



CHALMERS
UNIVERSITY OF TECHNOLOGY

Collaboration in Early Stages of Construction Project Development The Role of Internal Partnering

Master's Thesis in the Master Programme Design and Construction Project Management

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Göteborg, Sweden 2018

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ABSTRACT

Real estate developers and contractors have different knowledge and demands, to coordinate them into to successful and profitable internal projects puts high demand on internal collaboration. In early phases there is a balance of when to include contractors into projects, historically contractors have been involved late in processes when blueprints are completed but nowadays contractors gets involved earlier into the process through partnering and Design Build contracts. This puts high demands on a deeper collaboration and a well functional relation between parties. Therefore, it is necessary for companies to elaborate ways to collaborate and to evaluate how they work to achieve successful collaboration. However, as a collaborative concept, partnering is not obtained easily. High competence on how to manage and implement partnering is required to achieve potential advantages. To investigate how collaboration in early stages within internal partnering can be developed a literature review and an empirical study have been conducted. The empirical study contained interviews and an internal document review to give a multidimensional understanding of internal collaboration processes and was through a case project studied at a large construction corporate group.

Soft factors as trust and cooperation ability together with hard components as contracts and incentive systems were found as the most important factors for successful internal collaborations. Cornerstones of partnering are presented as mutual goals, economy, understanding and organisation. However, there is a balance of interests and mutuality within internal strategic partnering that needs to be addressed to enable corporate group results. Overall, implementation of partnering requires a holistic adoption in processes and behaviours, however, it is concluded that organisations have implemented the concept but somehow forgotten to adopt the organisation.

Key words: Collaboration, Construction industry, Incentives, Internal partnering, Partnering, Strategic partnering, Target price, Trust.

Samarbete i Tidiga Skeden inom Projektutveckling i Byggindustrin

Rollen av Intern Partnering

Examensarbete inom masterprogrammet Design and Construction Project Management

Anton Lindroth

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Institutionen för arkitektur och samhällsbyggnadsteknik

Avdelningen för Construction Management

Chalmers tekniska högskola

SAMMANFATTNING

Fastighetsutvecklare och byggnadsentreprenörer har olika typer av kunskaper och behov. Att samordna dessa till framgångsrika och lönsamma interna projekt ställer höga krav på samarbete. I tidiga skeden är det en balansgång när entreprenören ska involveras i projekt, historiskt har entreprenörer involverats sent efter det att bygghandlingar varit färdiga. Branschen har däremot gått mot att involvera entreprenörer tidigare i processer genom partnering och totalentreprenadkontrakt. Detta skapar höga krav på samarbete och väl fungerande relationer. Därav är det nödvändigt för företag att utveckla och utvärdera samarbetsätt för att åstadkomma framgångsrika samarbeten. Partnering som samarbetsätt är dock inte lätt att implementera. För att leda partneringrelationer och möjliggöra dess fulla potential krävs en hög kompetensnivå inom partneringsamarbete. För att undersöka hur samarbeten i tidiga skeden inom interna partneringrelationer kan utvecklas genomfördes en litteraturstudie och en empirisk studie. Den empiriska studien innefattade intervjuer och undersökning av interna dokument för att ge en multidimensionell förståelse av den interna samarbetsprocessen. Detta har studerats med hjälp av en fallstudie inom en stor koncern i byggbranschen.

Mjuka parametrar som tillit och samarbetsförmåga samt hårda parametrar som kontrakt och incitamentssystem har visats sig vara betydelsefulla för ett lyckat internt samarbete. Gemensamma mål, ekonomi och organisation är nyckelfaktorer för lyckade partneringprojekt. För att möjliggöra bra resultat för en koncern måste dock egna intressen och ömsesidighet balanseras. En implementering av partnering förutsätter en helhetssyn och anpassning av processer samt beteenden, organisationer tenderar dock att missa detta.

Nyckelord: Byggbranschen, Samarbete, Förtroende, Incitament, Intern partnering, Partnering, Riktpris, Strategisk partnering.

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Preface

This Master thesis of 30 credits was conducted during spring 2018 as a part of the Master Programme Design and Construction Project Management at Chalmers University of Technology. The thesis was written at the department of Architecture and Civil Engineering where docent Mathias Gustafsson supervised and gave valuable input for the process. The thesis was conducted in collaboration with a large Swedish contractor and its internal client for real estate development. Our supervisor at the case company guided us through the process and gave great feedback to our work. Noteworthy is that there is a potential conflict of interest as one of the authors have connections to the case company.

We would like to thank our supervisors at Chalmers University of Technology and at the case-company. Further, we would like to thank all interviewees who have set aside time to contribute to the study with knowledge and valuable insights.

Gothenburg, June 2018
Anton Lindroth & Gustaf Magnusson

Glossary

Collaboration manager

Cost reimbursable

Design Build

Design Bid Build

Real estate developer

Framework programme

Programme document

Project planning document

Target price

Partneringledare

Löpande räkning

Totalentreprenad

Generalentreprenad

Fastighetsutvecklare

Ramhandling

Programhandling

Systemhandling

Riktpris

1 Introduction

Partnerships that include two or more companies or divisions within the same corporate group are common in real estate project development, as NCC (2016), Skanska (2016) and Peab (2016) exemplifies. In described partnerships, a real estate developer function as client ordering a product from a contractor, however, both operates under the same parent company. All divisions, or companies, cooperate to function as one profitable corporate group. As both should deliver individual results within the organisation collaboration and a balanced coordination of interests becomes of importance (International Partnering Institute, 2018).

1.1 Background

Initially, a real estate developer undertakes internal projects within an organisation and when schematic plans are set, the internal contractor is involved into the process (Communication with case company). The real estate developer and the contractor have their knowledge and demands, to coordinate the process into to a successful and profitable project for both parties as well as the corporate group puts high demand on collaboration. In early stages of a project, it is common that the project developer sets a budget according to a framework programme, which represents the purpose of a building. Next in the process, the contractor is involved, which according to the framework program continue with project planning to come up with a target price, however, synchronized with the client's budget. The process to become unanimous about a target price requires great collaboration and understanding of each other's interests between the client and the contractor. However, collaboration can become too time consuming and people often collaborate ineffectively (e.g. Cross, Grant & Rebele, 2016). Forsström (2017) states that companies need to make processes more effective and utilize modern techniques for information sharing. However, Greene (2017) describes that if employees have too many processes for collaboration, they rather confuse than help. Employees want simple and few collaboration processes. Therefore, it is necessary for companies to develop collaborative ways and evaluate how they work to achieve successful collaboration.

Bresnen & Marshall (2000A) explain that the concept partnering implemented between clients and contractors has resulted in advantageous collaboration as well as knowledge and experience exchange between parties. Partnering is supposed to improve communication between actors and benefit from the competence of each party. Hence, it is vital to study internal partnering as increased collaboration between internal parties could affect overall company performance. However, as a collaborative concept, partnering is not easily achieved (Eriksson, 2010). High competence on how to manage and how to implement partnering is required to achieve potential advantages.

It is understood that previous research focus on the relation between external parties, little is focusing on internal relations in the construction industry. However, it can be claimed that external processes can be applied on internal processes as well. This, because organisations often are divided in subsidiary companies or divisions which make internal collaboration similar to external collaboration. The thesis will investigate this further.

1.2 Aim and problem statement

The aim of this thesis is to contribute with insights that can enhance the knowledge about partnering within early stages of internal project development. The thesis will evaluate challenges within internal collaboration and what makes internal collaboration functional. The aim of the case study is to identify key properties which enable efficient collaboration in early stages of project development among a client and a contractor operating under the same parent company.

Questions that the thesis concern are; Which are the key properties that enable collaboration in early stages of project development among a client and a contractor operating under the same parent company?; What are the challenges of internal collaboration?; How could internal project collaboration be developed?; Are there any tools or techniques that could be used to support internal collaboration?

1.3 Delimitations

The empirical part of the thesis is delimited to one corporate group within the Swedish construction industry. The literature review has a broader international perspective but is restricted to the construction industry. Empirical data is delimited to discuss collaboration among an internal client and its internal contractor, specifically one project has been analysed. The two parties are a client and a contractor within real estate project development and the studied project is a partnering project.

2 Method

The thesis is built on a qualitative research approach. Collection of information that enables the thesis is done in one theoretical and two empirical ways. The theoretical framework is built on a literature review and an empirical study including interviews and a document review that give information about current practice. The process starts with a literature study to build a solid framework to base empirical data collection on.

2.1 Research strategy

According to Bryman & Bell (2013), there are two main research strategies, quantitative and qualitative. The two strategies differ and the most suitable for a specific aim of a research must be chosen. A quantitative strategy focuses on large sample groups and aim to collect high volumes of data. A qualitative research strategy focuses on interpretation instead of quantities as numbers and volumes, quality in studied material should be focused on instead of quantity (Bryman, 2008). In addition to this difference among the two, Bryman & Bell (2013) highlights some factors that they argue distinguish qualitative studies from quantitative. The inductive viewpoint as well the interpretative viewpoint distinguishes from quantitative studies. Bryman & Bell (2013) further claim that for research with exploratory research questions, qualitative strategies are the most suitable. Accordingly, the qualitative strategy supports the aim of this thesis the best, therefore, the study is done in a qualitative manner. The theoretical framework is based upon theory that is strongly connected to the studied field and quality is in focus instead of quantity when gathering data. Further, the empirical data collection includes an interview study that is done in a semi-structured qualitative manner and the emphasis is on interviewing appropriate people instead of the number of interviewees.

Furthermore, research strategies vary in approaches of handling the connection between theory and empirics. There are several approaches, all with different positions and approach angles (Le Duc, 2007). Deduction, on the one hand, is the most classic scientific method, which has its base in a theoretical framework or model. According to this method a hypothesis is formulated, which further is tested with empirical data such as observations from reality. Induction, on the other hand, is built with empirical data as a basis for a theoretical framework. However, there is a third approach referred to as abductive method, which can be seen as a mix of the deductive and inductive. Within the abductive approach, the processes of theoretical and empirical data collection are done simultaneously in an iterative parallel process where insights in both areas along a research project give new directions to the study. Looking at qualitative and quantitative strategies, the abductive approach has become popular within qualitative studies (Bryman & Bell, 2013). The reason that make the abductive more suitable for qualitative strategies is the iterative process. The researcher is not forced to move either from theory to empirics or from empirics to theory, instead the two are combined in parallel. To exemplify the abductive method, Le Duc (2007) claims that some minor interviews can be carried out in the beginning of a study to get a reference framework to build further extensive research on. Accordingly, the abductive approach is found most suitable for the aim of this thesis. Thereby, the approach is abductive throughout the thesis project.

2.2 Literature review

A literature review is performed to place the aim of the thesis into a broader academic background. Scientific databases as; Summon at Chalmers University of Technology, Science Direct and Google Scholar are used to gather relevant research material. Search words as; Collaboration, Collaborative overload, Early Contractor Involvement, Experience feedback, Incentives, Internal partnering, Partnering, Partnerships, Strategic partnering, Trust and Target price are used. These search words have been chosen in accordance with our supervisors.

The thesis process starts with a literature review, however, it is continued throughout the entire process as new insights are gathered as suggested in abductive research (Le Duc, 2007). The study is based upon articles, scientific articles and books. The fields that are found most appropriate and thereby are studied the most are partnering, Early Contractor Involvement, compensation structures and trust building factors. The concepts of partnering and Early Contractor Involvement are studied to understand how collaboration, contract forms and early involvement of the contractor could affect a client to contractor relationship.

2.3 Empirical review

The empirical study is performed to get an understanding of how the contractor collaborate with the client within the same corporate group. As a part of a qualitative research study, Bryman & Bell (2013) highlight that interviews as well as a document analysis are two sufficient methods within empirical data collection. Thereby, internal documentation about the partnering concept that the company uses is analysed in order to understand how relations can be improved. The formal agreements that were signed by both parties are also analysed to understand the situation among the parties. Interviews are conducted to understand the relation among the parties in practice.

2.3.1 Interview study

According to DiCicco-Bloom & Crabtree (2006) and Bryman & Bell (2013), interviews are one of the most familiar strategies used to collect qualitative research data. To understand the relationship between the studied contractor and client in detail an interview study is conducted. Interviews are done with personnel who were involved in the case project or by any reason can be a source of knowledge relevant for the study. Some exploratory interviews are conducted in the beginning of the process to understand what relevant questions to pose in the main interviews. According to Silverman (2013), the methodology of conducting minor interviews before structuring material for main interviews could function as a mean to test out questions beforehand. In total a number of 18 interviews are conducted. All interviews are held in Swedish and answers are therefore translated into English. All interviews are recorded to not miss something. Both authors participate in all interviews and together complementary questions are asked and notes are taken to gather as correct information as possible.

The aim with the main interviews is to understand what factors and behaviours that actually facilitate collaboration between the two parties. Therefore, personnel from both the client and the contractor are interviewed. A qualitative interview study is chosen to gather detailed information about the collaboration processes. Qualitative interviews

aim to let the interviewee share thoughts and knowledge that requires exhaustive answers (Hedin & Martin, 2011), which support the aim of the thesis. According to Kvale & Brinkmann (2009), a qualitative interview study aims for understanding the situation from the interviewee's viewpoint and experiences.

DiCicco-Bloom & Crabtree (2006) state that interview studies can be divided into three main types; unstructured, semi-structured and structured. Structured interviews are mainly used to gather quantitative data, while unstructured as well as semi-structured aim to gather qualitative data (DiCicco-Bloom & Crabtree, 2006; Bryman & Bell, 2013). Unstructured interviews are often used in conjunction with observations, while semi-structured often form the empirical basis for a research study by itself (DiCicco-Bloom & Crabtree, 2006). Semi structured interviews are regularly based upon some predetermined questions. However, follow up questions that emerge by the discussion usually follows, this makes it the most widely used for collecting qualitative data. Due to the aim of this thesis a semi-structured interview study is conducted, this enable the interviewees to develop own answers not affected by pre-set alternatives (Bryman & Bell, 2013). As a semi-structured interview study imply, a number of predetermined questions are asked but there was still room for interviewees to openly share own experiences about the theme of the study. As semi-structured interviews enable supplementary questions to be asked there is no strict sequence that hamper spontaneity. In order to gather trustworthy and spontaneous answers the choice is made to not present interview questions for interviewees beforehand. The choice of interviewees is made solely on their involvement and experience from the field studied and their role in the case project. However, the decision about exactly what people to interview is done together with the supervisor at the case company. Both personnel working at the client and the contractor are interviewed to gather a fair-minded understanding of the collaborative processes. To secure anonymity, the interviewees are presented by letters, which have no correlation with the order of interviews.

