

STIMULATION OF PROJECT COOPERATION BY PROCUREMENT PROCEDURES AND PROCUREMENT CLIMATE

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Abstract

In The Netherlands, public works are contracted more and more in integrated ways. In recent literature, it is argued that procurement procedures will influence project performance. Even more, the procurement climate itself is found to influence the project performance by strengthening or altering the relationship between procurement procedure and project performance. In this paper, the relationship between procurement procedures and –climate and project cooperation is defined, project cooperation being an important indicator for project performance. The results of the literature study and the qualitative survey show a clear need for a procurement procedure not merely based on the project itself, but also on collaboration and soft parameters. In-depth case studies are used to analyze abovementioned relationships and find more detailed descriptions. The procurement procedure, procurement climate and project cooperation of three projects were assessed: KOSMOS STAKAN, 2nd Coen Tunnel, Houten-Castellum alliance. The added value of a collaborative procurement climate is emphasized by the in-depth case study results. Based on those results, suggestions for further research are given.

Keywords: project cooperation, procurement procedures, procurement climate, project performance, cooperation.

INTRODUCTION

Since the eighties of last century, three main developments have propelled changes in Dutch construction industry. The combination of increased project complexity (Baccarini, 1996; Laufer et al., 1996; Alderman et al., 2005; Walker, 2007), a changed role of the government (Blanken, 2008) and the sector's poor professional functioning (Egan, 1998; National Audit Office, 2001) form the context in which several changes in the construction industry are embedded. These changes are twofold: on the one hand they are aimed at new structures (formal processes and contracts) and on the other at new working relationships (informal processes and understandings).

Due to the mentioned developments the tasks and roles of market and government have become different. Public clients have less influence on the contents of works, yet are striving after 'professional commissioning', leading to more and more outsourcing to market organizations (Huque, 2005). The public client confines itself to monitoring and checking from the public matter (Blanken, 2006, p. 181). Market organizations at the other hand get next to the executive-also more substantive tasks. Stemming from these changing tasks and roles, structures have been amended and are continuously developing. Integrated contract forms, PPP constructions, and active discussions about aspects like price, risks and contractual terms are more and more common during the procurement of construction projects (Bult-Spiering and Dewulf, 2006). Yet, there is also growing attention paid to the 'soft' aspects of construction. The call for new cooperation forms, increased mutual trust, improved communication and mutual understanding becomes stronger (Dorée, 2001; PEC, 2002; PSIBouw & RegieraadBouw, 2007). One is, for example, experimenting with procurement based on the orientation of candidates towards cooperation with the public authority.

The increased attention for soft aspects matches with the notion that project cooperation enhances project performance. Project performance is here defined in terms of cost, time, quality, environmental impact, work environment and innovation (Eriksson and Westerberg, 2010). Several academics have shown how cooperative behavior in projects is of positive influence to project performance. Collaboration may be regarded as "the instrument" that allows the parties to realize the project goals (Kamminga, 2008, pp. 53).

Project partnering, an elaborate way of project cooperation, is said to have several expected benefits: lower bidding prices and project costs; increased efficiency; increased opportunity for innovation; better quality products and services; improved design; better identification and clarification of project risks; better utilization of labor; better communication leading to higher levels of team member collaboration; fewer conflict, claims or disputes; improved supply-chain collaboration and, finally, more informed decision making for project participants (Crespin-Mazet and Portier, 2010).

Research has indicated as well, that project performance is influenced by choices in the procurement of projects. The use of collaborative tools during procurement, for example, is positively correlated with project performance in terms of costs, time, quality, environmental impact, work environment and innovation (Eriksson and Westerberg, 2010; Alderman and Ivory, 2007). This might have to do with the influence of usage of this kind of tools on project

cooperation. However, proper research upon the influence of procurement procedures and climates on project cooperation is lacking. Therefore, our research is guided by the central question which procurement procedures and climate are, and in what manner stimulations to project cooperation.

