

Collaboration in public construction—contractual incentives, partnering schemes and trust

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It is increasingly common that public construction projects are procured and managed with explicit intentions to establish closer collaboration between partners. Opportunities for negotiation and the freedom to choose partners are more restricted in a public setting than in a private one. Thus, many relational requirements that are generally considered essential to trust-based collaboration are more difficult to fulfil. Based on two case studies from the Netherlands and one from Sweden, we investigate how this formalized context, including formal partnering models to support relationship management, influences relational development in public sector construction contracts. Collaboration is primarily needed in projects where uncertainty is high and exchange conditions cannot be comprehensively defined. The contractual ambiguities, together with the limited opportunities for pre-contractual sense-making and relationship-building, imply that the early post-contractual phase is of significantly higher importance in public projects than in private ones. After signing a contract, it is important that the parties use the interpretive flexibility to signal trust and commitment and also that joint learning processes are organized to resolve ambiguities and enable joint learning. Formal partnering models are helpful in structuring this interaction, but also incentive arrangements may be important in shaping interaction and signalling trust.

Keywords: Collaboration, partnerships, trust.

Introduction

Traditional construction contracts often lead to distrust and conflicts between clients and contractors (Latham, 1994; Egan, 1998; Bygghandboken, 2002; PSI Bouw, 2003), especially when uncertainty is high. Seeking to increase efficiency and quality, many clients and several governments have taken initiatives to improve cooperation with contractors by promoting the so-called partnering or alliance contracts. Instead of the traditional detailed specifications, lump-sum contracts and arm's length relationships, the new arrangements often comprise financial incentives designed to promote collaboration, as well as systems for formalized relationship management. Also, many public construction projects are using partnering regimes today, often those where risks are too high to allocate to one party only. However, public procurement regulations put

restrictions on the interaction between the buyer and the suppliers and, thereby, on many processes that are generally considered essential to establish trust and collaboration. The contracts are developed unilaterally by the client and largely fixed before the relationship starts and pre-contractual communication is restricted. Possibilities for clients to select suppliers based on subjective criteria are also limited.

The aims of this paper are to investigate how the formalized context influences collaboration and relationship-building in public sector contracts and to identify strategies that practitioners may use to promote collaboration and trust. We examine three public sector contracts in the construction sector, all with explicit aims to enhance collaboration between the parties involved. The cases are taken from two countries: one Dutch rail construction alliance contract, one Dutch alliance contract for road maintenance and one Swedish

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project partnering contract for a hospital. 'Alliance contract' refers to a contract with a shared risk fund (see also Turner, 2004). The term 'partnering' is used in this paper as the more generic indication of collaborative arrangements between clients and contractors.

Frame of reference

Partnering in construction

In construction, relational contracting (Macneil, 1978) is commonly known as partnering. Partnering is a wide concept that encompasses a range of collaborative arrangements, from one-off projects to large frameworks of long-term relationships between networks of actors (Rigby *et al.*, 2009). Numerous guidelines and handbooks have been issued to support partnering processes (Bennett and Jayes, 1995; OGC, 2003; Erhvervs- og Boligstyrelsen, 2004). The partnering concept, thereby, has become increasingly institutionalized and associated with a specific set of tools and practices. These tools include selection procedures, formal team-building exercises, financial incentive systems, formal integrative mechanisms (such as charters, dispute resolution procedures, team-building workshops and the use of facilitators), continuous improvement programmes and benchmarking (Bresnen and Marshall, 2002; Nyström, 2005; Bygballe *et al.*, 2010, Eriksson, 2010).

Many scholars claim that formalized partnering schemes are useful in establishing more cooperative, trusting relationships between parties in a construction project (Larson, 1995; Bennett and Jayes, 1998; Anvuur and Kumaraswamy, 2007; Eriksson and Westberg, 2011). However, it has also been questioned if it is possible to deliberately engineer trust (Bresnen and Marshall, 2000). Recent industry reports further maintain that commitment to partnering is often only skin-deep and disguises traditional attitudes and power relationships (Wolstenholme, 2009). Several studies emphasize that the problem of establishing and maintaining collaboration between clients and contractors is complex and that contracts, relationship management and attitudes of individuals interact (Kadefors, 2004; Bresnen, 2007; Rose and Manley, 2010; Laan *et al.*, 2011).