2.4 Ethical issues

Ethical risks and issues are important factors to consider when conducting interview studies as these include ethical dilemmas (Bryman & Bell, 2003; DiCicco-Bloom & Crabtree, 2006; Kvale & Brinkmann, 2009; Bryman & Bell, 2013). To concretize, DiCicco-Bloom & Crabtree (2006, p.319) divide ethical issues related to the interview process of information collection into four:

1. *Reducing the risk of unanticipated harm;*
2. *Protecting the interviewees information;*
3. *Effectively informing interviewees about the nature of the study, and*
4. *Reducing the risk of exploitation.*

According to the four issues presented and the risks that they imply, interview questions are formed in a close dialogue with the supervisor at the contractor to ensure quality in questions and to not harm interviewees. Both DiCicco-Bloom & Crabtree (2006) as well as Kvale & Brinkmann (2009) emphasize the importance of informing interviewees about the purpose and setup of the study. Therefore, during interviews the purpose and the setup of the research is presented. This is also done to ensure quality in answers as well as an openness to contribute to the study. Kvale & Brinkmann (2009)

and Bryman & Bell (2013) confirm the importance of protecting interviewees information and to show loyalty for interviewees answers. To achieve this, they argue that that anonymity should be kept if interviewees request it. Information that interviewees do not want to be published should be kept in a secure environment and information gathered should not be used for other purposes than conducting the study (Bryman & Bell, 2013). To secure further anonymity the interviewees are kept anonymous in the thesis. Interviewees should also have a possibility to affect interpretation of their answers (Kvale & Brinkmann, 2009). Because of this, the thesis is presented to interviewees before published so that shared viewpoints and interpretations can be confirmed.

2.5 Data analysis

An important factor of scientific research is how a data analysis is performed. However, qualitative data collected through interviews or observations can be difficult to analyse as it often consists of extensive and unstructured material (Bryman & Bell, 2013). Because of this, Bryman & Bell (2013) argue that there are no simple standardized tools for how to analyse qualitative data. Within quantitative research there are several analyse methods including for example codifying of data on predetermined codes, while systems as predetermined coding are not efficient to use within qualitative analysis. However, this should not be aimed for either, as it is not suitable. Coding can be done within qualitative analysis, however, codes will be established after or simultaneously with data collection. Bryman & Bell (2013) further state that the most commonly used method within qualitative research analysis is based upon an iterative process with a close correlation between data collection, analysis and theory.

Another significant difference between qualitative and quantitative analysis is that the quantitative analysis is always conducted after data collection, while the qualitative can be done simultaneously as data collection as an iterative process (Bryman & Bell, 2013). Further, DiCicco-Bloom & Crabtree (2006) confirm stating that research done with qualitative data collection should be analysed simultaneously in a parallel process as an empirical and theoretical framework is built. When new empirical data is gathered, theoretical data might be further analysed with different angles than before findings.

2.6 Method criticism

When conducting a research project and choosing research strategy, a researcher has to understand that there are merits and demerits with all strategies (Bryman, 2008). For example, researchers focusing on quantitative research tend to criticize qualitative research and vice versa. Quantitative researchers often emphasize that qualitative studies rely too much upon researchers own unsystematic interpretations. Focus is said to be too impressionistic and rely too much upon opinions that a researcher has. It is further claimed that the character of a researcher could affect the results. This should be kept in mind when reading a study conducted in a qualitative manner. Results of a qualitative study can be of high relevance, however, it can be difficult to generalize and compare results. One must bear in mind that one case project has been studied in the thesis. Some critics stretch this arguing that it is impossible to compare results from qualitative studies to results from other studies. Furthermore, during research, Bryman & Bell (2013) highlight the importance of being critical. During a literature review, it

is important to criticize rather than summarize and be critical to findings in theory. Validity in research material must be investigated before being used and referred to. Despite presented critique of the research strategy chosen, it is the most appropriate for the aim of this thesis due to previous stated reasons

3 Literature Review

Partnering and Early Contractor Involvement (ECI) are two concepts that have much in common (Communication with case company). Largely, the two terms refer to a collaborative relation within the construction industry, however, they are somewhat used and understood differently. Depending on country and field within the industry, different terms are used and the concepts are not exactly alike. The focus varies and therefore the concepts are presented separately. However, partnering is concretized and in this thesis viewed as a collaboration between a contractor and client that is built upon trust and executed in form of a design-build project. Long term partnering, however, is not entirely built upon Design Build contracts because other contracts are needed in longer relationships. It does not per se affect that specific projects within long term partnering are built upon Design Build contracts. Within collaborative business relations, Yeung, Chan & Chan (2007) found that soft factors as trust and cooperation ability together with hard components as contracts and incentive systems are the most important components. Furthermore, early involvement of contractors and a win-win philosophy are claimed as important factors.

3.1 Partnering

The construction industry is identified as an industry with complex relations between many involved parties in project organisations (Cheng, Li & Love, 2000). Improving relations among all involved organisations therefore becomes of high importance to improve overall business performance. Previous research on relational clusters done by Bygballe, Swärd & Jahre (2010) indicate that partnering tend to focus on two sided relations between one client and one contractor. This narrow perspective is confirmed by a study from Fortune & Setiawan (2005), who describe that almost one third of companies that use partnering do not have the same kind of arrangement with consultants involved in the project. Contractors tend to have traditional agreements with their subcontractors as well within partnering projects (Bygballe et al., 2010). Partnering is not a contractual form in the Swedish construction industry, rather it is a working style built upon ethical rules of conduct not regulated by contracts (Kadefors, 2002). By a use of partnering to its fullest, interorganisational project performance can be increased which can give increased project performance. Partnering as concept is said to bring advantages in areas of quality, time and cost reductions (Eriksson, 2010). However, partnering is not easily implemented. Eriksson (2010, pp. 906) claims: *“The transformation from adversarial to cooperative relations requires a holistic and systematic change in structures, processes and attitudes”*.

According to Bygballe et al. (2010) partnering is the most significant development which could lead to increased project performance within the construction industry. Cornerstones that lead to increased performance are said to be relation building, mutual goals, systems for conflict handling, and systems for improvements (Kadefors, 2002). However, according to Nyström (2005), there is a common understanding that involved parties need to have only mutual goals within a partnering relation. Kadefors (2002) explains mutual goals as a win-win attitude, where individual goals are reached by fulfilling mutual goals. With goals organized as this, there is no winning of sub optimizing. Both Das & Teng (1998) and Nyström (2005) explain that this is wrong. A situation with completely mutual goals is impossible to reach as both firms aim to maximize own profit. However, Nyström (2005) claims that there should be a mutual

understanding and respect of each other's interests, as it will make it easier to compromise in negotiations. Goals can be similar, although not completely the same. Within a partnering relation, there is a higher possibility that it exists a better understanding of the parties' separate organisational goals (Nyström, 2005).

The practical form of partnering can vary depending on wielder and it exists numerous definitions and understandings of what partnering exactly is (Nyström, 2005; Bygballe et al., 2010). The lack of a cohesive understanding of partnering is by Eriksson (2010) claimed as one of the problems with the concept. It becomes difficult to implement and use with success, as it is misunderstood. Looking at one definition, Crowley & Karim (1995, pp. 36) argue that partnering is:

“A co-operative strategy that an organization implements by modifying and supplementing the traditional boundaries that separate organizations in a competitive eliminate.”

Eriksson (2010) claims that a cohesive understanding of partnering is of high importance. However, Nyström (2005) discuss that a first step towards a cohesive understanding and definition of the concept might be to understand that such definition is impossible to agree upon for a concept as multifaceted as partnering. However, a common understanding might be necessary as a key factor with partnering is said to be mutual understanding (Nyström, 2005).

Cheng et al. (2000) state that partnering relations can be used during all phases of a construction process. A partnership can be initiated during early stages prior to bidding and continued throughout execution of a project. Dewulf & Kadefors (2012) put forward that partnering can be used in a variety of arrangements, from one-off projects between two parties to long term relationships lasting for several projects in large clusters. Cheng et al. (2000) specify that single project partnering is less effective than long term arrangements. Commitment and trust, which are seen to be essential cornerstones in partnering relations, could not be developed fully during one single project and longer-term collaborations are therefore more effective. Dewulf & Kadefors (2012) argue that many scholars highlight formalized partnering as a tool which can be used to establish trustful relations. Although project partnering might not be as efficient as longer term partnering when it comes to trust building. However, Bygballe et al. (2010) claim that project partnering can be considered as a first necessary step in all strategic long-term partnerships.

Organisational attributes can inhibit or support cooperative approaches (Bresnen & Marshall, 2000A). Partnering is determined to resolve problems through effective collaboration instead of an adversarial environment that could result in litigations. A study done by Courtney et al. (2009) show that companies within the construction industry that use collaborative approaches achieve better results than the ones that use conventional methods. As Bresnen & Marshall (2000A) explain, project times can be reduced, costs can be lowered and quality can get higher. Especially if a contractor can be involved early in a design phase with buildability input and maximize value engineering. Moreover, Bresnen & Marshall (2000A) claim that partnering can be seen as a model with greater focus on learning, which results in improved quality and safety. Furthermore, they claim that an improved customer focus through partnering result in customer satisfaction and good responsiveness to changing markets. Lastly, Bresnen &

Marshall (2000A) specify that long term partnering enables stability in workload which makes it easier to allocate resources. However, Bresnen & Marshall (2000A) also argue that although it is easy to focus on success factors with partnering there are also drawbacks that are by no means absent. It is important to understand that the use of partnering does not always result in effective outcomes and that a use of traditional agreements is not necessarily ineffective.

Benefits of project based partnering are not necessarily the same as benefits from long-term partnering (Bresnen & Marshall, 2000A). In project based partnering it is only possible to change and adapt over a time frame of one single project and a relation could possibly rely on contracts and be actively engineered. However, in long-term arrangements collaboration needs to evolve naturally over a longer period and is difficult to only base upon a formal agreement as a contract among parties. Therefore, it is possible to see it as both a formal development and an informal development. The formal, project based arrangement, can be actively engineered and does not necessarily have to evolve naturally as required with long-term arrangements, which can be reflected in incentive systems in partnering agreements. The importance of a contract varies, depending on view of the partnering relation. However, some may use a formal agreement as a safeguard for a partnering relation and to truly rely on that may not be sufficient to reach an efficient relationship. As Bresnen & Marshall (2010, pp. 233) argue: “*There is a paradoxical danger that partnering could become a victim of its own success*”. Beach, Webster & Campbell (2005, pp. 612) confirm this paradoxical situation stating that: “*Questions remain as to whether an environment which is frequently characterized by one-off contracts and short-term gains is capable of supporting a concept which is based in mutual trust and long-term collaboration*”.

Moreover, Rasmussen & Shove (1996) explain that it is easy to overemphasize organisation's ability to overcome limitations and structural barriers. They emphasize that there is no easy way to overcome structural problems and conflicts nor an easy solution to comply with powerful financial initiatives and well-established traditions. Dubois & Gadde (2010) further problematize partnering and conclude that collaboration efforts among businesses firstly concern project partnering, while strategic long term partnering seems to be lacking. There is an important difference between these according to Dubois & Gadde (2010) who explain them as differences in adaptation, interaction, and mutual orientation occurring from institutional norms and behaviours that originate in decentralized projects and competitive tendering. Furthermore, they specify fundamental differences between “*High-involvement relationships*” and “*Typical relationships in construction*” (Dubois & Gadde, 2010, pp. 258), where several relationship dimensions are presented and compared. The basic differences are that construction relationships are closed and have a ‘we against them’ mentality where firms avoid responsibility (Dubois & Gadde, 2010). This in contrast to high involvement relationships where companies work together and try to come up with mutual solutions and responsibility. This can be seen in that construction companies often neglect ability to collaborate to retain information within the company useful for a successful relationship and successful projects (Bresnen & Marshall, 2000A; Dubois & Gadde, 2010). The opposite situation, with mutual economy including open books, mutual project objectives and a mutual project organisation can be seen as key factors in order to develop a successful partnering relation (Eriksson, 2010). A study done by Hagberg & Hjelt (2011) conclude that mutual goals, engaged and competent

employees, communication, open books and early involvement of the contractor are key factors for successful partnering relations.

Early Contractor Involvement (ECI) is a rather new concept that refers to a working model where a contractor is brought into a project earlier than in traditional Design-bid-build or Design-build contracts (Francis & Kiroff, 2015). In order to enable early involvement, a procurement process is divided into a two-stage process, where a contractor in the first stages is contracted as a consultant. According to Eriksson & Hane (2014), this system enables clients to review the work of the contractor and cost-estimates before entering into further collaboration. If a client accepts cost-estimates and such from the contractor, this is further used as target price in the project, which potential incentives are based upon. The earlier in the process the contractor is involved, the greater are opportunities for large influence on the project and cost implications of changes are at the lowest (Lahdenperä, 2010). ECI has proved to enable advantages in terms of cost and relationship factors due to increased collaboration between client, design team and contractor (Francis & Kiroff, 2015)

In the Swedish construction industry, the concept of ECI is still fairly unused within real estate development (Communication with case company). The concept is used within infrastructure projects, however, the concept can be seen as equivalent to partnering which is more widespread within real estate development.

3.1.1 Strategic partnering

A partnering agreement established in the construction industry for one single project is often referred to as project partnering, while partnering agreements lasting for a number of projects are referred to as strategic partnering agreements (Alderman & Ivory, 2007; Kadefors, 2011; Eriksson & Hane, 2014). Long term relationships have become frequently used within other industries, such as the automobile industry, whilst the construction industry still tend to focus on short-term relations (Bygballe et al., 2010). However, according to Rhodin (2012) long-term partnerships have been used for a long time although not managed in a formalized manner according to a specific concept. The actual concept of strategic partnering was first introduced in the UK in the 90s and came to the Swedish market in 2000 (Rhodin, 2012). However, naturally long-term collaborations have existed long before this among for example; clients, consultants and contractors although not in a formalized manner.

If there is repetition from one project to another, a strategic partnership is especially functional (Rhodin, 2012; Eriksson & Hane, 2014). This is because the longer repetitive relation enables experiences and knowledge to be gathered and transferred into new projects (Rhodin, 2012). Rhodin (2012) views strategic partnering as a way to move the construction industry into a more industrialized industry, where experience feedback from other projects and integrated design and production are key factors. Rhodin (2012) further presents research results from The University of Reading in the UK which show that projects included in a longer strategic partnership had 40 percent lower costs and 50 percent shorter project times compared to other projects. However, the study also indicates that further extended partnering relations including the entire supply chain could get even larger cost and time savings.

Strategic partnerships are often formed when two organisations each have business assets that the other can benefit from and the partners do not want or cannot develop within their own organisation (Bardin et al., 2014). An important difference between a traditional way of working and a strategic partnering concept is how deep in an organisation collaboration reach. In a traditional collaboration, cooperation stays on an operational level, whilst in a strategic partnering collaboration, collaboration reach to both a tactical and a strategic level, as described in figure 1 (Rhodin, 2012).

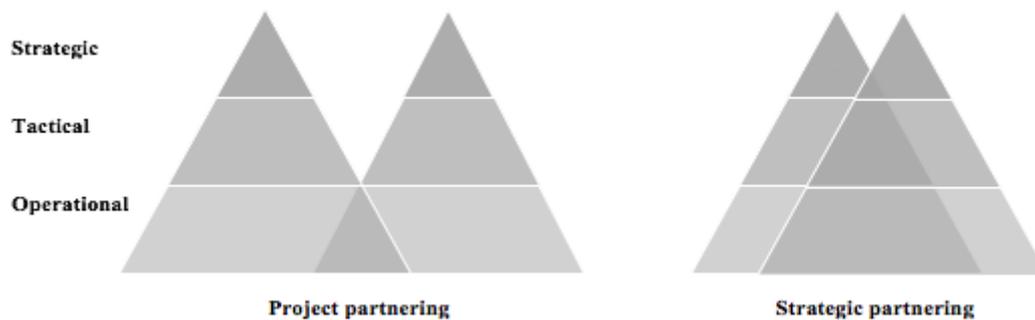


Figure 1: Traditional collaboration versus strategic collaboration, based on Rhodin (2012)

Bardin et al. (2014) argue that strategic partnering involves strategies of an entire enterprise and not only strategies of specific projects. Partnering has evolved as a strategy to prevent conflicts and adversarial relations among individuals and work as a value adding part to contracts (Cheng, Li, Love & Irani, 2004). A comparison between project partnering and strategic partnering carried out by Cheng et al. (2004) emphasizes that project partnering is about partnering goals and performance, while strategic partnering is about mutuality. In other words, project partnering is result oriented and strategic partnering process oriented (Cheng et al., 2004).

