



# Reducing opportunistic behaviour through a project alliance

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## Abstract

**Purpose** – The purpose of this paper is to provide insights into how a project alliance contract is conducive to the development of cooperative relationships between client and contractor organizations involved in a complex project.

**Design/methodology/approach** – A longitudinal case study of a complex construction project was conducted in which the contract was changed at the end of the negotiation period from a design-build into a project alliance form.

**Findings** – Data show that opportunistic behaviour is reduced when there is an incentive structure, as is to be found in project alliances, for client and contractor organizations to cooperatively realize the project. However, it is not sufficient for project partners to agree upon an appropriate incentive structure. For cooperative relationships to develop, they also have to put substantial efforts into reducing their remaining inclinations to make use of opportunities that arise to deviate from the alliance contract.

**Practical implications** – It is shown that both principals and contractors not only need to carefully select staff for such projects; they also have to work with the people employed such that appropriate attitudes are reinforced and rewarded. Developing cooperative relationships in project alliances needs the surrounding working methods to offer support.

**Originality/value** – The longitudinal character of the case study offers exceptional opportunities for studying the dynamics in preventing and overcoming the deteriorating patterns of opportunistic behaviour that organizations regularly face in many traditional and design-build projects.

**Keywords** Alliance contract, Relational risks, Formal and informal control, Opportunistic behaviour, Project alliance, Construction industry, Employees

**Paper type** Case study

## Introduction

Project-based firms have become increasingly important in Western economies (Gann and Salter, 2000; Whitley, 2006). Such firms include engineering and construction companies, consultancy firms and system integrators in the information technology industry. In project-based firms, “the project is the primary unit for production organization, innovation, and competition” (Hobday, 2000). Since the demands of customers and society are becoming increasingly complex, it is expected that project-based firms will play an even more prominent role in the future (Blindenbach-Driessen, 2006; Hobday, 2000; Pinto and Kharbanda, 1995).

A major concern is that industries where project-based firms play an important role are experiencing project failures (Johnson *et al.*, 2001; Kerzner, 2001; Zwikael and Globerson, 2004). It has been stated that in the construction sector, a good example of a project-based industry, one of the primary reasons for such project failures is the unbalanced and unclear division of risks between client and contractor (Rahman and Kumaraswamy, 2002). This uncertain division of risks in commonly used contract



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forms has been identified as a major cause of deteriorating relationships between client and contractor organizations. Competitive tendering and arms-length contracts often lead to adversarial relationships and poor project performance, particularly when project complexity, uncertainty and interdependence between the parties involved are high (Bresnen and Marshall, 2001; Anvuur and Kumaraswamy, 2007).

It is in this context that various parties, including governments, are implementing new contract forms that are intended to improve construction project performance by better balancing and counteracting the risks between client and contractor through new forms of formal and informal control. One example of such a contract is the project alliance. Project alliances are particularly intended to avoid the deteriorating patterns of behaviour faced by principal and contractor organizations in traditional and design-build types of contract. Alliances can be categorized as either collaborative or cooperative (Love *et al.*, 2002). Collaboration infers a short-term relationship and is therefore inherently not conducive to alliancing. Conversely, in a cooperative project alliance, the relationship between project participants is expected to be smoothed by the creation of a common interest, such that they are encouraged to share knowledge and cooperate constructively rather than opposing each other. In a cooperative alliance, project participants become dependent on the capabilities of each other (Holt *et al.*, 2000). This is especially seen to be the case when risks become manifest and problems arise.

The purpose of this study is to provide insights into how a project alliance contract becomes conducive to the development of cooperative relationships between client and contractor organizations involved in a complex project. The major question is whether the initial conditions, in terms of the risks that principals and contractors face, both internal and external to their relationship, and the forms of formal and informal control, are conducive to the development of cooperative relationships in a project. First, the literature on these issues is discussed. Subsequently, a single, longitudinal case study of a complex construction project is reported in which the contract was changed from a design-build form into a project alliance. This longitudinal case study offers exceptional opportunities for studying how the introduction of a project alliance reduces opportunistic behaviour.

### **Inter-organizational risks and controls**

The responsibilities and liabilities of contracting parties are allocated through the contract conditions (Rahman and Kumaraswamy, 2002). A clear definition and proper allocation of risks in the contract provides incentives for the efficient management of risks during the construction process. Contracts alone, however, do not prevent claims and disputes. On the contrary, contractual incentives create a significant number of contractual disputes between parties (Anvuur and Kumaraswamy, 2007). In so-called traditional contracts, the client bears most of the risks, encouraging opportunistic behaviour by the contractor. In the more contemporary design-build contract, the contractor bears most of the risks so the situation remains unbalanced, this time perhaps encouraging opportunistic behaviour by the client (Oyegoke *et al.*, 2009). On this basis, it has been stated that, in counteracting internal and external risks to a relationship, formal and informal controls reduce the likelihood of undesirable outcomes (Das and Teng, 1998, 2001). Both the risks and the forms of control are discussed below in this section.

