user has a project manager, A3, who has the main responsibility to drive the project and is also uttermost responsible for coordination. A3 also makes a newsletter with activities for the upcoming two weeks that is distributed to all affected actors, so that the end user's workers know how the construction will affect them. The contractor has morning meetings every Monday, where the site manager then takes the most important points further to the end user's meeting and if needed, shares information from the end user's meeting to the contractors.

The factors A2 coordinates the most are time and work environment. For the time perspective, they collect data from all known sub-contractors, which is done by the site manager and then reported to A2. There have been some problems according to A2 with the coordination in relation to the side-entrepreneurs, they do interact with each other but since they are not under their contract, they often have to go through the client to make an impact on the side-entrepreneurs. Also, A2 finds coordination of work environment very challenging since this is not

something the client is very used to in this context. A2 says that they do try to implement as much of their own internal routines as possible into the project and get the other actors to use it. The respondent is of the opinion that the client wants to have much control.

A5 is responsible for coordination at the site, which is done through site meetings. Information is gathered from the sub-contractors and then reported to the client. A5 also coordinates the daily work at the site through these meetings, and discussions whether the contractor should receive the bonus is also held on the site meetings. With the sub-contractors, A5 have a weekly meeting where a time plan for 3 weeks ahead is made, and the sub-contractors are also part of the 15 minutes morning meeting where weekly activities are discussed in more detail. A5 also has meetings with the project leader for the sub-contractors, to discuss governance and economy of the project. Another meeting forum that A5 is part of is site management meetings, where A5 exchanges info with the supervisors.

4.1.2 Decisions

All respondents share the same view of how the formal decision making is conducted when it comes to economy, where the focal organization have very strict hierarchy and rules depending on costs. A2 has mandate from the internal organization to make decisions to a cost of a certain percentage of the contract sum, which is much more than what the client's project manager have mandate for. A1 has the view that the contractor can make a lot of decisions connected to the construction, as long as it does not come with high costs. Decisions are often made on meetings and of those actors that are involved in the daily activities, the client project manager is the one with the most formal authority. However, A1 also has some authority to make decisions regarding the construction. A3 says there is no official limit to which the respondent can make decisions, but the respondent has a high level of trust from the people in charge of these questions. Smaller changes in the production are something the respondent can make decisions

about without getting confirmation. A5 says that in the production, the respondent can make any decision as long as it does not affect the economy or end product significantly. If it does, the decision needs to be passed on to the client, who then might need to ask the end user. Decisions can sometimes be made at site meetings, since documents from there work as a legal document.

A5 do not find the lead times from the focal organization to be particularly long. One reason for this is because of the role of A1, according to A5. A1 is in general easy to get in contact with and therefore creates a useful bridge to the focal organization. A5 also feels like they talk the same language and understand each other. Because of legal reasons, most of the information is gathered through email, so that it is possible to verify what has been decided. Even if something is discussed over phone, A5 still wants a confirmation in written text. The contact persons from the focal organization for A5 is the client, more specifically A1 and A4.

A4 mentions two important factors to reduce time waste in projects is clarity and competence. By being clear, misunderstanding that requires unnecessary time can be avoided, and by having the right competence at the right place, mistakes that can lead to more work required can be avoided. In the project, A5 mentions that when they entered the project, the as-built documents for the existing building were somewhat faulty and not up to date, which has caused a delay of about 4 weeks as a consequence of extra activities and problems that has occurred due to this. In general, A2 also wants to emphasize the importance of soft aspects. Collaboration can be a good way to conduct a project, but it does require that the participants know how to collaborate. A5 mentions that one advantage with the partnering contract that the contractor has with the client is that it gives the client more insight in the economical transactions and thus they can assist and cooperate.

4.1.3 Time and activities

Both respondents A1 and A2 has been involved in the project since the final development stage. This is, according to respondent A1, very late in relation to what the respondent prefers. Because of this, A1 feel the need to chase information to know what is going on and be able to conduct tasks in a satisfactory way. A lot of time is also spent on meetings, leading to excessive working hours. A3 took part in the planning of the project in a very early stage about 15 years ago, but then left the project and came back at after the "go-ahead" was done, while A4 has been involved in the project from the end of the feasibility study and took part in the process of applying for funding. A4 has also been involved in the feasibility, development and final development phases, however, the industrialization phase is the one estimated to require most time. However, clearly defining which stage the project is in at a certain point of time has been hard since they have been moving back and forth a bit between activities connected with a certain phase, according to A4. A5 has been involved from an early phase of the contractor's perspective, from making the offer and is supposed to be involved in the project throughout the whole industrialization phase.

A1 is contracted to work 16 hours a week in the project, but often spends up to 30. This varies a bit, both during and in between phases. During the industrialization phase, the expectation is that most time is spent in the beginning and in the end, but a little bit less in the mid-stage. A2 spends 3 days a week during the end of final development and is expected to go down to 1-2 days a week in the industrialization phase. A3 spent about 5% of its working time on the project during the planning phase, but now it is 100%. Respondent A4 worked about 20% during feasibility study, which increased up to 70 in the beginning of the final development phase. During that phase and following phases the working hours have increased and the respondent work 100 % in the project at the current industrialization phase. When A5 first entered the project, about 20% time of an FTE was spent when making the tender. In the design phase, the respondent became more involved bit-by-bit and now during the industrialization 100% is

spent in the project. The different actors´ involvement and working time is shown in Figure 7.

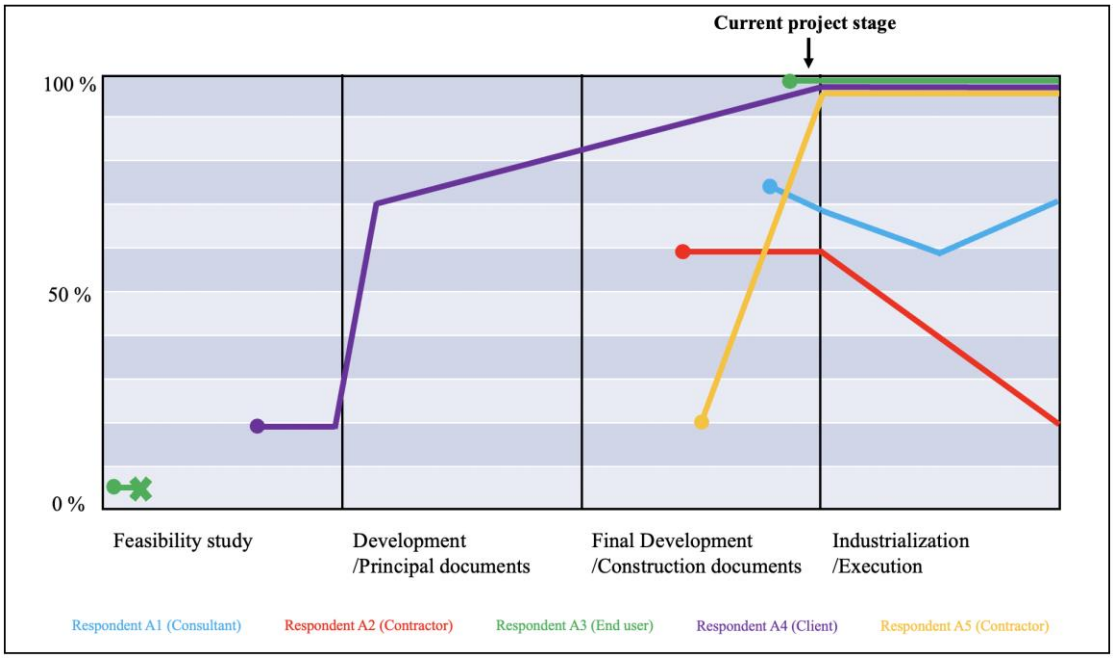

Figure 7: Actors´ involvement and working time in project A (authors´ own figure)

Something that has been mentioned by a majority of the respondents who are in contact with the end user is that it is hard to make the end user understand the real estate and construction questions and processes. Due to this, A1 spends a lot of time to explain, clarify and inform the end user about the progress of the project. This is the activity that A1 finds most challenging. A lot of time is spent acting like a facilitator between the client and contractor and distribute information between different groups. Another of A1s tasks is monitoring. The respondent makes sure that decisions are followed and have the desired outcome or if something need to be adjusted. This is however something that the respondent thinks everyone do to a certain degree. The respondent A2 has the role of a project manager in this project, which means that it has the general responsibility of the construction of this project. Of the activities that A2 is involved in, the most challenging ones within this project are collaboration, build relationships and to explain to the client the importance of working environment at the site. The activities that

require the most time are tasks related to mainly economy and collaboration, but also time and working environment.

A3 has the main responsibility to drive the project forward so most of the time is spent on going to meetings, coordination, support the actors involved and distribute information about upcoming activities for the following week. Monitoring of the client is also done a lot, something that the respondent sense that the client is not used to. The respondent also makes time plans and purchasing of some services not directly related to the actual construction, like landfill and relocation of objects used in the ongoing operations. The activity that the respondent finds the most challenging is having budget meetings when the project is over budget. The respondent feels that the people higher up in the organization can try to lower costs in a way that affects the operations negatively, which the respondent do not want to do. Also, managing the logistics at the site while providing a safe working environment due to the ongoing operations. Of the activities that takes the most time, it was mentioned that they do find a lot of scrap and problems with the existing building that was not planned for, and also that it is hard to rely on suppliers and craftsmen to keep time plan and show up as agreed upon.