3.1.2 Internal strategic partnering

Internal strategic partnering refers to long term collaborations among two or more parties within the same organisation (International Partnering Institute, 2018). According to Smith & Nelson (2009, pp. 1) “*Strong internal client partnerships help to better link strategic plans, goals and objectives across an organization*”. Collaborative relations could exist among divisions or companies operating within the same corporate group (International Partnering Institute, 2018). All parties within the corporate group that influence the project outcome can be part of an agreement, such as a client and a contractor. Strategic long-term collaborations can enable greater co-creation processes where developments in one collaboration or project can be transferred and benefitted from in further collaborations. Frequently occurring problems can be highlighted and solutions can be brought into new projects. According to the International Partnering Institute (2018), such collaborative relations could make design to cost processes and payment processes more effective by improved communications between construction and contract developers. Construction solutions can be discussed together with contract developers to solve issues and come up with cost-effective solutions. Despite this, Rigsbee (2018) and Smith & Nelson (2009) note that remarkably few organisations pay sufficient attention to internal partnering and relationship management. To strengthen, collaboration managers are frequently employed to manage external partnering relations but are seldom used internally

(Rigsbee, 2018). Furthermore, Rigsbee (2018) argues that one factor which hamper internal collaboration as well as a use of internal collaboration managers is the fact that divisions often are rewarded on performance of the division, not on partnership results or at any larger perspective. Rigsbee (2018, pp.1) questions: “*Where’s the incentive to build collaborative internal relationships between business units if the sole measurement for success is single unit performance and profitability*”. Financial structures must be adapted to match internal collaboration working models. Financial compensations can be related to division results, however, a large factor should as well include overall project and company performance. This as a necessary requisite in order to build internal partnering relations (Rigsbee, 2018).

3.1.3 Trust

Cheung & Wong (2004), Nyström (2005) and Kadefors (2004) explain that trust among parties is a key to collaboration and successful partnering relationships. System based trust is one of the most important factors, built upon laws and contracts (Cheung & Wong, 2004). This imply that it is crucial to formulate fair contracts that consist of channels to resolve conflicts at the start of projects. However, Bresnen & Marshall (2000B) question if it actually is possible to build trust through contracts because of its nature to steer and control. Kadefors (2004) further emphasizes this, arguing that although tools, incentives and rules are important, lot of attention must be paid to behavioural and cultural aspects in order to build trust-based relations where parties openly share information with each other. According to Bygballe et al. (2010), few researchers tend to focus on these aspects.

Kadefors (2004) claims that there is an optimal level of trust, dependent on the level of interdependence between parties, where high interdependence requires a high level of trust. Further, Kadefors (2004) explains different roles of trust; Calculus-based trust, Relational trust and Institution-based trust. Calculus-based trust is when one part indicates that the other part intends to perform an action beneficial for the other part, primarily based on economic self-interest. Relational trust is trust that emerge over time when people interact repeatedly, primarily based upon psychological and social attributes. Institution-based trust is the ability of organisations to shape their conditions to promote trust, important factors are legal systems, cultural rules, societal norms and educational systems. Moreover, when people enter a new relation that requires some level of trust, low or high, institutional factors and apprehended incentives are fundamental. Therefore, sanctions for non-collaboration and monitoring of performance should increase trust. However, extensive monitoring could create a feeling of non-trust among personnel within organisations. Contradictory, Das & Teng (1998) argue that monitoring performance increase confidence in partner collaboration but trust is built upon positive expectation for relations. It is important to highlight the worthiness of mutual trust within organisations where open boundaries are crucial (Cheng, Li & Love, 2000).

In a slightly different vein, Lau & Rowlinson (2010) argue that trust is based upon four types; Generalised trust, Contractual trust, Knowledge trust and Goodwill trust. This emphasize the complexity of trust that includes social, moral and work dimensions, all included in trust relations (Lau & Rowlinson, 2009). Kadefors (2004) agrees with this and explains that effects vary between partnering relations. However, Kadefors (2004) highlights the broad range of trust dimensions as a valuable tool to achieve the full

capability of partnering. Eriksson (2010, pp. 907) takes it even further and argues that projects must consist of “..*trust, commitment, openness, cooperation and mutual understanding*” to even be a partnering project.

3.1.4 Ethics

Kadefors (2002) claims that partnering is a working style built upon ethical rules of conduct, not a contractual form in itself. McDermott, Will & Wood (2002) argue that partnering is ethical because it promotes trust, which is an ethical construct. Thus, partnering encourage a higher ethical standard within the industry (McDermott et al., 2002). The benefits of trust are several, as identified previously. However, it does for example reduce costs, create possibilities for sharing sensitive information, create possibilities of well function joint projects and extend moral relations. Further, McDermott et al. (2002, pp. 5) explain that: “*Among the qualities of trust identified in the literature are integrity, honesty, truthfulness, reliability, dependability, openness, and respect for the other’s autonomy and fairness*”. Thereby, ethical partnerships are relations built upon equitable basis such as partnering relations should be (McDermott et al., 2002). However, another view on cooperation and partnering is that it hampers competition within the industry (Eriksson & Hane, 2014). According to The Swedish Competition Authority (2018), competition is necessary and prescribed by law to sustain ethical work environments. Eriksson & Hane (2014) claim that long-term partnership arrangements can be seen as dispensing with competition. However, complex construction projects might require a partnership arrangement in order to be able to be executed but less complex projects might not need partnering and for those a competitive tendering might be better in an ethical viewpoint. Furthermore, Lind (2011) questions the overall situation with competition within the industry. Comparing with Toyota in the automobile industry it is argued that efficient and innovative environments can be created without competition, instead through long-term partnership as incentives to efficient projects by itself (Lind, 2011).

According to Eriksson & Hane (2014), competition is built upon an individualistic view where all individuals aim for reaching the best outcome for oneself. This could lead to egoistic situations with unhealthy tensions as parties initially have different goals (Eriksson & Hane, 2014). In contrast to competition, there is cooperation that on the other hand is built upon trust, mutual behaviours and mutual goals. The balance between competition and collaboration is difficult and both are important to be able to reach efficient and innovative projects.

3.2 Collaboration overload

Cross, Grant & Rebele (2016) make the argument that collaboration is lopsided, 20 to 35 percent of value-adding collaboration originate from three to five percent of the workforce. People's willingness to help others, with ulterior motive to higher own performance and reputation, leads to that some employees become bottlenecks. Work cannot progress without their point of view and decision making which often results in overload and ineffective personnel (Cross, et al., 2016). Cross et al. (2016) explain that the solution is that leaders must be better at managing collaboration within companies, “*By mapping supply and demand, eliminating or redistributing work, and incentivizing people to collaborate more efficiently*” (Cross, et al., 2016, pp. 77), they even suggest that it is beneficial to hire a chief collaboration officer.

Moreover, Forbes Coaches Council (2016) argue that benefits with collaboration can get lost because of the seven aspects that follows:

1. Not all projects are equal and different projects benefit from different kinds of people, it is important to involve employees who fits the challenges of projects.
2. Collaboration can lead to groupthink, which is a phenomenon where members of the group value conformity and agreement higher than critical approaches to ideas, it is important to advocate a culture that enables differences with group dynamic.
3. Collaboration can take over which overrides other work, companies can implement a policy that specify a percentage of weekly workload to collaborative efforts.
4. Collaboration is a strength that can be overused, in case of crises or lack of time and safety collaboration may not be the ideal way.
5. Collaboration can take up too much time, same result can be reached in some cases in less time without collaboration.
6. People tend to compete instead of collaborating even though they cooperate, employees wants to boost their own career through visibility within companies.
7. Employees can be confused over how decisions are made through collaboration, it is necessary to have guidelines that explain how to operate with decision.

However, Forsström (2017) foresees that duties within companies will demand more collaboration in the future, it is therefore necessary to make the way we collaborate more effective and not advocate less collaboration. Fussell et al. (1998) argue that communication is the key to effective collaboration but it could also be its defeat, it is necessary to find a balance between communication and actual work, communication should not be overwhelming. Further, results from Fussell et al. (1998) indicate that if teams spend time to discuss strategy their collaboration improves. However, if teams spend time to discuss processes as task assignments it has no successful impact on collaboration.

3.3 Target price and incentives

Incentives used to create mutual economic goals are frequently used within the industry (Kadefors, 2002) and its usage has increased over the last decades (Kadefors & Badenfelt, 2009). By sharing risks and opportunities by an incentive, efficiency can be stimulated and accordingly common goals created. The goal with sharing risks and opportunities is to create a win-win situation where parties earn more money by collaborating with a counterpart than not. According to Nyström (2005), incentives could encourage a contractor to focus equally on costs and quality to maximize project results. However, there are downsides as well; for example, financial incentives could come in conflict with other organisational goals as divisions profit demand. Further, a study by Fehr & Gächter (2002) describes that projects without economic incentives definitely could result in better economic project outcomes than projects with incentives. However, most partnering and alliance projects have adopted some sort of concept for gains and losses (Kadefors & Badenfelt, 2009; Hosseinian & Carmichael,

2012) and according to Johansson, Bergqvist & Hane (2012) incentives connected to cost reimbursable contracts are the most commonly used compensation model within partnering agreements.

Incentives are used within projects other than partnering projects as well and was an established model long before the concept of partnering was introduced (Kadefors & Badenfelt, 2009). The often used financial incentives aim to motivate employees to work harder and smarter and thereby higher project efficiency (Rose & Manley, 2010). In the construction industry, concepts with target prices connected to painshare and gainshare are common (Kadefors & Badenfelt, 2009; Eriksson & Hane, 2014). Although incentives are common, the distribution among parties vary and there is no consensus in the industry about which distribution that is optimal (Hosseinian & Carmichael, 2012). Eriksson & Hane (2014) state that 50/50 distributions for client/contractor are most frequent used, while Liman (2008) argues that 20/80 distributions are most used, both referring to the Swedish construction industry. Perry & Barnes (2000) state that shares lower than 50 percent for a contractor should be avoided to not decrease the contractors' motivation too much.

Shares of gains and losses can as stated vary and the distribution can be linear or nonlinear (Hosseinian & Carmichael, 2012; Bröchner, Eriksson, Kadefors, Gustafsson & Lind, 2015). Linear distributions have the same ratios for gains and losses but for nonlinear ratios vary. According to Hosseinian & Carmichael (2012), some researchers argue that a linear distribution is most suitable. A linear model is exemplified in figure 2. However, according to Eriksson & Hane (2014) non-linear distribution models where savings are shared but the contractor must pay for all cost overruns are commonly used in the United States and UK. This process is called a Guaranteed Maximum Price (Eriksson & Hane, 2014; Bröchner et al., 2015).

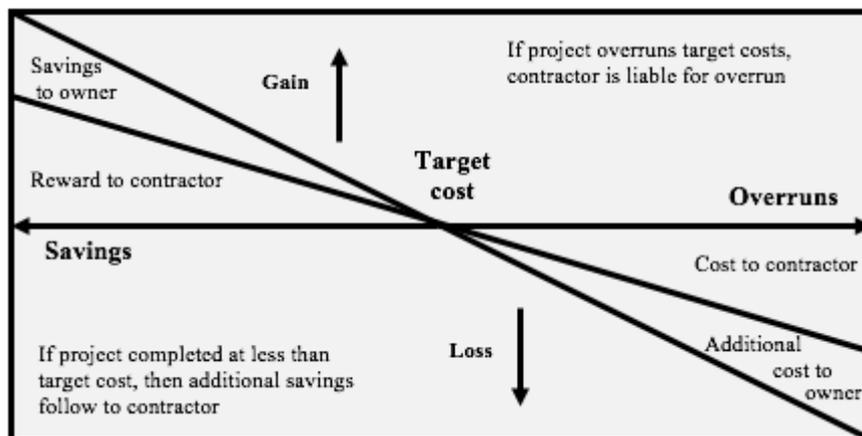


Figure 2: Illustration of painshare/gainshare, based on Hosseinian & Carmichael (2012)

Badenfelt (2008) identifies two important factors when deciding distribution between client and contractor; reliability of target costs and the length of the relationship. Although views on what the exact percentage distribution should be vary, a fair distribution is essential for achieving goals of a partnering relation (Hosseinian & Carmichael, 2012).

Economic incentives such as painshare/gainshare can be seen as extrinsic incentives (Kadefors & Badenfelt, 2009). According to Kadefors & Badenfelt (2009), there are two forms of incentives, extrinsic and intrinsic. The difference between these two is described as: *“Intrinsic motivation refers to when we do something because it is inherently interesting, enjoyable, meaningful or challenging, while extrinsic motivation results from a consequence or outcome that is separable from the activity itself”* (Kadefors & Badenfelt, 2009. pp. 270). Extrinsic incentives are as stated commonly used within the construction industry and could potentially hamper intrinsic motivation (Kadefors & Badenfelt, 2009). For tasks seen as less interesting to perform, extrinsic motivators could function to higher efficiency. However, for tasks interesting and challenging, extrinsic motivators could crowd out intrinsic motivators and thereby lower efficiency. According to Rose & Manley (2010), there is a risk that incentives that are implemented carelessly can affect both cooperation and trust negatively. Furthermore, Rose & Manley (2010) state that it is necessary to align incentives within the entire organisation. A construction project includes many companies and to not involve everyone in the incentive model can be sub-optimal. Rose & Manley (2010. pp.257) further present a list with factors that they argue are important Financial Incentive Mechanisms (FIM).

- *FIM Flexibility - Flexibility to modify incentive goals and measurement processes*
- *FIM Goal opportunities - Multiple-goal FIMs that increase opportunities to secure an incentive reward*
- *Reward distribution - Team performance-based reward distribution and a reward amount sufficient to be valued by potential recipients*
- *Risk allocation - Equitable risk allocation between the client and contractor and fair contract price negotiation*
- *Design involvement - Early contractor involvement in design stages*
- *Value driven tender - Value-driven tender selection based on non-price criteria*
- *Workshops - Formal relationship development programs including early workshops and ongoing reviews*
- *Future work - Possible future work opportunities to motivate performance.*

According to Kadefors & Badenfelt (2009), incentives such as painshare/gainshare models are not to be used within construction projects where it is difficult to establish a reliable target price. Broome & Perry (2002) argue that projects where there are risks that are problematic to affect by a contractor and projects where goals are unusually difficult to reach are not suitable for target price agreements. According to Bröchner et al. (2015), it is important to decide before entering projects with target price how the target price should be handled, what rules that should be applied and how changes should be handled. The problem of establishing a correct target price in a design phase could later during construction result in negotiations among a client and a contractor about what changes in circumstances or project scope that should affect the target price (Kadefors & Badenfelt, 2009; Rose & Manley, 2009; Eriksson & Hane, 2014; Bröchner et al., 2015). According to a study done by Kadefors & Badenfelt (2009), such negotiations are frequent and seen as creating irritation and conflicts. Eriksson & Hane (2014) and Bröchner et al. (2015) confirm this claiming that a target price should be

professionally calculated, understood and confirmed by both client and contractor. If a target price happens to be set too high or too low from the beginning, the incentive model will be unfair (Bröchner et al., 2015).