*Risks internal and external to a relationship*

Nooteboom (2002) emphasizes that, in inter-organizational relationships, business partners face two kinds of uncertainties. On the one hand, they face uncertainties over the limits of others' intentions and competences. On the other hand, they face uncertainties concerning the external conditions that affect the outcomes of actions. This is not dissimilar to the two types of uncertainty that Ring and Van de Ven (1994) discern in their model of inter-organizational relationship development. They argue that business partners face uncertainties regarding the future states of nature in their relationship, and uncertainties related to opportunistic behaviour (Das and Teng, 2001). Accordingly, the risks that business partners face are of two primary types: those internal and those external to a relationship. Internal risks refer to those that will produce a direct influence on the specific project and these are created by designers, suppliers, subcontractors, etc. (Fang *et al.*, 2004). External risks, on the other hand, are beyond the direct control of the project management.

*Internal risks.* Internal risks can be defined as "the probability and consequences of not having satisfactory cooperation" (Das and Teng, 1996, 2001). Such a risk arises from the potential for opportunistic behaviour. In this regard, firms face the risk of a business partner offering too little in terms of effort and attention: "he shirks, rides free and fails to admit weakness and to take safety precautions" (Nooteboom, 2002, p. 50). This can be seen as a lack of dedication. There is also a risk that a business partner takes too much. This involves "cheating, stealing, expropriation, extortion, threats and power play" (Nooteboom, 2002, p. 51). This is what Williamson (1975, 1979, 1997) has called interest seeking with guile, and it amounts to a lack of benevolence. Increasing project uncertainty and dependency provides more opportunities for these types of opportunistic behaviour because uncertainty means that a clear and precise definition of expected performance standards is difficult to provide in advance (Anvuur and Kumaraswamy, 2007).

*External risks.* Organizations not only face the potential of opportunistic behaviour by business partners. There are many other factors that contribute to the possibility and consequences of the anticipated outcomes of an inter-organizational relationship not being achieved, even when there is satisfactory cooperation with business partners. Das and Teng (2001, p. 253) state that these factors include "intensified rivalry, new entrants, demand fluctuations, changing government policies, a lack of competence of partner firms and sheer bad luck". According to Fang *et al.* (2004), external risks are factors such as government policies or the weather. Although these factors may directly influence the performance of an interorganizational relationship, they can also indirectly favourably influence the conditions for trustworthiness of a business partner. Nooteboom (2002, p. 51) states that incidents may arise "that affect favorable conditions of competence, dedication and benevolence". These conditions may go beyond someone's competences, with the situational temptations of potential losses or golden opportunities exceeding a business partner's commitment to perform (Lindenberg, 2000). As such, the internal and external risks faced by business partners are closely interrelated.

*Formal and informal control*

Many authors have stated that in counteracting the risks that business partners face, increased levels of control reduce the perceived probability and impact of undesirable outcomes (Das and Teng, 1998, 2001). Control is considered as an active and

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interventionist approach to influence the behaviour of a partner such that undesirable outcomes are less likely to occur. Here, control is seen as a “regulatory process by which the elements of a system are made more predictable through the establishment of standards in the pursuit of some desired objective or state” (Leifer and Mills, 1996, p. 117). In the literature, two basic forms of control are discerned: formal and informal (Das and Teng, 2001; Nooteboom, 2002).

*Formal control.* Formal control emphasizes “the establishment and utilization of formal rules, procedures, and policies to monitor and reward desirable performance” (Das and Teng, 2001, p. 259). Bijlsma-Frankema and Costa (2005) elaborate on this by suggesting that formal control is dependent on three principles:

- (1) codification;
- (2) monitoring; and
- (3) safeguards.

The first, codification, means that, to a certain extent, “programmability of tasks and behaviour and measurement of outcomes are needed to specify expectations in formal contracts or rules, which can be used to secure equity” (Bijlsma-Frankema and Costa, 2005, p. 264). The programmability of tasks refers to the extent to which partner firms understand the transformation processes. The measurement of outcomes refers to the degree to which an organization is able to measure the process outputs in a precise and objective manner. However, intense interdependence in a complex project makes it difficult to measure each firm’s contribution to the project outcomes to a reasonable level of accuracy (Anvuur and Kumaraswamy, 2007).

Second, monitoring is required to determine whether business partners deviate from the agreed contract: parties “must be either in close interaction or have installed intelligent monitoring systems that allow them to monitor from a distance” (Das and Teng, 2001, p. 264). Das and Teng (2001) suggest that organizations attempt control by either measuring the behaviour of their partners or the outcomes of these behaviours.

Third, a juridical structure is required that enables a contract or rule to be enforced, such that deviant behaviour can be punished. As such, formal control contributes to limiting the opportunities and incentives to deviate (Nooteboom, 2002).

Determining how payments will be shared in an equitable way is an important element in developing a risk/reward model for an alliance (Love *et al.*, 2011). In such a model, joint budgets and committed cost/time targets, agreements on a risk and reward formula and bonus reward mechanisms are established by the alliance partners (Hauck *et al.*, 2004). In an alliance, there is joint commitment. It is essential that all participants share in a project’s profits and any losses generated during the alliance so that no single party is deemed responsible for financial performance (Love *et al.*, 2011). The financial success of each of the parties will depend directly on the success of all the alliance partners. If one party in the alliance underperforms, then all the other alliance partners are at risk of reduced rewards or profits (Hauck *et al.*, 2004).

*Informal control.* Formal contracts may be difficult to specify because of the intangible nature of resources and outcomes, or because there are difficulties with regard to the predictability of partner behaviour or relationship outcomes due to unforeseeable endogenous and exogenous changes (Bijlsma-Frankema and Costa, 2005). Das and Teng (2001) argue that formal contracts cannot be exercised in a meaningful way if neither behaviours nor outcomes can be specified at the beginning.