Trust and contract

There are two dimensions of any exchange relationship: the formal contract and the actual interaction that takes place. Trust research has shown that the relationship between trust, collaboration and contracts is ambiguous and potentially contradictory. Regarding contracts in general, there is a discussion of whether formal

control and informal governance are substitutes, in which case contracts are only needed when there is a lack of trust, or if contracts and general formalization of a relationship can complement or reinforce the process of trust-building (Biljsma-Frankema and Costa, 2005). As noted by Argyres *et al.* (2006), the tendency in management research has been to view detailed formal contracts as unnecessary or even harmful to trust and collaboration (Macaulay, 1963). More recently, however, researchers have increasingly considered effects related to sense-making and social interaction. One aspect is that the process of drafting a formal contract serves to increase the mutual understanding of the terms of exchange and also provides opportunities for building interpersonal relationships (Vlaar *et al.*, 2006). Thus, extensive contracts may reflect a joint learning process rather than distrust. In effect, cooperative, long-term, trusting exchange relationships are often formalized in detailed contracts (Poppo and Zenger, 2002). Ring and van de Ven (1994) described the development of collaborative relations as a cycle, where informal trust-building and formal commitments are two dimensions that interact to reinforce the relationship over time.

It is important to note, however, that a basic aspect in most definitions of trust is that there has to be a leap of faith related to a perception of vulnerability (Rousseau *et al.*, 1998; Nooteboom, 2002). This implies that collaborative actions can be induced by contractual sanctions and incentives, but that trust requires that collaboration go beyond self-interest and reflect more stable cooperative intentions on the part of the trustee (Malhotra and Murnighan, 2002; Klein Woolthuis *et al.*, 2005).

Both trust and contracts are strongly related to motivation. A further complication, then, is that psychological studies have shown that extrinsic rewards and punishments may act to undermine or crowd out intrinsic motivation (Deci *et al.*, 1999; Frey and Jegen, 2001). Also, development of trust often follows rules of reciprocity (Berg *et al.*, 1995; Zak, 2004), which means that initial moves are of vital importance in setting the scene for the relationship.

Financial incentives in partnering

Considering research on trust and motivation, we should not be surprised that the traditional construction contracts with complete specifications are seen as major sources of conflicts and distrust. However, it is generally not the level of detail that is considered most problematic, but the practice of using fixed-price contracts awarded on a lowest bid basis. Thus, the issue of finding financial incentive systems that better align the business goals of the different participants with project

objectives has been the focus of many studies (Bower *et al.*, 2002; Broome and Perry, 2002; Rose, 2010), and practitioners often consider sharing of risks and gains to be essential to collaboration (Kadefors and Badenfelt, 2009).

There are many kinds of financial incentives: alliance contracts or target cost contracts with gainshare/painshare arrangements, more limited incentives for achieving specific cost or time targets and bonuses based on performance related to process or quality goals (see Stukhart, 1984; Ibbs, 1991; Arditi and Yasamis, 1998; Bower *et al.*, 2002; Tang *et al.*, 2008). Also, expectations between partners about future cooperation may co-exist with more explicit contractual incentives and then contribute significantly to trust and cooperation (Badenfelt, 2008; Laan, 2009).

In partnering relationships, cost incentives in the form of target cost contracts are common. In such contracts, gains and losses in relation to a target cost are shared between the client and the contractor according to an agreed formula (for more detailed descriptions of target cost contracts, see Perry and Barnes, 2000; Floricel and Miller, 2001; Bower *et al.*, 2002; Broome, 2002; Broome and Perry, 2002; GAO, 2005). To create mutual interests between multiple parties, alliance contracts with team-based gain- and/or pain-sharing may be used. A risk/reward model of an alliance contract encompasses joint budgets and committed cost and time targets, risk and reward formulas and bonus mechanisms (Hauck *et al.*, 2004).