RESEARCH DESIGN

Answer to the central research question is sought in a two-staged research. The first stage of the research was formed by a series of interviews to provide an overview of procurement procedures and aspects of procurement climate which might be of influence to project cooperation. The interviews were conducted with procurement experts from the Dutch construction industry, whose expertise differed from scientific expertise to legal expertise. The individually conducted interviews were semi-structured: containing a number of pre-determined open-ended questions in the form of an interview schedule, which guided the researcher whilst providing the flexibility to ask additional questions. The semi-structured approach was used to obtain a general list of procurement procedures and –climate, in combination with insights into the manner in which these might influence project cooperation. Interview reflections were coded by the qualitative data analysis tool QSR Nvivo, using a bottom-up approach to classify the large number of textual data units into a smaller number of homogeneous categories. The use of software in analyzing the qualitative data allowed for a more objective assessment, and facilitated a more complex examination of the data (Weitzman and Miles, 1995; Marshall, 2002). Thus, an overview was provided of the procurement procedures and – climate aspects which might stimulate project cooperation.

The by interviews created idea of the procurement procedures and –climate which might stimulate project cooperation, were then further studied in a series of in-depth case studies. This is the most suitable research approach, given the explanatory character of the question how procurement procedures and –climate stimulate project cooperation, and the limited extent of control over procurement situations (Yin, 2009). Case study protocols were created using literature on the, by the experts identified procurement procedures and – climate, combined with specific literature on project cooperation. This grounded approach led to protocols which were combining practical with theoretical insights (Eisenhardt, 1994).

PROCUREMENT PROCEDURES AND CLIMATE ASPECTS WHICH INFLUENCE PROJECT COOPERATION

Semi-structured interviews

A series of 20 interviews with procurement experts provided us useful background information on procurement procedures and –climate aspects which might be of influence to project cooperation. Practitioners and consultants as well as researchers supported the importance of procurement procedures and climate, and their assumed effects on project cooperation and performance. 90 Percent of the experts argued that new ways of contracting (i.e. D&C, DBFM, PPP, et cetera) ask for project members with different competences than needed for traditional

contracting, and a different attitude as well. This underlines the need for well-suited procurement procedures to find exactly those people.

Two factors were found to be of importance for well-suited procurement procedures and - climate. First, they might benefit greatly from effective and open communication, resulting in an understanding of each other's risk attitudes. Second, client and contractor will have to change their attitudes to be able to act according to the new roles integrated contracts impose. Two issues though were regarded to be main impediments for a more cooperative procurement climate. First, tender teams hardly ever continue to be the final project team during realization. Contractors as well as clients assign their best suited people for each phase and tendering is something quite different from project management during realization. Second, contractors are faced with contradictory interests of competition and relationship-building. The willingness to come to a trustful relationship with the client is hampered by the competitive tender climate. Being totally transparent to a client is desirable, but often not feasible.

Practical solutions to make cooperative procurement possible without the drawbacks were found in the field of alliance contracts and Best Value Procurement procedures, to find an "expert" contractor with less transaction costs. Also, the effect of the drawbacks could be minimized by starting the team-building process only after the contract has been awarded.

Procurement procedure

Procurement by competitive bidding has lately received criticism for leading to disputes and adversarial relationships that consequently will lead to time and cost overruns, diminished quality and, eventually, poor customer satisfaction. A competitive bidding procedure, on the other hand, may significantly increase resource consumption and generate waste in the delivery process. Transaction costs that seem to be low at the start of the project, will rise due to tedious and complex change order processes stemming from too early detailed plans and specifications (Elfving, Tommelein and Ballard, 2005).

A more cooperative procurement procedure will consist of limited numbers of trustworthy and competent bidders, incentive-based compensation and careful partner selection (Pesämaa, Eriksson and Hair, 2009). Spending time on a good start-up phase (including aspects such as communication, supplier selection and relationship management) and less time on formal specifications, facilitates necessary contractor involvement and some level of co-creation for complex performance (Caldwell, Roehrich and Davies, 2009). A paradigm shift from competitive tendering to co-operative and caring environments might overhaul current public sector procedures that often work against open relationships (Ng, Rose, Mak and Chen, 2002).