In such a situation, monitoring also becomes difficult, that is judging the execution of formal contracts in terms of measuring partner behaviour and relationship outcomes. If formal control becomes ineffective in governing relationships, Bijlsma-Frankema and Costa (2005) wonder whether informal control can be used as an alternative governance mechanism. In this regard, Das and Teng (2001, p. 259) emphasize that informal control relies above all “on the establishment of organizational norms, values, culture and the internalization of goals to encourage desirable behavior and outcome”. That is, the focus is on developing shared values, beliefs and goals among business partners such that appropriate behavior will be reinforced and rewarded. This process requires communication on a personal level, on a business level, and on the operational level (Hauck *et al.*, 2004) in order to reduce goal incongruence and preference divergence among partner firms involved in inter-organizational relationships (Lansley, 1994). This process cultivates a climate for mutual learning and trust (Holt *et al.*, 2000).

Given that organizations will internalize common goals, “their commitment and motivation to achieve those goals is expected to be high” (Das and Teng, 2001, p. 259). The key difference between formal and informal controls is that, with informal control, neither behaviours nor the outcomes of a relationship have to be specified from the beginning: “Codification of expectations is not a necessary condition for informal control [. . .]. It requires less codification and allows for more abstraction than formal control” (Bijlsma-Frankema and Costa, 2005, p. 267). Further, it is stated that, with regard to informal control, monitoring is more a case of “showing interest and concern by closely keeping up to date with the progress the other is making” (Bijlsma-Frankema and Costa, 2005, p. 268) than measuring partner behaviour or the outcomes of a relationship in a somewhat distant manner. The use of “partnering-friendly” contracts also emphasizes the fairness of risk/reward arrangements (Anvuur and Kumaraswamy, 2007). As such, monitoring may even enhance the quality of a relationship. Finally, it has been argued that informal control is not based on an explicit threat of legal enforcement, but rather relies on “the implicit threat of social sanctioning” (Bijlsma-Frankema and Costa, 2005, p. 268). Social sanctioning is only appropriate and possible if “reputation mechanisms can support exclusion or other social sanctions such as [. . .] loss of future relationships” (Bijlsma-Frankema and Costa, 2005, p. 268). As such, informal control contributes to limiting the inclination to deviate (Nootboom, 2002).

A conceptual framework, based on this literature review, summarizing the key variables is presented in Table I.

Variables	Aspects	Key references
Risk	Internal risks External risks	Anvuur and Kumaraswamy (2007), Das and Teng (2001), Fang <i>et al.</i> (2004), Gambetta (1998), Nootboom (2002), Rahman and Kumaraswamy (2002) and Ring and Van de Ven (1994)
Control	Formal control Informal control	Anvuur and Kumaraswamy (2007), Bijlsma-Frankema and Costa (2005), Das and Teng (2001), Hauck <i>et al.</i> (2004), Holt <i>et al.</i> (2000), Love <i>et al.</i> (2011) and Mollering (2005a)

**Table I.**  
The variables in the case study protocol

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## Case study design

### *Case study selection*

Partnering arrangements have increasingly been advocated (Latham, 1994; Egan, 1998; PSIB, 2003) since several studies have shown that these forms of contract can be successful in creating more cooperative relationships, especially in the case of high risk, complex construction projects (Larson, 1995; Bennett and Jayes, 1995, 1998). Other researchers, however, have emphasized the fact that not all partnering projects perform well, and that there are no quick fixes that guarantee success (Bresnen and Marshall, 2000a, b, c). The partnering literature even questions whether cooperative relationships can be intentionally shaped over the course of a single project, or whether establishing and maintaining cooperative relationships between project participants requires a process of cultural change that can only develop over a longer period of time (Bresnen, 2007). Since project alliances are rare in the construction industry, the question arises as to what resources the project partners need to invest for cooperation to arise and persist in a context where, for the organizations involved, cooperation is not the norm.

A case study approach is an appropriate research strategy for exploring how and why cooperative relationships between business partners develop over time. Here, therefore, a single, longitudinal case study is conducted in order to examine how a project alliance form of contract is conducive to the development of cooperative relationships between client and contractor organizations involved in a complex project.

The longitudinal character of this study offers an exceptional opportunity to study the dynamics in preventing and overcoming the deteriorating patterns of opportunistic behaviour that organizations face in many traditional and design-build projects. Another exceptional feature is that, during the process, the contract was changed from a design-build form into a project alliance, which provided an opportunity to study this change. The situation was also exceptional in that researchers were given the opportunity to study the participants' behaviours following this change.

### *Case characteristics*

In 2006, Prorail, the organization responsible for exploiting and maintaining the Dutch railway network, decided to use a project alliance construct for a €40 million rail construction project within the municipality of Houten, close to the city of Utrecht. Only once before had Prorail adopted the project alliance contract form in realizing a relatively large, complex rail construction project: to build, between 2002 and 2006, a €135 million sub-project of the Betuwe Line – a freight rail link between Rotterdam and Germany (Prorail, 2005). After completing this earlier project, Prorail decided to experiment further with project alliances since it was unclear whether this contract form was suitable for relatively small, but still complex, rail construction projects. The project in Houten was the first project of this type in which Prorail adopted the alliance approach.

The project formed part of the municipality's master plan. In this plan, the city centre was to be completely reconstructed in the period 2005-2010 because it had become too small for the growing population. In 2002, Prorail and the municipality agreed on how to integrate the Prorail plans for the railway network into the city centre master plan.