Problems with target price negotiations are further confirmed by Rose & Manley (2009) who state that incentives should be flexible so that unforeseen events do not make an incentive impossible to reach. Discussions about incentives and target price could affect relationships and collaboration among parties negatively (Kadefors & Badenfelt, 2009; Eriksson & Hane, 2014). Some clients argue that the whole point with a target price is missed if the contractor aim to change the target price as soon as they find something in blueprints or tender documents that must be changed. This problem has led to a situation where some clients enter clauses in contracts specifying what changes that should affect the target price. Johansson et al. (2012) present some changes that clients often specify as target price affecting:

- Program changes according to the use of a building.
- Increase or decrease of building area in percentage.
- Changed demands from for example administrative authorities.
- Changes according to incorrectness in project documents that are above a limit of value.

However, some contractors argue that clients tend to not be competent enough to understand the significance of some changes (Kadefors & Badenfelt, 2009). Another risk with target prices highlighted by Kadefors & Badenfelt (2009) is that some contractors may wait with smart solutions and cost savings until after a contract is signed. Further, situations also occur where contractors refrain from presenting cost savings that they actually find out after contract signing (Kadefors & Badenfelt, 2009). This because they do not want the client to be suspicious about if the contractor knew the potential cost saving already before setting the target price or not.

Effects of financial incentives such as painshare/gainshare concepts are dependent on the context used in, in example the type of project, contract and involved parties (Rose & Manley, 2010). Because of this, it is necessary to evaluate the form of an incentive to make it as beneficial as possible for a specific project. Rose & Manley (2010) also state that involvement of stakeholders affected by an incentive is important to keep relevance and willingness to reach it. Lastly, concepts with target price together with painshare/gainshare are by many seen as essential to execute collaboration projects and many partnering guidelines include incentives as key components (Kadefors & Badenfelt, 2009). Despite this, incentives are by some researchers questioned as a possible factor that could hamper motivation and collaboration (Kadefors & Badenfelt, 2009).

3.4 Experience feedback

Gann & Salter (2000) argue that companies must integrate project experiences to business processes to enable innovations. To do this, a systematic process for experience feedback needs to be implemented into organisations that will support improvements in terms of knowledge, processes and relationships (Jansson, Lundkvist & Olofsson, 2015). According to Rhodin (2012), the construction industry lacks

systematic follow-up and experience feedback among projects, even in strategic partnering collaborations. The lack of ability to learn from projects is well known within the industry.

Knowledge can be seen as explicit and tacit (Senarate & Sexton, 2009). Explicit knowledge is knowledge that is transferred through information and tacit knowledge is knowledge that is transferred through the perception of interaction between people and cannot be explained explicitly. In the construction industry, Senarate & Sexton (2009) argue that these approaches are not yet fully realized because people tend to solve problems based on what is realistic in that time and decisions are not based on experiences from others. Further, knowledge and learning within the construction industry seems to be based upon discussions throughout entire projects. Winch (2002) argues that in order to mediate innovative projects, specific problems need to be learnt and codified. However, mediate innovations is problematic to provide in-depth understandings (Senarate & Sexton, 2009). Furthermore, Senarate & Sexton (2009) explain that tacit knowledge often is lost when knowledgeable people leave companies and it is important to transform tacit knowledge into explicit knowledge when this occur. However, this can be an impossible task because some tacit knowledge always is lost in the transition process. For example, there is not much known about capturing project experience and utilize it as a source of explicit knowledge in the industry (Senarate & Sexton, 2009; Jansson et al., 2015).

Effects are perceived directly in companies that have well established and stable processes (Lundqvist, Magnusson & Meiling, 2011). However, in the construction industry, companies tend not to be used to work in a systematic and continuous manner (Lundqvist & Meiling, 2010; Lundqvist et al., 2011), reflected in unstable processes and difficulties with experience feedback, the latter is not perceived immediately (Lundqvist et al., 2011). Further, Lundqvist et al. (2011) present factors for businesses to change their processes to enable experience transformation to knowledge:

- A systematic approach to improvement processes.
- Basic knowledge about variations and statistics.
- Insight in differences between information and knowledge.
- Insight in how people works and think.

These factors need to be processed first by higher management of a company in a systematic way to establish a structure that can preserve and transport knowledge that enables improvements in processes, products and services, which can minimise sub optimization (Lundqvist et al., 2011).

The existing research of partnering, especially of partnering in early stages of internal project development has now been discovered. Next, the paper will turn to empirical findings were the problem statements are further investigated. Key properties that enable efficient collaboration in early stages of internal project development will be reviewed. Further, what are the challenges with early involvement of the contractor and how could internal project collaboration be developed?

4 Empirics

Internal project development is common within the construction industry involving the studied corporate group (Communication with case company). In 2016, over twelve per cent of total income for the house-building divisions came from internal project development. Collaborative partnerships between the internal client and the contractor are frequent in the Gothenburg region and the two divisions are facing many years with collaboration projects. In order to make collaboration projects more effective it is of interest to further develop collaboration between the internal parties.

The empirical data collection was based upon information about the contractors working models as well as a case project. Information about working models has been gathered through the internal database and information about the case project has been gathered through interviews. The case project was an internal project where both client and contractor was operating within the same corporate group according to an internal strategic partnering agreement.

4.1 Organisational structure

Subsidiary companies and divisions build up the studied corporate group, operating in cooperation with each other in internal project development projects (Communication with case company). Within commercial real estate development, the company is structured as two subsidiary companies, one client and one contractor. At the case project, a design-build contract is used among the client and the contractor together with a cost reimbursable contract. This is aligned with a target price with incentives for painshare and gainshare. The client and the contractor have their own separated organisational goals. Each division is measured upon individual results with no remarks to if the client is external or internal. However, according to the partnering agreement, internal projects should enable the highest possible project economy, in other words, the best result for the corporate group. However, each division wants to earn as much money as possible to reach their goals, which could come in conflict with profitability for the corporate group. Client A explained: *“Since our goals are different the business models create a tension between us, but some tension is good as long as it does not tear down the employees”*. This means that each division have their own agenda within internal projects that could hamper collaboration, a factor that is important to get away from according to Client C. Client A, Contractor A, Contractor C, Contractor F and Contractor J claimed that the two company’s bonus systems get in conflict with each other. It was explained that when employees face decisions which either benefit the corporate group or the own division and the own private economy through a bonus it is a high risk that decisions affect the corporate group negatively. Contractor C and Contractor J believed that this has influenced the case project as well, that personal bonuses have had effect on results for the project. Contractor J stated that some decisions have been taken with personal bonuses in mind. Contractor F was overall negative to bonuses and argued that there is a risk that some employees steer towards specific goals that are not in line with the goals of the corporate group. It was claimed that bonuses can be used, however, that they should be more extensively based upon results for the corporate group instead of mainly division results.

The fact that the divisions are two different companies is by Client A, Client C and Contractor A believed to not affect project outcome. Instead, it was emphasized that it

is important to clarify different roles to drive projects forward. However, Client A claimed: *“We are a real estate developer and they are a contractor. At the top we are the same company but at the bottom we are different, we have the same parent company but still have different business models.”* Furthermore, Client E believed that differences in business strategies can hamper mutual goals. As example, Client E explained: *“a cheaper material could imply cost savings for a contractor but the opposite for a client, because tenants may pay less in rent as quality decrease”*.

The contractor’s internal partnering concept prescribes that results of joint projects should be in focus, not single results for involved divisions. However, Contractor A and Contractor C perceived that the two divisions often have somewhat different goals and that sub optimization often occur. Even though they should strive for similar goals, it is perceived that goals are somewhat different as they are two separate subsidiary company (Contractor C). For example, result based bonus systems for the different divisions are used, which could hamper collaboration (Contractor G; Contractor K). A parallel was drawn during an interview with Contractor C to the relation among the residential building division and their client. A couple of years ago these two were structured as two subsidiary companies which resulted in a lot of sub optimization. However, the situation changed when the organisational structure was changed and they were structured within the same subsidiary company. This created common financial goals and the relation was improved markedly as visions became the same. However, it was pointed out that it is not obvious that the same model is suitable for the commercial real estate development division, because there are other complex organisational structure factors which need to be considered. Further, Contractor G explained a complication with the concept at the residential division, situations could occur where there is no clear distinction between the client and the contractor. Contractor G explained that it is necessary to have clear positions to accomplish a successful project, especially in relation to customers.

Project structure in early stages is by Client C explained as a factor that must be developed in order to create efficient internal projects. A more explicit organisational structure that clarify what resources that should be involved in what phases of early stages is needed. The client perceived that the contractor’s organisation is not used to work as consultants in early stages and that many employees fall back to traditional ways of working. Client B stated: *“They want to be involved early but when they get involved early they do not know what to do. Drivers at the contractor cannot stand the long processes we have as client”*. Contractor G, Contractor I and Client A claimed that necessary resources often are locked up in other projects, which hamper early involvement. It was perceived by Contractor K that the client often invites the contractor to be involved early but the contractor does not have resources to participate as much as needed. Further, Contractor K highlighted the importance of involving experienced resources with right competence, Client C agreed and explained: *They have to be proactive and come up with suggestions for solutions”*. Even though early involvement of the contractor becomes more and more common within the corporate group there is still a lot to learn. The entire organisation might have to be adapted to correspond with new ways of working. Contractor A described why the contractor is not involved early in many projects. The contractor is paid for the consultancy activities within large projects, while in regular projects the contractor do not get compensated for being involved as consultants early. Thereby, they are not motivated to be involved. Contractor J stated: *“The client probably wants more help but wants to pay for less.*

When it comes to accounting, we should be good at specifying spent hours very open so that they feel safe with us. It cannot be seen as a relief account from our side". Many interviewees exemplified that old dilemmas and habits nags and it is a necessity to change in order to establish a well-functioning partnering relation within early phases (Client C; Client E; Contractor A; Contractor G). Client E explained: *"Old habits of client - contractor characteristics are dilemmas: the client believe that they decide and the contractor needs to follow, likewise the contractor believe that they decide completely when production has started"*. However, Client C; Client E; Contractor A and Contractor G emphasized that some changes are already done and they believed that ongoing changes are going in the right direction, moreover, it takes time to adapt and restructure an organisation.

4.2 Partnering

Internal documents prescribe a partnering concept that utilize different expertise of involved parties, mainly through the cornerstones of mutual goals, mutual economy and mutual organisation. An illustration of the partnering concept can be seen in figure 3. The concept includes a collaboration model, based upon traditional working models. However, when factors such as mutual economy are used in a partnering relation they should be handled openly and collective within the project organisation, including at least the contractor and the client.

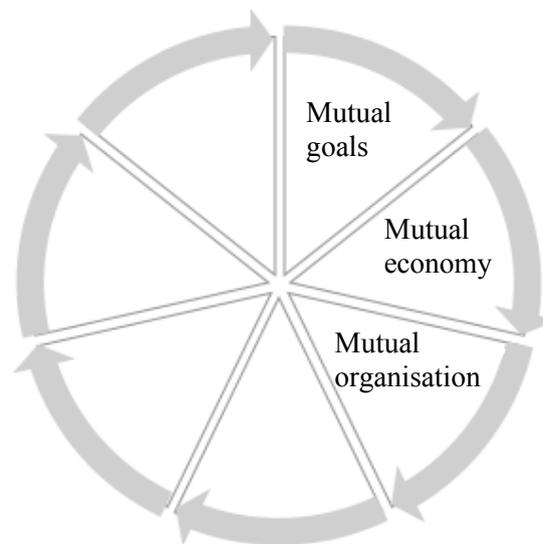


Figure 3: Extraction of partnering cornerstones at the case company, authors illustration.

Mutuality is as stated the cornerstone of partnering, however, both Contractor A and Contractor B perceived that the company lacks a unified understanding of partnering. Further, Contractor B state that the partnering concept can vary from project to project and when people within the same project have different views about partnering it becomes problematic. Both in internal relations among the client and the contractor but also in relations to subcontractors, who must handle both the clients and the contractors view of partnering. Contractor B explained that: *"In one project they might have to work in one way, while in another project with the same company they have to work in another way"*. Client A stated: *"We work according to partnering. Or, we work*

according to something that we call partnering, but I am not sure about if we work in a true partnering sense. A real partnering relation include that both parties understand each other and I am not sure about if we do that. Contractor J stated that it is important to discuss about how parties view and value collaboration.

According to a partnering agreement, all projects initiated by the client within the corporate group are executed in collaboration with the internal contractor. The type of contract among the parties was a design-build contract in the case project, including a cost reimbursable concept with a target price together with incentives. However, as stated, Client A claimed that the two do not work in a true partnering sense. This was confirmed by Client E who perceived that the cornerstones within the partnering agreement, transparency and openness, are not followed as agreed upon in some projects. Old habits and disputes affect the relation, which creates a situation where the parties do not trust each other as much as necessary. Client E explained: *“The relation among the parties feels obsolete, where the client decides and the contractor follows order”*. Contractor A stated: *“There has been some squabbling which not exist anymore”* Contradictory, Contractor G believed that client - contractor roles are necessary. However, Contractor B perceived that the understanding of each other’s interests has been better in the case project compared to other previous projects. Contractor J emphasized that they have put effort in to create a win-win situation. Furthermore, Client C felt that two parties started to collaborate for real in the middle of the design process, in a phase of the project where the two parties were pressed and almost forced to collaborate more extensively. This was confirmed by Contractor A, who stated that the circumstances within the project created a situation where the parties did not see any other way out than to collaborate extensively with each other.

To maintain a successful partnering relation, Contractor C highlighted the importance of understanding the other parties’ economical goals and interests, that revenues and costs should be understood by both parties. Looking at the case project, the two factors of mutual goals and economy seems to have changed during the process, simultaneously as the climate within the working group has changed. At first in the case project, Contractor C perceived that the client withheld some information about financial targets of the project, which made the climate tense. When the client later in the process opened up and shared more detailed financial calculations and targets for the project, the climate within the project changed to the better. However, Contractor C explained there was still some calculations that the client withheld, which hampered development of the relation. Contractor C and Client E perceived that in general it exists distrust among the parties, originating from old experiences, which affect the collaboration. However, overall most of the interviewees claimed that there has been a high understanding of each other’s interests in the case project compared to other projects.

Several working models and guidelines for external partnering collaborations are available for employees in the internal web portal. However, little is presented on how to manage internal collaboration, although most internal projects are executed according to partnering. Contractor J believed that the collaborative process is more detailed for other divisions because there is less room for mistakes in their affairs. Within real estate development, margins are higher and thereby less effort is put into how to steer this process. Further, Contractor J mentioned that processes that are more detailed would be beneficial for new employees within both companies. People that

have worked with each other for long time might not need detailed structures, however, for new employees it might be crucial to understand the collaborative process.