Another distinction that is found in literature is between transactional and relational approaches of procurement. The transactional paradigm is focused on competition, whereas the relational paradigm stresses the importance of ongoing interaction and less formal communications (Lian and Laing, 2004). Relational contracting is also used to describe the effects of a more fluid boundary between public and private organizations when working together. It is said to reduce costs, speed up time to market and promote innovation (Parker and Hartley, 2003). The growing success of relational contracting implies the more often use of selection of team players based on their relational capabilities (Kumaraswamy and Anvuur, 2008).

Eriksson and Westerberg (2010) identify three types of procurement procedure, being competition, coopetition and cooperation. With them, we label a procurement procedure more or less competitive, coopetitive or cooperative according to the following criteria:

- The level of integration between client and contractors in the design stage;
 - Specification by supplier or client (competitive) to Joint specification with one party responsible (coopetitive) to Joint specification with shared responsibilities (cooperative).
- The number of contractors that are invited in the selected tendering process;
 - Multiple (competitive) to Selected tendering (coopetitive) to One (cooperative).
- The focus on soft parameters in the bid evaluation;
 - Low (competitive) to Medium extent (coopetitive) to High (cooperative).
- The extent to which both client and contractors are jointly involved in subcontractor selection and integration;
 - One party fully responsible (competitive) to Joint selection with one party responsible (coopetitive) to Joint responsibility (cooperative).
- The usage of collaborative tools;
 - Low extent (competitive) to Medium extent (coopetitive) to High extent (cooperative).

Opposing to Eriksson and Westerberg (2010), we argue that two criteria belong to the project cooperation phase as they do not really influence behavior during initial procurement but only when the contract is closed. Therefore, their sixth and seventh criteria, method of payment (more or less incentive-based) and method of performance evaluation (more or less by the supplier), are labeled by us as criteria of project cooperation.

Procurement climate

Eriksson and Westerberg (2010) argue that besides the procurement procedure, a more cooperative climate will also have a positive effect on project performance, whether by moderating the effects of the procurement procedure on the project performance or by mediating the effects of the procurement procedure on the project performance. The level of trust and commitment between parties are measures of the procurement climate, according to their research.

Kadefors (2004) cites three types of trust. First type is Calculus-based trust: trust, primarily based on economic incentives for co-operation or contractual penalties for breach of trust. Second type of trust is Relational-based trust: trust developing when parties obtain personal information and experience, forming the basis of trust through emotions and personal attachment. The third type of trust is Institution-based trust: trust which is created by necessary pre-conditions like legal systems and societal norms regarding (among others) conflict management and co-operation.

Real co-operation, however, will only arise if relational trust develops between people interacting directly and over a longer period of time in procurement procedures. Key personal characteristics for this to happen are individual competence, benevolence and integrity. Competence being the skills and competencies for a particular situation, and benevolence being

the attachment of the parties to each other besides economic profit motives. Finally, integrity is defined as including principles such as consistency, fairness, reliability and openness. Partnering methods can influence the development of trust, but the effects can be ambiguous as overly reliance on team building processes and monitor systems might indicate and thus initiate distrust (ibid).

Commitment in our view is a combination of intent and behavior. Often, commitment to project success is expressed by project officials at the beginning of the project. The extent to which all management levels express their commitment to the success of this particular project, is one aspect. The other aspect is the actual behavior, and the readiness to overcome problems. In other words, the flexibility with which problems are solved that are in the way of project success. Too little commitment on the side of clients and, due to commercial pressures, of contractors are found to be reasons for lacking continuous open and honest communication (Ng *et al.*, 2002).

From the above, we derive the following elements to describe the procurement climate in our case studies:

- Mutual trust during procurement; higher trust indicates a more collaborative climate:
 - Competence, benevolence and integrity of individual project officers.
 - The level to which partnering methods created trust or distrust.
- Mutual commitment during procurement; higher commitment indicates a more collaborative climate;
 - Expressed intent at all (management) levels of the project.
 - Flexible problem solving behavior.