A4 is the one who decides if the contractor should get their bonus or not, however, the decision is based on insights and opinions from other actors as well, to get a full picture of the performance. This is also something that is regularly followed up on meetings, so that the contractor knows if they are on the right track towards achieving the bonus. One of the main tasks for A4 is economy and an important part of this is reporting to the end user how much of the budget that has been spent. In total, about 80% of the time spent in the project is related to economy, procurement, time planning and advising in technical questions, while 20% is spent on other, different activities. Only 5% is estimated to be time spent on activities that in the end are of no use in the project. The respondent does not find something particularly challenging, however, personal relations within the project is something that is bit more challenging than other stuff. To overcome

this, the respondent think it is important to be honest and transparent about how the project is progressing. Especially in a partnering project, it is important to have good collaboration and being able to compromise. Managing personal relations is not something that the respondent spends much time on. The client spends a lot of time making the construction documents, to make them as good as possible to decrease the risk of errors and needed changes at a later stage.

A5s activities has varied a bit throughout the project. In the design phase, the respondent contributed with its experience and knowledge to make sure that the design would be something that then could be implemented easily, since the respondent is the main leader of the production. During the industrialization phase, a majority of the respondent's time is spent on different types of meetings and governance of the daily work at the construction site. The main areas of the respondent's responsibilities are time planning, economy and to lead and delegate work. For time planning, the respondent coordinates the sub-contractors' activities and structures the work to set the common schedule. Activities related to economy is invoicing and monitoring, it is common that extra costs emerge. Just as A3, A5 also thinks that managing a safe work environment can be challenging due to the ongoing operations. The people who work there are not used to being around a construction site and to make this work, a lot of communication is needed. A3 and A5 helps out a lot with this, since A3 is the one who has the responsibility of the end user's interests and A5 the one in charge of construction. Every Monday, both the end user and the contractor have morning meetings, the contractor a little earlier so that A5 can afterwards attend the end users meeting and coordinate together. Activities performed by the actors in project A is shown in Figure 8.

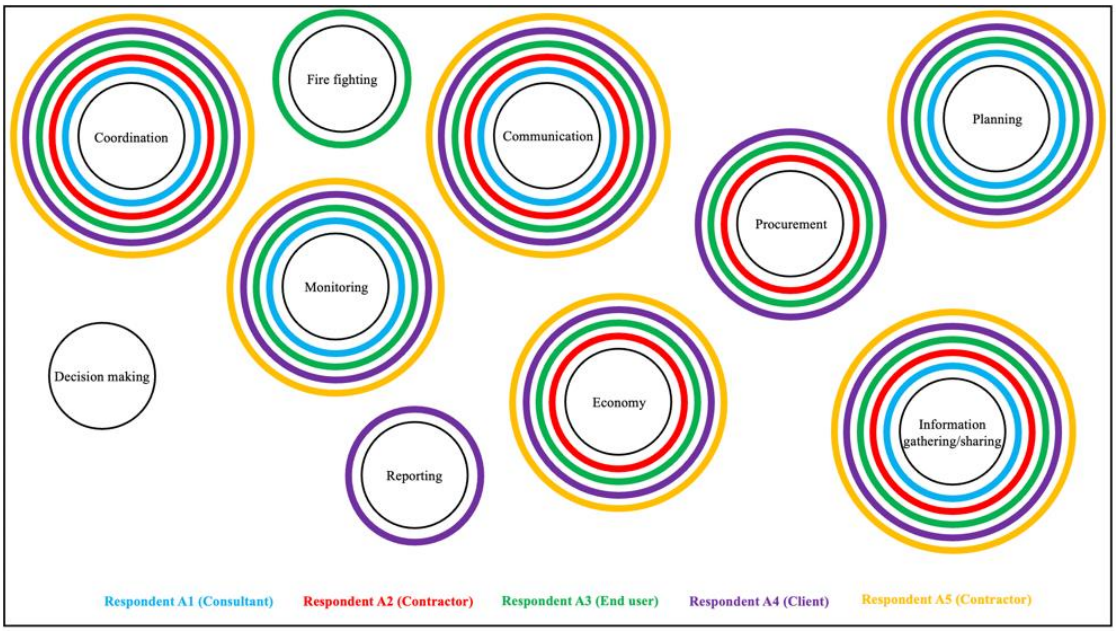

Figure 8: Activities performed by actors in project A (authors´ own figure)

4.2 Project B

In order to help, brief information about relevant respondents is shown in Table 5.

Table 5: brief information about respondents in project B

Project B	Role	Company
Respondent B1	Project manager	Contractor
Respondent B2	Project leader	Client
Respondent B3	Assistant project leader	Consultant for client

4.2.1 Governance

The project is procured on partnering contract between the client and the contractor which is mentioned by respondent B1 and B2. They are both pleased with the contract form and believe it was the right way of working in this project. However, respondent B2 was mentioning that the contract form has meant additional work in the respondent´s role through increased financial monitoring, transparency, and communication. The partnering format results in close cooperation and dialogue between respondent B1 and B2 to find possible solutions, if there are any, to requested changes and additions. B3 is an external consultant who is contracted by the client and have no other contracts. According to respondent B1 it is important all actors can see the bigger picture and thinks it is the case when working together with the client.

Furthermore, all three respondents are pointing out that the structures for communicating, set in the beginning of the project, clearly stating who will communicate with who have been working great since they have eliminated misunderstandings and time-consuming rework. Respondent B1 and B2 describe that these structures involves that all communication between client and contractor goes through respondent B1 and B2 who in turn share the information in each team and B3 says they do try to follow the contractual connections also for communication. B3 does however also communicate a lot with the contractor when being on site, although the respondent works mostly close to the client and communicates with B2. On rare occasions, B2 can also talk directly to the steering group. Further, contracts between the actors in the project is shown in Figure 9 below.

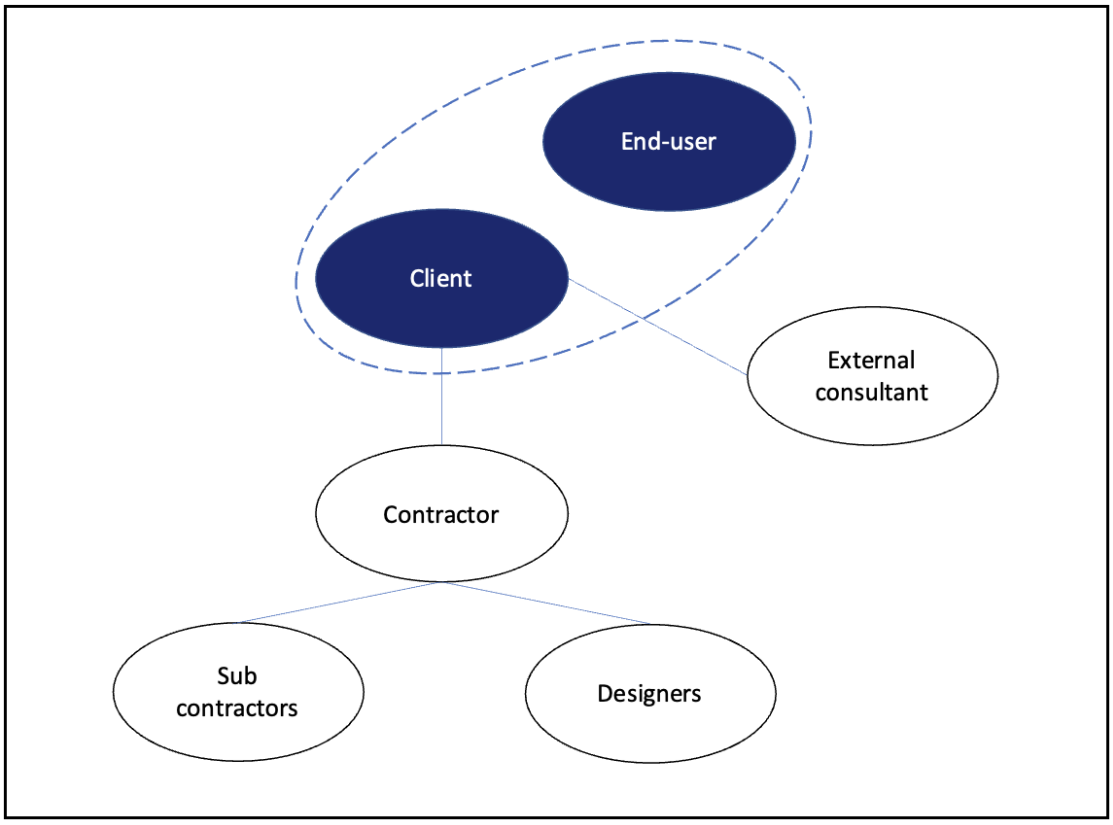

Figure 9: Contractual setup between actors in project B (authors´ own figure)

Beyond the contracts the respondents are interacting and cooperating with other actors as well. Respondent B1 mentions that there is no contractual relation between the respondent´s organization and the organization providing and installing the machinery. However, the parties are still exchanging important information via meetings, not least during the development phases of the project. Respondent B2 only interacts and cooperates with actors inhouse, e.g., environmental division and procurement division without having a contract. Moreover, the respondent is questioning if external actors would work without having a contract.

