

The influence of contracting choices on client-contractor collaboration

Yorick Keizer

University of Twente, Faculty of Engineering Technology, Department of Construction Management and Engineering

ABSTRACT

This paper explores the influence of contracting choices on client-contractor collaboration in public construction projects. Insight is provided in contracting pitfalls that clients should consider at the start of a project. Based on agency and stewardship theory it is hypothesized that collaborative behavior can be triggered by making contracting choices that enhance contractor involvement and flexibility. The empirical part of the research consists of an expert study and a single-case study. The findings of the case study show that the contracting choices were made to safeguard the client's interests and that little attention was paid at the interests of the contractor. The contracting choices resulted in limited involvement of the contractor in the design process, in an unbalanced division of risk in favor of the client and in rigid price arrangements, which frustrated the collaboration. To improve collaboration, clients should consider giving contractors more design freedom by involving them early in the design process. Furthermore, contractors should be given the opportunity to influence the contractual context within which the collaboration takes place. The success of collaboration depends on how well parties find common interests and can trade-off conflicting interests and the contracting choices need to be made accordingly to facilitate this process.

Keywords: Client-contractor collaboration, contracting, agency, stewardship, public construction projects

1 INTRODUCTION

Public construction projects are often characterized by confrontational behavior between the client and the contractor and this often leads to high levels of conflicts and disputes and a reduction in project performance (Anvuur & Kumaraswamy, 2007; Cakmak & Cakmak, 2014; Jaffar, Tharim, & Shuib, 2011; Tazelaar & Snijders, 2010; Yiu & Cheung, 2006).

In recent years public clients have shown increased interests in client-contractor collaboration. Collaboration can serve as a mechanism for dealing with changing circumstances and can enable public clients to use more flexible governance structures in their projects without increasing the risks of getting exploited by an opportunistic contractor.

This paper studies the influence of the client's contracting choices on client-contractor collaboration and builds on the hypothesis that collaboration oriented contracting choices trigger cooperative behavior. This paper provides insight in contracting pitfalls and explores what kind of collaboration oriented contracting choices are worth considering for clients who seek to improve collaboration.

2 CONTRACTING CONTEXT

When making contracting choices, public clients face several contracting problems such as the (1) conflict of interests, (2) bounded rationality, (3) fundamental transformation and (4) inability to build long-term relationships.

2.1 CONFLICT OF INTERESTS

Often in construction project the overreaching interests of the client and contractor are in conflict with each other, such that it can result in tension in the collaboration. The interest of the client in a project is to solve a problem for the lowest possible price with the highest possible quality and with the longest possible life expectancy. The contractor on the other hand wants to achieve continuity of the business at first and when this is guaranteed to maximize profits (Regieraad Bouw, 2006). This conflict of interests forms the foundation on which client-contractor collaboration takes place and makes that parties often perceive collaboration as a zero-sum game in which one party can only gain something at the costs of the other.

2.2 BOUNDED RATIONALITY

To manage the conflict of interests, clients rely on the use of contracts. Contracts prescribe what a party needs to do and how it needs to be done and by doing so it attempts to limit opportunities in which one party can exploit the other (Dorée, 1996; Eisenhardt, 1989; Jones, Hesterly, & Borgatti, 2009; Williamson, 1979). Unfortunately, the effectiveness of contracts is limited due to imperfect information and uncertainty about the future which cause that all contracts are incomplete to some degree (Brown et al., 2015; Williamson, 2002). The term used to explain this limitation is bounded rationality. Bounded rationality assumes that *“human behavior is intendedly rational but only limited so”*, meaning that humans have limited capabilities in formulating and solving complex problems and in processing information (Dorée, 1996; Williamson, 1981; Yates, 2003).

2.3 FUNDAMENTAL TRANSFORMATION

The fundamental transformation is used to describe a shift in division of power between the tendering process (pre-contractual) and the execution stage (post-contractual). The fundamental transformation states that the

client has most power pre-contractually, with their ability to use competition as a tool to force contractors to put in their best effort. Post-contractual power division is different, as there is no more competition and the client is contractually bound to the contractor. The potential loss of initial investments, atop the costs of breaking the contract and the need to retender makes it (too) costly for the client to switch to another contractor. This leads to a post-contractual power advantage in favor of the contractor that can be exploited during renegotiations. (Dorée, 1996; Winch, 2010)

2.4 INABILITY TO BUILD LONG-TERM RELATIONSHIPS

The most determinative challenge however, is to oblige by procurement law. Procurement law requires clients to select a contractor in an objective, transparent and non-discriminatory fashion. Public clients are not allowed to appoint a contractor based on a previous collaboration, thus are limited in the possibility to build long-term relationships with contractors (Chao-Duivis, Koning, & Ubink, 2013). The consequence is that clients are unable to trigger desired behavior by offering contractors the perspective of future works (Dorée, 1996).