Through partnering, internal documentation stress that cost estimations can become more reliable if the contractor is involved early in the process to contribute with construction knowledge. However, several interviewees argued that in internal projects it differs from project to project when the contractor is involved (Client B; Client C; Client E; Contractor A). Interviewees at the client argued that the contractor is involved in early stages within large and complex projects, in less complex projects the client can make the design for project planning documents on their own. When these documents are finalized, the client sign a build contract with the contractor. Consequently, Client B emphasized that it is the client who decides when to involve the contractor. This is confirmed by contractor A, who claimed that the reason why the contractor was involved earlier in the case project was that the project was large and unique. According to Contractor A: *“Usually old traditions steer when the contractor gets involved. In this project we got involved earlier than usual and the client have expressed benefits with that”*. Further, Contractor C and Client A perceived that the contractor more often is involved in early stages nowadays compared to five years ago.

According to the partnering agreement, the contractor should be involved as consultant in the design to cost process to contribute with construction knowledge and reliable cost-estimations. Before consultant assignments starts a budget for consultant work should be done regulating costs and time spent and during the consultant process should time, budget, and scope be monitored and evaluated. However, Contractor C perceived this as problematic because the client withheld some information about the design budget and how much work they wanted to get done in early stages in the case project. Client B perceived it as a difficult part as well, because the client does not know in general exactly the circumstances for a project and if they will get a building permit. Because of this, Client B explained that it is difficult to set an exact budget and time schedule for a design process. Further, Contractor C claimed that it would be necessary with a more detailed and elaborated budget and time schedule.

4.2.1 Collaboration manager

Internal documents prescribe that a collaboration manager should be involved if needed to assist the project group and to steer collaboration in partnering relations. According to Contractor E, a collaboration manager usually supports external collaborations but is seldom involved in internal project relations in the Gothenburg region. However, Contractor E believed that collaboration managers can be of benefit if used in these relations but highlighted that there is not a necessity to use one if other project members can lead collaboration by themselves. Contractor F believed that most people think that the organisation should be able to manage collaboration without a collaboration manager internally. Client C agreed and believed in a use of a collaboration manager and would like to have one involved internally in all projects, even in early stages. Client C explained that most people understand that it would be of benefit, however, many are stuck in old habits and think they can manage everything by themselves. Contractor F believed that increased costs are an answer to why collaboration managers are not used in internal projects. Several interviewees emphasized that a collaboration manager would be beneficial to use within early stages of projects (Client A; Client C; Client E; Contractor A; Contractor B; Contractor F; Contractor I; Contractor K) and

some of them claimed that it should be an external collaboration manager in order to secure objectivity (Client A; Client C; Client E; Contractor K). Contractor A claimed that an internal collaboration manager can be used in smaller projects, while an external collaboration manager should be used in large projects. Contractor K and Contractor G emphasized that it is especially important with a mediator to steer collaboration in situations where the parties have different opinions or when there is distrust among the parties. Contractor I claimed that it is important to have a collaboration manager in order to understand each other's interests and create mutual goals, especially in the beginning of projects. Further, Contractor I explained that it does not matter if it is an external or internal collaboration manager as long as no one in the project knows the collaboration manager personally. Moreover, Client B and Client E believed that in early stages of design processes a collaboration manager is not necessary because a low number of people is involved, who can handle collaboration by themselves. However, Client B and Client C explained that when production have started a collaboration manager can be of use, although they do not see the benefits during early stages.

4.2.2 Meeting structure

There are no internal documents that prescribe how meetings should be structured within the design to cost process between the client and the contractor. Instead, the project team members decide meeting structure in specific projects. At the case project, interviews showed that the meeting structure has affected the collaboration process for the better. The fact that the contractor was involved early in project meetings had a positive effect on the collaboration process.

Client B explained that when the design to cost process started and the contractor led the process, the contractor did not involve the client in meetings on a regular basis, however, they did participate in some design to cost meetings. Later in the project when the client was involved at a regular basis the collaboration and the understanding of each other's interests improved. However, Client C and Contractor A explained that in this phase of the project, the two parties were pressed and almost forced to collaborate more extensively. Meetings were held more frequently, where all parties, both client, contractor and consultants contributed to the design to cost process in a greater extent than before. Consequently, this seems to have had a remarkable effect upon the team spirit and sense that all contributed to the project. Contractor J stated that the project team has created a very clear structure for the design to cost process, a lot more structured than in other projects.

Further, informal meetings were highlighted by several interviewees as something that has been different in the case project compared to other projects. Employees have dared to walk into each other's offices more often to discuss instead of sending emails. Many interviewees stated that this has created a great collaborative climate.

4.2.3 Trust

Openness, communication and honesty were unanimously emphasized as trust building factors during the interviews. To communicate problems directly to affected parties instead of that they find it out later was given as an example for mistrust building situations by Client E, Contractor A and Contractor C. Contractor K emphasized that honesty of knowledge is important, to speak of competence that is possessed instead of

competence that does not exist. Further, Client C and Contractor A explained that among a client and a contractor project results must be prioritized and own interests should be set aside in order to build trust. This means, according to Contractor G, that tactics and sub optimization, which do not contribute to the project nor the corporate groups results, should not be performed. In general, relations in the case project has been trustful, despite this, interviewees from both the client and the contractor perceived that some distrust exists among the parties, originating from old experiences, which affect the trustworthiness (Client E; Contractor C). One concrete factor that was exemplified by several interviewees is honesty when doing cost calculations (Contractor B; Contractor G; Contractor K). For example, Contractor G explained that if one party in the design to cost process have hidden agendas and include exaggerated sums for risks to keep the target price high, trustworthiness will drop remarkably. However, it was further emphasized that this has not been a problem between the client and the contractor in the case project.

4.3 Target price and incentives

Internal documents prescribe that before the contractor start a tendering process, a Pre-Operative Risk Assessment should be done. This risk assessment is the company's way to control operative risks before entering projects and to ensure that experience from other projects has been used. A potential project is controlled at different levels in the organisation depending on project value and if the first risk assessment is approved the work can continue with more detailed risk assessments until the complete project is approved to be executed.

The contractor's and the client's risk assessments are done in parallel for commercial real estate development as the case project. However, at the case company's residential division, the situation is different, instead of separated systems for risk assessment the residential division has a unified system. This risk assessment process at the residential division consists of checkpoints where a project must be approved to continue into next phase. The aim of the checkpoints is to ensure that a project is arranged according to the strategy and to ensure product and process quality. Depending on value of a project, checkpoints should, just as the risk assessments, be approved at different levels within the organisation. If a checkpoint is approved a project team can continue into further work with a project. Contractor J believed that a similar system with more checkpoints would be beneficial for the real estate contractor as well. This, because the checkpoints can be done as a project team including both the client and the contractor, stimulating collaboration. Several interviewees from both the client and the contractor believed that a unified risk assessment system can be beneficial to use within commercial real estate development as well (Client C; Contractor A; Contractor B; Contractor C; Contractor J; Contractor K). Contractor B explained that both risk assessments and calculations are built upon each other, therefore they can be done and handled unified among the divisions instead of separated. Further, Client C explained that old traditions and that the two parties are organized as two separate companies as factors why they are separated today. Furthermore, Contractor K emphasized that in principle a unified system would be beneficial but also believed that a counterpart relation is beneficial for the corporate group.

4.3.1 Target price

The risk assessments include calculations and budgets of a potential project and is done simultaneously as the design process to come up with a target price for a project. Parallel with the process to set a target price is the process where a building is designed according to the client's requirements and budget. All this, in order to be able to sign a contract for construction. However, several interviewees at the contractor argued that many client requirements are standardized, too stiff and formal (Contractor A; Contractor B; Contractor C; Contractor D; Contractor I). Contractor A argued that this often create situations where the contractor must get away from the requirements in the design phase in order to reach target price, which create difficult discussions. Contractor I claimed: *"The client is stuck with obsolete building requirements, they are not updated"*. Further emphasized by Contractor D was that the client in the beginning was not open to discuss the requirements nor adjust them.

Internal documentation prescribes that as soon as the contractor is involved in a project, the design to cost process should begin. However, Contractor A claimed that the intense design to cost process could have been started earlier in the case project. This was emphasized as a factor that can be improved for coming projects. Even though the design to cost process starts early, it must be more intense and involve both the client, the contractor, and the consultants early. Several interviewees believed that the adjustments that have been done in the project to reach target price would have been possible to do earlier in the process. Contractor F claimed that it would be possible to create clearer internal goals to motivate the project team to find project optimizations earlier. However, there were interviewees who argued that it must be understood that it is an iterative process, which is difficult to accelerate (Client A; Contractor C; Contractor I; Contractor K). Contractor I claimed: *"The best would be if it was possible to just do the adjustments earlier, but I think some kind of pressure is needed. As, if we do not find adjustments to reach the target price, there will not be any project at all. If someone with authority argue that something is impossible to do, many will believe that. It is important to stand up for yourself at design meetings and dare to criticize to be able to find adjustments"*. Client B and Contractor D agreed and claimed that a sense of urgency is necessary to find motivation, otherwise it will be difficult to build spirit in the group. Contractor J also believed that it would be difficult to find adjustments earlier as it is an iterative process. However, it was also mentioned that the climate within the project team during a design to cost process is problematic, it is often difficult to criticize each other's work which hamper the process.

Internal documents prescribe that continuous follow-up phases on design, quality, function, economy and time should be done throughout the design to cost process. The design to cost process should be based upon key building parts, divided into focus areas, where economic goals for each focus area should be specified. In the case project, Contractor G argued that the design to cost process was a lot more extensive than in other projects. Regularly meetings should be held where cost-estimations, risks, and opportunities are discussed along with alternative solutions and alternative cost-estimations. In the case project, a shared document was used to track suggestions in the design to cost process (Contractor B; Contractor D; Contractor E). Contractor B emphasized that every suggestion was discussed on meetings with both the client and the contractor. However, Contractor B explained that the shared document was not used in a great extent in the beginning of the process. It was not until the divisions realized

that they had to fully collaborate in the design to cost process they started to use the shared document fully.

According to the design to cost model that is presented in internal documents, the priority of the design to cost process should be as follows:

1. *Evaluation of solutions for prioritized areas based on needs, costs and revenues compared to the goals.*
2. *Identification of alternative solutions, primarily if calculated solutions exceeds the set target price. The options may include, for example, other technical solutions, better purchase or production methods.*
3. *Calculation of alternative solutions.*
4. *Choose the best solution based on client requirements and final cost/economy.*
5. *Implementation of chosen solutions in the design process.*

When a target price has been agreed upon, Contractor I argued that it is difficult to agree upon what changes that should affect the price, negotiations often occur about this. It is stated in the partnering agreement that smaller changes should be included in the given price, however, Contractor I perceived this as a clause that is not according to the overall purpose with partnering.

4.3.2 Open books

Internal documentation prescribe that cost estimates and calculations should be open and accessible for all involved parties in order to build trust. However, Contractor A argued that there are different understandings within the corporate group about how openness should be interpreted. There are no directions from management or guidelines within the corporate group about how openness should be handled internally. Contractor A was asked how openness is handled by top management of the corporate group. The answer was: *“I believe it is difficult up there as well”*. Contractor F explained that openness always is discussed before external projects but often neglected in internal projects.

Openness was emphasized by several interviewees, both from the contractor and client, as the most important factor to support collaboration and come up with a synchronized target price. Contractor B perceived that this was the situation in the case project, that both parties opened up for insight in the entire project. However, this was not a shared view, Contractor C perceived that the level of openness changed during the process. The client opened up to the contractor to get some insight in the client's key numbers for the project in the beginning. However, the contractor did not get to see underlying calculations, which Contractor C felt hampered collaboration. Contractor C stated: *“After a while everything changed and became more open, the client opened up. They showed us their profit calculations. However, there are still things they do not want to talk about which is remarkable”*. This implied by Contractor C, although the parties worked with a shared document for tracking the design to cost process, the client did not share all data such as revenue calculations. Contractor I confirmed that the openness has developed to the better during the project: *“We did not have open books in the beginning but we talked about that and it became better. It is very important to be open in your own organisation to act as role model but the client was not that. We tried to*

discuss about the clients claim for yield but they did not want to discuss that. They have been open to show us how they have calculated, but have not been open to discuss the numbers". Client E agreed that they do not always have as open books as preferable for some situations. This was confirmed by Contractor A who argued that open books were used but only to some extent. It is used more now than a couple of years ago but there is still a long way to go. Contractor A claimed: *"The client is tactical when deciding key numbers. We as contractors try to work with openness and we want to understand how key numbers have been decided but the client is not willing to open up all the way"*. However, it was highlighted by Contractor C that it is difficult to have completely open books, as the parties are two separate companies. Client C stressed that it is difficult to have completely open books because they do not want to show their project affair to subcontractors or others that are not related to the corporate group. Despite this, Client C believed that the client should had explained their budget calculations earlier in the process to facilitate the design to cost process.

Client C explained that in the beginning of the design to cost process in the case project the communication lacked, which created a situation where parties strived for different goals. However, Client C claimed that the case project was unique when it came to the client's openness and willingness to manage and adapt revenues of the project, not only the costs. In other projects, the design to cost process tend to focus on costs but not revenues. It was further explained that this only was done because initial target prices were not synchronized, therefore, they were forced to manage revenues in addition to costs. Client C claimed: *"To sit on the same side of the table was the only way to go to complete the design to cost process"*. Contractor K perceived that there was an imbalance, that the contractor worked in a greater extent with adjustments to affect costs than the client worked with adjustments to affect revenues. Client E perceived that the level of openness among the divisions varies from project to project and from person to person. The level of openness is not stated in the partnering agreement nor in a contract. Client E explained that often the contractor opens up their calculations but the client does not.

Internal documents prescribe that everyone that works with design, regardless of which company they work for, should be involved in the design to cost process and be informed about cost-estimations. This process should also be documented so that changes can be tracked. The importance of making all involved parties informed about the design to cost process and its target costs were highlighted by both Client C and Contractor B. Contractor B explained that in the beginning, target costs were not communicated enough to external consultants, which resulted in that project costs were steered in the wrong direction. However, Client C emphasized that it is difficult to keep external consultants informed about important target costs, while at the same time not expose the entire project affair.

As stated previously, simultaneously as the contractor do a risk assessment, the client prepare a risk assessment as well which reflects their project budget (Contractor D; Contractor I). Internal documentation prescribe that both the contractor's and the client's risk assessments should be presented for the project board. When the board approves the project, the process of creating construction documents can start. Although a target price should be based upon cost estimations done by the contractor, it should be synchronized with the client's budget and investment requirements. At the case project, all interviewees explained that the two risk assessments were not synchronized

with each other at a first control and the parties were forced to continue with the design to cost process to come up with a synchronized target price. Further, internal documents explain that a target price should have room for smaller cost changes that naturally can arise during a process. The target price should be adjusted if project changes occur which affect function, quantity, or quality. Exactly in what extent changes should affect a target price is to be decided in project contracts. An example is that changes with considerable effects on costs should be regulated in the contract.

4.3.3 Incentives

To create an environment where all parties have a common goal and strive for project cost savings, the parties have agreed upon shared risks and opportunities within projects in the partnering agreement (Communication with case company). Contractor D highlighted that all parties should be involved in the incentive system, with the same agreement as between the client and the contractor. Historically, it has been common that different contracts with other compensation systems have been used for subcontractors and consultants. However, Contractor D claimed that this hampers common goals. In the beginning of the case project, the consultants were not contracted with the same agreements as between the client and the contractor. However, this was perceived as hampering collaboration and did not create mutual goals. When this was understood, the contractual form was changed to include incentives for consultants as well.