Related to coordination respondent B1 mentions that a common building model is central. The model is a digital BIM-model and is accessible by all actors and information is added by all disciplines. Moreover, the model has a central role in the coordination meetings carried out once a week in which all actors are attending. Another way that coordination is carried out is through short meetings

called deign meetings, where all actors are attending, and questions are dealt with in a structed and efficient manner. The meetings aim to get an overview and make sure detailed discussions are taken in other meetings where only affected actors are attending. The basis for coordination is according to B3 a general time plan provided by the end user, that the contractor then breaks down and makes more detailed time plans together with their sub-contractors. The end user is, according to B3, in general very involved in coordination of the project and the client's area of responsibility is to focus on the construction of the facility. B3 monitors and follows up the time plan on construction meetings every third or fourth week.

According to respondent B2, the respondent is sharing information with all parties involved in the project. Respondent B1 is mainly sharing information with interested party. e.g., HVAC, and respondent B2 at the clint, who in turn share and gather information from the client and end user. B3 mainly shares information with the contractor and their sub-contractors and B2. Even though they try to keep the information flow the same as the contractual relations, it does not work that way in reality according to B3. It is too rigid, and therefore, some actors exchange information directly with each other even though they have no direct contractual relationship.

Respondent B1 is mentioning that information mainly is shared through the digital building model, documents, mail, or meetings but that the respondent prefers the model and pictures of the model since it gives a greater understanding. Respondent B2 is, on the other hand, describing that there are different IT-platforms, tools, and meetings used for internal information sharing, i.e., between client and end user, and external information sharing and B3 adds that there is a portal used for sharing documents between actors. Economical questions are handled separately though.

4.2.2 Decision making

Related to decision making both respondent B1 and B2 describe that they have mandate to do changes related to technical aspects related to the construction as long as the requirement specifications are met. However, neither respondent B1 nor B2 have authority to make decisions if they affect costs. In these cases, the end user needs to take the decision and give approval via a well-defined structure. However, most decisions affect costs, which is why most decisions need to be lifted by the end user and this way of working has caused obstacles and additional activities according to respondent B2. Part of this is because the end user wants to take part in decisions about areas they do not have any knowledge about. Moreover, the working process is causing waiting time on a weekly basis in order to get decisions from higher hierarchy levels. B3 agrees that getting decisions takes long time, but do think that it is reasonable within this type of organization. It is important to know who to ask and if someone within the information or decision chain do not understand something, this can increase lead time. Both respondent B1 and B2 are describing they are jointly taking decisions but B2 is more involved during design phases than during the industrialization phase according to respondent B2. B3 emphasizes that decisions always go through the contractual hierarchy when being made. B3 does not formally have the authority to approve changes even for smaller sums, but in reality, the respondent can do so as long as it is not too expensive. According to B3, there is no official limit for this.

All respondents say that they put time in activities related to monitoring. respondent B1 is describing that the client is continuously performing financial monitoring, monitoring of adjustments and technical choices. This job is to some extension split between B2 and B3, where B2 is the one who then reports to the end user.

4.2.3 Time and activities

None of the respondents have been involved in the project since the beginning. In the case of respondent B1 another contractor was assigned but was then changed and B1´s organization was assigned instead. According to the respondent this meant that the building to some extent was designed already but B1´s organization redesigned and made some cost saving changes. Respondent B2 got involved in the project during the development phase as well but the project leader role had been involved during the entire project, however, it was not specifically B2 having that role during the feasibility study. Usually, respondent B2 does not work as a project leader, instead the respondent is working as a project manager, a role that involves less close collaboration with production and contractors. B3 got involved in the project when the industrialization had started, but has also been part of the designing, since design is continuously done as the project progresses.

Both respondent B1 and B2 have been involved during development, final development, and industrialization phase and they have both been working full-time with the project during all phases. B3 on the other hand works between 40 and 90 hours per month. Respondent B1 pointed out that there are additional hours, especially during the stage of the project where the framework is set up and technical solutions need to be decided. Also, respondent B2 described that the project leader role and the organization have been complemented by additional work force, such as assistant project leaders, during the project since the workload could not be carried out by one person. The different actors´ involvement and working time is shown in Figure 10.

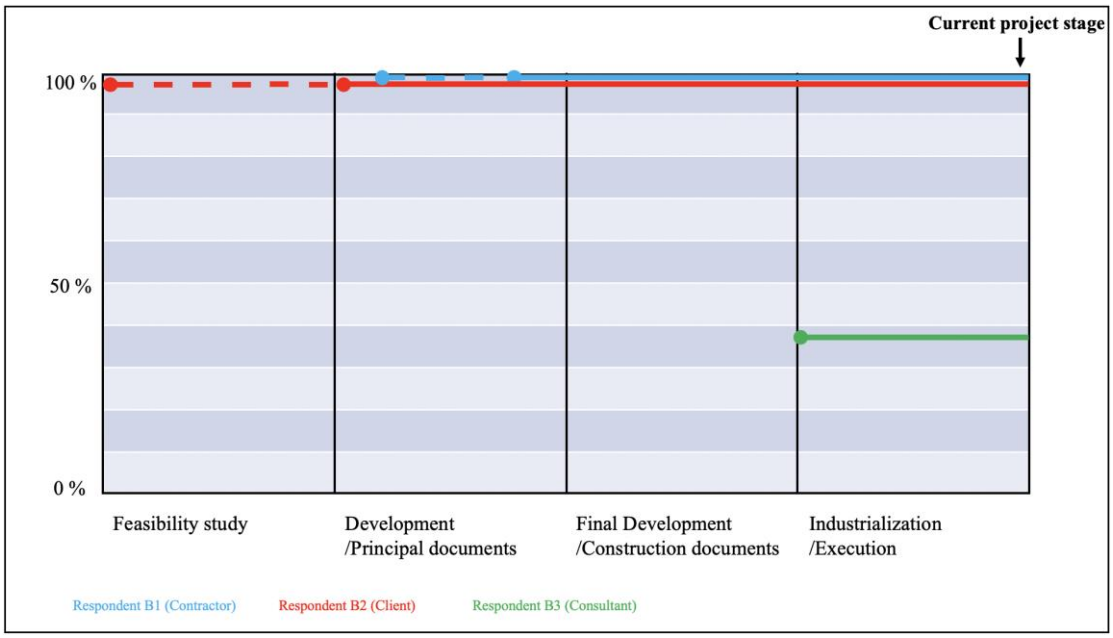

Figure 10: Actors´ involvement and working time in project B (authors´ own figure)

Respondent B1 has taken different roles during the project´s different phases. During the development and detailed development, the respondent has mainly been working with development of the building and decision making related to technical solutions. These decisions have been made in close collaboration with the client since the project is on the contract form of partnering. During the execution phase the role changed to becoming more overriding and responsible for proceeding of the production and procurement. Respondent B2´s role is mainly about making sure time, cost, and quality is aligned with what is planned. B3 manages a lot of the coordination between the machinery project, the contractor, and the client. This includes leading build meetings, collect questions from meetings and transfer them to the other actors for follow up and to align that no activities or design ideas collide. The activities performed by the respondents can be seen in Figure 11.

Both respondent B1 and B2 mentioned that activities related to economy and financial control is very time consuming and that they are using about 50 percent of their total working time for such activities throughout the entire project. In addition, respondent B2 believes meetings are time consuming as well and the

respondent is attending meetings to gather and transmit information. Respondent B1 mentioned that it is time consuming to adapt the development and production due to continuous changes, not least to make sure that the latest construction document is used. Moreover, the respondent needs to compile changes where decision making is needed by the client in lists and deliver these at specific days each week. So far in the project it has been hundreds of changes. The changes and adoption to these are also the most challenging in the project according to respondent B1, and B3 thinks changes or mistakes requires a lot of time to solve. Mainly since it involves additional coordination and meetings with concerned actors for information and understanding for how it affects performance and time. Especially since this project involves a lot of technical equipment needed by the end user, B3 finds it challenging to, as a house builder, understand these types of questions.

According to respondent B2 the most challenging activities in the project are to get the end user to understand what is done, what problems are faced, and what is needed in the project since the end user lacks knowledge about construction. For instance, the project needs certain information at a certain time in order to not cause interruption. Respondent B2 experiences that it is hard to get clear answers on questions since the end user is slow to understand what type of information the respondent and the project is asking for, and when they do it takes additional time to find that information. In addition, respondent B2 often need to explain minor posts but huge changes initiated by the end user are decided immediately. Moreover, the respondent believes the end user is working in silos, each looking into its specific area, which makes it hard to for them to grasp a wider perspective and understanding. In turn that makes coordination a very time-consuming activity. Moreover, respondent B1 thinks unclear questions, requests, or activities are heavily contributing to increased time consumption.