Apart from the potential crowding-out effects on motivation and trust mentioned above, a basic problem of incentives is that if they fail to reflect all important organizational goals, there is a risk that people would focus on performance in areas which are explicitly rewarded and neglect goals which are harder to specify and measure (Milgrom and Roberts, 1992; Akerlof and Kranton, 2005). Thus, many authors of contract management emphasize the risks in introducing incentives which are not adequately aligned to the needs and constraints of the specific context. Bajari and Tadelis (2001) stated that contracts that tie performance to compensation should not be used when there are difficulties in establishing fair cost targets, because of the risk that renegotiations of cost targets spoil the working relationship between the buyer and the contractor. Other authors stressed that target cost contracts are not applicable if there is no uncertainty in reaching the objectives, if the objectives are impossible to reach or if risks are completely outside the contractor's control (Broome, 2002).

Still, inconsistencies in incentive design and management seem to be the rule rather than the exception in construction projects. For example, incentive payments have been found not to match performance levels, and

incentives schemes fail to include important participants or are poorly understood by the people who should be affected (Arditi and Yasamis, 1998; Bresnen and Marshall, 2000; GAO, 2005; Pryke and Pearson, 2006). To explain why financial incentives are so common but yet not carefully attended to, Kadefors and Badenfelt (2009) suggested that such mechanisms have two additional roles in an exchange relationship besides that of a direct reward mechanism affecting extrinsic motivation: as symbols of collaboration and efficiency and as generators of communication processes. Thus, although incentives might not be perfectly designed and managed, they may still communicate collaborative intent, introduce financial transparency and open up for direct communication and problem-solving.

Implications from theory

From the literature review, we conclude that detailed contracts which do not result from a process of joint sense-making may produce the actions and outputs specified, but are less likely to inspire trust. It is also obvious that the theory on trust and motivation to some extent contradicts the literature on contract management. The latter emphasizes clarity, comprehensiveness and consequence in designing and managing contractual incentives. According to trust research, however, it is essential that parties have the opportunity to show that they are trustworthy, and collaboration should, therefore, not be possible to be attributed to contracts alone. Hence, case-based and practice-related studies tend to show that ambiguity in contracts and incentives are common and that it is the way that the parties handle this uncertainty that decides how trust and motivation develop. In summary, there seem to be two essential aspects to consider in analysing the relationship between contracts and trust: possibilities for parties to signal trustworthiness and opportunities for joint learning.

Method

In this study, we applied a projects-as-practice perspective (Blomquist *et al.*, 2010), which implies a focus on the micro-level, attempting to understand how practitioners act and make sense of their situation, but also acknowledges the influence of the wider organizational and institutional context. Hartmann and Bresnen (2011) stated that partnering is difficult to adopt as a generic approach and therefore should be studied as highly contextual and transient in nature, considering the specific situational characteristics. We agree with this statement. However, by studying three projects

from two countries which have different characteristics in terms of product, relationship length, number of participants and negotiation opportunities, we were able to distinguish aspects that apply to collaborative contracting on a general level. Thus, this study did not focus so much on the differences between contexts and countries as it did on the similarities.

The cases were originally part of three different research frameworks focusing on collaborative contracting, two in the Netherlands and one in Sweden. Within these programmes, the cases were selected because they represented new contracting models and high client ambitions. This paper highlights the influence of the public context on collaboration, an aspect which has not been not dealt with in other publications. All the three case studies used a qualitative research approach, but research design and methodology differed.

The first case is a longitudinal case study examining how a project alliance contract is conducive to the development of a cooperative relationship between a client and a contractor (Laan, 2009; Laan *et al.*, 2011). The case is a rail construction alliance project in the Netherlands. In total, 19 stakeholders were interviewed, representing the client and the contractor, both on the operational and the strategic level.

The second case is an alliance contract for the maintenance work of the road network in the south of the Netherlands. The public client is increasingly outsourcing maintenance work and this requires a different way of cooperating with private contractors. This research was aimed at analysing the learning process of how a public client and its contractors developed a new type of partnership. The case analysis was based on 30 interviews with participants of the client and contractor groups.

The third case is a hospital building project in Sweden. The case study was based on interviews with 11 project members from the client, user, consultants and contractors, where the key participants were interviewed two or three times. The focus was on how multi-party collaboration in design work was organized and developed over time (Kadefors, 2011).

Thus, in all the three projects, between 11 and 30 key participants were interviewed. All interviews took place during the project design and/or execution phases. Depending on the interviewee preferences, the interviews were taped and transcribed or notes were taken, transcribed and sent back to the interviewees for validation and comments.