3 AGENCY AND STEWARDSHIP THEORY

Agency and stewardship theory are used to explain behavior of parties through the use of a contract (Eisenhardt, 1989). The theories assume different behavioral intentions of both client and contractor towards collaboration. Agency theory assumes goal divergence between client and contractor, while stewardship theory assumes goal convergence due to shared collective interests (Davis, Schoorman, & Donaldson, 1997; Eisenhardt, 1989; Slyke, 2006).

3.1 AGENCY MODEL

Agency theory addresses the problem of conflicting interests and goals between the principal and agent (Davis et al., 1997; Muller &

Turner, 2005; Schieg, 2008; Snippert, Witteveen, Boes, & Voordijk, 2015).

The challenge to be tackled by agency theory originates during the client’s search for an appropriate, competent and trustworthy firm (Winch, 2010). The central challenge in agency theory is caused by an information asymmetry which in turn leads to adverse selection and moral hazard (Schieg, 2008; Winch, 2010). The agency model is depicted in Figure 1.

Adverse selection refers to the misrepresentation of ability by the agent. Adverse selection arises when the principal cannot completely verify the skills or abilities of the contractor at the time of hiring or while the agent is working (Eisenhardt, 1989). The client cannot be sure the most enthusiastic offer is also the most desperate one (Schieg, 2008; Winch, 2010).

Moral hazard arises from information asymmetries developed after the contract is signed (Schieg, 2008; Slyke, 2006). Due to moral hazard the client cannot be certain that a firm, once hired, will still put in his best effort (Winch, 2010). If the client cannot supervise the contractor or is not able to determine the quality of his work this will result in an information imbalance in favor of the contractor (Schieg, 2008).

The unit of analysis in agency theory is the contract governing the relationship between the principal and the agent. Agency theory focusses on determining the most efficient contract given assumptions about people (e.g. self-interest, bounded rationality, risk aversion), organizations (e.g. goal conflict) and information (e.g. information as a commodity that can be purchased) (Eisenhardt, 1989). According to Schieg (2008), it is to be assumed the agent will behave in a self-serving way and consequences only depend on the restrictions it is subject to.

Contracts can be used as controlling governance mechanisms to limit opportunities in which the contractor can behave opportunistically (Dorée, 1996; Eisenhardt, 1989; Jones et al., 2009; Williamson, 1979). This explains that clients sometimes choose for a culture of inflexibility and control out of fear that the other party will seek to maximize their own utility (Muller & Turner, 2005).

3.2 STEWARDSHIP MODEL

Contrary to the principal-agent model, the stewardship model assumes that a steward is motivated to act in the best interest of the principal and behaves pro-organizational and collectivistic, instead of individualistic and self-serving. Even when the interest of the steward and principal are not aligned, the steward still

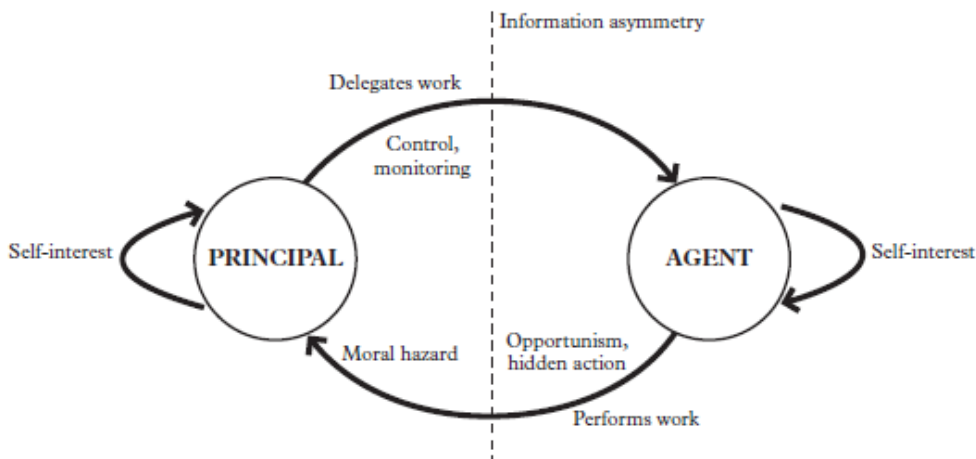


Figure 1 Agency model (Snippert et al., 2015)

places higher value on cooperation than defection (Davis et al., 1997).