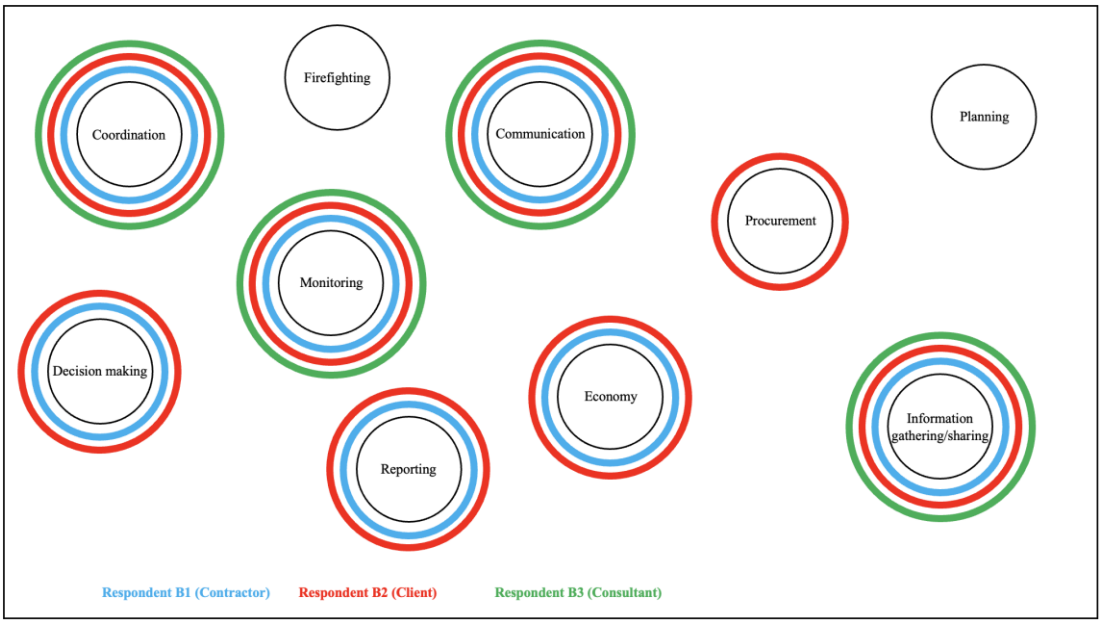

Figure 11: Activities performed by actors in project B (authors´ own figure)

4.3 Project C

In order to help, brief information about relevant respondents is shown in Table 6.

Table 6: brief information about respondents in project C

Project C	**Role**	**Company**
Respondent C1	Project leader (requirement specification production)	End user
Respondent C2	Project Manager	End user
Respondent C3	Assistant project leader	Consultant for Client

4.3.1 Governance

As for the other projects, there are no contracts between the end user and the client since they are part of the same organization. According to C1, the client is the one who has the majority of the contractual relationships. C1 says there is a lot of consultants in this project, like C2 and C3. C1 has a lot of cooperation with the contractor, especially in the design phase. The contractor is an expert within partnering which provides the project with a lot more flexibility since the documents can be developed jointly as the project progresses. Except from the contractor, C1 also works closely together with the designers and the client through weekly meeting and also more informal contact in between the meetings. C3 also meets with the designers, but mostly with the contractor. There are separate meetings for specific questions and areas that C3 attends multiple times a week, depending on current needs of the project.

C2 cooperates with a long list of actors, but mainly higher up in the organization. The most important are steering group, program reference group, chair alignment team and the core team, including C1 and C3 plus more people that are key to the actual execution of the program. The chair alignment team consists of people who are top management of the operations at this site, and C2 has a recurring meeting with this team every other week. They work as a shortcut to the steering group, so it is a faster way for C2 to lift important questions and get quick decisions. The members of the core team have different roles, those representing the client are of importance since they can give input on the construction of the facility and align it so that it can be maintained in an optimal way at a later stage. The contractual setup can be seen in Figure 12 below

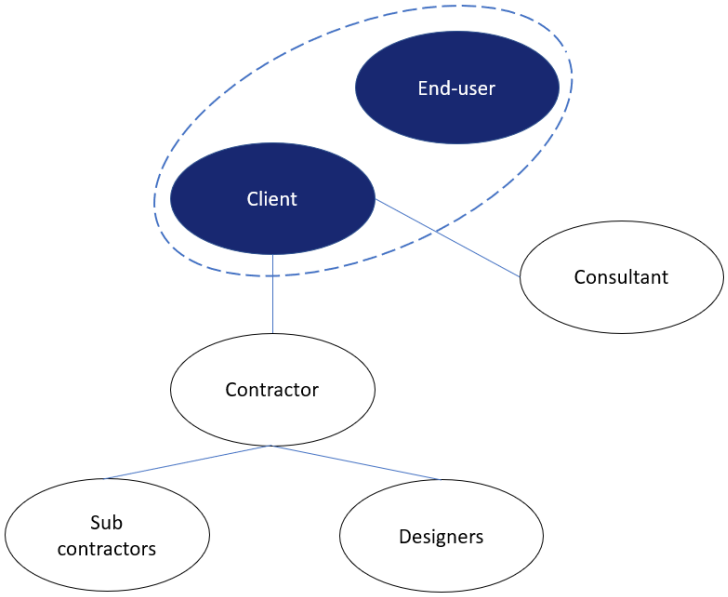

Figure 12: Contractual setup between actors in project C (authors´ own figure)

Information is shared among the actors on a daily basis, but formal meetings are needed to make important decisions. Sharing of information is something that C2 thinks the focal organization is very good at in general and C1 thinks that all actors within the project are also good at sharing information with each other. C2 exchanges a lot of information with the contractor, but do not really cooperate in that sense as much as some of the project leaders. Every month, C2 has a meeting with the project manager from the contractor to discuss economy and create basis for decisions.

Since C3 has the role of a facilitator, interactions are made with multiple different actors, both different entities from the end user and external consultants. C3 gathers all this information from different stakeholders, sums it up and provides it to the contractor. If the contractor has any feedback or questions on the plans provided, C3 then takes this back to the other actors to revise the suggested solution. The core team of the project, where C3 is included, has a SharePoint where a lot of information is shared. Some information from the SharePoint is also distributed upwards to top management and with people working with the requirements specifications of the building. C3 distributes a lot of information out

to the contractor, and they try to be as transparent as possible to simplify collaboration. The main roles that C3 are in contact with at the contractor is the project- and design leaders, but the site manager is also an important role for communication. C3 is aware of the PSM and that is something they try to follow. C3 says that PSM is also used for monitoring of the project, although it has not been done yet. It is very clear what should be monitored, it is unclear how it should be done but there is a project leader responsible for PSM. C1 adds that the steering group of the program monitors every or every other month. According to C1, PSM is built up on a gate-stage-model with certain criteria that needs to be fulfilled before the next phase can be entered. This decision is made by the steering group.

Coordination is, according to C2, done through a program directive that C2 issued as one of the first things he did. Writes down on every meeting who is responsible for what, this directive is the basis for all they do. The flow of the manufacturing is of high importance and therefore, every decision made about the facility needs to be synchronized with the site. This is often done through workshops to get every stakeholder's input. C2 also makes a lot of PowerPoints to communicate upwards in a clear and effective way. C1 and C3 also mentions core team meetings as an important part of the coordination and C3 also coordinates a lot with the contractor, using their design structure and solves issues that they write on a board of questions.

4.3.2 Decision making

Just as for the other projects, the respondents say that the decision making is affected by the economics. The higher the cost, the higher up in the project organization the decision needs to be taken. C1 mentions that in this project, it always goes to the chairman of the project and C3 says that PSM is also an important part of decision making, since the steering group needs to make a decision at certain points of this model in order to progress.

To avoid lead times when waiting for decisions, a “shortcut” has been created to go around the formal structure of reporting so that the person who needs to make the decision can get the information quicker. However, C1 thinks that when working in a big organization like this, lead times is something one have to deal with and none of the respondents think that lead time is a big problem. Getting a desired outcome of a decision is often not a problem, but it is important that the correct information is provided in an understandable way. Otherwise, this information needs to be reworked and then provided to the steering group again, which is a waste of time. C1 says that before going into the project, they do try to be as prepared as possible, but it is important to be aware that there will always be changes throughout the project, or as C3 says, “the only thing you know for sure when working for this organization is that everything changes”. Therefore, this is something that has to be considered when doing the time plan. The reason for change in this project often comes from the top in the organization, often due to that the leaders are constantly thinking and coming up with new ways to use the factory, which affects the construction of the facility.

