



Contracting dynamics in the competitive dialogue procedure

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Abstract

Purpose – The competitive dialogue (CD) aims to align complex demands of principals with possible solutions that contractors have to offer. It is, however, unclear how formal and informal structures and processes in the CD are interrelated. The purpose of this paper is to provide insights in to the development of and the relationship between interaction processes during negotiations and commitments in terms of formal and informal contracts during a CD-procured project.

Design/methodology/approach – Based on a case study of a complex construction project, an event-driven explanation is provided of the sequence in which a discrete set of critical events occur.

Findings – Critical events show that problems of understanding are caused by differences between the formal legal and the informal psychological contract of one of the parties involved. During all phases of a project, the parties involved oscillate between negotiations and commitments, depending on whether there is understanding or not. Negotiations and commitments act as substitutes. The formal legal contract and the informal psychological contract are complementary.

Practical implications – The competitive dialogue develops less promisingly than hoped for due to risk aversion actions by at least one of the parties involved. Insights of this study help to create more cooperative working relationships and to reduce failure costs of large complex projects.

Originality/value – The in-depth case study offers a unique opportunity to reconstruct an intensive procurement process by detailed first-hand information in a specific case.

Keywords The Netherlands, Contracts, Conversation, Construction works, Project planning, Competitive strategy, Procurement, Contracting

Paper type Research paper

1. Introduction

The combination of increased project complexity (Baccarini, 1996; Laufer *et al.*, 1996; Alderman *et al.*, 2005), changed role of the government (Blanken, 2008) and the sector's poor professional functioning (Egan, 1998; National Audit Office, 2007) resulted in several changes in the construction industry. These changes are twofold: on the one hand they are aimed at new procedures and on the other hand at new working relationships. In this context, the European Commission (EC) introduced the competitive dialogue (CD) in 2004.

The CD procedure aims to align complex demands of principals with possible solutions that contractors have to offer (Hebly and Lorenzo van Rooij, 2006). The CD procedure is meant for the procurement of complex projects, of which technical, legal and/or financial solutions are not objectively specifiable by the contracting authority. It is, however, unclear how interaction processes during the negotiations and commitments in terms of formal and informal contracts are interrelated in the CD. In essence, there are two perspectives. In the first perspective, formal and informal



structures and processes in the CD act as alternatives: what is arranged formally does not need to be discussed informally and vice versa. In the second perspective, formal and informal structures and processes are complementary. Formal contracting processes can lead to informal processes such as the development of mutual expectations and social relationships.

The major objective of this study is to provide insights in the development of and the relationship between interaction processes during the negotiations and commitments in terms of formal and informal contract structures in a CD procured project. In addition to contributing to the scientific discussions on this relationship, this study will indicate how elements of the CD procedure interact, and perhaps counteract each other, leading to suggestions on how to improve the effectiveness of the procedure.

Following Bruner (1991), the research question of this study is a “how” question requiring a process model or event-driven explanation of the sequence in which a discrete set of events occur. It is therefore decided to take a process approach to study how formal and informal contracts and processes develop during CD procurement of a complex construction project. Because of the uniqueness of the opportunity to reconstruct an intensive procurement process by detailed first-hand information in a specific case it is decided to conduct a single revelatory case study (Yin, 2009). In this study, first the background of the CD is discussed. Second, a theoretical framework is developed. Third, the research design of the in-depth case study is addressed. Fourth, case study results are presented and discussed. Finally, conclusions are drawn. The successive steps of this study are summarized in Figure 1.

2. Background of the CD

2.1 Public procurement procedures

Prior to March 2004, three main types of public procurement procedures were used in the EU: the open procedure, the restricted procedure and the negotiated procedure (Heijboer and Telgen, 2002). The open procedure is characterized by the publication of a tender call. In reply to this call, all interested suppliers can submit a bid based on the technical specifications provided by the contracting authority. The restricted procedure differs from the open procedure in that only those suppliers invited by the contracting authority can bid. In an initial step, all interested suppliers can ask to participate in response to a call for tenders. In the second step, only a limited number of selected suppliers will be asked to make a firm bid.