The economic payoff for the principal in a principal-steward contracting relationship may come over time in the form of lower transaction costs. Initially, a principal-steward relationship may involve higher transaction costs than a traditional principal-agent relationship. Time is required for joint problem formulation and decision making, information exchange, and generally attempting to understand the needs of the parties involved (Slyke, 2006)..

A steward's motivation is rooted in intrinsic rewards and stewardship assumes that long-term contractual relations can be developed based on trust, reputation, autonomy, collective goals, and involvement and that alignment results from relational reciprocity (Slyke, 2006; Snippert et al., 2015). As a steward is expected to be motivated to behave in a way that supports the interests of the client, no resources are required to guarantee pro-organizational behavior (e.g. monitoring or incentives). It is even argued that control can potentially work counterproductive, because it undermines the pro-organizational behavior of the stewards by lowering the contractor's motivation (Davis et al., 1997). An overview of the stewardship model is shown in Figure 2.

Fundamentally, stewardship theory relies significantly on the initial trust disposition (Slyke, 2006). Within stewardship theory trust is seen as the willingness to risk being vulnerable to the possibility that one of the actors in the contract pursues self-interest (Davis et al., 1997; Slyke, 2006; Snippert, Witteveen, Boes, & Voordijk, 2015). Slyke (2006) argues that stewardship theory is limited by its inability to say much about the degree to which a principal extends trust to a steward in a new relationship or how trust is further extended in an evolved relationship.

3.3 CHOOSING BETWEEN AGENCY AND STEWARDSHIP

In literature, the choice between agency or stewardship relationships is a game-theory problem in which both parties make a choice independently. The most beneficial situation is achieved when both parties choose to behave in line with stewardship theory. However, when only one party chooses for stewardship this party has the highest chance of getting betrayed. Therefore, more risk-averse clients are more likely to prefer agency governance structures as this offers the least risk of betrayal. (Davis et al., 1997; Snippert et al., 2015)

In public construction projects however, clients often make contracting choices univocally at the start of a project. It is hypothesized that by doing

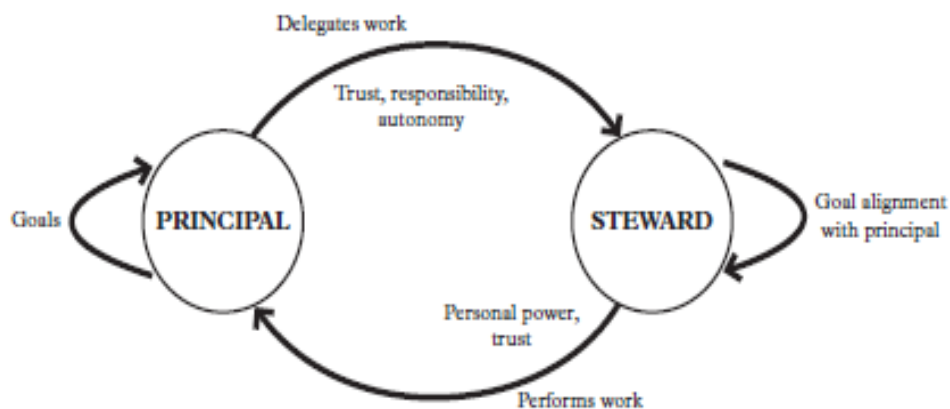


Figure 2 Stewardship model (Snippert et al., 2015)

so the client can influence the contractor's choice for agency or stewardship. Contracting choices directed at inflexibility, control and rigid communication structures are expected to lead to agency relationships (Muller & Turner, 2005; Schieg, 2008). For agency relationships it is suitable to use competitive tendering and the client should opt to remain in control of the design process as much as possible themselves (Winch, 2010).