In our analysis, we followed the approach of Bechky and Okhuysen in AMJ (2011, p. 244), who compared responses of organizations in two different settings and ‘had served as friendly readers and theoretical sounding boards for each other’. While analysing the separate studies, the two authors of this paper regularly met to

discuss the frameworks of analysis and share common understanding of the three cases. In addition to a general case background, the analytical framework guiding the case description and comparison comprised three dimensions: formal contract arrangements, collaborative arrangements and relational development.

Empirical findings

Case 1: a €40 million rail construction alliance project in the Netherlands

The first case study concerns a €40 million rail construction project. The project included the doubling of tracks in a medium-sized city in the Netherlands and the construction of auto, bus and pedestrian tunnels and two railway stations. Initially, the client decided to put the project out to tender as a design–build project. After evaluating the bids, the project was awarded to a consortium of three construction firms. Since the project dissected the city centre, it became clear that the risks were very high and hardly controllable for one of the partners. Therefore, the client and the consortium agreed to convert the design–build contract into a project alliance form of contract.

Formal contract arrangements

The alliance contract contains arrangements on the design activities, the control activities and the way the alliance budget is managed. The alliance is financed by an alliance fund of approximately €7.5 million made up of the client’s and the contractor’s design and management budgets plus their risk budgets. The design and management costs of the alliance, as well as emerging risks, had to be paid out of this fund. However, the fund could be augmented by savings resulting from optimizing the project design.

The fund’s principle is that profits or losses will be shared, creating incentives for both the client and the contractor to seek design optimizations and deal with contingencies during the operation of the project.

The intention was to set up a lean project organization to strive for design optimizations and to tackle emerging risks in close cooperation in order to end up with a positive balance in the alliance fund.

Collaborative arrangements

Besides the fact that an alliance fund was installed, several other arrangements stimulated the collaboration between the public client and the contractor. First, the client and the contractor used a shared administrative system transparent to the partners involved. An

important feature of the system is that it keeps the financial consequences of the proposed and accepted design modifications up to date. Second, the alliance partners were co-located in the same office. Third, the partners agreed upon to install, besides an alliance management team, an alliance steering committee. The steering committee was responsible for the overall performance of the project by guiding and supporting the alliance management team, ensuring commitment of the parties to the project and to each other. However, there were no explicit initiatives for team-building or joint goal formulation.

Relational development

Trust was seen as an important determinant for the success of the alliance. Both the client and contractor representatives agreed upon that they had to be open about their risks and budgets during the alliance negotiation process in order to create an alliance fund. The design and management costs and the emerging risks had to be covered by this fund. The interviewees stated that the project alliance included incentives to counteract manifesting risks cooperatively, or in the words of a contractor: 'If you allocate these risks to one of the project partners involved, the relationship may become confrontational'. Moreover, if the contractor would put in a claim, they had to pay half of it because of the alliance fund. According to the alliance partners, the existence of the alliance fund decreased the inclination to cheat.

During the project, the alliance team was confronted with a variety of design and engineering problems, such as the difficulty of driving piles in a city centre. Another aspect, which increased the need for collaboration, was the fact that both the contractor and the client were dependent on the municipality that had to award the building licences. Delay in obtaining these licences would create substantial time, and therefore also cost, overruns. The interviewees expected that in traditional contracts this would have led to conflicts between the client and the contractor. The contractor would get a fine for delays, for instance. However, in this alliance case, both partners worked together to solve these problems by altering the project plan.

The contract partners stated that the maintenance of the cooperative relationships by showing loyalty to the project was more important than the short-term advantages of acting in a distrustful manner. One partner stressed that 'We need people who are able to refrain from "self-interest" first'. It became clear that the staff of various organizations had to learn how to work cooperatively, or as a representative of the alliance team mentioned, 'I am continuously trying to make it clear to them that the balance of the alliance fund will be

shared, so that it is disadvantageous to spend money unnecessarily'. The partners indicated that open communication about possible risks enhanced the performance of the alliance. Communication improved during the process. Partners started to know each other and dared to discuss problems. The shared administrative system further improved the informal communication.