Of the available procurement procedures, the open procedure is used most commonly (Heijboer and Telgen, 2002). The open procedure naturally gives the highest competition. The restricted procedure is used when the contracting authority wants to be assured of the contractor’s suitability, particularly with technically complicated contracts. The negotiated procedure is only applicable in special cases, such as urgent or confidential projects, or when the other procedures have not produced an acceptable tender.

The negotiated procedure gained popularity towards the end of the 1990s. Increasing complexity and changing government roles had led to a strong desire for

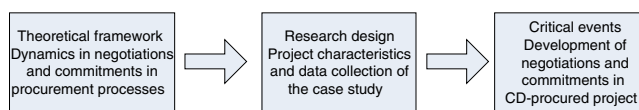


Figure 1.
Successive steps in the
study

cooperation. Especially in the construction industry, it was shown that cooperation had been problematic in the past. To come to an understanding about project details, the division of responsibilities and risks and the terms for cooperation, both contracting authorities and contractors felt the need to have discussions before a contract was signed. Except with the negotiated procedure, direct communication was simply not possible in the existing procurement procedures. The open and the restricted procedures included a system of “notes of information”. Those notes were questions, sent in writing from the contractors to the contracting authority. The answers to those notes were also in written form, with the disadvantage that much interpretation of questions and answers took place, often leading to misunderstandings. The negotiated procedure had the advantage of direct communication: contracting authorities could consult contractors of their choice and negotiate contractual terms with one or more of them.

2.2 Reasons for implementing the CD

According to the EC Directive 93/37/EEC Public Works Contracts (article 7) the negotiated procedure was, however, only intended to be used in the following cases:

- when procurement by the open or the restricted procedures had failed;
- when the works involved were carried out purely for the purpose of research, experiment or development;
- when the works could only be carried out by a particular contractor; in cases of extreme urgency;
- for unforeseen additional works to already awarded contracts;
- for new works that replicated similar works awarded in an earlier contact; and
- in exceptional cases when the nature of the works or the risks attached did not permit prior overall pricing.

Nevertheless, given the perceived need for discussion, more and more contracts were awarded using the negotiated procedure, even though it is doubtful they met the criteria for procurement by this procedure. If the EC wanted to stop the excessive use of the negotiated procedure, it would have to intervene. It was well aware of both the call for more informal cooperation and the need for flexible procurement procedures in the case of complex projects, i.e. integrated transport infrastructure projects and large computer networks. At the same time, competition between suppliers has to be preserved. These features came together in a new procurement procedure: the CD. This procurement method consists of several discussion rounds between the principal and potential suppliers, during which all aspects of the tender can be discussed. This procurement method is considered elsewhere as well, apart from in Europe. Examples are India (Department of Economic Affairs, 2011) and the US (Bill 693 of the State of Pennsylvania).

3. Theoretical framework

Based on the model of Ring and Van de Ven (1994), the theoretical framework in Figure 2 shows how contracting encompasses the stages of negotiations and commitments within a complex context. Both stages consist of a formal part (formal bargaining and the formal legal contract) and an informal part (informal sense making and the informal psychological contract), which interact dynamically as