The incentive model is managed through a target price and an incentive based upon the target price (Communication with case company). More specifically, this gives the contractor a percentage of cost savings when the project is finished. For cost overruns, the contractor must pay the same percentage of costs. Client B believed that this system is efficient to pressure the contractor to deliver projects as cost optimal as possible. However, several interviewees argued that incentives used internally is not suitable because it hampers collaboration among internal divisions (Client C; Contractor C; Contractor D; Contractor I). Both Contractor A and Contractor C claimed that the incentive model creates a situation where the contractor can benefit from entering a project with a high target price. Contractor A explained: *“The use of incentives is contradictory to partnering as own interests are built, hampering collaboration”*. Contractor C agreed: *“By a high target price, there is an incentive for the contractor to complete the project for a lower cost and thereby earn money from the differential”*. This was further confirmed by Contractor J who stated that the incentive creates situations where it is possible to be tactic, which does not support collaboration. It was claimed by Contractor C that instead it would be better to use a model that gives as much money as possible to the corporate group, afterwards divided between the client and the contractor. Client C was also positive to a change of the incentive system. Contractor I; Contractor D and Contractor J suggested a use of a cost reimbursable with a pre-determined retainer instead, which would be more in line with partnering. However, Client E believed that the contractor needs to be pressured in order to develop and do as reliable cost estimations as possible: *“Without pressure from the client, there is a risk that the target price becomes too generous”*. Further, Client E explained that historically construction costs tend to be lower than the target price, it was assumed that the contractors’ calculations often are high to take low risks.

In addition to a potential incentive, there are two additional compensation structures for the contractor specified in the partnering agreement. There is a contractor compensation in percentage of the final target price as well as a project specific compensation. Included in the project specific percentage there are several goals claimed to be of importance for the specific project, such as good work environment, good knowledge and experience feedback. After the project is finalized, the client evaluates the contractor upon the set goals and according to performance decide the compensation. Together with the incentive, these two percentages set the actual economical compensation for the contractor.

4.4 Experience feedback

In the partnering agreement, the client and the contractor have agreed upon the use of some experience feedback models within internal projects. Before projects, three similar projects should be investigated and with these as basis, improvements in a coming project should be specified. Before a project, to ensure reliability in a target price, a comparison should be done. During construction, costs for the projects should be compared with actual costs from the reference projects. This is how it has been done in the case project, however, Client C highlighted that sometimes it is difficult to find projects that are similar enough to be comparable.

According to Contractor E, it can be problematic to rely too much on cost-estimations from other projects as there is a risk that the client omits project specific characteristics. Contractor E argued that it could be problematic within extraordinary large and complex projects, where enough similar projects or circumstances do not exist. This was confirmed by Contractor D, who argued that it is difficult to find reference projects and as a result, few references from other internal projects have been used. Contractor C emphasized that comparisons would have to be used more within early stages to manage the design process within its budget and time schedule. Further, Contractor C explained that efforts often are done to compare construction costs with other projects, however, not enough time is spent comparing the design process with other projects design processes. Comparisons with other projects was said to be of importance to understand if the budget and the time schedule for the design process itself is reasonable.

All interviewees explained that the project team has worked with a shared document where changes in design and their effects on the target price can be tracked during the design to cost process. Contractor A and Contractor I argued that this document could function as reference for further similar projects within the company. However, Contractor K described that experience feedback is much dependent on employees. Contractor A confirmed this, there is no system to manage experience feedback that can be used in future commercial real estate projects. Contractor A took it even further and argued that the contractor is not good at experience feedback, there is no system where feedback is stored after a project. Instead, the people in the project team will have to actively ask already finished projects to gather knowledge. However, as further emphasized by Contractor K, commercial real estate projects are complex and often unique which makes this difficult. Contractor I claimed that the actual changes in the design to cost process are not important to save, it is the working model that is important to describe for coming projects.

4.5 Sparring group

Internal documentation prescribe that a sparring group should support in a peer review manner during early stages of projects if needed. The group is a central function that consist of employees from several divisions with different expertise. At some project stages, documentation about the project is sent to the sparring group to ensure profitability and quality. During peer review, the sparing group evaluate the project together with the project team to ensure that the project align with the strategy of the client and that the project is designed correctly. Many interviewees explained that the concept is extensively used within residential development but within commercial real estate development, the concept is not extensively used. Some interviewees did not know that a sparring group existed at all within commercial real estate development. Contractor G emphasized that it is the project team that must take the initiative to invite the sparring group as a reason to why it is not used that often. There are no internal documents stating that spring should be done as it is within the residential division. However, most of the interviewees believed that it would be beneficial to have it as standard for commercial real estate development as well, as a mandatory sequence for all projects. Contractor F believed that the concept is not used because the project team often refuses to invite the sparring group. Because many people do not dare to make mistakes that the sparring group can register, they cannot handle anyone else opinions or criticism. Contractor F discussed: *“Maybe it is the generation. The younger generation see sparring as something positive, as a way to develop, but the older generation does not. Maybe they are ‘proud’ of their work and do not want anyone to tell them how to do it”*.

The importance of keeping a sparring group neutral was highlighted by Contractor C who said: *“The project team has to understand the benefits of sparring and not view it as collegial criticism”*. Client B specified that the group should consist of people that can push towards the right direction without telling the project team how to do, it is important that the project team solves the issues and not the sparring group. Client A claimed: *“It is risky if the project team members rely too much on the sparring group and by that forget to think on their own”*. Client C emphasized the importance of both include employees from the client and the contractor to get an understanding of revenues and costs for a project. It was further emphasized that people within the group should be exchanged at regular intervals to keep it updated. Moreover, Contractor A claimed that people with experience from the sparring concept at the residential division perceive it as administrative and time consuming. Despite this, Contractor A believed that peer review from a sparring group might be a good concept within commercial real estate development. Further, most of the involved parties in the case project believed that a sparring group can be beneficial. However, Client C emphasized that it would be efficient for less complex project but at complex projects, it is hard to peer review because of the complexity. It was argued that this is because there probably would be a lack of knowledge within the sparring group about extraordinary complex projects. Contractor D claimed that it must be people in the sparring group that have been involved in a similar project before, otherwise it would not be beneficial. Contractor K took it even further and was doubtful if it is cost efficient enough to use a sparring group at all.

5 Analysis and Discussion

In this section, a thorough analysis will take place that specifies opportunities, advantages and disadvantages with collaboration. It will discuss how a corporate group can enable collaboration within and how collaboration can lead to successful projects and relationships. Through empirical findings, it can be confirmed that the studied corporate group faces similar challenges as literature stress but also differences. The ambition is to highlight them in a constructive manner.

5.1 Organisational structure

Both literature and empirical findings show that large organisations often are structured with subsidiary companies, usually divided into several divisions. Divisions as well as subsidiary companies collaborate with each other to generate profit for a corporate group. However, subsidiary companies and divisions often have separate goals. Rigsbee (2018) argues that performance measurement systems are often barriers to development of internal collaboration, which also seems to be a barrier within the case company according to empirical findings. It can be discussed if the claim for division results is set in relation to other divisions, or if it stimulates own agendas. Different performance measurement systems seem to get in conflict with each other, counterproductive to the overall corporate group performance. Every division and company wants to achieve their requirements for results and turn over, which means that they compete with other divisions within the same corporate group. This may not be the most successful for the entire corporate group. Sub optimization becomes a fact, even though the parties have agreed upon working for the project and the corporate group's best outcome. Literature (Forbes Coaches Council, 2016), explain a situation which could damage collaborative relations: *"People tend to compete instead of collaborate even though they cooperate, employees wants to boost their own career through visibility within companies"*. Kadefors (2002) states that systems that create mutual goals extinguish sub optimization. Rigsbee (2018. pp1.) questions: *"Where's the incentive to build collaborative internal relationships between business units if the sole measurement for success is single unit performance and profitability?"*. As Rigsbee (2018), stated, financial structures must be adapted to stimulate internal collaboration. Our data points to the same dilemma within the corporate group and indicate that performance measurement systems must be overseen to facilitate internal collaboration. However, there are certainly several additional aspects that need to be further analysed before a different performance measurement system can be implemented.

Kadefors (2002) explains that mutual goals should create win-win situations where individual goals are fulfilled by reaching mutual goals. It can be questioned if win-win situations are created or if own agendas are stimulated. If a bonus system for employees is used, as at the case company, based upon division earnings, the willingness to generate as much as possible for the own division increase and cooperation among divisions is affected negatively. For example, if a manager faces a dilemma where a certain decision will generate a bonus to the manager but another decision will not, the manager will make in almost all cases the first decision, even though the other is better for the corporate group. This was attested by interviewees who stated that bonus systems conflict with each other. Literature findings imply that a change in organisational structure, processes and attitudes is needed to use partnering to its fullest.

It is therefore understood that a bonus system which is mainly based on division earnings and not fully related to other divisions hamper collaboration and is a system needed to change to enable full potential of partnering. However, Nyström (2005) exemplified that completely common goals are impossible because all want to maximize own profit in the end. Instead, mutual understanding and respect for each other's interests is understood as key part in organisational structures and processes.

Internal collaboration could potentially be easier to achieve than external because of a feeling of togetherness within the same organisation. However, the interviews show that this feeling is not widely spread in the organisation. If an organisation is divided into several subsidiary companies not closely related it can be questioned what the actual difference between internal and external clients are. The perception from the interviews is not that the two divisions feel closely related to each other. Even though many interviewees explained the relation among the two as good, there seems to be an unspoken barrier between the two. However, some interviewees discussed the importance of contractor - client roles and the natural tension that occur between. It is understood that the fact that the two divisions are different companies within the corporate group do not affect project outcome, however, the different companies' business models need to match to enable efficient partnering. Comparisons can be done with the residential building division and its client, which are structured within the same subsidiary company. Even though many interviewees claimed that collaboration is a lot better among those parties than in commercial real estate projects, few interviewees believed that this is because they belong to the same subsidiary company. However, it is perceived that this also can be handled in a partnering agreement that does not reward division results but rather project results. In such situations, a higher project result would generate higher result to the divisions and the divisions result would thereby be directly connected and open to each other. This approach was attested by some interviewees that emphasized a needed change in the compensation system, it should be based on larger parameters as success of the entire organisation and not success of individual divisions.

Several interviewees highlighted that the access to qualified resources in early phases affect collaboration, many perceived that needed employees are locked up in other projects and thereby cannot contribute in early phases. Historically, it can be understood that the contractor seldom operates as consultants for the client in early phases. Potentially, as the contractor only is involved in some projects they do not know how to operate in these phases. Interviewees at the client expressed that the need of involvement from the contractor is limited in less complex projects, therefore, the client rather drive design processes on their own. This and the fact that the contractor only is economically compensated in some projects for consultancy work can be seen as two factors that hamper collaboration.

Research has shown that strategic partnering relations could create more even resource distribution which can help companies allocate resources (Bresnen & Marshall, 2000A). Therefore, it can be questioned if it would be possible to distribute resources more effective in early phases. One interviewee reflected upon if the contractor's roles in the design process must be clarified. For example, what is expected from a project manager at the contractor? As the situation is today few employees are used to work in early processes as consultants, therefore, clarified roles might be of importance. It can

be discussed if clarified demands are required to enable understanding of a clients' expectations.

5.2 Partnering

Rigsbee (2018) states that remarkably few organisations pay sufficient attention to internal partnering and relationship management. Looking at our findings, it can be understood that this is true in the case corporate group as well. Noticeably more effort is put into management of external relations than internal. Both previous research (Kadefors, 2002; Eriksson, 2010; Hagberg & Hjelt, 2011) and empirical findings stress that mutuality is the cornerstone within partnering relations. Mutual economy with open books and mutual goals seems to be the most important factors in partnering relations.

Previous research and our results highlights the importance of mutual goals, however, Nyström (2005) argues that mutual goals should not be strived for in a partnering relation. Instead, it is argued that mutual understanding is of high importance. The parties must realize and accept that they have own goals and are somehow measured upon different values. In the studied case project, this seems to be a problematic factor. The two parties are functioning as two separate companies within the corporate group and there is a possibility that there is not enough understanding about what factors that drives the counterpart. However, a majority of the interviewees claimed that there has been a high understanding of each other's interests and businesses in the case project compared to many other projects. The two involved companies seem to have described their interests and businesses for each other more extensively than what is common. This is a factor that several interviewees highlighted as a key factor that has created a better collaboration among the parties. However, literature (Eriksson, 2010) states that it should be kept in mind that partnering relations may take time and require a change in attitudes, processes and structures. Bardin et al. (2014) explain that strategic partnerships are formed when two organisations have business assets that the other can benefit from and the partners cannot develop it within the own organisation. This is interesting as the two parties within the case company are dependent on each other and per se forced to collaborate, they cannot carry out internal projects on their own. It can be questioned if the relation would have been suitable if the two were able to collaborate with external parties. Rhodin (2012) states that strategic partnering distinguishes from project partnering in the sense of strategic level, which can be related to that the parties are forced to collaborate. The two companies' management teams make the two parties to collaborate on a strategic level. However, looking further down in the organisation the collaborative willingness can be questioned.

Related to mutual understanding of each other, previous research show that the understanding of the concept partnering varies from wielder within the industry (Nyström, 2005; Bygballe et al., 2010). Accordingly, interviewees explained that there is no mutual understanding of what partnering is within the corporate group which could lead to misunderstandings. Eriksson (2004) claims that a mutual understanding is of high importance within the industry. However, if there is no mutual understanding within one single company, it is probably difficult to come up with a cohesive understanding for the entire industry. One interviewee claimed that the company work with something they call partnering. However, it was not evident that they do work with a true sense partnering where both parties completely understand each other.

The long-term partnering agreement among the parties imply that all projects initiated by the client are executed in collaboration with the internal contractor. Literature findings (Bresnen & Marshall, 2000A) exemplify that long-term partnering can be seen as two phases, formal and informal, where the formal phase is developed through contracts and the informal phase is evolved over time. The informal phase must be built upon commitment and trust, of which both are essential for partnering relationships. However, as empirical findings indicate, historical disagreements could hamper informal development, even though previous disagreements are not directly connected. Despite this, Cheng et al. (2000) claim that commitment and trust are factors which cannot fully be developed in one off partnering relations, long term collaborations are therefore more effective. It can be discussed how long-term collaboration and the fact that the contractor and the client are dependent of each other affect the relation. Historical disagreements seem to be difficult do get rid of, however, there is an environment where trust and commitment is possible to build. Another dimension presented in the literature review (Dubois & Gadde, 2010), is that people within the construction industry often have a “we against them” mentality that could constrain partnering development. This is confirmed by our data, which exemplified that some interviewees perceived the relation as obsolete. However, to build functional internal long-term partnering systems, the employee culture must accept the systems, where trust based relationships are promoted and information is shared openly among parties. Empirics explained that the parties started to collaborate for real in a phase of the project where they were forced to collaborate more extensively. It can be questioned what would have happened if this phase had not occurred. A majority of the interviewees stated that it was the sense of urgency that made the parties to collaborate more extensively. It can be discussed if a unified collaboration system, that specifies how parties should collaborate, would enable more successful partnering from the beginning of projects.

Cheng et al. (2000) describe partnering as a co-operative strategy which aim for improving relations among all involved parties. However, partnering tend to focus on dyadic relations (Bygballe et al., 2010). Fortune & Setiawan (2005) explain that one third of companies that use partnering do not have the same arrangement with consultants. This seems to have been the case in the case project as well. In the beginning of the project, consultants were not contracted with the same agreements as the client and the contractor. However, after a while it was understood that it would be better to use the same arrangements. It can be understood from the interviews that the model with same arrangement with consultants has created more efficient collaboration. The goals became more mutual as agreements became more alike. Looking at both literature and empirical findings it can be understood that it is more efficient to use similar contractual forms for all involved parties.