For stewardship theory such an approach is expected to work counter-productive (Slyke, 2006; Snippert et al., 2015) and it is hypothesized that stewardship requires more cooperatively oriented contracting choices. Eriksson and Westerberg suggest in their research that collaboration can be triggered by (Eriksson, 2010; Eriksson & Westerberg, 2011):

- early involvement of contractors in joint specification setting,
- direct negotiation with only one bidder,
- selecting and awarding on quality instead of on lowest price,
- selection on soft parameters such as technical and managerial competence and collaborative abilities,
- setting joint objectives,
- incentive based compensation, and
- allowing the contractor to self-control his performance.

4 METHODOLOGY

The empirical part consists of an expert study and a single case study. For the single case study, data is gathered by interviewing six experts, all working as contractors. Data collection for the case consists of studying tender documents and six semi-structured interviews, half of them with people working for the client and half with contractors. For both sets of interviews a different interview protocol is used. The interviews are transcribed and analyzed in

accordance with the thematic content analysis method (Braun & Clarke, 2006).

5 EXPERT STUDY RESULTS

The aim of the expert study was to explore the role of contracting choices in client-contractor collaboration in Design Teams. The expert study revealed several contracting pitfalls for collaboration and provided insight in what clients can do to avoid these pitfalls. To structure this section, the findings are categorized on the subjects (1) design freedom, (2) division of risks and responsibility and (3) selection process. Each section starts with presenting several statements that represent the view of the experts. Each of the statements is derived from three interviews or more.

5.1 DESIGN FREEDOM

Regarding design freedom the experts showed that:

- a Design Team requires a problem that cannot be solved without the input of the contractor,
- when a Design Team is used sufficient design freedom should be provided to come up with alternative solutions,
- early involvement of the contractor contributes to a better understanding of what is realistic in terms of time and money, and
- in case something is not complex or when the client clearly knows what needs to be constructed, it is best that the client prescribes contractually what needs to be done.

The results indicate that collaboration benefits or even requires high involvement of the contractor in the design process. Design freedom and early involvement creates opportunities to find mutual beneficial opportunities. Two experts suggested in addition to this that design freedom is sufficient when using a preliminary or concept design.

The pitfall of limited design freedom is that assumptions are made by the client about execution techniques and costs. Clients tend to make unrealistic assumptions due to a lack of execution knowhow. When the collaboration starts with unrealistic expectations, tension is created from the beginning as the expectations cannot be met by the contractor.

5.2 DIVISION OF RISKS

Regarding the division of risks the experts showed that:

- clients should not force contractors to take over risks that the contractor cannot control,
- clients should take responsibility for the parts of the project they know most about,
- clients should refrain from including the division of risks as a competitive element, and
- collaboration benefits from allowing the contractor to influence the contractual context within which collaboration takes place.

The objective of dividing risks should be to divide risks proportionally and to place responsibility with the party who knows most about the risks and is best able to control it. In general, it shows experts suggest that collaboration benefits from an approach in which risks are divided jointly after contract award.

5.3 SELECTION PROCESS

Regarding the selection process the experts showed that:

- selecting only on quality helps to avoid low tender bids, but only when the qualitative criteria allow contractors to differentiate based on their capabilities and expertise,
- A give and take process is important for collaboration but will only develop

properly when a contractor is able to earn a profit, and

- financial incentives are not effective in stimulating collaboration.

The experts emphasized that it is important to avoid price competition during a tender as it puts pressure on the contractor's primary interests of profitability. The experts had different views on how price pressure can be avoided. Two experts advocated the use of a target price and another suggested that a minimum price helps avoiding low bids.

The experts explained that awarding on quality doesn't necessarily ends price pressure. When the quality score is determined by how much costs contractors are willing to make, selection is still determined by price. Price also remains the deciding factor when the quality criteria are defined in such a way that that all contractors can easily reach the same score. All in all, the experts were clear on the matter that the contractor's interests is always linked to money and that the price arrangements in a tender are an important determinant of this.

6 CASE STUDY RESULTS

6.1 THE EF-AREA PROJECT

The case study that is included is a Design Team project executed at Schiphol. Seven parties were involved in the Design Team, the client, a construction contractor, an installation contractor and four advisors. With the Design Team, Schiphol envisioned a form of collaboration in which the participants, while maintaining individual independency and responsibility, collaborate during the preparation of the project. The Design Team was selected because Schiphol believed the Design Team would offer flexibility. This flexibility was required because:

- The preparation period could not be extended without postponing the completion date.