Since the railway project dissected the city centre, the project risks were expected to be high, especially with regard to obtaining the construction licences required. Therefore, almost immediately after assigning the project to the main contractor, CFE, Prorail suggested converting the design-build contract as agreed into a project alliance.

In the meantime, CFE had asked two other contracting firms to establish a consortium for constructing the project. The three firms agreed on setting up a partnership (CH4) to construct the project.

Further, at this stage, Prorail and the CH4 contractor firms agreed on setting up an alliance steering committee (ASR) and an alliance management team (AMT). The ASR is responsible for the overall performance of the project by guiding and supporting the AMT, ensuring the commitment of the parties to the project and to each other. The ASR consists of two representatives from Prorail and two from the CH4 partnership. Day-to-day management of the project is entrusted to the AMT which consists of the appropriate functional specialists: the alliance manager (Prorail), the contract manager (Prorail), the design manager (CH4) and the construction manager (CH4).

#### *Data collection*

Data were collected through two series of, in total 25, in-depth face-to-face interviews with key informants on the project. The focus was on the perceptions of the principal and contractor organizations as to whether the initial conditions of the project, in terms of the risks, both internal and external to their relationship, they faced and the adopted formal and informal forms of control were conducive to the development of cooperative relationships (Appendix). First, informants were interviewed early in the execution/construction phase on the project. This timing was to an extent set by the project partners who did not want the researchers to be involved in the negotiation/procurement phase. However, by asking our informants about how they had perceived the negotiation/procurement processes, and by focusing on the arrangements that the principal and contractor organizations had committed themselves to, it was possible to acquire an impression of this earlier phase. In order to see how and why cooperation between the project partners developed over time, the informants were interviewed for a second time once the project had progressed for six months. In this second series of interviews, the project's future prospects were also considered.

Each interview lasted 60-90 minutes and was semi-structured: flexible interview guides were used that were tailored to the specific roles of the key informants within the project. This allowed the interviewees to tell their own stories. In the first series of interviews, five project participants from the client organization and six from the contractor organization were interviewed. In the second series of interviews, six participants from the client and eight from the contractor were interviewed. As a consequence of personnel changes within the project, it was only possible to interview six informants in both interview rounds.

The 19 interviewed respondents (Table II) were involved in the project in various ways. In total, ten interviewees were involved on a strategic level – these were all members of either the ASR or the AMT – and seven interviewees were involved on an operational level – these were all members of the client and contractor organizations' project teams. Further, two people from the client were interviewed who were not directly involved in the execution/construction phase but who had played important roles in the negotiation/procurement and commitment/contracting phases of the project. At the same time, relevant project documentation (i.e. contract documents) was studied.

#### *Case study validity and reliability*

Yin (2003) identifies four tests that are relevant for case studies, and these concern construct validity, internal validity, external validity and reliability.

The first test, to establish construct validity, has to do with establishing and applying the appropriate measures for the concepts being studied. To increase construct validity, Stake (1995) proposes several methods of triangulation. Here, to increase construct validity through methodological triangulation, two methods were used to collect data: interviews with key project informants and studying relevant project documentation. Theoretical triangulation was achieved by applying different theoretical perspectives. Data source triangulation has been achieved by having multiple interviews with the same people and also interviews with different project participants about similar topics. Further, a draft of the case study report was discussed with members of both the ASR and the AMT in order to further increase the construct validity of our study (Yin, 2003; Swanson and Holton, 2005).

Internal validity refers to the extent to which causal relationships exist between two or more of the study variables. Since this case study adopts a process approach, it is not possible to establish unidirectional cause and effect relationships. Therefore, internal validity is not applicable to this research.

External validity refers to the extent to which a study's findings can be generalized to other populations or settings (Yin, 2003; Swanson and Holton, 2005). It is commonly, but wrongly, believed that one cannot generalize on the basis of a single case (Flyvbjerg, 2006). However, the fundamental processes that this study seeks to explore are not limited to one case, or even to similar cases. External validity is increased by using accepted theory and by providing a valid description of the reality of the case through method and data source triangulation and by the external control of the draft case study report through the key informants.

The fourth issue, reliability, requires one to demonstrate that the operations in the case study could be repeated with the same results. Yin suggests that investigators present a case study plan, use a case study protocol and develop a case study database that documents case study notes, documents and interview transcriptions. In our study, we used all these techniques in order to improve the reliability of our study.

### Case study results

Based on the interviews, we describe the risk profile of the project first: risks of running of time, budget and risks associated with design conversion. After describing the project alliance, the focus is on forms of formal and informal control adopted in this alliance: the monitoring system in the project alliance and the ways in which the project partners invested in their relationship.

	Number of interviews	
	First series	Second series
<i>Client</i>		
Strategic level	4 (2 ASC/2 AMT)	3 (1 ASC/2 AMT)
Operational level	0	2
Other	1	1
<i>Contractor</i>		
Strategic level	3 (1 ASC/2 AMT)	4 (3 ASC/1 AMT)
Operational level	3	4
Total	11	14

**Table II.**  
Number of interviews

*Risk profile of the case project*

The data suggest that the risk of running out of time and budget and the risk of delays in design finalization motivated the project partners to enter into a project alliance.