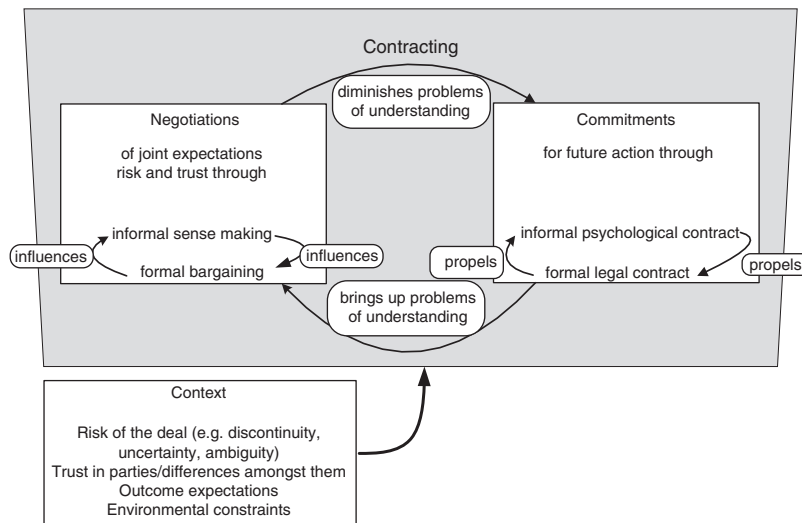


Figure 2.
Theoretical framework

problems of understanding are identified or diminished. It is assumed that important environmental aspects are risk, initial trust levels, outcome expectations and environmental constraints. The different elements of the theoretical framework and propositions on the interaction between these elements will be further elaborated upon in the following sections.

3.1 Negotiations

Formal bargaining. Bargaining processes are aimed at coming to an agreement, whilst the parties involved have partly conflicting interests. The following four mechanisms occur in bargaining:

- (1) Focusing attention: pointing at order and content of decisions which are to be made; by drawing lines in what is allowed, expected, and possible and what is not.
- (2) Forcing articulation, deliberation and reflection: when bargaining over possible terms and conditions, parties are forced to make their individual and mutual goals explicit (Blomqvist *et al.*, 2005, p. 501).
- (3) Interaction: formal bargaining in construction implies that parties exchange ideas and information about possible project tasks and outcomes by conversations and dialogues (Cheung *et al.*, 2004; Nellore, 2001; Putnam, 2003).
- (4) Reducing biases, judgement errors, incompleteness and inconsistency: exploring basic differences in perception between the private sector and the public sector parties is an important aspect of bargaining in construction (Ahadzi and Bowles, 2004) and compensates for deficiencies in individual thought processes (Katz and Kahn, 1978).

Informal sense making. The identified output of the bargaining process form conditions for the second part of the negotiations stage of procurement: informal sense making. Informal sense making is a social process during which organization members

interpret their environment in and through interactions with others, thus constructing observations that allow them to comprehend the world and act collectively (Isabella, 1990; Weick and Roberts, 1993). The complexity and uncertainty of large projects present novel challenges beyond the scope of existing practices (Chi and Javernick-Will, 2011). During the contracting process, parties with differing patterns of beliefs and assumptions engage in sense-making processes where they must interpret novel situations and create coherent understandings in order to come to collective action (Maitlis, 2005; Weick, 1993, 2001). Social psychologists emphasize that problems of understanding could arise because the two parties involved have different backgrounds and work in different cultures, with dissimilar belief systems (Sutcliffe and Huber, 1998). Yet, since the two parties intend to work together, they will strive for congruency in views on purpose and expectations of the relationship. Sense-making processes are therefore assumed to play a central role in the procurement of a construction project.

3.2 Commitments

Informal psychological contract. The result of the sense-making process in interorganizational contracting is to understand the transaction, the context of the transaction, the value of it to the other party and to oneself. Shared understanding between the two parties is reflected in mutual beliefs, norms, values and routines, the informal psychological contract. This contract consists “of unwritten and largely non verbalized sets of congruent expectations and assumptions held by transacting parties about each other’s prerogatives and obligations” (Ring and Van de Ven, 1994, p. 100). The term informal contract is also related to the term informal control (Eisenhardt, 1985). Kadefors and Laan (2010) state that informal control in construction is “about purposefully establishing norms, values and routines, to reduce discrepancies in goal preferences and inclinations towards opportunism”. Consequentially, informal control reduces risk through the establishment of shared values. In this study, the informal psychological contract refers to the implicit set of expectations between the client and the contractor and which is, unlike the written contract, continually changing.