C3 does however also work a lot with smaller, everyday changes that does not affect the function of the end product and does not lead to high costs. For these kinds of decisions, C3 has full mandate. C3 can also cooperate a lot with C2, who have a higher mandate. C2 describes the decision chain from three different scenarios; up to X SEK per week, one of the project leaders has authority to decide, but needs to report to C2 afterwards. C2 has authority to make decisions for sums up to about 4X SEK, but it is not completely defined. Also needs to report afterwards. For sums greater than 4X SEK, it needs to be lifted to primary the chair alignment team, who can decide for up to about 10X SEK. More than this, the steering group need to be discussed with. C2 thinks this is a bit complex and could be easier, but still thinks that the focal organization handles decision making very well given the prerequisites.

4.3.3 Time and activities

C1 has been part of the project since the very beginning, already in the discussion whether to demolish or construct a new building, throughout the whole project. C2 came into the project just after the feasibility study was about to end and the process of asking for money to start. C2 mentions though that another person had the same role before, so that type of role was involved from an earlier stage. C3 was also part of the project during the feasibility study, but then left the project for a while and came back at a later stage. C3 will again leave the project when the design is done, since that role is no longer needed then. Since C1s role is to set the requirements for the end user, the early phase of the project required the most time. There is a need to define requirements for what is to be built, for what the building should be used and so on, to optimize its design for the end user. Changes were made during the course of the project that required time from C1, but not as much as in the beginning. This work is done together with experts within the field. During the feasibility phase, C1 spent about 70% of a FTE and at the time of the interview, about 20% of an FTE is spent within the project. C3 spends about 85% of an FTE, but emphasizes that this varies a lot depending on the progress of the project. One thing that affects how much time C3 spends is due to changes, just as for C1. C2 has been spending 100%, often even more, ever since he got into the program, and thinks it will continue like that throughout the whole project. The different actors´ involvement and working time is shown in Figure 13.

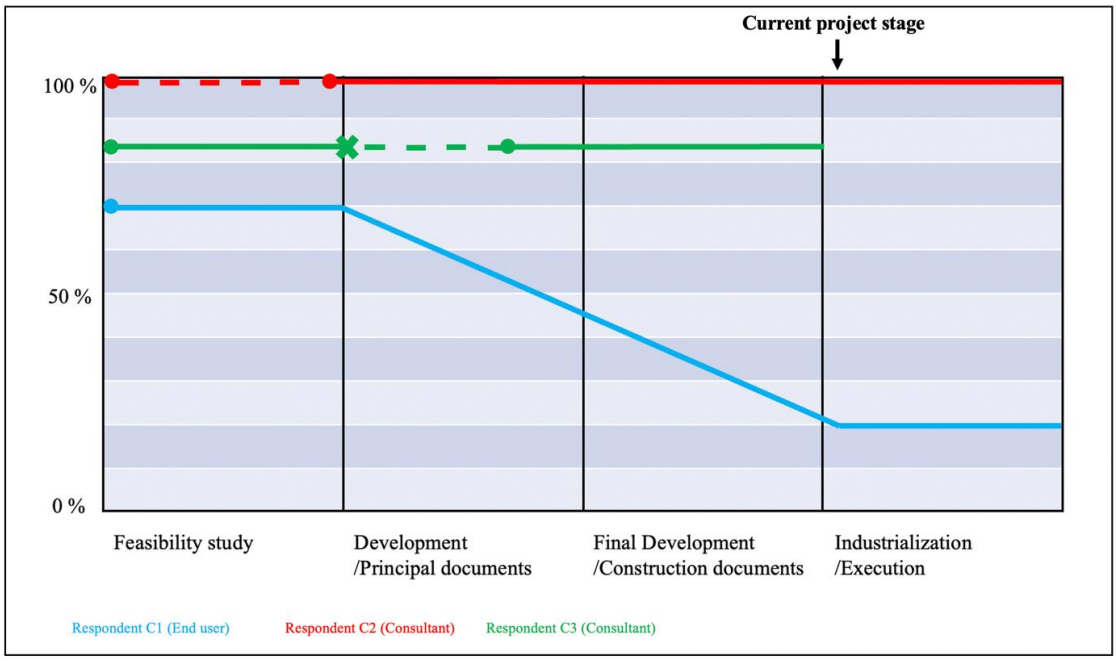

Figure 13: Actors´ involvement and working time in project C (authors´ own figure)

C2 is the program manager, meaning that he is the responsible person of the delivery of the whole program, including multiple projects that are part of this program. Generally, C2's activities are to provide structure in the process, assure a good communication between the program and the steering group and managing economy. All these activities are important, and time spent on them is distributed equally, but economy is the most important. There is also some coordination with the core team, which consists of the project leaders of the different projects.

C1s main activity as a project leader is to keep the network and requirement specifications together. this includes taking strategical decisions from higher up in the organization and forming them into specifications and requirements for how the building should be constructed, and also make sure it is followed. This includes coordination between different stakeholders, which C1 thinks is the hardest thing to do and that also requires much time. C2 shares this vision, that the most challenging thing is to manage the steering groups interest and inform them, which creates a very iterative process. That decision making is a very iterative process is something C3 agrees with. An involved steering group and

iterative way of working requires more time according to C2. On the other hand, C2 thinks that the core team is very competent and experienced. This is a key factor to avoid a waste of time, having a good organization with "the right competence at the right place". C2 mentions he has gotten a very good support from the steering group, mainly the people who are the highest in command of the operations of this factory, who are also the main contact persons for C2 to the steering group. This is also an important factor to avoid long lead times.

The end user wants the building to be optimized for the daily operations, but it is not always possible to construct in that way and stay within budget. C1 estimates that 70% of the time working with coordination goes to working with the group that puts the system together and 30% goes to coordinate and anchor decisions upwards in the organization. It is desirable to work bottom-up. The coordination is an iterative process since a lot of info needs to be collected and spread to different actors with different demands. Therefore, it takes time to agree on a solution. C1 think it is important that every major decision is anchored with all leading positions. C3 also works a lot with requirement specifications, but acts more as a facilitator between the contractor and the organization to make sure they understand each other and that the requirements are doable. This is done by attending design meetings and follow up, inform and put through questions at internal meetings at the organization. This includes getting answers about unclarities from the organization so that the construction can progress. This requires a broad network of contacts, which C3 has internally at the focal organization, but not externally. The activities that C3 finds the most difficult is to handle IT questions, since this department is hard to maintain contact with. Managing contact and finding the right person for different tasks is something that C3 finds hard in general, as is getting a straight answer and often the information that is received is not correct, which leads to a waste of time. About 60-70% of C3s working time is spent on meetings trying to find answers and clarifications of issues in the project. The rest of C3s time is spent mostly on gathering information that is used to present solutions and answer general questions not related to

requirement specifications, often related to construction. The activities performed by the respondents can be seen in Figure 14.

C3 finds it a bit hard to define activities, due to an unclear role. Something that both C1 and C3 agrees on is that the organization do not really have the knowledge in construction, which is a bit problematic. It creates issues with procurement and when making time plans according to C3. The client does not know construction at all according to C3. It does know facility management, but knowledge about new construction is lacking. This impacts the procurement process and the time planning in a negative way. C3 also points out that the organization is good at managing and maintaining existing facilities.

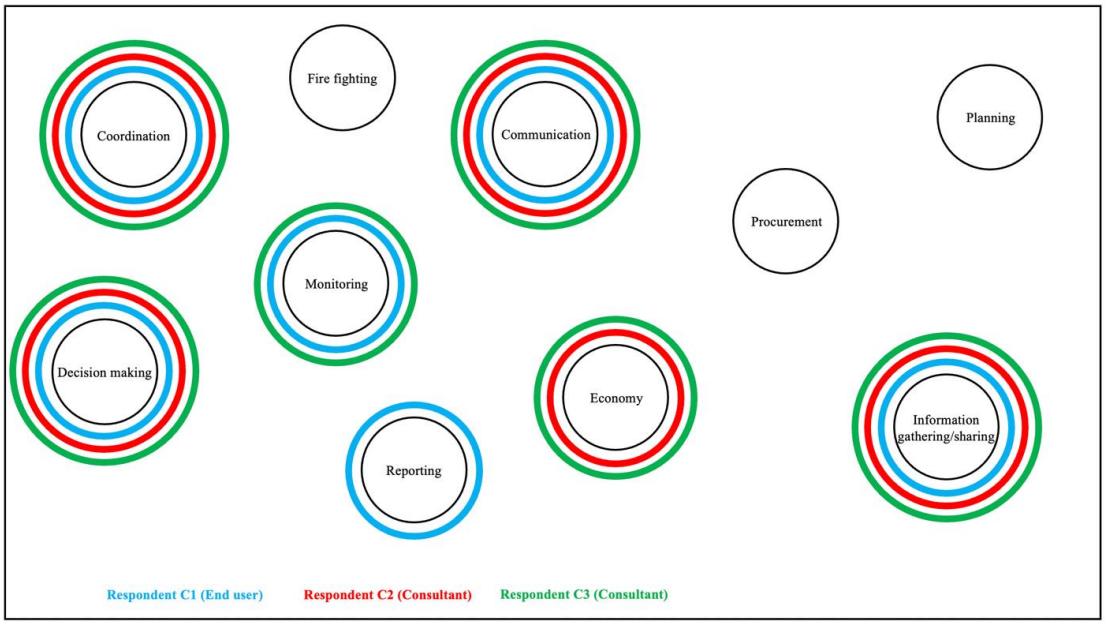

Figure 14: Activities performed by actors in project C (authors´ own figure)

5 Discussion

The aim of this research is to increase knowledge about how project network governance is applied and influences project execution in construction projects governed by clients from other industries than construction. The following chapter outlines a discussion of different perspectives related to this aim presented through five sections.