*The risk of running out of time.* Already in the procurement stage of the proposed design-build project, some of the bidding contractors were suggesting converting the design-build contract they were negotiating into a project alliance. This was to an extent due to the risk that the municipality would create difficulties in granting the licences required for the construction phase of the project. The municipality was insisting that the building activities complied with the conditions of a so-called BLVC licence. BLVC is the Dutch abbreviation of accessibility, liveability, safety and communication. This licence consists of seven chapters. In the first chapter, different stages and the exact location of the construction project has to be described. Second, the physical environment of this location has to be analysed. In Chapter 3, measures have to be provided that guarantee the accessibility of the area surrounding the construction project. Chapter 4 of the licence deals with measures to protect liveability of this area and to minimize nuisance. Measures dealing with safety of the city centre throughout the construction phase of the project, as well as an obligation to inform the inhabitants about noise nuisance, pile-driving vibrations, etc. are dealt with in Chapters 5 and 6. The final chapter deals with monitoring and control of these measures.

In a traditional contract, a delay in obtaining construction licences creates problems for the client organization, since contractors can then claim for lost income as a consequence of delays in construction. Conversely, with a design-build contract, as originally envisaged, construction firms run into trouble if they do not obtain licences on time because they then face the risk of being fined by the client for not delivering the project on time. This problem was more prominent than one might expect because the contractors had only limited accumulated experience of applying for licences, while Prorail was inclined to adopt a reserved attitude in suggesting how to manage this process: "if we help to find a solution, construction firms might argue that we prescribed a process, and so joining in the deliberations might lead to claims" (Prorail).

*The risk of running out of budget.* The CH4 contractor firms also faced the risk of exceeding the budget. At the time when the design-build project was put out to tender, the construction industry was experiencing a downturn and so CFE (the successful main contractor) probably submitted a lower bid than they might otherwise have done in order to win the contract. Further, the contractor firms were encouraged to take on the project risks, as defined by Prorail, by quantifying these risks in their bids, and CFE decided to accept responsibility for most of the indicated risks in order to be seen as the favoured bidder. Subsequently, CH4 (the partnership of the three constructing firms) was facing a hard-bargained design-build contract situation.

With traditional contracts, contractor firms may also put in a low bid in order to win a contract during a downturn, but they expect to later compensate for this by claiming for extra work. This is a real possibility because the contractor has the exclusive right to carry out any additional work necessary due to design changes and contractual omissions on a cost-reimbursable basis. Another option for contractor firms is to shirk on quality, given the possibility of hiding shoddy work and using low quality materials in place of more expensive, high quality, products. However, in a design-build contract, as proposed here, contractor organizations have to compete on design creativity and constructability, rather than on price, since they have to come up with the project

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design themselves. Therefore, although they may still shirk on quality to compensate for a low bid, the opportunities for contractors to make claims against the client organization are severely restricted. As such, the risk of running out of budget is far greater than in traditional contracts.

*The risks associated with design conversion.* Further, the CH4 consortium faced an additional risk in converting the submitted draft project design into detailed plans, worsening the aforementioned risks of running out of time and running out of budget.

In a traditional contract, the client is responsible for providing construction drawings to the contractors, and so the latter can claim for lost income if the client organization does not deliver on time. Conversely, in design-build contract, as proposed here, only the functional specifications are put out to tender, and contractor firms are invited to submit a draft project design. After the project has been assigned to a specific contractor, this organization has to convert the draft project design into a definitive one. The client organization will then check the design to ensure it corresponds with the prescribed norms and specifications agreed upon. The conversion process is often highly pressured since any delay in the start of construction may, as agreed in the contract, lead to a fine imposed by the client organization. As noted above, this problem is heightened by the relative inexperience of contractor firms in managing this process.

#### *The project alliance*

Since both the client and the contractor organizations perceived a risk of their relationship running into trouble as the project progressed, they decided to convert the already agreed design-build contract into a project alliance contract, which was named the “Batavian alliance”. For this, they agreed upon an alliance contract and a construction contract. The alliance contract regulated those activities for which Prorail and CH4 had agreed to take joint responsibility, and the construction contract regulated activities to be performed by the CH4 contractors. The alliance contract contained arrangements on managing:

- design activities;
- control activities; and
- activities related to the alliance fund.

In the design-build contract, Prorail and CH4 had each had a separate risk budget, a design budget and a management budget. These budgets were now brought into one fund which formed the joint budget of the Batavian alliance. The alliance’s design and management costs, as well as any emerging risks and contingencies, had to be met from this joint fund, while it could be boosted by any savings achieved by optimizing the project design. At the end of the project, the fund’s balance, either positive or negative, would be shared equally between Prorail and CH4. Consequently, to end up with a positive balance, there were incentives for both Prorail and the CH4 contractor firms to establish a lean project organization, to seek design optimizations and to tackle emerging risks and contingencies in close cooperation, rather than trying to blame each other.

Whereas CH4 had originally been responsible for managing the process of obtaining the construction licences required, the Batavian alliance now became responsible for this. Thus, Prorail had both the opportunity and an incentive to use its specific competences in applying for licences, and the contractor firms could directly input

their knowledge, since information on how a project will be built is usually required in obtaining construction licences, in order to speed up this process. Close cooperation between CH4 and Prorail was also boosted by the process of obtaining these licences from the municipality. The municipality became the common “enemy” of both CH4 and Prorail. It was also in the interest of Prorail to cooperate with CH4 since Prorail’s clients would blame Prorail if the construction licences were not obtained in time. Through the alliance agreement, risks related to obtaining these licenses were equally shared between CH4 and Prorail.