Project cooperation

In construction projects, cooperation can differ from forms of co-creation in a design & construct project to shared service exploitation in DBFMO contracts. Project cooperation can in any case be seen as a social setting, in which client and contractor work in a multi-organizational project setting in more or less integrated ways (Cicmil and Marshall, 2005). Construction teams are often cross-functional, with members of organizations with different interests. High levels of coordination and cooperation are thus needed (Pesämaa *et al.*, 2009). Project performance is threatened if client and contractor do not cooperate adequately to meet the various challenges in a construction project. After Kamminga (2008), we consider the cooperation successful when the interaction process between client and contractor leads to achieving the project goals.

From research on alliance contracts, success factors for effective cooperation can be identified: trust, clear goal alignment, commitment, partnering tools and procedures, constant joint evaluation of team synergy and open and continuous communication at all levels in a timely manner (Rowlinson and Cheung, 2005; Black, Akintoye and Fitzgerald, 2000; Ng *et al.*, 2002). But, project partnering in a project alliance is only one of a number of ways of organizing them. Both contractor and client will borrow from this concept what they think will help them most in a particular setting (Alderman and Ivory, 2007).

Thus, we will use the following indicators to describe project cooperation in our case studies:

- The level of trust after contract close;
 - Competence, benevolence and integrity of individual project officers.

- The level to which partnering methods created trust or distrust.
- The extent to which goals of client and contractor are aligned;
- The level of commitment after contract close;
 - Expressed intent at all (management) levels of the project.
 - Flexible problem solving behavior.
- The extent to which partnering tools and procedures are used after contract close;
- The extent to which team synergy is jointly evaluated;
- The level of open and continuous communication at all levels and in a timely manner.
- The extent to which payment is based on incentives related to project performance criteria;
 - Fixed price (competitive) to Fixed price and shared profits (cooperative) to Shared profits (cooperative).
- The extent to which performance evaluation is based on contractors' self-control;
 - Fully by the client (competitive) to Both by client and by supplier (cooperative) to Fully by the supplier (cooperative).

CASE STUDIES

To find an answer to the central research question which procurement procedures and climate are, and in what manner stimulations to project cooperation, we started with interviews and a literature study. As a result, we came to clear indications by which the concepts of procurement procedures, procurement climate and project cooperation can be described. Based on recent work of ours (Hoezen et al., 2010; Hoezen, 2011; Laan et al., 2011) these indicators are put in line for three case studies which were all procured by different procurement procedures by different project climates. From this, the effect of these indicators of procurement procedure and project climate on project cooperation will be derived in order to come to an indication of how procurement procedure and project climate are stimulations to project cooperation. After a short description of each case study, in Table 1 a summary is given of the project characteristics as identified from the cases.

Case study 1: KOSMOS STAKAN

The KOSMOS STAKAN project (see Hoezen, 2011 for an in-depth analysis) consisted of renovations to a large number of infrastructure objects. Construction works which needed major maintenance were bundled and contracted to the market in an Engineering and Construct (EC) contract. KOSMOS STAKAN was procured with the restricted procedure.

Procurement procedure

The level of integration between client and contractors in the design stage could be described as cooperative. Although some of the tasks to the project were shared (problem definition, for example), the main load of work was simply divided between either the client or the contractor. With 5 selected contractors to the tendering process, the number of invited contractors is cooperative as well. In the bid evaluation, the focus was on price, time and risk. Soft parameters were not included at all. This focus is therefore qualified as low (competitive). Subcontractor selection and integration was not influenced by the client, yet remained to the full responsibility of the contractor. Payment was mainly based on a fixed price, and collaborative tools were not

used at all. Concluding, the procurement procedure for KOSMOS STAKAN can be described as being competitive - cooperative.