The case shows that the success of a partnership strongly depends on the personal behaviour of the alliance members. Staff members have to act as a team, but opportunities to select the members on their cooperative behaviour are limited. However, individual alliance members may be replaced, which happened in one case in this project. Finally, the fact that partners were co-located enhanced the informal interaction and consequently the trust development, according to the interviewees. As one representative stated, 'Since we are housed in the same building, we come across each other the whole day, so openness comes naturally'. During the first few months of the alliance project, however, each of the project organizations had its own place of work, which was perceived as counterproductive.

Case 2: innovative alliance contract for road maintenance in the Netherlands

In 2007, the Dutch Highways Agency signed an 'innovative contractual arrangement' for all the maintenance work of the road network in a province in the Netherlands. The contract was a comprehensive approach to maintenance and replaced 14 previous smaller contracts.

Compared with the traditional way of contracting, the contractor was selected on the 'economically most profitable' or, more specifically, on the basis of 60% quality versus 40% price. This meant, for instance, that the contractors were selected on the bidding price and their project quality plan. The case was a pilot case of the Dutch Highways Agency aiming at developing a cooperative arrangement or 'partnering' between a public client and a contractor. The contract duration was five years with an option for another three years.

Formal contract arrangements

In the contracts, responsibilities usually belonging to the client were transferred to the contractor. Thus, the contractor would be responsible for routine maintenance, while the client would retain responsibility for variable maintenance. Another major contract arrangement was the implementation of a 'system-oriented contract management' (SOCM), which has to ensure that the project was delivered according to the functional specifications. This system implies that the contractor checks his own quality progress. By doing so,

the contract relies heavily on the contractor's quality management system.

Collaborative arrangements

Since the alliance form was a new type of contract arrangement in the Netherlands, staff from the client and contractor organizations went at the start of the project together on a trip to the Highways Agency in the UK in order to learn from best practices. This trip was an important critical event in the partnering process. In the UK, the partners signed a 'partnering statement' and committed themselves to the partnering principles. Several meetings were organized during the project to stimulate team-building.

Also, the various partners were trained on how to use the SOCM since this required a different way of working. The implementation of the SOCM meant, for instance, that risk-based audits have to be undertaken instead of incident-based audits. Later in the process, risks assessment and audits were collectively discussed, which led to less conflicts.

Relational development

The 'partnering statement' was aimed at increasing the quality of maintenance by stimulating mutual trust and openness. In practice, it proved to be very difficult to adapt deeply rooted roles and organizational mechanisms used in traditional contracts. In these contracts, the client sets the agenda and uses a 'command and control' approach to get work done exactly as desired. In this traditional setting, contractors are not challenged in any way to really cooperate. The need to change the attitude was clearly stated by one of the client interviewees: 'We used to rely completely on the reports of the road inspectors. We used to wrap-up all their information to create a solid basis for our decision whether to pay or not to pay. [...] Nowadays, due to SOCM, we do not have this kind of intelligence any more'. Therefore, the client relies heavily on the quality control of the contractor and there is a clear need to trust the partner.

However, the introduction of the SOCM led to extensive discussions and disputes. At the start of the project, the alliance partners perceived the distinction between routine and variable maintenance as well defined. Very early in the process, however, it became clear that the sharp distinction between routine and variable maintenance did not work out in practice. The partners had conflicting interpretations of the contract and the solutions. To solve this 'deadlock', the client and contractor organizations had several meetings. The main solution consisted of a twofold approach: (a) intensify communication on expectations while making them

tangible and (b) change traditional organizational routines and attitudes.

The formal contract arrangements forced the partners to cooperate. This commitment was an important starting point for the relationship development, but the trust development was hampered during the operational phase of the contract. The client and the contractors had no *shared* responsibility for the project. Moreover, the SOCM was often used as an argument to shirk the full responsibility to the contractor. Despite the partnering statement and the team-building workshops, little attention was paid to further trust development. No other specific activities were undertaken to strengthen the relationship between the public and the private partners. Both partners had their own interpretation of the project plan, which hindered the development of a common project vision and often led to misunderstandings of each other's expectations. One interviewee of the contractor stated that 'we have the impression that the one time we were praised in the sky while the other time we were heavily criticized'. This statement illustrates that the partners did not know what to expect from each other. The mistrust between the partners at the beginning of the project was reconfirmed in later stages. During the project, for instance, the contractor had to submit several new bids for extra work. Despite this, it was only in a few cases that these bids proved not to be in accordance with the market price; these instances further decreased the trust the client had in the contractor. Thus, despite the intention to collaborate as mentioned in the partnering statement, unforeseen events and conflicting expectations led to a further decrease in the trust between the partners.