Formal legal contract. The formal legal contract contains both limitations of opportunities for opportunism and limitations of material incentives to utilize these opportunities. Mechanisms by which contracting parties could address these forms of control are shifts in rights/power of decision, rewarding systems, monitoring and bonding.

When the contract foresees in a shift in rights or power of decision, the principal delegates (part of) his rights or decision power to the prime contractor, which means that this firm can make decisions on behalf of the principal. The increased use of integrated contacts by clients means that the scope of responsibilities is shifting: responsibility shifts from client to prime contractor (Hoezen *et al.*, 2010). There are various rewarding systems, which are meant to align the contractor’s interests with those of the principal. Rewarding can be based on either output- or input measurement. Output measurement contains more risk for the contractor (environmental aspects do also play a role in meeting output goals), who therefore will ask for compensation in the form of a higher reward. Monitoring is a mechanism to check upon the actual efforts of the construction firm (Kale and Arditi, 2001). This mechanism involves transaction costs, which come at the principal’s account: monitoring costs. When using the bonding mechanism, the contractor himself proves which efforts he makes to perform his tasks. This mechanism also involves transaction costs, yet these are on account of the contractor: bonding costs.

3.3 Propositions about the working of the CD procedure

Understanding as key concept. In the cycle negotiations – commitments – negotiations, key concept is understanding. Informal sense making during procurement processes of construction projects do also propel new formal bargaining processes. These new bargaining processes facilitate new sense-making processes, which in turn could improve understanding. Lasting differences in prior experience and distinct interests and objectives will cause differing interpretations and understanding to persist (Balogun and Johnson, 2005; Brown, 2000).

Ring and Van de Ven (1994) indicate that formal and informal processes are interacting during each stage of the development process. It is not just as if formal bargaining leads to a formal contract and informal sense making to a psychological contract. However, where Ring and Van de Ven (1994) assume formal and informal contracts to be each other's substitutes (existence of an informal contract diminishes the need for establishing a formal contract), the insights of Vlaar *et al.* (2006) suggests that formal and informal contracts serve more as complements. Developments in the informal contract effectuate developments in the formal contract and vice versa. Understanding is assumed to be the main force in these developments.

Propositions. The theoretical framework provides an indication of the dynamics in both the interaction processes during negotiations and the commitments in terms of formal and informal contracts involved in procurement alike using the CD procedure. This leads to the following propositions:

- P1.* During all phases of a project, from initiation through to delivery, the parties involved go back and forth between interaction processes during negotiations and commitments in terms of formal and informal contracts, depending on whether there is understanding or not.

The formal legal contract which is signed will still be renegotiated in new series of formal bargaining and informal sense making in subsequent stages of a construction project. Nevertheless, the contract which is signed at the end of the tendering process is meant to be a formalization of the understandings reached during the tender negotiations, and parties do intend to commit to the agreements reflected within:

- P2.* On several aspects of a project the parties concerned will be either involved in interaction processes during negotiations or in commitments in terms of formal and informal contracts. These contract structures and interaction processes cannot, however, coexist in terms of an individual aspect: the two are mutual substitutes.

The parties involved might well understand each other on some aspects of the contract, and face problems with understanding on others, during any stage of the project. However, since it is not possible to simultaneously both understand and have problems in understanding a specific aspect, the parties are expected to be either involved in interaction processes or in contract structures for each individual aspect at any point in time. This means that contract structures and interaction processes can be seen as substitutes for each other (in the sense that one of them, but never both, is applicable at any point time):

- P3.* Formal and informal processes and structures are complements of one another.

The processes of formal bargaining and informal sense making are both meant to decrease problems linked to understanding. Once understanding has been achieved, contracts will contain both formal and informal structures. The formal legal contract and the informal psychological contract both reflect the understanding that has been reached. The premise in the theoretical framework is that formal and informal processes during negotiations are complementary, as are formal and informal products during commitments.