Procurement climate

In terms of mutual trust, KOSMOS STAKAN, the competence, benevolence and integrity of individual project officers was average. Partnering methods, which were practically not used, did not create extra trust nor distrust. When the construction of the project started, project officers stood neutrally towards each other. The expressed intent was neutrally as well, at all levels of the project. The roles during procurement were clear, and both client and contractors acted upon it. The problems arising were treated in line with this: the responsible party was looked at to come to solutions. Concluding, the procurement climate could be called cooperative: project participants were not cooperating nor competing.

Project cooperation

The project cooperation within the KOSMOS STAKAN project could be characterized by medium levels of trust. Although project officers praise each other's competence, benevolence and integrity and show how they empathize with each other's situation, the created levels of trust fluctuate during construction. This mainly has to do with problems, faced in this stage of the project. Given the medium intent at all levels of the project, and the fact that problem-solving behavior was as traditional as had shown during the procurement stage of the project, problems got resolved, however not in a cooperative manner. The level of commitment was neutral, and the extent to which goals of client and contractor were aligned low. This had to do with the fact that the levels of communication were not always as open and continuous as one desired. Within KOSMOS STAKAN an attempt was made to have the contractor evaluate its own performance. Due to difficulties in achieving this, the client closely monitored as well. When the parties identified this, they started conversations to come closer to each other, however other partnering tools and procedures were not used. The team synergy is evaluated as average (not good, not bad) by all project officers.

Case study 2: 2nd Coen Tunnel

The second Coen Tunnel project (see Hoezen et al, 2010 and Hoezen, 2011 for in-depth analyses) consisted of the renovation of an existing tunnel and the construction of a new tunnel next to the existing one. Construction, reconstruction and maintenance were contracted within a Design Build Finance and Maintain contract. The second Coen Tunnel project was procured with the competitive dialogue procedure.

Procurement procedure

In the design stage of the Coen Tunnel project the level of integration between client and contractors could be described as cooperative. The contractors were puzzling with the documents they got from the client, and although there were many detailed conversations about the project, the design task was for the contractors alone. The number of contractors was five, a cooperative number. All parameters in the bid evaluation were hard. Although the client asked for a list of subcontractors, the subcontractor selection was the contractor's responsibility. The intensive conversations which were part of the competitive dialogue were the only collaborative tools used. Concluding, the procurement procedure for the second Coen Tunnel project could be described as cooperative.

Procurement climate

At the start of the procurement, parties were positive about each other's competences. Benevolence was average, and integrity was not a point of discussion. However, during the procurement several issues arose. The client started to doubt the contractor's integrity, whilst the client's competence was discussed by the contractor. The partnering method used (competitive dialogue procedure) did enhance opportunistic behavior of the candidate contractors, leading to mutual distrust at the end of the procurement stage. Commitment to the project, however, was average. The parties expressed intent at most levels of the project, however their problem solving behavior was not too cooperative. Both parties were digging in and awaiting the other party to make a move. Concluding, the procurement climate in the Coen Tunnel project was competitive.

Project cooperation

During the construction stage of the project, the level of trust improved only slowly. This was not due to partnering methods, but to a change of persons involved in the project. Given that these people did not have a mutual history in the project, there was more benevolence between them than between the persons involved earlier. However, doubts about the competence of the client at the contractor's side and about the integrity of the contract from the side of the client, remained. The overall level of trust during the construction stage was therefore somewhat medium. Project performance was part of the incentive structure, although extra performance was not rewarded. Performance evaluation for the second Coen Tunnel project was on the basis of contractor's self-control. The goals of client and contractor differed and could not be brought in line. This had to do with unsolved problems from the procurement stage. The level of commitment was therefore low: there was only little intent at management level, and the problem solving behavior was stiff. This situation did cause however the use of partnering tools like meetings and the help of reflectors, to bring around more open and continuous communications. The team synergy was therefore evaluated becoming more positive as the project developed. Concluding, the project cooperation in the Coen Tunnel project was assessed as competitive.