- Schiphol was unable to completely specify the design themselves on time as they still required input from several stakeholders.
- Alongside the project several other projects were executed and at the time of tendering there were no plans ready for these projects.

In the case study, three problems played a central role in the collaboration between design Schiphol and the contractors, these are (1) the process, (2) risks and responsibilities and (3) pricing. In table 1, an overview is given of the different views of the client and contractor.

Table 1 Overview of main interview results

	Client's view	Contractors' view
Design process	<ul style="list-style-type: none"> • Making the Final Design during the tender resulted in several major design changes, which made the plans and calculations of the contractor obsolete. • The approach of making the designs sequentially resulted in that the client and architect kept on making design changes. • The contractors weren't organized adequately to deal with the changes and had insufficient access to specific financial and technical knowhow. • Design changes were anticipated on but both the client and contractor underestimated the impact this had on the collaboration. • The use of a final design and several design guidelines meant the design freedom for the contractor was limited. • The best approach for Schiphol is one that gives the best basis for making design changes and it is easiest to achieve this by prescribing as detailed as possible what needs to be designed. 	<ul style="list-style-type: none"> • The Final Design was not as complete as expected and didn't always match with the existing building. • It was unclear how much influence the stakeholders had on Schiphol's decision making. • Stakeholders disapproved several optimizations which would have had a positive (financial) influence for both the client and contractor. • It would be better if design activities were the responsibility of one contractor and if the contractor was involved in conducting research.
Division of risks and responsibilities	<ul style="list-style-type: none"> • The contractor was responsible for the step from Final Design to specification drawings and was expected to take over all design liability. • There were errors in the Final Design that weren't found by the contractor and were in conflict with the design guidelines. • During the tender question were asked about the liability, the answers given by Schiphol failed to sole the issue and this led to discussions during the Design Team. 	<ul style="list-style-type: none"> • Liability for design errors should be limited to the point where the other party stopped. • Schiphol argued that the design guidelines were binding and overrule the "nota van inlichtingen". • The information necessary to make the design covered hundreds of design guidelines and +/-1200 documents, this was viewed as unrealistic and impossible to guarantee compliance with.
Pricing	<ul style="list-style-type: none"> • The Bill of Quantities didn't work well in dealing with the design changes. • The design changes caused problems with payments because engineering costs were a lot higher than expected and because the contractor had to pre-finance a lot and Schiphol couldn't reimburse them in a timely manner. • The contractors didn't want to adhere to the sequential design approach as it was less efficient, possibly because their offer was too low to have enough margin to do so. 	<ul style="list-style-type: none"> • The price-quality ratio was good, it was possible to make a difference by offering higher quality. • The client held on to the Bill of Quantities rigidly without recognizing the huge impact the design changes had for the contractor. • The Bill of Quantities worked well as a selection tool but in the project parties forgot that its purpose was only to make estimates.

The involvement of the contractor in the design process was limited. The design process was described by both sides as chaotic as neither party could get in control of the continuous flow of design changes. The contractors suggested that some design changes, especially those caused by insufficient research, could have been avoided if the contractor was involved earlier in the design process. Most design changes were however caused by continuously changing and adding stakeholder demands and the project more than doubled in size because of this. The interviewees mentioned that this is a common problem on Schiphol and that Schiphol usually expects these demands to be included.

When looking at the influence of the contracting choices on collaboration it shows that Schiphol tried to remain in control of the design process and wanted to be able to include changing stakeholder demands at any time. The design process was set up to serve Schiphol's interests and little attention was paid at the contractor's interests. The continuous flow of design changes disturbed the process and the contractors had to make a lot of additional engineering costs because of this. The additional costs caused by disturbing the execution process and the missed opportunities of not approving design optimizations meant that little was to be gained by the contractors in the design team.

6.3 RISKS AND RESPONSIBILITIES

During the project the client and contractor had several conflicts about the division of risk and responsibilities. The conflicts were caused by a different interpretation of design responsibility. Schiphol intended to make the contractors integral responsible for the designs, meaning the contractors, after checking the design, had to take over all risk for design errors. During the tender, questions were asked about this by the contractors and it was explained by Schiphol that the contractor's liability extended to the point at

which they joined the design team (i.e. final design level). The contractors also had to comply with design guidelines and had the responsibility to make sure the designs were in accordance with these guidelines. During the project design errors were found that were already present in the final design made by Schiphol. However, as these errors were also in conflict with the design guidelines Schiphol reasoned that the contractors were responsible as they failed to comply with the guidelines.