5.1 Network structure

Related to the two types of governance outlined in the literature, command-and-control and network governance approach (Provan & Kenis, 2007), we can find elements of both types in the studied projects. Based on the information gathered from the empirical findings, the focal organization practices strict control of the projects and much of the working methodology is based on formal structures and contractual agreements. Similarities can be found with the command-and-control management approach presented by Gorod et al., (2018). Formally, the focal organization can therefore be said to practice this approach to a big extent. The practices related to decision making can also be seen as centralized which is contrasting efficient decision making according to the literature (Eriksson, 2010; Kujala et al., 2021; Nisar, 2013).

However, the other actors hold important knowledge related to construction projects and we notice that activities such as coordination, communication, and cooperation are carried out a bit differently. These activities show tendencies of being jointly governed (Provan & Kenis, 2007). It is also mentioned in the theory that it is hard to implement the command-and-control approach in its pure essence in real life, leading to a more systematic approach. A sign of this is that the governing body influences actors further down the hierarchy, but these actors work faster and a bit more independently, giving the project a bit more flexibility.

Another clear example of the systematic approach is shown in project C. In this project respondents mention that often directives and requirements come from top management, ideas, and solutions on how to deliver this is discussed on a low hierarchy level and then this information is reported back to the governing body for decision making, in an iterative way. In conclusion, the focal organization seem to implement a systematic approach but with great demand-and-control tendencies.

The project network theory brings up mainly two different perspectives that are highly relevant and interesting to analyze in this context. Firstly, the fact that technical and social aspects cannot be divided into different networks (Hanseth et al., 2004; Dwiartama & Rosin, 2014; Yusuf et al., 2016). Secondly, networks can be divided into global and local (Law & Callon, 1988). One can consider the global network as the central part of the focal organization, like top management from the end user and the central parts of the client, setting strategic targets, identifying needs and setting up the project organization. The local network is instead represented by those executing the project, often people from the client's regional/local divisions together with other stakeholders who are directly involved in the project.

The social network does, according to the project network theory, also consist of technical aspects, which is confirmed by the results of this study. Document sharing platforms like SharePoint, building information models, PowerPoints, digital meeting structures like Microsoft Teams and VPP (visual planning production, which can be considered a combination of technical and relational aspect) are all different types of technical platforms that are key factors to deliver a successful project, allowing information, communication, and coordination to be handled in a simple way. Due to the strict control from the focal organization, it is debatable whether the global network gives the local network enough negotiation space. The local network can conduct daily work to some degree without direct involvement, on the other hand, everything needs to be reported, which is something that a majority of the respondents have said requires a lot of time.

Within all three projects, there are actors that have a wide variety of areas of expertise and tasks. One problem related to this is that this could lead to fragmentation and a lack of cooperation (Pulkka et al., 2016). One way to avoid this is through standardization (Kadefors, 1995), however, in the interviews, many respondents have mentioned that they had an unclear role description and were not completely sure what was expected of them. This was extra clear among respondents working for the client as consultants, external and internal, but it was also the case to some extent among the respondents working full time for the focal organization. This shows that there is either a lack of clear work descriptions related to this part of the focal organization, or that they fail to provide this information to the ones who needs it. This could potentially be one cause of time waste, since the actors needs to spend a lot of time understanding what tasks to perform, especially when entering the project in a late phase, which was the situation for some respondents.

Also, the fact that the focal organization uses a lot of consultants makes it even harder to standardize since new people with different backgrounds and sometimes without knowledge of the focal organizations way of working are frequently involved in projects, often also having key roles. This further emphasizes the issues with not having clear work descriptions, since it makes it even harder and requiring more time for an outsider to adapt and become integrated in the network. Also, since projects have an end, keeping knowledge within the organization is harder when using consultants, since relationship between actors is often disrupted after the project end. Of course, this applies to all types of actors, but it could be of extra interest for the focal organization to keep knowledge within the organization regarding matters that consultants do, since these are tasks expected from the client to be able to perform. This is a problem that is not uncommon in different types of big organizations managing projects, due to the varying demand of resources in terms of people.

However, not all relationships are disrupted when a project ends (Havila & Salmi, 2009; Bengtsson et al., 2018) The client and the end user are part of the same organization and are constantly working together in different contexts, meaning that their relationship remains dormant, if not active. Between the focal organization and the other actors on the other hand, the relationships either terminates or become recurring, if they decide to work together in future projects and informal connections could be kept between the actors even after a project ends. Keeping a constant relationship between the end user and the client does decrease the time required to set up projects in the future, since they know each other and who is good at what from before. Getting to know each other and learning how to cooperate is otherwise one of the hardest things to do, as mentioned in project A.

5.2 Coordination, communication, and information exchange

Kujala et al., (2021) describe that coordination, communication, and information sharing are important parts of network governance. It is therefore interesting to dive into how these aspects are handled within the studied projects. The literature does also describe that network governance can be practiced in two ways, either governed by all actors within the network together, or by a single or a few actors (Provan & Kenis, 2007). Further Kujala et al., (2021) describe that it can be challenging for a single organization to totally control and manage an entire network. This could be argued as especially evident in construction projects since actors involved in the project constantly are changing and each actor commonly are highly specified within a certain area and may have differentiating agendas or interests (Ingemansson Havenvid et al., 2016; Kujala et al., 2021).

Respondents from all three projects are describing that they are interacting and cooperating with all relevant people regardless of if they have a contractual agreement and without always using formal structures. For instance, the end user

in project C is interacting with the contractor, designers, and client even though the respondent doesn´t have any contracts with mentioned parties. Similarly, a consultant in project A is interacting with all actors within the project even though the respondent only has a contractual relation with the client. This shows that even though the focal organization wants to exercise a high degree of control, all information doesn't pass through them. Besides Kujala et al., (2021) address that it wouldn´t be possible in practice.

Instead, the actors are able to coordinate their work within frames set by the focal organization in terms of requirement specifications. The way the project network is governed related to these contexts possesses similarities with the network governance approach (Gorod et al., 2018). The requirement specifications can be seen to influence the network actors which, according to the theory, can be made by applying guidelines, policies, and regulations. In turn this enables the actors within the project networks to cooperate, coordinate, communicate, and share information, but also contribute to the project development and success by adding ideas and feedback (Gorod et al., 2018). A clear example of this is found in project B where respondents are working closely together and jointly develop solutions to changes and additions. However, we want to address that the frame, addressed as the negotiation space in the discussion above, in which the project´s actors can perform their work without disturbance from the focal organization (Law & Callon, 1988), is small and the decision making process is controlled by the focal organization which is discussed in more detail in section 5.3.

Even though the actors within the projects are interacting and cooperating with actors outside the contractual relationships in the projects it is interesting to highlight that the interactions often take place between a few individuals outside actor´s organizational boundaries, not least related to information sharing. When information is shared within the internal organization, practices such as startup meetings in the mornings, whiteboards where problems are addressed, BIM-models, email, and meetings are applied. However, what practices that are applied is widely differentiating between the organizations. But when information is

shared outside actor´s organizational boundaries the respondents describe that the practices are more formal and standardized. Kadefors (1995) states that this is a key in order to coordinate many actors which is the case in a construction project. Information is mainly shared via mail, documentation, different meetings on which different actors attend, but also via IT-platforms which all actors can access. Once again, this shows that the technological tools are part of the network and plays an important role in the project network governance in order to reach successful project outcomes (Dwiartama & Rosin, 2014; Hanseth et al., 2004; Law & Callon, 1988; Yusuf et al., 2016).

By having a small number of people interacting between the different actors, the respondents in project B described that this enables them to avoid misunderstandings and failures. This is well aligned with the benefits of applying few intersections of interactions mentioned by Law and Callon (1988). Information and communication tend to flow quite freely inside each separate organization and between the people that works closely together within the project, but then there are only a few people responsible for distributing information between different groups and actors. This is confirmed in project A and project B as the actors mainly are interacting with a limited number of other actors communicating, sharing information, and reporting over actor´s organizational boundaries. Also, in the other projects it seems like the communication and information exchange crossing actor boundaries mainly is made between a few individuals. However, the respondents within these projects don't mention any underlying reasons for applying this working methodology.

This made us reflect if this used way of operating is required from the focal organization as part of the project network governance since it increases efficiency, or if it is down to each project network members to decide on how to handle these questions. Even though Law and Callon (1988) describe that few intersections are important and increases project efficiency related to the connection between the two types of networks, i.e., local network and global network, it is likely that this is also relevant in intraorganizational connections

between actors as well. Therefore, it could be beneficial if the focal organization provides clear communication and information sharing structures to make sure that there are few intersections in the project to reach more efficient projects if the case is that it is down to each network actor. In turn, the negotiation space could be increased as the focal organization could let up the control a bit, which could contribute to added efficiency.