From the interviews, it can be understood that the parties from the contractor appreciate projects where they are involved early by the client. However, although it is stated in the internal partnering agreement between the two parties, it varies from project to project where the contractor is involved. Some representatives from the client argued that partnering is not suitable in early stages and that if the project is not that complex, they rather work without involving the contractor. It can be understood that the client think that it will be too expensive to involve the contractor too much. Looking at literature, Bresnen & Marshall (2000A) explain that project times can be reduced and costs can be lowered. In other words, even though involvement of the contractor cost

money, the total project costs will be lowered by involvement. Especially if a contractor can be involved early in the design phase with constructability input and reliable cost estimations. The fact that the client does not want to involve the contractor in all projects can be seen as contradictory to the internal agreement. The literature, through Cheng et al. (2000) further shows that partnering definitely can be used within early stages. The partnership can be initiated during early stages and continued throughout execution of a project. The fact that it varies from project to project when the contractor is involved can be questioned and it can be argued that it would be more efficient to always involve the contractor early. Looking at the empirical findings, there is little information in the internal business system that describe when the contractor should be involved. Forevermore, it shows that in practice it is the client who decides if and when to involve the contractor, in some projects the contractor is involved early but are not in some. However, literature (Courtney et al., 2009) explain that construction companies that use a collaborative approach achieve better results than companies that use conventional methods. Bresnen & Marshall (2000A) confirm this, stating that this is especially true if the contractor is involved early in the project with buildability input. Empirical findings indicate that if improvements are found in the design phase of projects, a lot of money can be saved during construction. However, it is up to the client to decide if they want to include contractors in the design phase and as projects do not generate money in the beginning it is comprehended that the client is restrictive about involving the contractor. However, as Francis & Kiroff (2015) stress, the design phase is not generating money and therefore costs must be placed in relation to future project income. With this in mind, the balance to devote money in early phases in relation to future income is a difficult process to steer and the perfect combination is understood as almost impossible to achieve.

Overall, there are few guidelines at the case company that describe how internal collaboration should be managed. It is understood from the interviews and the partnering agreement that there are arrangements saying that the contractor should be contracted through a consultancy contract during early phases of projects. Through a consultancy contract, the contractor gets paid for spent hours with a cost reimbursable concept. However, this seems to not be for all projects, only for projects that are larger than a specific sum. This factor could potentially hamper collaboration. If the contractor is invited to contribute in early phases with input without getting paid, there is a risk that quality and motivation becomes low. It can be questioned if the arrangement stating that the contractor only should get paid in some projects should be overseen in order to stimulate internal collaboration. A further problem highlighted with early involvement of the contractor is planning of consultancy work. It can be understood from the interviews that planning of consultancy assignments has been inadequate in the case project. One interviewee perceived that the client withheld information about what they wanted to get done in early phases and how much money they would be able to spend. It can be noted that it is important to more extensively clarify among the parties what expectations the two should have of each other in early phases. Looking at the empirical findings, three reference projects should be presented in projects at the case corporate group to facilitate design to cost processes for all projects initiated by the client. It can be discussed if it also would be sufficient to compare time and money spent in early phases for three reference projects to clarify expectations.

5.2.1 Collaboration manager

Both literature (Rigsbee, 2018) and empirical findings indicate that a collaboration manager can be beneficial to encourage a suitable culture, even in early phases of projects prior to construction. The need for managers for collaboration was confirmed by Cross et al. (2016) who claimed that a chief collaboration officer is beneficial. Despite this, a collaboration manager is, at the case company, usually only used to manage collaboration with external parties. However, it can be questioned if it would not be of same importance to manage internal relations. As discussed previously, at large organisations, subsidiary companies function almost as individual companies within an organisation. Therefore, the need for a collaboration manager is equally important for internal relations as external relations. Nothing indicated that less disputes arise internally than externally. Rather, it can be understood that discussions that are more difficult arise internally. Contractor E believed that it would be beneficial to use a collaboration manager internally, however, at the same time claimed that the processes vary from external projects so the concept could not be exactly the same. A majority of the interviewees believed that a usage of a collaboration manager depends on projects extent and is not an absolute necessity. However, if it is used, the collaboration manager should be external to secure objectivity. In some projects, the team can handle collaboration by themselves and in some projects, it may not be cost efficient enough. Two interviewees at the client argued that a collaboration manager is not important during early phases, as few people are involved who can manage collaboration on their own. However, one interviewee at the contractor argued that a collaboration manager should be used early and if people do not understand that, they are stuck in old habits and think they can manage everything by themselves, which they cannot. Further, Eriksson (2010) claims that: *“The transformation from adversarial to cooperative relations requires a holistic and systematic change in structures, processes and attitudes.”* Looking at both literature and empirics it can be understood that the structure and processes would need a change as well as the attitude among some employees. Furthermore, empirical findings indicate that improved communication improve project outcome and organisational culture. It is not doubtful that advantages with a collaboration manager are many, especially to understand each other’s interests and create mutual goals. However, costs of a collaboration manager are hard to compare to earnings generated by the manager.

5.2.2 Meeting structure

Structure of meetings and their appearance affects the collaborative process, as both literature (e.g. Fussel et al. 1998) and our empirics show. During the design to cost process, it can be understood that an exceptional structured and intense meeting structure stimulated the collaboration process in the case project. By regular meetings involving all relevant parties, communication seems to have been tighter. However, as empirics indicate, there is nothing that regulate how a meeting structure should look like in the design to cost process within the corporate group, however, it might be beneficial to impose a structure.

Empirical findings indicate that face-to-face meetings have been used largely in the case project and could clearly be seen as a key component for successful collaboration. Many informal meetings when people walk into each other’s offices to discuss something instead of using email seems to have created a better collaboration climate. This is interpreted as a success factor within the case project.

5.2.3 Trust

Commitment and trust are essential cornerstones in a partnering relation, however, it could not be developed fully in one single project (Cheng et al., 2000). Longer-term collaborations are therefore seen to be more effective. At the studied case company, long term partnering seems to be problematic as old habits of distrust hamper further development of collaboration. However, Rasmussen & Shove (1996) claim that it is easy to overestimate an organisation's ability to overcome limitations and conflicts. Overall, interviewees at the client and contractor believed openness, communication and honesty to be trust-building factors, which match with theoretical findings. Kadefors (2004) exemplify that trust factors must be accurate to enable full potential of partnering.

Rhodin (2012) explains several benefits with strategic partnering, such as lower costs up to 40 percent, and shorter project times, up to 50 percent. To enable strategic partnering, trust must be established between parties because long term relationships could not only be established by contractual forms, there must be a transparency built upon trust. As our empirics indicate, tactics and sub optimization occur within the case corporate group that originate from old dilemmas and history of mistrust, in particular from inadequate cost calculations. There is no room for hidden agendas and exaggerated sums. However, this has not been a problem at the case project but seems to be a problem that needs to be dealt with at the case corporate group.

To enable trust within organisations, literature findings (Kadefors, 2004; Lau & Rowlinson, 2010), list several trust dimensions or tools that can be beneficial. It is important to understand that trust is complex, dynamic and sometimes contradictory. However, for the case corporate group to build trust, contractual agreements between divisions must be fair and must enable transparency between divisions. Mcdermott et al. (2002) argued that partnering is ethical, built upon an equitable basis. When this is set, a climate that is characterized by trust is established and in the long run, openness will be a hallmark, which is a key factor to well-functioning partnering according to both empirical and literature findings. However, the level of trust depends on the level of interdependence. Historical, with Design Bid Build agreements, the interdependence was low. However, a Design Build agreement with partnering requires a higher level of interdependence and therefore a higher level of trust. Therefore, it is fundamental for the case corporate group to set aside history and create trust within.

5.3 Target price and incentives

As the empirical findings indicate, several interviewees were positive to a unified risk assessment system. One interviewee thought it was illogical that the systems are separated, as they are built upon each other. Another interviewee emphasized that a unified system probably would lead to extended understanding of each other interests and a more open dialogue. As explained in empirics the two parties have separate systems, which likely originate from the fact that the two parties are two separate companies. As several interviewees are positive to a unified system, it is probably a possibility that should be evaluated further. One interviewee at the contractor claimed that the separated system lead to a lot of double work, unfavourable for the corporate group.

5.3.1 Target price

The clients building requirements form a base for a target price. Nevertheless, several interviewees highlighted that they perceive the requirements as obsolete and too standardized. It was claimed that the client has requirements which are different from other clients on the open market, which make design to cost processes problematic. As requirements often must be set aside in order to meet the target price, it can be questioned if the client's budget is aligned with the building requirements. Empirics show that the design to cost process should be all about discussions of alternative solutions. However, it can be questioned if this actually is possible if building requirements are too stiff and almost impossible to adjust.

A situation about when the intense design to cost process started in the case project was presented previously. It can be questioned if it would have been possible to begin the intense design to cost process earlier to facilitate the process to agree on a target price. It might be possible to formalize the process and clarify how the design to cost process should look like in early phases and which parties that should be involved in what stages. This is related to the fact that several interviewees believed that the adjustments which have been done in the project to reach the target price would have been possible to make earlier in the process. One interviewee gave the proposal to create clearer goals to stimulate the project team to find adjustments earlier. This, together with a formalized process, can potentially facilitate the process. However, looking at the citation presented in empirics: *"If someone with authority argue that something is impossible to do, many will believe in that. It is important to stand up for yourself at design meetings and dare to criticize to be able to find adjustments"* it can be understood that a climate exists in the working group where it is difficult to criticize each other. This is naturally important to get rid of. Forbes Coaches Council (2016) states that collaboration could get damaged if it leads to too much groupthink, resulting in members that value group atmosphere and agreements in the group higher than critical approaches to ideas. This might develop a positive atmosphere in the group, however, it might be negative for the process development. It could further be questioned if it would be possible to appoint resources to work more structured to find adjustments earlier. However, it could as well be criticized as generating extra costs for projects. A comparison between saved costs from smarter solutions and additional costs for resources would have to be done.

When a target price is set, both previous research (Kadefors & Badenfelt, 2009; Rose & Manley, 2009; Eriksson & Hane, 2014; Bröchner et al., 2015) and our data indicate that it is problematic to decide what changes in a project that should affect the target price. A problem that is pointed out is the risk that a target price is set too high or too low, which will affect an incentive system negatively (Bröchner et al., 2015). The validity of a target price was also addressed during interviews, where many discussed the possibility of affecting the money generated from the incentive system by entering the project with an incorrect target price. Kadefors & Badenfelt (2009) describe a situation where contractors can enter a project with a high target price and later in the process present cost savings. This, in order to make more money out of the incentive system. However, as the client and the contractor operates within the same corporate group it can be questioned why this should be a problem. As it was described as a potential problem during interviews it can be confirmed that sub optimization is a problem within the corporate group. The performance measurement systems conflict with each other, as divisions try to earn as much money as possible for the own division

rather than for the corporate group. As Kadefors & Badenfelt (2009) presented, incentives can be seen as a factor that hamper collaboration. It can be discussed if the usage of incentives is sufficient for internal projects, or if any other compensation system should be used. A couple of interviewees proposed that a cost reimbursable system with a predetermined compensation instead should be used to stimulate efficient collaboration.

5.3.2 Open books

As previously stated, literature (Kadefors, 2002; Eriksson, 2010; Hagberg & Hjelt, 2011) and empirical findings clarify that mutuality is the cornerstone within partnering relations. Mutual economy with open books and mutual goals seem to be the most important factors in partnering relations. Several interviewees emphasized that openness has been a key factor for collaboration in the studied case project. The studied project has been unique in the sense of openness among the parties, which clearly has been successful. It can be understood that the openness varied among the parties along the project, however, when the parties opened up the collaboration improved markedly. The views about what openness is and how much that should be shared in an internal partnering relation seems to differ within the organisation, there is no shared view about how partnering relations should be handled. Some interviewees perceived that there has been enough openness, while some interviewees perceived that there has not been enough openness.

There is no guideline within the organisation that clarifies what openness is. Rather, how much the parties should share with each other is dependent on the people involved. The level of openness seems to be decided upon how the involved parties in a project see and value openness. It can be questioned if this supports collaboration or if it would be better to use a standard level of openness that is clarified among the parties. Moreover, one interviewee claimed that the level of openness is discussed in the beginning of external projects but is not discussed in internal projects. This, because there is a perception that there is no need to discuss openness due to the internal relation and that historical distrust hinder. However, this seems to not be an ideal approach as several interviewees highlighted that openness is the overall most important factor that supports collaboration. Employees must dare to lift discussions about openness and trust in the beginning of projects to establish a well-functioning framework throughout entire projects.

5.3.3 Incentives

According to Kadefors (2002), the overall goal with an incentive system is to create mutual goals and a situation where parties generate more profit by collaborating than not collaborating. However, looking at the empirics, this seems to not be the results in the case corporate group. Instead, it can be understood that the incentive system obstructs the collaboration process and give rise to suspiciousness. There are risks with painshare and gainshare systems that are exemplified in both literature and in empirics. Both point to the dilemma with contractual forms among involved parties other than client and contractor. Many contractors seem to contract their subcontractors upon traditional arrangements, even though the contractor have a partnering agreement with the client (Fortune & Setiawan, 2005; Bygballe et al., 2010). Rose & Manley (2010) emphasize that a construction project where not all involved parties are included in the

incentive system is suboptimal. This was the situation in the case project, in the beginning the contractor did not use incentives for subcontractors. However, after a while they changed the contractual form and used incentives because the client wanted subcontractors to have a drive for cost savings. The actual reason behind this is interpreted as that the contractor do not appreciate incentives but use it when they must.

Several interviewees claimed that incentives are inappropriate within internal strategic partnering. Because, a situation could occur where a contractor aims to increase the target price as much as possible when incentives are used and the contractor can affect the target price in the design to cost process. Namely, if a contractor according to the incentive model is benchmarked upon the target price and receive a percentage of cost savings, there is an advantage to have a high target price as benchmark. The interviewees confirmed, if a contractor during a design to cost process come off with a high target price, their risks can be lowered in the project. Consequently, this could result in a situation where a client is suspicious about cost estimations done by a contractor in a design to cost process. If a client understands that the contractor aims for a high target price, there is a risk that the client presents unreasonably low cost estimations and budgets to push the contractor's amount down. This could result in situations with low trust and a vulnerable collaboration climate. A similar problem has been identified in previous research, where a contractor avoids presenting cost savings until the contract is signed to have a situation with a high target price but lower actual costs (Kadefors & Badenfelt, 2009). The situation becomes contradictory to the overall aim of collaboration according to literature about partnering and Early Contractor Involvement, which suggest that contractors should be involved to contribute with construction knowledge and reliable cost estimations.