Further, whereas CH4 was responsible in the original project situation for converting the submitted draft project design into a definitive one, now the Batavian alliance had become responsible for this. Here, the contractors still had the opportunity to bring their specific knowledge on how to achieve a buildable project, but both Prorail and CH4 would strive to optimize the submitted design since the alliance fund was boosted by any savings. For the contractors, this was more opportune than claiming the costs of extra work since half of any positive alliance fund outcome would be theirs. Further, Prorail became willing to interpret and apply prescribed norms and specifications less strictly than might normally be the case since this could result in design optimizations that would add to the alliance fund.

In order for such an incentive mechanism to work, there have to be sufficient opportunities to optimize the project design and so deliver financial benefits. In the project investigated, these possibilities were somewhat limited because Prorail and the municipality had already agreed on how to integrate the original Prorail design into the master plan for the city centre. Further, there also have to be risks that are difficult to manage by one of the project partners, such as a municipality creating problems over licences. As a Prorail interviewee stated: “Here, the alliance concerns the deal breakers for a construction firm, risks that may provoke the failure of a design-build project, but risks that we can control neither”. Similarly, in the words of two CH4 representatives: “A project alliance is about hard to control risks. If you allocate these risks to one of the project partners involved, a relationship may become confrontational” and “For both sides there have to be risks such that, if they are managed in close cooperation, all project partners gain”. As Prorail interviewees noted, an alliance fund has to be of a certain size to make the incentive mechanism work: “If the financial volume of an alliance fund is too small, none of the project partners will really go for it” and:

All project partners have to benefit from doing things together [...]. There has to be a common interest, so that if a project partner screws up the project, he also spoils it for himself.

#### *Formal and informal control in the alliance*

In this section, the focus is on the monitoring system that the project partners use to determine whether anyone has deviated from the agreed alliance contract. Further, the ways are discussed through which the project partners reduce goal incongruence and preference divergence by investing in their relationship.

*The adopted monitoring system.* In many traditional forms of contract, principal organizations deliver a project design and, subsequently, employ their own engineers to oversee and inspect the construction work performed by the selected construction firms on an ongoing basis. Such a hierarchical relationship between principal and contractor may hinder the otherwise natural development of a relationship based on reciprocity, since their supervisory position may lead principals to adopt overly suspicious attitudes

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towards contractor organizations which may become self-fulfilling prophecies: “Principal organizations often behave hierarchically: we charge construction firms with what to do. However, this means that many of them do not feel treated as equals” (Prorail). So, while the principal organization may interpret all changes suggested by contractors as serving self-interests rather than being motivated by concern for the project, closely monitored construction firms may retaliate by behaving in just the way the principal organization is trying to protect itself against. Conversely, in adopting the design-build procurement route, the principal organization is at more of a distance.

In the Batavian alliance, the AMT has become responsible for controlling CH4’s construction processes and products and for ensuring that the quality corresponds with the agreed norms and specifications. Although, this could be interpreted as the traditional principal-contractor type of relationship, the project partners here decided to adopt the design-build way of monitoring since the project had been put out to tender in a design-build form. As such, in order to ensure the quality of the design and construction, two engineering firms were brought in, each to check the designs and construction of individual aspects.

Within the AMT, the design manager oversees the design processes. He supervises the design firm working on the construction drawings. The construction manager focuses on controlling the product and process performance of the CH4 construction firms, and as part of this supervises the engineering firms. Together with the alliance manager and the environment manager, these two managers are tasked with realizing the project within the time, budget and quality constraints agreed by the project partners. Here, since the alliance manager is also the contract manager on behalf of Prorail, he has a double role. With his alliance cap on, he strives to meet the interests of the Batavian alliance whereas, with his contract manager cap on, he has to look after the interests of Prorail:

From an alliance perspective, it could be financially attractive to deviate from the norms and specifications we should comply with. However, we have to hand over the project to the maintenance department of Prorail when we have finished it. They are also experts in rail construction work, so they will not accept the construction work if they do not agree with the quality of the project (Prorail).

Since the construction manager is also the project manager of CH4, he also holds a double role. With his alliance cap on, he strives to meet the interests of the Batavian alliance whereas, with his CH4 cap on, he has to look after the interests of the construction firms:

Usually when a principal is late with his inputs, we would put in a claim immediately [...]. However, if we now put in a claim, we have to pay half of it ourselves because of the alliance fund (CH4).

Thus, for both sides, there are mechanisms that encourage both Prorail and CH4 to manage opposing interests in a balanced way, or as a CH4 representative put it:

In an alliance, the challenge for the project partners is to adopt an attitude of cooperation, far more than playing games. After all, if one of us runs into trouble, we have to help each other to find a solution. Since we have a common interest, we cannot simply exert pressure in our relationship.

*Developing shared values and goals.* In the Batavian alliance, the challenge for Prorail and CH4 is to tackle risks as they appear, to manage the design conversion processes

and to look for design optimizations in close cooperation, rather than opposing each other for individual gain. Since both Prorail and the CH4 construction firms are more familiar with traditional and design-build forms of contract, in which there are often legitimate reasons to question each other's competences and intentions, the selection of employees and managers to work in the alliance requires careful attention: "Not all our people can work within an alliance, and the same is true for the employees of the construction firms involved" (Prorail). As a CH4 interviewee put it:

If you have always worked on traditional and design-build projects, you really have to change your working methods, because the way we now have to deal with Prorail is totally different.