Even though communication, coordination, and information sharing shows similarities with a network governance approach (Gorod et al., 2018) respondents in project C describe that formal meetings are needed to make decisions. To some extent this is necessary in complex, unique construction projects but, it can also witness about the strict control the focal organization are practicing related to decision making.

5.3 Decision making

The result from the interviews shows that there is a unified view on the decision making process. The focal organization wants to have a lot of control, which is something that is clearly shown in the decision making process. Exerting tight control in line with the command-and-control approach is positive from a decision making perspective since a flatter structure can lead to a more complex and ineffective decision-making processes (Jemielniak, 2016). Also, it was mentioned in interviews that the focal organization try to share information between organizations within the projects through a small number of people, which is desirable according to Law & Callon (1988).

The main factor that steers who have the mandate to make decisions is cost, and the focal organization has a very strict and formal policy about who can make decisions up to what financial sum. This is something that all the respondents are aware of, however, there seems to be some disagreement and/or lack of knowledge regarding exactly which sums the actors have the mandate to make

decisions for. The sums that the different roles have mandates to make decisions for are fixed no matter the size or total cost of the project. This is sometimes seen as a problem by the respondents, since the sums are very small in relation to the total cost of the project, meaning that it is very seldom that the roles that are close to the actual execution of the project can make quick decisions. When a decision needs to be made, for example for a change or something unexpected that turns up, the client's project managers or even the contractor can make decisions as long as it is not too expensive or affects the end product. However, there are very few decisions of such character to be made.

Relating this to the literature about local and global networks (Law & Callon, 1988) this shows that the negotiation space, where the local network has room to work undisturbed separated from the global network, is small. Instead, the global network seems to get involved in many decisions. This gets extra challenging as the focal organization lacks knowledge and experience related to construction. This may decrease project efficiency as actors close to the operations can´t make the decisions. Instead, questions need to be explained for the focal organization and lead times for decisions are increasing. Giving knowledgeable people closer to the actual execution of the project higher mandate for decision making could potentially increase efficiency and, given the right directives, not affect the results negatively.

However, there are divided opinions regarding this. Some respondents find these lead times annoying and that it slows down the project, while other respondents thinks that long lead times is something you have to deal with when working in big organizations like this and that the focal organization manages it relatively well, considering the size of the organization. An interesting point related to this is that in project A and C, different types of solutions and shortcuts have been implemented, allowing roles lower down in the hierarchy to have a more direct contact with the people who have higher mandate, to shorten the decision chain a bit. Since information is a key aspect to be able to make good decisions, this approach can be useful since this simplifies the iterative process of exchanging

information as basis for decisions (Gorod et al., 2018). Although, it does increase the risk of misunderstanding since the number of intersections between actors increases, so it is hard to tell whether this is a good idea or not. The focal organization tries to compensate this by informing the actors that were skipped in the hierarchy level afterwards.

Although there are some tendencies, there is no clear correlation between the perception of lead times and projects nor roles. The respondents working for the focal organization tends to be more tolerant to the lead times in general, which could be because they are more used to this way of working and have a different perspective than from other organizations were respondents on a lower level of hierarchy have higher mandate for decision making. Also, the people working for the focal organization are familiar to the organizational structure and know where to go and who to ask for information and decisions, while this can be confusing for external actors to familiarize with, which requires time. In project C none of the respondents has mentioned lead times as an issue, which could be thanks to the direct communication between C2 and the chair alignment team, but they still state that there are long lead times so it could also be that the different individuals in respective project simply have a different level of tolerance.

5.4 Focal organization´s inhouse knowledge about construction

The focal organization, especially the end user, is a critical actor within decision making since it is the one who is going to use the facility in the end and needs it to be optimized for their operations. Therefore, it is reasonable that the end user has much power over requirements and project outcomes. Pulkka et. al. (2016) and Liu et. al. (2003) describe that it is common that the client has the most formal authority and possibility to affect the processes. For the focal organization, the end user can be se said to have the formal authorities of a traditional client since it is the entity that orders the facility, while the client of the focal organization takes on the responsibilities and tasks of a traditional client and executes the project.

However, it was frequently mentioned during the interviews that the end user lacks knowledge about construction. This is not very surprising, considering that this is not really relevant for the direct business area of the end user, and it is neither something unique for this specific case, but could be the case in any context where the focal organization is active in a different industry than construction. What might be a bit more surprising is that also the client has been said in some interviews to lack knowledge within construction, as the literature brings up the client´s importance for project success (Kometa et al., 1994; Love et al., 2010; Manley & Chen, 2015; Nam & Tatum, 1997; Ingemansson Havenvid et al., 2016) The client is often not as much of a specialist as other actors within construction, but more of a generalist (Pulkka et al., 2016), which could be the reason to why some respondents got this perception.

The interviews show that the client involves many consultants in their projects which seem to be a way to obtain knowledge that is lacking inhouse. Further this might cause challenges in overviewing and developing internal competence. This means that in each project the client needs to go back to basics when putting together a project organization. Therefore, the projects are dependent on that the client succeed in hiring the right individuals, due to both competence and ability to cooperate, which was also mentioned in the interviews. Moreover, it was mentioned that the client doesn't seem to manage this successfully in all projects. The knowledge gap is causing problems as both the client and end user are heavily involved in decision making and the respondents feel like they need to spend a lot of time explaining why they need to make the facility in a certain way, because the end user does not want to spend extra money on something if it is not needed. Therefore, it is of uttermost importance that the information included when making a basis for decisions is clear and relevant when provided to the end user, according to respondents. This is aligned with Kujala et. al. (2021). However, getting approval for needed changes is overall not a problem, as long as the right basis for decision has been provided. That the client, and in this case also the end

user, lacks knowledge has been identified in the theory as one factor that hinders successful project deliveries.

It is an interesting point of view since the end user has such a big impact on the project, due to their high mandate and position in the project organization. Experienced clients with higher standards have a positive impact on the project network (Pulkka et al., 2016), and although the end user has not taken a traditional client role within this organization, they do have the most formal authority and other characteristics that are related to the client in construction projects performed in a more traditional construction context. Moreover, the role of the client in the focal organization is not very well defined and its purpose is described very broadly and a bit vaguely. This raises questions whether they have implemented the right competencies and taken on an optimal role within the organization, or if it could be adapted to their way of working in a more efficient way. This has even been highlighted by people working for the client. Here it is important to emphasize that it is not about that the people working for the client are incompetent, rather that the client and/or focal organization lacks certain competences that could enhance project delivery performance, alternatively that it could be beneficial to review what role and the client should take on in different projects.

5.5 Activities and time distribution

As the literature highlights, project governance does have impact on the outcome of a project (Gorod et al., 2018; Kometa et al., 1994; Manley & Chen, 2015; Provan & Kenis, 2007). Further, project governance has impact on the operational work for the actors within the project network. Therefore, it is both interesting and beneficial to try to find links between governance practices within the projects and the activities on which the actors obviously are spending their time.

Reviewing the results help us understand when, and to what extent, the different

actors are involved in the projects. Further, the results outline that many of the activities that the respondents are performing are quite similar. This helps us getting an overview and understand what type of activities the key actors within a project network spend their time on. We have found out that all activities are related to just a few categories in all three projects. The categories are as follows: coordination, monitoring, firefighting, decision making, reporting, communication, economy, procurement, planning, and information exchange. It is interesting to notice that all actors, in all projects, are performing activities related to coordination, communication, and information exchange as shown in Figure 8, 11, and 14. Based on this it is possible to argue that the project stage doesn't seem to affect the most fundamental categories of activities since all studied projects currently are in different project stages. We would therefore claim that these three can be seen as the basis on which every other activity is dependent. However, this is not surprising since the projects in the construction industry are complex with a lot of specified actors involved through the different project phases. (Gluch, 2009; Ingemansson Havenvid et al., 2016; Lu & Wong, 2007; Sousa et al., 2014). Therefore, to coordinate, communicate, and exchange information is needed and a natural part of the process. But in order to accomplishing these practices in a good and efficient way puts high demands on the client, not least in terms of project governance (Provan & Kenis, 2007).

Coordination, communication, and information exchange are practices that are part of governance themselves, and we believe that the working practices can shed some light on reasons for why certain activities are performed to the extent as they are. As outlined in the discussion above, all actors are interacting and cooperating with many different actors within the project. It is therefore not surprising that all actors are spending time on activities related to these areas, not least since the activities involve at least two actors at a time. However, most external actors in project A got involved late in the project, and many respondents are stating that they feel it was too late and that they, as a consequence, are spending much time on chasing information in order to understand what is going

on in the project. It is likely that this makes the actors spend more time on information exchange.