These propositions form the starting point from where the practice of CD procurement is examined.

4. Empirical research design

A process approach is taken to study how interaction processes during negotiations and the commitments in terms of formal and informal contracts develop during a CD procured construction project. Process approaches do not focus on entities, but on events (Poole *et al.*, 2000). Therefore, events during the procurement of the case project formed the unit of analysis in a single revelatory case study. In this section, the case characteristics, data collection methods and the external validity of the case study are discussed.

4.1 Case project characteristics

The second Coen Tunnel project in the Netherlands is the first and largest (estimated value 300 million NPV) CD procured service-led infrastructure project in the Netherlands. It involves the maintenance of an existing, 40-year-old tunnel and the construction of a second tunnel alongside the current one. The contract for the project was signed in 2008, and the maintenance of the existing tunnel was then transferred to the contractor. Principal is the Dutch Highways and Waterways Agency (further mentioned in this study as “the Agency”). The construction stage for the new tunnel started in 2009.

The decision to procure the project through a Design-Build-Finance-Maintenance (DBFM) contract was made by the Dutch Minister of Transport in March 2005. Shortly after this, it was decided to apply the CD procedure because of the technical and financial complexities of the project. The duration of the contract has been set at 30 years, from 2008 to 2036, and consists of construction and maintenance of new infrastructure (construction due for completion in 2013) and renovation and maintenance of existing infrastructure (roads and original tunnel). The service component in this project consists of making available eight traffic lanes passing under the Noordzee Canal.

4.2 Case study data collection

Because access to the project is not allowed before its contract is signed, a real-time field study of the development process is impossible. The study has to rely on archival data and retrospective interviews. The project is very well documented, and full access is given to its vast dataset, containing questions that are asked during the CD, the answers and the changes resulting from those discussions in both the design and the contract. The fact that this complete dataset of the project is accessible enabled a detailed reconstruction of its procurement stage. In addition to the analysis of the data, interviews are conducted with employees from both the contracting authority and the contractors who take part in the dialogue.

Data is provided by 13 in-depth face-to-face interviews, supplemented by 16 shorter interviews on specialized topics like the specifications, the contract and considerations

with respect to the procurement strategy. The major interviews are held with seven participants from the contracting Agency and six from the market, four of which are held with participants working for the winning consortium, and two for the numbers two and three. All 16 supplementing interviews are held with employees of the Agency (see Table I).

Each major interview takes 1 ½ to 2 hours and is guided by the case study protocol (see Appendix). The interviews are tape-recorded and transcribed for systematic analysis. In total, the empirical data collection generated 357 pages of interview text, two evaluation reports, four procurement protocols (for each of the stages of the procurement a separate protocol is written) and six versions of the contract. All these data are analysed with the data analysis programme QSR NVivo. This programme is used to attach labels from the theoretical frame to the empirical data and to compare text fragments with identical labels. Patterns in the interaction between formal and informal contracts are discovered and from that, conclusions are drawn.

4.3 Case study validity and reliability

To ensure the quality of this study, the four tests that are relevant for case studies as identified Yin (2009) were explicitly paid attention to when designing and conducting this research: construct validity, internal validity, external validity and reliability.

To increase construct validity, the first test, 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 combining microeconomic and socio-psychological theories within the theoretical framework. By discussing the case study protocol, as well as the data and the analysis of those data, with several researchers, investigator triangulation was achieved. Further, by holding interviews with several project participants about similar topics, data source triangulation was also achieved. As a final step, a draft of the case study report was discussed with participants in the study and with independent researchers (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, describing how independent variables develop during procurement and construction of a CD-procured project, it is not possible to establish unidirectional cause and effect relationships. As such, internal validity is not an issue in this research.