Rose & Manley (2010) present eight factors which they argue are important for successful use of financial incentives. Flexibility to modify the benchmarking processes is one of the stated factors. However, interviewees highlighted the problem with changing the target price in projects. Often, negotiations emerge about what changes that should affect the target price, a problem that has been pointed out in previous research (Kadefors & Badenfelt, 2009; Rose & Manley, 2010; Eriksson & Hane, 2014; Bröchner et al., 2015). Consistent with literature, the interviewees explained that that a major advantage with partnering without a fixed price is that negotiations about additional work are limited. However, if looking at the problem with target price negotiations, the situation has very much in common with those appearing with fixed price contracts. A couple of interviewees advocated another compensation system to stimulate collaboration more efficient. Interviewees proposed a cost reimbursement system with a predetermined locked compensation for the contractor. By this system, they argued that there is still enough incentive for the contractor to save money in the project as margins can become higher. Rigsbee, (2018) claims that financial structures must be adapted to stimulate collaboration. Financial compensations should be related to divisions but should as well include overall project and company performance.

Design involvement from the contractor is by Rose & Manley (2010) explained as a key factor to achieve an effective incentive based payment model. This is consistent with interviews and could clearly be seen as a key factor in practice. Rose & Manley (2010) further present multiple goal opportunities as an important factor when using financial incentives. However, interviewees emphasized that the payment model used today which include both a percentage of the target price as well as a project specific

part is problematic. At first, the percentage in the project specific part is necessary for the contractor to meet profitability demands. However, it is difficult to estimate the outcome as the result is decided by the client after the project is finished. It was perceived that it can be difficult to affect, and sometimes not solely objectively judged by the client. Multiple goal opportunities are by Rose & Manley (2010) suggested to secure rewards for contractors. If one single goal is of as high importance for the contractor as it becomes too difficult to reach and determine profitability demands, it might not be a sufficient compensation system.

Reward distribution and risk allocation are two further factors which Rose & Manley (2010) highlight. These two were also brought up as important factors during interviews, and discussions emerged about what risk and reward distribution within internal projects that can be the most efficient. Presently, one interviewee mentioned that the contractor uses different reward and risk distributions if they produce for external parties or internal parties. The interviewee believed that risks with internal partnering are lower and therefore other distributions can be used.

Literature shows that effects of incentive systems are dependent on the project circumstances (Rose & Manley, 2010). However, looking at empirics, the incentive system used is according to the partnering agreement and thereby the same for every project. It can be discussed if it would be of benefit to oversee if incentives should be used in every project. Because, the usage of incentives can be seen paradoxically to the objectives of partnering such as trust and good collaboration.

5.4 Experience feedback

Literature findings (Bresnen & Marshall, 2000A; Dubois & Gadde, 2010) explain partnering relationships as high involvement relationships where parties work together. However, in the construction industry, this is often neglected in order to retain information within the own organisation. Our empirical findings indicate that subsidiary companies work as sealed divisions within large organisations. Therefore, it can be argued that the organisational structure with subsidiary companies inhibits experience feedback. Rhodin (2012) and International Partnering Institute (2018) explain that strategic partnering relations should enable experiences and knowledge to be gathered and transferred into new projects. Empirics show that it is done to some extent, however, it can be argued that there is a possibility to develop it further.

Reference projects are used for comparisons within the design to cost process, however, it can be perceived that there is a possibility to develop experience feedback. Previous research emphasize that a systematic process needs to be implemented in order to support improvements in terms of knowledge, processes and relationships (Jansson et al., 2015). Rhodin (2012) explain that most construction companies, even those involved in long term strategic collaborations, have a lack of experience feedback and the case company seems to not be an exception.

No organized experience feedback system is used, instead it is the project team that should be proactive and search for other projects in order to gather experience feedback. It can be questioned if this is the most beneficial way, or if it would be more efficient to use an organized system to share experiences among projects. One interviewee highlighted that many projects compare calculations for construction with other

projects, however, money spent in design processes are seldom compared. Maybe it would be of benefit to include a mandatory comparison with other projects design phase in the partnering agreement. This would potentially clarify the extent of the design phase and help parties clarify their expectations of each other.

Senarate & Sexton (2009) emphasize that experience feedback within the construction industry is highly dependent on the individuals involved. Tacit knowledge is often lost when knowledgeable employees leave a company. Understood from interviews, this seems also to be the case at the case corporate group. Several interviewees highlighted that the client's procedures of driving projects are often dependent on the individuals involved. Systematic processes seem not to exist and procedures vary from project to project dependent on the employees involved. It can be questioned if it would be more efficient to create clearer processes of how the relation should be built to lower single person's effect on processes. As the situation is today, experience feedback is lost and the collaborative process becomes indistinct.

5.5 Sparring group

Empirical results show that a sparring group supports collaboration and stress that a sparring group should work in a peer review manner and not lead project progress to enable efficiency. This is in line with Cross et al. (2016) who show that in some collaborative relations a specific person can become a bottleneck, work cannot progress without their point of view, in this case collaboration have turned ineffective. Therefore, a sparring group should be advantageously for collaboration if used in a correct way.

Empirical findings stress that a sparring group should consist of experienced people and less experienced people with various skills to enable different angles and point of views. However, Fusell et al. (1998) argue that communication is the key to collaboration, it is then obvious that a sparring group need to be able to communicate their input in a correct way. Especially as empirics show that people tend to not be able to handle criticism and opinions. Therefore, it can be argued that it is beneficial to educate people within a sparring group to "sparr" in an efficient and correct way. Organisations should establish their way of working in a sparring group as a standard, for example; Which expertise that needs to be included?; In what phases sparring should occur?; In what way people in a sparring group should be educated etcetera?

Literature- and empirical findings stress that sparring is efficient to create project success. However, the latter indicate that sparring groups are not cost efficient enough to use in some projects, its costs are greater than some projects can bear. If it is up to projects to choose whether they want sparring or not, it may start a situation where project managers only see it as a cost and forget its benefits. Especially, as literature (Francis & Kiroff, 2015) stress, as projects do not generate money in early stages it can be problematic to see the benefit of allocating money in that phase. Because of that, it can be argued that it is a necessity to make sparring a mandatory sequence on projects that exceeds a certain sum. The sum should be established internally to a level where it is believed that projects can bear sparring group costs. Perhaps, this will start a situation where sparring expands and supports better project outcomes.

6 Conclusion

Many problems with the collaborative relationship tend to originate from organisational structures and agreements between a client and a contractor that give rise to behaviours that are contradictory to common sense and trustworthiness. Overall, implementation of partnering requires a holistic adoption of processes and behaviours, however, it is concluded that organisations implement partnering concepts but somehow forget to adopt the organisational structure and processes. Below are conclusions specified that in the analysis were seen as key factors for collaboration in early stages.

Organisational structure

The way subsidiary companies are structured within a corporate group affects internal project outcome. The organisational structure and its performance measurement systems must be established in a way that supports collaboration. Individual division results should not get in conflict with each other, the organisational structure should instead be structured in a way that promotes mutual results. When mutual results are reached, individual divisions should be rewarded. There must be incentive systems that stimulates internal collaborative relationships instead of single unit performance rewards that hamper internal strategic collaboration. Another system that hamper collaboration is individual bonus systems that mainly are based on division earnings. Decisions are sometimes made that hamper project outcomes to favour personal economy. With this in mind, an organisation must be structured with transparency and equitability between divisions and subsidiary companies, where earnings of each division should by no means get in conflict with other divisions earnings. Not before this is established within a corporate group, the fullest sense of partnering can be reached.

Allocation of resources from a contractor is problematic, the contractor is often unfamiliar with working in early stages of internal projects. A clearer scope from a client and clearer roles of a contractor is beneficial to clarify expectations and demands from both parties. As a result, a contractor can become comfortable in the role as consultant.

Partnering

Internal partnering relations are equally important to manage as external partnering relations, even in early stages prior to construction. However, insufficient resources are put into internal relationship building. There is a belief that less effort must be put into internal relationships because parties should understand each other anyway, a comprehension that has been proven wrong. Therefore, it is highly important to establish a mutual understanding within a corporate group on how to manage internal relations and what a partnering concept implies. As parties' view openness differently, it is important to create a mutual understanding about how parties manage openness between each other, both in specific projects and in the entire corporate group. In order to manage collaborative relations in early stages, an external and objective collaboration manager should be used if a project can bear the costs it will imply.

A partnering agreement needs to be discussed with all project team members before every project to secure mutual understanding of responsibilities and the significance of

collaboration. It is important with a mutual understanding and acceptance of the distribution of costs and risks in early stages, for example, the allocation of costs in a design process. Furthermore, it is of immense importance to establish an understanding within a project team of each other's businesses and what risks the counterpart is taking with internal projects.

Trust must be acknowledged to be able to use partnering to its fullest. It is a complex, dynamic and sometimes contradictory phenomenon that needs to be well established within an organisation to promote healthy relationships. Systems and processes within an organisation must be constructed in a way that enable trust to its fullest were contractual agreements cannot be a source of distrust. Openness, communication and honesty are three cornerstones that need to be aspired for. Further, a key factor to build trust is informal face-to-face meetings where employees from both parties interact with each other on a regular basis, informal meetings have been proven to support partnering relations to the better. In addition, a formal and strict meeting structure that involve people from different hierarchical levels in different meetings is important to enable utilization of all project members' expertise, including client, contractor, consultants and subcontractors. This, to ensure communication and transparency across the natural hierarchical levels of meetings.

Target price and incentives

Compensation structures with a linear painshare and gainshare incentive obstruct collaboration processes as it gives rise to tactical behaviours that create suspiciousness and decrease trust. As a result, it hampers the result of a corporate group. Trust is one of the key factors to achieve sustainable relations and it is requirement that parties trust each other. The overall goal with an incentive system is to create mutual goals, however, the perception is that it creates contrary goals that support sub optimization. A compensation structure that supports internal collaboration is needed, however, there is no simple answer on how this should be structured. A compensation with a predetermined retainer would lower tactics and suspiciousness but further research is needed to present a solid structure.

Experience feedback

It is believed that when experienced employees end their employment, knowledge, trust and effective ways to execute projects are lost. A systematic process that is consistent over projects and not utterly dependent on experience is needed. Processes need to be clarified to lower single employees' effect on ways to work. Often, experience feedback is lost and the collaborative process becomes indistinct. If a well-established system for experience feedback is implemented, collaborative processes can become more distinct and a clearer understanding of how projects are executed can be spread within organisations.

Sparring group

A sparring group is often referred to as an instance that can contribute with valuable knowledge to projects, however, some people see it as collegial criticism instead of a source of knowledge that supports better project outcome. It is therefore important to make people understand what sparring is, which can be enabled by implementing

sparring as a natural step in early stages of all projects. However, projects do not generate money in early stages, which make it hard to take a decision to allocate money to sparring in that phase. Few wants to spend money before they know if a project will be able to be executed. It is therefore a necessity to make sparring a mandatory sequence on projects that exceeds a certain sum where it is believed that sparring is cost efficient. Further, a sparring group should consist of people with a variety of experiences and expertise, who should be educated to give feedback in a way that is not perceived as criticism. Overall, there is no doubt that a sparring group can contribute to project outcome but it is unclear on what level of projects a sparring group is cost efficient enough and that needs further research to be established.

To sum up, soft factors as trust and cooperation ability together with hard components as contracts and incentive systems are found as the most important factors for successful internal collaborations. Cornerstones of partnering are presented as mutual goals, economy, understanding and organisation. However, there is a balance of interests and mutuality within internal strategic partnering that needs to be addressed to enable corporate group results. Overall, implementation of partnering requires a holistic adoption in processes and behaviours. Moreover, if the cornerstones are elaborated, a mutual understanding of each other's businesses and motivations are of high importance. The level of openness should be established and acted after through a mutual understanding of open books were all involved parties understand each other's perception of open books. It is important to understand that internal collaboration needs to be managed where a solid meeting structure is crucial. However, informal meetings create an open culture which is a key to successful partnering relations. Lastly, organisational structures and compensation structures needs to be established in a way that enables partnering relations, often an internal partnering concepts is implemented but the organisation is not structured thereafter. A framework needs to be established that enables collaboration instead of hampers collaboration.

7 References

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Figures

Figure 1: Traditional collaboration versus strategic collaboration, based on Rhodin, A. (2012). *Rapport - Strategisk partnering, en sammanfattning av arbetssätt och status*. Byggherrarna Sverige AB.

Figure 2: Illustration on painshare/gainshare, based on Hosseinian, S. & Carmichael, D. (2013). *Optimal gainshare/painshare in alliance projects*. The Journal of the Operational Research Society, 64:8, 1269-1278.

Figure 3: Extraction of partnering cornerstones at the case company, authors illustration.

8 Appendix

Appendix A – Main interview questions

Briefly, what do you work with?

Briefly, what has been your role in the case project?

Which contractual form do you perceive is used at the case project?

Follow up: Partnering or a traditional project?

Have you worked in partnering projects before the case project?

Follow up: Have these projects differentiated from the case project? In what sense?

How do you perceive that the collaboration has functioned in the case project?

Follow up: Is this how you perceive that collaboration in partnering projects should function at the case company?

Follow up: What do you think create the differences?

In what phase was the contractor involved in the case project? Was this the at the same phase as it use to be in other internal projects?

Follow up: Why was the contractor involved early in this project?

Follow up: When do you think it is most optimal to involve the contractor?

At what time were you involved in the project? Were there any problems at this phase?

Follow up: How did you get to know this?

Follow up: How did you go through this?

What has the meeting structure looked like in the case project?

Follow up: How has this worked?

What channels for communications have been used?

Follow up: How has this worked?

Has it been obvious what you have to do in order to come up with a synchronized target price?

How have you worked with adjustments to be able to come up with a synchronized target price?

How do you work in other internal projects to secure the right product for the right cost?

Follow up: How do you know that the target price you have is the “correct”?

Have you used any references or experiences from other projects in order to make adjustments?

Follow up: How has this been done?

Do you believe that the adjustments that have been done in the project would have been possible to do earlier in the process, before the separated risk assessments were handed in for the first time?

Follow up: Is there anything that could motivate you to find the solutions earlier?

How do you think that you should work in order to come up with a correct and synchronized target price?

Do you believe that it would be possible to create a unified risk assessment for control instead of that the client produce one and the contractor another?

Follow up: Why? Why not?

Will you administrate the adjustments that you have done in this project in order to facilitate for coming projects?

Do you believe that a sparring group would be of benefit in early stages?

Follow up: What people do you argue should be involved in a group like this?

Follow up: What qualifications is needed in a group like this?

Do you believe that a collaboration manager would be of benefit in order to lead collaboration in internal projects?

Looking at the partnering agreement that exists among the client and the contractor, do you perceive that it is followed?

Have you felt pressed during the design phase?

Follow up: Did you get the support you needed from other project members?

Follow up: Was there any phase of the design process which was heavy? How did you manage through this?

Was there any phase of the design which you perceived as fun and worthwhile?

If you compare this project to other projects you have been involved in, are there differences in the ways you have been working?

Follow up: Is there anything that you will bring with you into coming projects?

Follow up: Is there anything that you will change in coming projects?

Are there any differences in how other people have worked in this project in comparison to what you are used to?

What is it in other people's acting that leads to trust?

What is it in other people's acting that leads to distrust?

Follow up: Can you give an example of when distrust was a problem in the case project?

How do you perceive the relation between the client and the contractor?

Follow up: Why do you think it is like this?

Do you believe that the relation is affected by the fact that the two parties are two different subsidiary companies?

Follow up: How do you think this affect?

Can you tell us about any time when you felt dissatisfied in the case project?

Follow up: What do you think was the reason for this?

Can you tell us about any time when you felt satisfied in the case project?

Follow up: What do you think was the reason for this?

After discussing the case project for a while, what would you summarize as the key factors which have made this collaboration more successful than other projects?