The contractors believed that it was nearly impossible to guarantee compliance with all the design guidelines. There was a short period of time to check the design and Schiphol made use of such a large number of design guidelines that complying would be difficult anyhow. Schiphol would always be able to find errors and could always hold the contractor accountable for them with this approach.

Schiphol's contracting choices show that their main priority was to avoid risks as much as possible by transferring the responsibility to the contractors. The excessive use of design guidelines served as a safety net for Schiphol. The contractors seemed to have no say in how risks were divided and the contractors described the approach as unrealistic as Schiphol wanted to get the best of both worlds. On the one hand they wanted the contractor to contribute to his best ability while at the same time attempting to avoid risks as much as possible.

6.4 PRICING

The price arrangements consisted of a Bill of Quantities in which the contractors had to fill in their unit prices and general margins. Selection in the tender took place for 64% on price and for 36% on quality. The contractors had to fill in the Bill of Quantities based on the draft version of the final design. The purpose of the Bill of Quantities was to gain insight in the prices calculated by the contractors and to easily recalculate costs in case of design changes.

Both parties were positive about the use of the bill of Quantities as a selection tool. The Bill of Quantities offered flexibility for the contractor as no designs needed to be made while offering Schiphol some assurance about the contractor's prices in an early stage.

Regarding price, the interviews show that design changes were the main problem. Even though the flexibility of the Bill of Quantities was an advantage in the tender stage, its rigid use by Schiphol throughout the project resulted in price pressure for the contractors. The contractors believed that, due to the large number of design changes, that their initial prices were not realistic anymore. The contractors explained that it is often difficult to express the impact of a change in financial terms properly, especially in terms of changing schedules and execution techniques. Schiphol believed that the Bill of Quantities remained valid as the design changes only resulted in different quantities and that it therefore was unnecessary to renegotiate prices.

The approach shows that Schiphol wasn't very open to the contractor's interests. They held on to their initial arrangements rigidly and this caused price pressure for the contractors. The difficulty regarding pricing lies in the extent in which the contractor should have anticipated the additional costs. Design changes were expected to happen and Schiphol stated that the contractor's bid was somewhat competitive and contained small margins to react to changes.

7 DISCUSSION

In the case study, three contracting choices played an important role, these were:

1. limited involvement of the contractor in the design process,
2. a division of risks primarily directed at lowering the client's risk profile, and
3. rigidly holding on to initial price arrangements.

These three contracting choices were described as factors that frustrated the collaboration. The main goal of the contracting approach in the case study seemed to be reducing the risk of getting exploited post-contractually. The client attempted to avoid moral hazard by making the contractor liable for all design errors and by using an approach that allowed the client to change the design throughout the project.

When comparing the case study to the expert study, several pitfalls come to light. The experts showed that collaboration benefits from early involvement of the contractor as it helps to set more realistic expectations about the project. The involvement in the case study however was limited and the contractors had little influence in the design process. Regarding the division of risks, the case study did the opposite of what is recommended by the experts. To divide risks in a fair manner the experts suggested that clients should avoid transferring risks univocally. In the case study however, the client transferred all design risks to the contractor regardless of if the contractor could control the risks properly.

The case does show the potential added value of collaboration in construction projects. The unpredictability that characterized the case reduced the client's ability to govern the project contractually. Unfortunately, collaboration didn't become the success that was hoped for and couldn't prevent certain conflicts from arising.

The fact that the collaboration didn't become as successful can partly be appointed to the agency like contracting choices that were made by the client. The contracting choices were mainly directed at safeguarding the client's interests and little attention was paid at the contractor's interests. Stewardship elements as autonomy, involvement and goal alignment were not present in the contracting choices. (Muller & Turner, 2005; Slyke, 2006; Snippert et al., 2015) Other triggers and tools of cooperative behavior,

such as joint specification setting and setting shared objective, were also not incorporated in the client's contracting choices (Eriksson, 2010; Eriksson & Westerberg, 2011).