External validity concerns the ability to generalize a study's findings to other populations or settings (Swanson and Holton, 2005; Yin, 2009). Although this study's purpose is to seek an in-depth understanding of how interaction processes and contract structures develop over time in a CD-procured construction project, the findings are not limited to our case. External validity is increased by using accepted theories and by

Role	Type of interview	
	Major	Supplementing
Principal	7	16
Winning contractor	4	–
Losing contractor	2	–

Table I.
Number and type of
interviews and
informants' role

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. Further, the case study's results were discussed in two panel discussions. One panel consisted of project managers working for the Agency in CD-procured projects, and one of tender team members working for contractors. Both panels recognized the findings of this study in their own experiences with other CD-procured projects.

Finally, reliability means that the same results should be achieved were the operations of the study to be repeated. Following Yin (2009), a case study protocol was used, a case study database was developed in which case study notes, documents and interview transcriptions were all documented, thus improving the reliability of this study.

5. Case study results

In this section interaction processes during negotiations and commitments in terms of formal and informal contracts are described, based on a process approach. During the procurement and early commitment stage of the project, several events take place. Three of these events are determined by the respondents as being critical to the development of the Coen Tunnel project:

- (1) specifications and risk allocation of damaging the existing tunnel;
- (2) development of a monitoring system for the construction stage; and
- (3) actual state of existing tunnel and roads and the Agency's specifications.

These critical events are described into more detail in the next sections and schematized in accordance with the theoretical framework.

5.1 *Specifications and risk allocation of damaging the existing tunnel*

One of the largest risks, identified by the Agency, is the possibility that the existing tunnel will be damaged during the construction of the second tunnel, which is located just next to the existing one. The Agency assesses this risk so high, that it prefers not to be responsible for it. Instead of writing this risk into the formal contract as a risk at the contractor's responsibility, the Agency decides to make the responsibility for the risk negotiable. This is done because the Agency does not want the procurement to fail in case all candidates would assess the risk thus high that they would not make a bid.

During the procurement of the project, candidates are asked to estimate what it would cost them to take the risk (e.g. to control the risk and to take out insurances). These estimated costs are compared to the Agency's own estimations. The party that could take the risk against the lowest costs would become responsible for it. The manner, in which the risks are allocated, is assessed positively by the candidates. The Agency has also made a list of surcharges with which the candidate's bid price would be virtually raised. This list of surcharges is made available to the candidates at forehand, whilst the list of the Agency's estimated costs to take the risks is kept confident until the candidates have made their estimations.

Problems of understanding rise when the list of surcharges is made available. The fact that their bid price would be raised with an amount above 100 million does disturb the candidates. If they would not become responsible for this risk, their bid would be enlarged with more than 20 per cent of the maximum bid, causing them to lose the contract. All candidates come to the conclusion that the Agency does not want to be

responsible for this risk. But why has the Agency not just written the risk into the contract as a risk to bear by the contractor? In an attempt to make sense of the situation, all three of the candidates conclude that seemingly the Agency is willing to pay an amount above 100 million when candidates would overcome the risk of damaging the existing tunnel. Thinking further, the candidates find manners to enter into bargaining with the Agency.

For an extra amount of tens of millions above the price of one new Coen Tunnel, all candidates offer alternatives of renewing the existing tunnel as well. The Agency is willing to take these alternatives into account. However, the candidates are not allowed to go beyond the initial drawings (in other words: the new tunnel should be at exactly the same place at the existing tunnel). Furthermore, the candidates would not be compensated for the extra costs. The first condition could be met, but the second turned out to be difficult for the candidates (Figure 3).