Case study 3: The Houten-Castellum alliance

In the Houten-Castellum project (See Laan et al, 2011 and Laan, 2008 for in-depth analyses), an existing rail track in the domain of a medium-sized city is doubled over a length of about 5 km. Besides the doubling, the existing station will be rebuilt and a new one will be added, and a rail crossing auto tunnel, a bus tunnel, a pedestrian underpass, a large cycle shed and an underpass for cyclists will be realized. The client at first decided to procure the Houten-Castellum project with a design and construct contract. However, after bid evaluations it became clear that the project risks were high and hardly controllable by one of the project partners. Therefore it was decided to convert the initial design and construct contract into a project alliance contract and a construction contract.

Procurement procedure

In the design stage, initially the level of integration between client and contractor was average. However, during the contract negotiations, the integration level increased. When converting the design and construct contract into the project alliance, the client organization became more involved in the design process and the contractor organization actively thought along about how to govern the project. In the selected tendering process, three contractors were invited. In the bid evaluation, the attention to soft parameters was medium to high, since the client organization

recognized the importance of soft aspects for jointly being able to tackle possible risks. However, subcontractor selection remained for the responsibility of the contractor organization. The project alliance had strong incentives for the maximization of project performance, since financing of the alliance came from all client's and contractor's design, management and risk budgets. Of this fund, design and management costs were paid, as well as emerging risks. Savings resulting from optimizing the project design would boost the fund. Use of collaborative tools was a bit more than average during the construction stage. Besides the regular project-startups, the process of discussing the project alliance conditions helped creating collaboration. Concluding, the procurement procedure could be qualified as being coepetitive - cooperative.

Procurement climate

The procurement climate in the Houten-Castellum alliance was cooperative. Started from average perceived levels of competence, benevolence and integrity, during procurement these perceptions increased. The conversations about the project alliance brought people from the contractor and the client organizations closer together and created trust amongst them. Commitment was high, and the intent was expressed at all levels of the project. Problems were solved in a very flexible manner: one did not ask whose task it was to solve a problem. Instead, all parties involved tried their best to prevent problems to occur. The mutual commitment therefore was strong. Concluding, the procurement climate in the Houten-Castellum project can be characterized as cooperative.

Project cooperation

The level of trust, high in the procurement stage of the Houten-Castellum project, was even growing in the construction stage of the project. Under influence of joint goals and open, continuous communication, the trust level developed along virtuous cycles. When considering the project alliance as a partnering method, this method created trust to a large extent. At the end of the project, any positive or negative outcome of the alliance fund was 50/50 shared between the client and the contractor. The project performance ultimately was monitored by a team of client and contractor organization members. Goals of client and contractor were optimally aligned, and the level of commitment was high. This all resulted in a very positive jointly evaluation of the team synergy. Concluding, the level of project cooperation was assessed as cooperative.

	KOSMOS STAKAN	2ND COEN TUNNEL	HOUTEN-CASTELLUM ALLIANCE
PROCUREMENT PROCEDURE	COMPETITIVE - COOPETITIVE	COOPETITIVE	COOPETITIVE - COOPERATIVE
Level of integration between client and contractors in the design stage;	Low to Medium (competitive - coepetitive)	Medium (coepetitive)	Medium to high (coepetitive - cooperative)
Number of contractors that are invited in the selected tendering process;	Medium (coepetitive)	Medium (coepetitive)	Medium (coepetitive)