When applying the findings to other large public construction projects some caution needs to be in place. The continuously changing stakeholder demands played a huge role in the project and it was described as something typical for projects on Schiphol. Although uncertainty is a common characteristic of large construction projects it seems fair to say that it is less likely that other construction projects have to deal with changing stakeholder demands in this severity.

The extent in which contracting choices influence collaboration remains difficult to predict based on the findings presented in this research. The results show that contracting choices have some influence but it seems limited to setting the right conditions. When the contracting choices fail to set the right conditions, as seen in the case, it can be expected to hinder the development of collaboration.

The added value of this research in practical terms lies in its application to the initial stages of projects. Even though the results of this study are partly derived from the execution stage, it shows that collaboration requires that the contractor is involved timely and is sufficiently able to incorporate his interests in the project. A flexible approach challenges the contractor to participate and creates opportunities for the contractor to optimize the project (e.g. reducing risks, optimizing the design) to his benefit.

Based on this research it can be recommended for all complex construction projects to make contracting choices with the objective of creating and maintaining a fair process in which parties can trade-off interests. Every project will require a tailor-made approach but in general it seems beneficial to involve the contractor in a

stage where there is still sufficient design freedom. Furthermore, it is important that the contractual context within which the collaboration takes place is determined by both parties and not only determined by the client.

The results of this study also emphasize that clients should be aware that the contractor's interests change over time. In line with the fundamental transformation, the contractor's interests change after contract award. During the tender, contractors focus on winning the contract and can use all tricks to convince the client of his capabilities within the predetermined rules of the tender. The outcome of the tender sets the initial conditions for collaboration and the tender therefore plays an important role in the development of collaboration. Once the contract is awarded, the contractor's interests become more diverse, but at the same time remain primarily linked to financial objectives. Clients should be aware that the contractor's financial interests are more than the final sum that is to be paid and should keep in mind that contractors also benefit from aspects as reducing risks, smooth and fast execution and design optimizations. Clients who seek successful collaboration should be aware of the contractor's transformation of interests and use it strategically in dealing with conflicting interests.

8 CONCLUSIONS

The research was set out to explore the influence of contracting choices on client-contractor collaboration. The theoretical framework presented agency and stewardship theory as two opposite perspectives on the behavior of parties in contractual relationships. The case study showed that the agency like contracting approach frustrated parties and hindered the development of a successful collaboration.

Based on the results of this research it can be concluded that contracting choices play an

important role in the development of collaboration. The influence of contracting choices lies in setting the conditions within which collaboration takes place. The empirical results show that contracting choices are often a topic of debate as choices are often made in an unfair manner favoring the interests of one party over the other.

Regarding the three contracting subjects it can be concluded that collaboration benefits from giving design freedom to the contractor and that this can be achieved by involving the contractor in the concept or preliminary design stage. In terms of the division of risks, clients should divide risks in a fair and proportionate manner and this can be achieved by dividing risks post-contractually in collaboration with the contractor. Furthermore, clients should refrain from transferring too much risks univocally, take responsibility for parts that they can control best and not include risks as a competitive element in a tender. Finally, for the selection process it is shown that the profitability of a contractor is an important determinant of collaboration and that price pressure will always influence collaboration negatively. Clients should therefore focus on awarding primarily on quality and use flexible price arrangements that are suitable for reacting to possible changing circumstances in a project.

The abovementioned conclusions describe contracting pitfalls for collaboration. When collaboration is desired clients should be aware of these pitfalls and should consider how their contracting choices will affect the contractors (financial) interests. When a contractor's interests are sufficiently met it will be easier to deal with conflicting interests. Failing to incorporate the contractor's interests properly in the project will inevitably lead to conflicts and will reduce the willingness of parties to collaborate in the long run.