Further the discussion outlined that there are few intersections when sharing information outside actor´s organizational boundaries. This means that the few individuals handling the information exchange need to collect the information from its internal network, and spread new information to its internal network. This may explain why actors spend much time on information exchange. Since this takes time regardless of if information is distributed via documents, digital models, or internal meetings. Similar do meetings, internal or between different actors, take time from all involved actors. The projects are trying to make meetings as time efficient as possible by making sure only actors relevant in each specific case are attending the meeting. However, much of the actor´s time is still spent in coordination, and information exchange meetings. For instance, respondents in all projects state that a lot of their working time is spent on attending meetings. This ends up in many hours since some of the respondents´ working time ranges from 85-100% of an FTE in the project, which can be seen in Figure 7, 10, and 13. However, we still believe that few intersections between different actors are beneficial from a time consumption perspective since misunderstandings will be less frequent, actors will always know that they have the most recent information and don't need to spend time on double checking or chasing information.

We would like to address that it is possible that some of the communication, coordination, and information sharing is unnecessary, provided twice, overlapping, etc, not least since all actors are involved in the project at the same time. However, this is outside the scope of this report. In order to answer that question further investigation into what specific information that is gathered/shared, similar what the specific communication processes and the information sharing processes look like is needed.

Moreover, other fields of governance seem to affect the actors´ daily activities and how they distribute their time. Decision making is such a field. As discussed above, decision-making, especially related to financial questions, is handled in a strict, hierarchical way having similarities with the command-and-control approach (Gorod et al., 2018). This means that most decisions need to be made by the person with the right mandate at the focal organization. Further, we believe this puts the other project network actors tied up and forced to transfer questions up the hierarchy structures in order to have decisions made by people working far from the operational project. Moreover, this could provide explanations why much time is distributed on activities related to information exchange and communication. Further, it seems to be ambiguous what is included in each actor´s decision making mandate which probably increase coordination, communication, and information exchange activities. It could also give an explanation why decision making activities are differentiating between the projects. As many actors got involved late in project A it is not unlikely that the decision making mandates are even more unclear to these actors, why they don't feel like they are dealing with decision making at all.

As earlier mentioned, the focal organization, i.e., end user and client, seem to have limited knowledge related to construction projects. It is therefore likely to believe that the other actors spend additional time on activities related to coordination, communication, and information sharing because the actors have trouble understanding each other and additional explanation is needed. The interviews also outline that the focal organization possesses strong focus on economy and seems to value the financial aspects as the most valuable of the construction project. In combination with lack of knowledge and experience related to construction projects this tends to increase the likelihood for savings which in a later stage hitting back through problems in the projects, for instance in terms of quality, time, or other deliverables. The strong focus on the financial aspects can also explain why many actors are distributing a lot of their time on activities related to these questions. Combined with the focal organization´s strong focus on control, activities related to monitoring and reporting is also time consuming.

Respondents in all projects describe that they spend much time on economy related activates, some spend about 50 % of their working time related to economy and reporting. Of these, all except one are working full time in the project so also this ends up in several hours.

We believe that decreased control and involvement by the focal organization and thereof increased decision mandates related to financial questions for the actors directly involved in the project, i.e., the local network (Law & Callon, 1988), should be considered. In other projects, local managers from the contractor are able to make financial decisions up to sums significantly higher than both themselves and the project managers at the focal organization are in the focal organizations' projects. This causes a lengthy decision making process. Aligning decision making mandates with similar ones in other construction projects would contribute to save time for the involved actors since time spent on asking for permission and secondary activities are cut off. Especially, time spent on communication, coordination, and information exchange could decrease. In this sense the decision making process would become more decentralized and the negotiation space increased, which is beneficial for the project and is increasing efficiency (Eriksson, 2010; Kujala et al., 2021; Law & Callon, 1988; Nisar, 2013).

Earlier we have also discussed that few intersections between the different actors already are applied within all the three projects. We believe this would contribute to an even faster decision making process and increase flexibility in the project if it is combined with decentralized decision making. This would be beneficial in order to handle the everchanging environment faced in a construction project (Gluch, 2009; Ingemansson Havenvid et al., 2016; Lu & Wong, 2007; Sousa et al., 2014) for which the demand-and-control approach applied today related to decision making is inappropriate (Gorod et al., 2018). Further, we believe that if the way of working is standardized and developed based on the focal organization´s requirements the focal organization is feeling safer on how the project is handled and how decisions are made. Therefore, it is more likely that the focal organization trusts the project organization, decrease involvement in

decision making, and instead focusing on monitoring. The negotiation space would be increased (Law & Callon, 1988).

It is not likely that project network actor´s time related to monitoring activities would decrease, rather increase. However, time spent on the other activities outlined above would decrease. Furthermore, it is possible that such a way of working also would contribute to more clearly stated roles, responsibilities, and authorities which today is unclear for many actors involved in the project according to the respondents. Based on the results of this study we believe clear role descriptions would make it easier for external actors that are involved in the project to contribute and work efficiently. This is also very important and relevant as the client today is heavily dependent on external actors in order to cover knowledge that they don't have inhouse and carry out the projects.

6 Conclusion

This report aimed to increase knowledge about how project network governance is applied and influences project execution in construction projects governed by clients from other industries than construction. The focal organization that was subject for the case study consists of the end user and the client, however, the end user can also be described as the main client, since that is the entity that requests that a facility is to be built, while the client is responsible for making this happen. The study confirms that the client plays an important role in construction and that there are challenges related to having a not very knowledgeable nor experienced client. This is something that could be of interest not only in this specific case, but also for similar construction projects where the client usually operates in an industry separated from construction, like hospitals etc.

To answer our first research question, the problems get even clearer since the focal organization practices strict control on decision making related to financial aspects and changes. In these questions, actors close to the project have small mandates to make decisions and the focal organization is usually involved. Further, overall role descriptions and decision mandates are unclear for actors involved in the project network. However, the focal organization practice less control on, and is less involved in, flows of information, communication, and coordination and few intersections between actors are used when such activities take place outside actor´s boundaries.

To answer our second research question, the focal organization lacks inhouse knowledge about construction and therefore involve many consultants in their projects. Knowledge and experience are therefore lost when projects are finished rather then been kept inhouse. The outcome of each project is therefore heavily dependent on finding the right people which the client doesn't always succeed with. Sourcing more in-house knowledge could enhance the client's ability to execute projects efficiently, increase learning and maintain knowledge from past experiences. The lack of knowledge leads to that those who know construction

gets held back while the focal organization requires time to understand the project, which they need in order to make decisions and advance with the project. Much time is spent on explaining and convincing the end user, sometimes also the client, why certain resources are needed since those actors have trouble understanding. We therefore believe that decentralized decision making, and raised financial decision making mandates, together with already existing few intersections over actor's organizational boundaries, could contribute to better project execution.

To answer our third research question, the roles of and time of involvement for consultants and other external actors is also of interest. The study outlines that all actors spend time on activities related to coordination, communication, and information exchange independent of project phase or stage. Further does the focal organization´s lack of knowledge and strong focus on financial aspects seem to increase the other actors time distribution on coordination, communication, information exchange and economy, not least related to decision making. The later parties are involved, the harder it is for them to catch up with information and to understand the project, which requires time and makes cooperation more complicated. Earlier involvement of these actors could decrease time needed for these types of activities and form a more efficient project organization, and also get input from experts at an earlier stage.

By identifying issues related to mentioned topics, these types of organizations could potentially benefit greatly by increasing knowledge and understanding of how clients from other industries can order and maintain facilities, likewise govern construction projects in relation with the construction industry actors, which might require another type of competence than what is possessed by the organization. By acknowledging this, the construction process can be more effective, leading to increased financial and resourceful gains. Moreover, it could potentially reduce risk of delays which could affect the main operations negatively, and improved financial situation for the whole organization as construction projects usually are related to big investments. In other words,

relevant knowledge and management approaches enable time and cost savings and would therefore be of highest interest of organizations operating with projects of this type.

The methodological choices on which this study is performed may limit the results and conclusions. Firstly, data collection was based on qualitative data. This might affect the reliability of the results since the data reflect opinions and experiences of the respondents rather than the different roles. Secondly, the snowball selection method leads to that it is known by some individuals at the focal organization which individuals that were interviewed in this study which may affect how the respondents answered the questions. Thirdly, number of respondents and the respondents´ professions have varied between the projects which may affect the comparability between them. By interviewing the same professions in each project and using quantitative data as a complement, we would have got bigger set of data that would have been more reliable and comparable, especially related to activities and time distribution.

This study has provided an overview of areas within project governance that affects project implementation. For instance, the results show that the decision making process has huge influence on project execution. Therefore, we suggest future research to investigate this process in more detail, especially related to decision power and decision mandate. Moreover, we think the focal organization's view on and approach to partnering could be further researched, since they perform strict control in many aspects, which is differentiating to how partnering is generally performed. Further, it would be beneficial to investigate how other organizations, similar to the focal organization, are handling governance of projects taking place outside of their main area of business.

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DEPARTMENT OF TECHNOLOGY MANAGEMENT AND ECONOMICS
DIVISION OF SERVICE MANAGEMENT AND LOGISTICS
CHALMERS UNIVERSITY OF TECHNOLOGY
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