Focus on soft parameters in the bid evaluation;	Low (competitive)	Medium (cooperative)	Medium to high (cooperative)
Extent to which both client and contractors are jointly involved in subcontractor selection and integration;	One party fully responsible (competitive)	One party fully responsible (competitive)	One party fully responsible (competitive)
The usage of collaborative tools;	Medium (cooperative)	Medium (cooperative)	Medium to high (cooperative)
PROCUREMENT CLIMATE	COOPETITIVE	COMPETITIVE	COOPERATIVE
Mutual trust	Medium (cooperative)	Low (competitive)	Medium to high (cooperative - cooperative)
Competence, benevolence and integrity of individual project officers.	Medium (cooperative)	Low (competitive)	Medium to high (cooperative - cooperative)
The level to which partnering methods created trust or distrust.	Medium (cooperative)	Low (competitive)	High (cooperative)
Mutual commitment	Medium (cooperative)	Medium (cooperative)	High (cooperative)
Expressed intent at all (management) levels of the project.	Medium (cooperative)	Medium (cooperative)	High (cooperative)
Flexible problem solving behavior.	Small (competitive)	Small (competitive)	High (cooperative)
PROJECT COOPERATION	COOPETITIVE	COMPETITIVE	COOPERATIVE
The level of trust	Medium (cooperative)	Low to medium (competitive-cooperative)	High (cooperative)
Competence, benevolence and integrity of individual project officers	High (cooperative)	Low to medium (competitive - cooperative)	High (cooperative)
The level to which partnering methods created trust or distrust	Low to medium (competitive - cooperative)	Low (competitive)	High (cooperative)
The extent to which goals of client and contractor are aligned	Low (competitive)	Low (competitive)	High (cooperative)
The level of commitment	Medium (cooperative)	Low (competitive)	High (cooperative)
Expressed intent at all (management) levels of the	Medium (cooperative)	Low (competitive)	High (cooperative)

project.			
Flexible problem solving behavior.	Medium (coopetitive)	Low (competitive)	High (cooperative)
The extent to which partnering tools and procedures are used	Medium (coopetitive)	Medium (coopetitive)	Medium (coopetitive)
The extent to which team synergy is jointly evaluated	Medium (coopetitive)	Low (competitive)	High (cooperative)
The level of open and continuous communication at all levels and in a timely manner.	Low (competitive)	Low to medium (competitive - coopetitive)	High (cooperative)
Extent to which payment is based on incentives related to project performance criteria;	Fixed price (competitive)	Fixed prices with project performance – related incentives (coopetitive)	Shared profits (cooperative)
Extent to which performance evaluation is based on contractors' self-control;	Shared client – contractor responsibility (coopetitive)	Contractor responsibility (cooperative)	Shared client – contractor responsibility (coopetitive)

Table 1: Case characteristics

CONCLUSION AND DISCUSSION

In this paper we have made a start with researching the relationship between procurement procedure and procurement climate at the one hand, and project cooperation at the other. From the notion that cooperative project cooperation influences project performance in a positive manner, we are looking for aspects by which project cooperation could be stimulated. Literature study provided us with a range of indicators by which we have characterized three construction projects: KOSMOS STAKAN, the Second Coen Tunnel project and the Houten-Castellum project. The case study results show how project cooperation seems to be mainly influenced by procurement climate, with procurement procedure showing to be of minor influence. In all of the three cases we studied, the project cooperation which resulted from the procurement developed in line with the procurement climate rather than with the procurement procedure (see Table 2).

	Procurement procedure	Procurement climate	Project cooperation
KOSMOS STAKAN	Competitive - Coopetitive	Coopetitive	Coopetitive
2ND COEN TUNNEL	Coopetitive	Competitive	Competitive
HOUTEN CASTELLUM ALLIANCE	Coopetitive - Cooperative	Cooperative	Cooperative

Table 2: Indicators per case

From the notion of Laan et al (2011) that vicious and virtuous cycles of trust development exist, we assume that these cycles are the main forces in this relationship: a trusty climate in the procurement stage of a project is likely to result in cooperative project cooperation in the construction stage of the project. Whether or not procurement procedures are of influence, remains unclear. The procurement procedure might influence the development of a procurement climate to a certain extent, yet might as well be of less influence.

Based on the study, described in this paper, we recommend further research into the relationship between the three concepts of procurement procedure, procurement climate and project cooperation. With robust operationalization of the concepts and a wide range of well-documented and accessible projects we suggest a quantitative approach to make strong conclusions. Aside from the outcome of such a research it should be said that creating a cooperative procurement procedure and –climate takes investment, both at personal level and in terms of finances. Furthermore, not all projects will need project cooperation to come to improved project performance. Implementing cooperation strategies should therefore be well-thought before.

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