REFERENCES

- Anvuur, A. M., & Kumaraswamy, M. M. (2007). Conceptual model of partnering and alliancing. *Journal of Construction Engineering and Management*, 133(3), 225–234.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <http://doi.org/10.1191/1478088706qp063oa>
- Brown, T. L., Potoski, M., Slyke, D. M. Van, Brown, T. L., Potoski, M., & Trust, D. M. V. S. (2015). Trust and Contract Completeness in the Public Sector. *Local Government Studies*, 33(4), 607–623. <http://doi.org/10.1080/03003930701417650>
- Cakmak, E., & Cakmak, P. I. (2014). An analysis of causes of disputes in the construction industry using analytical network process. *Procedia - Social and Behavioral Sciences*, 109, 183–187. <http://doi.org/10.1016/j.sbspro.2013.12.441>
- Chao-Duivis, M. A. B., Koning, A. Z. R., & Ubink, A. M. (2013). *A Practical Guide to Dutch Building Contracts* (3rd ed.). 's-Gravenhage: Instituut voor bouwrecht.
- Davis, J. H., Schoorman, D. F., & Donaldson, L. (1997). Toward a Stewardship Theory of Management. *Academy of Management Review*, 22(1), 20–47. Retrieved from <http://www.jstor.org/stable/259223>
- Dorée, A. (1996). Gemeentelijk aanbesteden.
- Eisenhardt, M. (1989). Agency Theory: and Assessment Review. *Academy of Management Review*, 14(1), 57–74. Retrieved from <http://www.jstor.org/stable/10.2307/258191>
- Eriksson, P. E. (2010). Partnering: what is it, when

- should it be used, and how should it be implemented? *Construction Management and Economics*, 28, 905–917. <http://doi.org/10.1080/01446190903536422>
- Eriksson, P. E., & Westerberg, M. (2011). Effects of cooperative procurement procedures on construction project performance: A conceptual framework. *International Journal of Project Management*, 29(2), 197–208. <http://doi.org/10.1016/j.ijproman.2010.01.003>
- Jaffar, N., Tharim, A. H. A., & Shuib, M. N. (2011). Factors of Conflict in Construction Industry : A Literature Review. *Procedia Engineering*, 20, 193–202. <http://doi.org/10.1016/j.proeng.2011.11.156>
- Jones, C., Hesterly, W. S., & Borgatti, S. P. (2009). A General Theory of Network Governance: Exchange Conditions and Social Mechanisms. *Academy of Management Review*, 22(4), 911–945.
- Muller, R., & Turner, J. R. (2005). The impact of principal – agent relationship and contract type on communication between project owner and manager. *International Journal of Project Management*, 23, 398–403. <http://doi.org/10.1016/j.ijproman.2005.03.001>
- Regieraad Bouw. (2006). Beter aanbesteden in de bouw Beter aanbesteden in de bouw.
- Schieg, M. (2008). Strategies for avoiding asymmetric information in construction project management. *Journal of Business Economics and Management*, 9(1), 47–51. <http://doi.org/10.3846/1611-1699.2008.9.47-51>
- Slyke, D. M. Van. (2006). Agents or Stewards : Using Theory to Understand the Government-Nonprofit Social Service Contracting Relationship. *Journal of Public Administration Research and Theory*, 17, 157–187. <http://doi.org/10.1093/jopart/mul012>
- Snippert, T., Witteveen, W., Boes, H., & Voordijk, H. (2015). Barriers to realizing a stewardship relation between client and vendor: the Best Value approach. *Construction Management and Economics*, 33(7), 569–586. <http://doi.org/10.1080/01446193.2015.1078902>
- Tazelaar, F., & Snijders, C. (2010). Journal of Purchasing & Supply Management Dispute resolution and litigation in the construction industry . Evidence on conflicts and conflict resolution in The Netherlands and Germany. *Journal of Purchasing and Supply Management*, 16(4), 221–229. <http://doi.org/10.1016/j.pursup.2010.08.003>
- Williamson, O. E. (1979). Transaction-Cost Economics: The Governance of Contractual Relations. *The Journal of Law & Economics*, 22(2), 233–261.
- Williamson, O. E. (1981). The Economics of Organization: The Transaction Cost Approach. *American Journal of Sociology*, 87(3), 548–577.
- Williamson, O. E. (2002). The Theory of the Firm as Governance Structure : From Choice to Contract. *The Journal of Economic Perspectives*, 16(3), 171–195.
- Winch, G. M. (2010). *Managing Construction Projects (2nd edition)*. *Construction Management and Economics* (Vol. 28). <http://doi.org/10.1080/01446193.2010.513397>
- Yates, D. (2003). Can claims and disputes (in construction contracts) be prevented or reduced? *Building Journal HongKong*, (June).

Yiu, K. T. W., & Cheung, S. O. (2006). A catastrophe model of construction conflict behavior. *Building and Environment*, 41, 438–447.
<http://doi.org/10.1016/j.buildenv.2005.01.007>