Since working in an alliance is a matter of being led by a common interest, the project partners need to select employees who are able to act accordingly.

Although the selection of employees requires careful attention if the alliance incentive mechanism is to work, there are many limitations on the project partners. Since principal organizations and construction firms usually handle a portfolio of construction projects, the opportunities to select appropriate team members are somewhat limited. In this regard, a CH4 interviewee said:

Usually, the number of people available is limited. I am not an advocate of sending people from pillar to post. I only start thinking about replacing people after serious incidents.

This problem often becomes more of an issue because contractors tend to bring in their best team during the negotiation/procurement phase of traditional and design-build projects, but then replace these with others for the execution/construction phases. In this regard, a Prorail representative remarked: "It is rather foolish to change people, because new team members are inclined to question what we agreed earlier, which only creates problems". Thus, within an alliance, the principal organization and the construction firms not only have to be conscious about staffing the project appropriately, they also have to be aware of the dangers of losing alliance commitment when changing people when moving to the execution/construction phase.

However, the data we collected show that even selecting apparently appropriate project staff does not automatically mean that the people involved will adopt an attitude of cooperation. Although the alliance has its own targets, in terms of planning and budget, it is not inevitable that the project partners will cooperatively strive for these goals. Organizations involved in alliance construction projects may import working methods from traditional and design-build types of arrangement, and these may be detrimental to the alliance. Here, Prorail and the CH4 constructors had to put substantial efforts into making their employees familiar with the alliance way of working. Here, a CH4 representative stated:

It is a difficult task to get the people involved to think appropriately [. . .]. This problem is complicated since the relationship between employees from principal organizations and those from contractor firms is traditionally tense because of experiences in traditional and design-build projects.

Or, as a Prorail interviewee put it:

It is not only important to select the right employees; you also have to pay attention to the way these people work together [. . .]. They have to get to know each other, and they have to get to know the alliance working methods.

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In this regard, it might even be that people employed in an alliance have to unlearn the behaviour they usually demonstrate within traditional and design-build projects. In early phases of the Batavian alliance, this seemed to be especially true for the CH4 construction workers. As a CH4 representative stated:

The construction workers see the alliance as very much the principal organization. Technically, they are right but, since we also participate in the alliance, they have to work differently [. . .]. I am constantly 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.

Here, the data suggest that it made a real difference when the project partners were housed in the same building. In line with this, a CH4 representative stated:

Now, we really pull together. In traditional or design-build forms of contract, we see each other only during official meetings in which everybody can put on a front [. . .]. However, since we are housed in the same building, we come across each other the whole day, so openness comes naturally.

## Discussion

In this section, we discuss whether the initial conditions, in terms of the risks that principals and contractors face, both internal and external to their relationship, and the forms of formal and informal control are conducive to the development of cooperative relationships in a project.

### *Risks, both internal and external to the relationship*

In the original situation, both the principal and the construction firms faced the real risk that the consortium of construction firms might run into trouble as the project progressed. With traditional forms of contract, the contractor would have been in a relatively comfortable position since most of the project risks are carried by the principal, enabling construction firms to lean back when problems arise. After all, if a principal organization fails to obtain construction licences or to make construction drawings available on time, they not only face the ever-present risk of a low bidding, extra work claiming, quality-shirking contractor, they also face the risk of construction firms putting in claims for lost income as a consequence of construction delays. Therefore, in starting up a traditional project, a legitimate level of distrust regarding the intentions of a contractor can be claimed by the principal. Similarly, for the contractors, there are equally legitimate reasons for questioning the principal organization's competences in conditioning the project adequately.

Conversely, in a design-build contract situation, the construction firms face the costs of delays due to problems with obtaining construction licences or in finalizing the required construction drawings. In our investigated project, because of this, and also since the project was put out to tender during an economic downturn, they especially faced the risk of running out of budget. Here, external, relationship-exceeding, risks were closely interacting with internal, relationship-specific, risks since a contractor running into trouble also causes problems for the principal organization. This problem becomes more prominent when construction firms face risks that are difficult to manage. In such a situation they will be inclined to attribute problems to factors beyond their control, whereas the principal organization will continue to blame the contractor. Consequently, for both principal and contractor, there become

legitimate reasons for questioning each other's competences and intentions. However, given that a project running into trouble creates problems for all the organizations involved, there are incentives to cooperate, especially when they face hard to control risks.

As is illustrated by the case project, a project alliance can become an attractive option since, in this type of arrangement, both the principal and the contractor are responsible for conditioning the project, and they are also challenged to cooperatively overcome risks as they appear, rather than standing up against each other. Since the balance of the fund, either positive or negative, would be shared between the principal and contractor at the end of the project, there is an incentive for both project partners to use their competences with dedication and benevolence, rather than trying to offload risks onto each other. In terms of Clifton and Duffield (2006), one can speak of a public private alliance (PPA). In a PPA, a number of risks are shared between a public party (the principal or client) and the contractor. The contractor works closely with the government on different aspects of a project. As such, compared to traditional and design-build forms of contract, the data show that, in an alliance, not only are the initial conditions of a project more conducive to the development of cooperative relationships, but that the development of these relationships also becomes a necessity since the project partners have to cooperatively construct the project.