Case 3: a €40 million hospital project in Sweden

This case study concerns a partnering approach in a new hospital building. Medical technology and models for hospital care and treatment change quickly, but the process from initial design to completion of a hospital takes five years or more. By choosing a partnering approach, the client could get a building that was adapted to the technology and needs at the time of completion. Besides this, ambitious goals were defined in terms of energy savings, and general and flexible designs were chosen to increase future adaptability of the building.

Formal contract arrangements

The partners involved in the partnering arrangement were the client, the architect, the structural engineer, the mechanical engineer, the electrical engineer, the building contractor (general contractor), the ventilation

contractor, the plumbing and heating contractor and the electricity contractor. The architect was selected in a design contest, and the other consultants were selected in a value-based procurement process with interviews. When the design team had developed the system design, contractors were procured. The selection criteria were the contractors' management costs (40%), organization, process description and interview results (each 20%).

There was no comprehensive alliance fund, but separate contracts for each party. A target cost was agreed for the construction in total, and gains and pains relative to the target cost would be shared between the contractors and the client. For the consultants, there were cost-plus contacts with a ceiling, but the consultants also got a bonus if the construction target cost was achieved. Furthermore, a bonus system for both the consultants and the contractors was installed, rewarding their performance regarding quality, collaboration and life-cycle analysis.

Collaborative arrangements

A start workshop was held with all partners, who developed a partnering charter with joint goals. Later, an action plan on how to achieve the goals was elaborated. There were follow-up workshops every six months.

A key issue in the project was how to organize design collaboration with all partners, and the solution was to a system with meetings in large and small groups. The action plan was routinely discussed in the large design meetings. The client intentionally attempted to keep a low profile, so that the other partners would take active part in discussions and jointly agree on a consensus decision.

An important aspect in the process was the bonus system, which was connected to the partnering goals. Before each workshop, a questionnaire was sent out to all partners where they rated how well they perceived that the partners were following the relational goals, and these results were discussed at the workshops. Also, the client regularly assessed the partners' performance regarding quality goals and discussed results with each partner individually.

Relational development

Since it was a new building using mainly conventional technology, the client did not consider financial risks to be a major issue in the project. The client intended to assume most of the risks of budget overruns due to changes required by the hospital, but wanted the contractors to focus on reducing the construction costs and not on finding reasons to increase the target cost. Thus, it was stated in the contract that the target cost

would only be changed in case of changes in building area or function (from wards to laboratories, etc.) and that the client still retained the final decision power regarding the target cost changes. Consequently, risk on the part of the contractors was primarily associated with the client behaviour, and the contractors were initially worried that the client would take advantage of this system to systematically increase quality levels without raising the target cost.

In the early stages, there was some cost uncertainty when a couple of major purchases came in over budget. The client was afraid that these cost increases would affect relationships and the positive incentive power of the target cost contract would be reduced. Thus, the team quickly found savings to compensate for these increases. This was important, since many of the contractors' proposals for cost reductions in this early stage were turned due to higher life-cycle costs. After the early problems, there were no financial threats, and all those interviewed agreed that the contractors with time became strongly committed to increasing value for money for the patients and hospital staff rather than simply reducing the construction costs. There were some gains to share, and all contractors except one received a reasonable profit. The bonus system and the related evaluations were perceived as very useful by the client: this way shortcomings and needs for improvements could be addressed in a neutral manner as a part of a mutually agreed regular process.

Although there was some conflict between the consultants and the contractors primarily concerning reasonable costs of aesthetic quality and the implications of design collaboration, all the partners perceived the project as very successful: the desired flexibility has been achieved, building quality is exceptionally high and relationships are strong. The client's project manager was seen as a champion who clearly communicated trust, collaborative intention and respect.