When trying to make sense of the high surcharge and the Agency's interest in alternative solutions yet unwillingness to compensate the candidates for it, the candidates figure that probably there is no reasonable cause for the surcharge of the amount above 100 million besides that the Agency does not want to bear the risk. The candidates understood how the Agency is acting strategically: the amount above 100 million is just a sign. In response to that, the candidates responded likewise, by giving strategic estimations of the expected costs themselves. If they do not want to have a risk, they estimate it at a ridiculous high amount. So informally the candidates and the Agency agree upon making strategic estimations to let each other know whether or not they are willing to bear the risk, unlike the formal agreements are that their estimations of the costs involved with bearing certain risks will be realistic ones.

5.2 Development of a monitoring system for the construction stage

In the tender documents for the second Coen Tunnel project the Agency demands for a "light" management plan which would become an appendix to the contract. According to the Agency's employees, this dialogue product is meant to convince the Agency of the future contractor's management skills and ability to control the project. Depending on the risk profile the Agency would then monitor the project's activities at a system level, process level or product level.

The candidates are convinced that they understand the Agency; however, when they see the actual specifications for the dialogue product, problems of understanding arise.

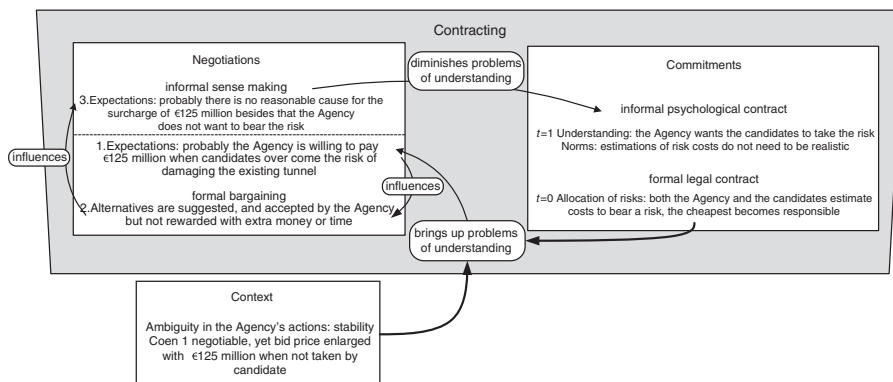


Figure 3. Contracting process for critical event 1 (start at $t = 0$, end at $t = 1$)

The specifications ask for much more detail in the management plan than candidates are expecting. In an attempt to make sense of the situation, candidates expect the Agency to ask for detail so that it will be convinced that the candidates are able to control the project. A bargaining process develops, during which the candidates hand in concept versions of their management plans, containing all kinds of information. This information ranges from descriptions of processes in practice to extracts from management handbooks. The Agency, in turn, rejects most of the concept versions. The Agency's sense-making process leads to explaining the situation with the argument that probably the candidates do not understand what is asked from them. If it wants them to reach the management level the Agency aims for, it has to help the candidates by intensively discussing the concept versions of the management plan.

In the next rounds of bargaining that is exactly what happens. Concept versions of the management plan are broadly discussed, and the Agency guides the writing process intensively. Thus, three management plans are created, in which the candidates play up to what they thought the Agency is expecting. The Agency is aware of that, and makes sense of its act of helping by the justification that the candidates' management skills are lacking. The candidates on the other hand, explain this act by the belief that the Agency uses the existing competition between the three of them to level up the dialogue products.

The formal contract's management plan, over which agreement is reached at the end, then contained many empty slogans: phrases which are written into the plan, "because the Agency liked us, contractors, to put it like that". On the other hand, the negotiations stage does also influence the informal contract: from the conviction that the management skills of the candidates are inadequate, the Agency develops the routine to check upon the project management more intensively than at forehand intended. Besides, the selected contractor understands that the management plan has no practical intention at all. His norm becomes that the management plan is a means to convince the Agency that the project is controlled rather than a means to actually control the project (Figure 4).