#### *Formal and informal control*

The traditional procurement route tends to produce behaviours that contradict what is required in a cooperative relationship (Forgues and Koskela, 2009; Winch, 1989). While the initial project conditions may bring about legitimate levels of distrust on the principal's side, due to the opportunities and incentives for construction firms to claim for extra work, to shirk on quality or to hide mistakes, the ways adopted for monitoring may worsen relationships, since they tend to become self-fulfilling prophecies. That is, closely monitored contractors, feeling that they are not treated as equals, may reciprocate by behaving in just the way the principal organizations are trying to protect themselves against.

The same problems occur in design-build types of arrangement, although here the principal organization is at a greater distance since most of the monitoring activities are transferred to engineering firms.

However, in an alliance, although there are still opportunities for contractors to deviate from what was agreed, establishing and maintaining a cooperative relationship with the principal seems to be, as the data show, far more important. Since the project partners have to construct the project cooperatively, the potential costs of endangering their relationship is seen as outweighing any short-term advantages gained through opportunistic behaviour. However, as was shown, this is not something that principals and contractors do without some reservations, especially since their employees may import behaviours from traditional and design-build types of arrangement with which they are more familiar. Therefore, project partners need not only to take care in selecting appropriate project staff, they also have to put substantial efforts into making clear to their employees that they should adopt accommodating rather than opportunistic attitudes. Since the incentive of working together does not necessarily overcome the historic disinclination to cooperate, it should not be assumed that cooperative relationships will automatically arise in an alliance.

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## Conclusions

This study has shown that opportunistic behaviour is less when there is an incentive structure, as pursued in project alliances, for client and contractor organizations to cooperatively realize a project and to overcome emerging risks. Whereas, in many traditional and design-build types of arrangement, initial levels of distrust, together with an ongoing close supervision of the construction work, easily lead to vicious cycles of distrust arising, the dynamics between principal and contractor in an alliance form of contract are different. It can be concluded that the initial conditions established in a construction project are key to the development of cooperative relationships between principal and contractor.

Although there are still opportunities for construction firms to deviate from what the project partners agreed, the desire to establish and maintain cooperative relationships with the principal organization does seem to be more dominant since the project partners have to counteract emerging risks and future problems together rather than standing against each other. A purposeful reduction in goal incongruence and preference divergence through creating a common fund reduced opportunistic behaviour.

However, this study shows that, within an alliance, it is not inevitable that project partners will adopt a cooperative attitude. Both the principal and the contractors have to staff a project appropriately. They also need to put substantial efforts into making clear to their employees that they should adopt accommodating attitudes.

It can be concluded that it is possible to establish and maintain cooperative relationships between principal and contractor organizations in one-off partnering projects. However, it is not sufficient for project partners to agree upon an appropriate incentive structure. For cooperative relationships to develop, they also have to put substantial efforts into diminishing the remaining inclinations to take advantage of opportunities to deviate, especially since employees from both sides might tend to import working methods learnt from traditional and design-build projects. Principal and contractor organizations need to ensure – by demonstrating relationship-preserving behaviour – that their project partners feel confident that they will not give into any temptation to deviate. To achieve this, this study shows that organizations need not only to carefully staff their projects; they also have to interact with the people employed such that attitudes of commitment are reinforced and rewarded. As such, this study shows that developing cooperative relationships in project alliances requires the support of appropriate surrounding working methods.

This study has revealed, through an in-depth longitudinal case study, how cooperative relationships develop in an alliance contract. The main contribution of this study is that it provides insights into the factors involved in processes that can reduce opportunism in an inter-organizational context. In so doing, this responds to a statement by Van der Ven and Ring (2006) that more longitudinal research is needed on the dynamics of inter-organizational cooperative relationships. Since the focus has been on an alliance form of contract in the project-based context of the construction industry, this also responds to the call by Bijlsma-Frankema and Costa (2005) for a better contextualized understanding of processes of inter-organizational trust development. Further research should be encouraged on this important topic since there is still only limited experience with alliance contracts in the construction industry. One important aspect is how partners who have previously worked in an alliance contract behave in future projects.

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#### Further reading

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#### Appendix. Case study protocol

##### Question 1

What role do you have within the project? What are your tasks, responsibilities and accountabilities? What kind of position do you hold within your organization? How did you become involved in the project?

##### Question 2

Why do you make use of an alliance form of contract? Have you experience with other partnering types of arrangement? On what aspects does an alliance differ from traditional and design-build forms of contract? What are the limiting conditions for making an alliance work?

##### Question 3

Can you describe the project's progress? How does the project perform, in terms of budget, planning and quality outcomes? How is the monitoring system organized? Which performance threatening risks is it important to concentrate on? How do you deal with any problems that arise?

##### Question 4

Can you describe the relationship with your project partners? To what extent have they adopted a dedicated and benevolent attitude? Are you satisfied with the cooperation shown? What are important, relation-quality threatening, risks? What means have you invested in the relationship with your project partners?

**Question 5**

Do you trust your project partners? What is your trust based on? Have your project partners the right competences at their disposal? Do you expect them to make use of any opportunities to deviate? What are the incentives for them to behave opportunistically? Are they inclined to deviate from what you agreed upon?

**Question 6**

What do you expect regarding the project's prospects in terms of budget, planning and quality outcomes? How do you expect the relationship with your project partners to develop? What are the potential bottlenecks with respect to both the project's performance and the relational quality underlying this performance?

**Question 7**

Is there any information you want to share that we have not covered?

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