Case comparison and analysis

In this section, the cases are compared with reference to the influence of formal contracts and partnering arrangements. Basic aspects are summarized in Table 1.

Role of formal contracts

Formal contract arrangements were core elements in all cases, but in different ways. In case A, risk allocation was the root of the alliance—it was not considered feasible to proceed with a traditional or a design-build concept since contractor risks would be too high to be

Table 1 Case summary

	A	B	C
Type of project	Rail and city context	Road maintenance	Hospital building
Background to collaboration	High risks	Pilot project for new contract form	Need for flexible adaption to changing user needs
Contract	Alliance	Increased contractor responsibility	Target cost and quality bonus system
Relationship management	Informal and co-location	Workshops, partnering statement and study trip	Workshops, partnering declaration and evaluation system

handled by adding risk premiums. The solution was to convert the contract to an alliance scheme with gain-sharing, developed in negotiations between the parties. The difference in the initial design-build scheme was so substantial that there was little doubt that the actual risk allocation was changed. The alliance fund, and the joint understanding that there was really no other option, created a strong motivation for the partners to cooperate. However, it was not evident from the start what this relationship implied, and there were still needs for changes in attitude and culture. Using the framework of Kadefors and Badenfelt (2009), the alliance contract in project A was also a powerful symbol of collaborative intent and further entailed new communication patterns by enabling co-location.

In case B, ambiguities in the contractual specifications were successively discovered as the relationship unfolded. The financial risk allocation and the system for quality control became issues of conflicts, despite explicit partnering intentions. With time, agreements were found regarding the quality control system, but the distinction between routine and variable maintenance was constantly debated and the distrust also influenced other negotiations. In this case, the formal contracts did not communicate risk-sharing, since more responsibility was transferred to the contractor. That the parties maintained some level of collaboration may probably partly be attributed to the pilot status of the project and future contract opportunities.

It is interesting to compare this with the relational development in case C. The target cost contract and bonus scheme were designed to support collaboration, but the contract did not comprehensively define responsibilities and the contractors did not have the necessary information to assess risks at the time when the target cost was set. Compared with a cost-plus contract, or with a contract with very clear rules for target cost changes, this contract introduced an uncertainty which forced the parties to prove themselves as benevolent and trustworthy at a very early stage of the relationship. Furthermore, the target cost arrangement entailed a financial transparency which was perhaps more central

to trust than the financial incentive. In effect, the client managed the project so that the contractor would earn a reasonable profit, meaning that the pain-sharing aspect was largely symbolic.

Case C further encompassed a bonus system. This arrangement did not have sufficient power to substantially affect risk distribution but still impacted significantly on both relationships and performance. Together with the workshops, financial transparency and action plan, the bonus system created new arenas and new input for improving performance. Thus, this system was a clear example of an incentive scheme which primarily affected communication.

In line with previous studies (Arditi and Yasamis, 1998; Bresnen and Marshall, 2000; GAO, 2005; Pryke and Pearson, 2006), we found that the risk allocation was not comprehensively defined at the start of the relationships in any of the cases and that the actual exchange properties were strongly influenced by how the parties chose to act in response to uncertainties. In cases A and C, the parties' behaviour signalled collaborative intents and produced trust, while in case B, the parties were less willing to compromise in order to preserve the relationship. The contracts also influenced this process by their symbolic value and their impact on relational interaction.

Collaborative arrangements

Of the cases, two cases (B and C) incorporated systems for formalized relationship management, while in one case (A), relational development was highly informal. In case A, the most important aspect apart from the alliance scheme was that the parties were co-located. The close social context allowed for personal relationships and joint understanding to emerge without explicit team-building or other partnering measures.

In case B, the relationship started as a pilot case with high emphasis on communicating collaborative intents by a joint study visit, partnering charter and workshops. All these activities, however, had little effect on trust when the risk allocation in the contract was questioned.

These conflicts about hard aspects were handled by more team-building, which was not successful. Rather, the combination of collaborative talk on the part of the client and the uncompromising attitude and distrust in contractual matters created confusion.

Case C also used a formal partnering system with workshops, joint goals and an action plan. In this case, the partnering activities were seen as very helpful in supporting collaboration, especially to build relations and establish joint understandings in early stages after the contract was signed, but also to maintain relationships during the whole project.

Clearly, partnering tools and processes may have an important role in relationship-building, especially in cases where co-location is not possible. But also in a co-located setting, such measures can be useful as safeguards and to raise ambitions (Henisz and Levitt, 2010). However, partnering goals need to be aligned with behaviour relating to the formal aspects of the contracts and can hardly compensate if there is a risk for losses or perceived unfairness regarding risk allocation.

Finally, the cases show that inter-organizational trust is strongly related to interpersonal trust (see Zaheer and Harris, 2006). In case C, for example, success was attributed to the commitment of the client project manager and the ability of the contractor's project manager to change his attitude. However, not all individuals are able to shift to the cooperative mode necessary to make a project alliance successful, and case A confirms that replacing key persons can revitalize a relationship (see Faems *et al.*, 2008).

Conclusions

In the literature review, we concluded that two aspects are central to foster collaborative inter-organizational relationships: possibilities to signal trustworthiness and processes for developing joint understandings. Formal contracts are imperative, but not only because of their effect on risk allocation. Other important aspects are also important, if contracts enhance perceived risk-sharing, entail cost transparency and introduce new arenas for communication. Furthermore, partnering schemes are generally chosen in cases where traditional contracts are not suitable, meaning that contractual uncertainty and ambiguity are more of a necessity than of an option. Such interpretive flexibility is essentially conducive to trust and collaboration, since it provides opportunities to signal trustworthiness and benevolence and, thereby, to develop robust collaborative relationships (Rousseau *et al.*, 1998; Malhotra and Murnighan, 2002; Nooteboom, 2002). Some degree of uncertainty also allows for learning effects to be incorporated, so that the exchange properties are

not dependent on the parties' values, preferences and knowledge at the start of the project (Rose, 2010).

So, which are the implications specifically for collaboration and relationship-building in public sector contracts? Which strategies may be used to promote collaboration and trust? Our study points to several dimensions where the exchange logic is affected by the public environment and which seem to be equally applicable to both countries.

First, the initial uncertainty regarding the actual risk levels is higher in a public project than in a corresponding private one. In private sector procurement, the client may choose a partner, often based on previous experiences, and the terms of exchange can be successively developed in negotiations between the parties, much as described by Ring and van de Ven (1994). In public projects, suppliers may be selected partly based on non-price criteria, but clients are not free to appoint a preferred partner. Furthermore, contracts are developed unilaterally by the client, meaning that they do not reflect a joint learning process. The competitive tendering process implies that financial risks—although to varying extents, depending on payment schemes and procurement criteria—are partly outside the parties' control.

An important conclusion is that this higher uncertainty means that the early post-contractual phase is of special importance in public projects. After signing the contract, a process will start where partners jointly and gradually make sense of what the relationship implies in both contractual and behavioural terms. Unforeseen circumstances materialize, and how these are handled decides how the relationship develops. Formalized processes for relationship management may act to structure and ensure this interaction and are, therefore, more important in a public context. Co-location may, however, play a similar role.

Furthermore, in a joint venture between two contractors, perceptions of fairness may also be preserved when there are losses to be shared. In a vertical client–contractor relationship, by contrast, a budget overrun is more likely to spur discussions about the basic cost estimations and risk allocation (Kadefors, 2005). If collaboration is needed, pain-sharing becomes primarily symbolic. This should also be more prominent for public projects than in a commercial setting, where profit requirements put sharper limits on investment budgets.

Our study is based on three individual projects, which were all pilot or innovative projects where the partners were inexperienced in collaborative contracting. Because of the higher relational uncertainty in initial stages, public projects would benefit more from a more institutionalized alliance climate process where more partners bring partnering experience with them into a

new relationship (Bresnen, 2007). Programme-oriented structures, as opposed to project-based delivery, should also be more advantageous in a public context.

In summary, there are several areas where public collaborative projects need to be managed more carefully than private ones. However, our conclusions are limited to projects where collaboration between the client and the other parties is required to reach project goals. When risks may be transferred to the contractor by a traditional design-build contract or concessions, it is more important to focus on comprehensiveness and clarity in specification and risk allocation. Also, we have not gone deeply into the role of the institutional context and government policy, which would be a subject for further research.

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