5.3 Actual state of existing tunnel and roads and the Agency's specifications

In the contract for the second Coen Tunnel project it is stated that at the day the contract will be signed, the contractor becomes responsible for the state and

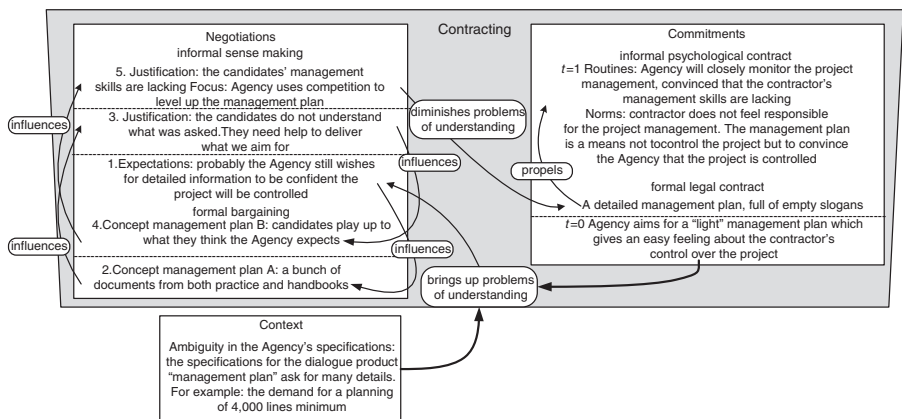


Figure 4.
Contracting process for
critical event 2 (start at
 $t=0$, end at $t=1$)

maintenance of both the existing and the new tunnels and roads (the existing and the new system). Specifications are drawn to make sure that both new and existing system will meet the procurer's aesthetic, functional and safety demands. When the actual state of the systems will not meet these demands, the contractor will be fined.

During the procurement of the project, this rationale is completely clear to the candidates. There is shared understanding about the ideas of being responsible for the state and maintenance of the systems; of being fined when not meeting the demands; and about the demands themselves. To be able to make up the maintenance plan for the existing system, candidates asked several questions like "What is the current state of the existing system?"; "Which maintenance activities have taken place in the last 5 years?"; and "When has the Agency performed the last inspections of the existing system and could you make the results of these inspections available to the candidates?" The Agency starts by stating that all information is available in the data room. The candidates do not agree, and start to ask more detailed questions from which it shows that for several elements, especially in the tunnel, the information lacks the details needed. The Agency is not able to answer these questions. It turns out that the Agency's document management system is poor and the Agency has not enough manpower to dig up all the requested information. The information provided to the candidates is incomplete. The candidates do not understand why the Agency cannot provide this information: they are themselves supposed to have this kind of data available any time, if they would gain the contract. The specifications of their document management system are very clear about that.

Actual problems of understanding rise, when the actual state of the existing system in the upfront practice seems not to meet the Agency's own demands either. When the Agency arranges that each candidate is given the opportunity to inspect the existing system, it turns out that the state of the existing system is below the Agency's specified demands. So neither the Agency's document management system nor the state of the existing system does meet the Agency's own specifications, whilst the future contractor will be penalized when the system will not meet specifications. A bargaining process starts, which helps to focus and to reduce mutual biases. During this process, the candidates go from being upset about the unreasonable demands to making sense of the situation: the Agency has acknowledged that its asset management is unacceptable and that something has to change in the future.

The Agency does also regain understanding of the situation: why would the contractor have to pay for the Agency's poor asset management? At the end both parties agree that a DBFM is needed and that it would not be fair when the lack of maintenance to the existing system would become the contractor's problem. Therefore, both parties agree that the Agency will do its best to hand over the system free of defects. As a result of this informal agreement, the contractor is formally given two times five working days to inspect the state of the existing system when the contract is awarded. Then the contractor could apply for lane closures without being fined, to have the existing system meet the Agency's demands (Figure 5).

6. Discussion

The critical events as described in the previous section reflect how interaction processes during negotiations and commitments in terms of formal and informal contracts have developed in the Coen Tunnel project. These interaction processes and contracts are discussed using the major elements of the negotiations and commitments stages.

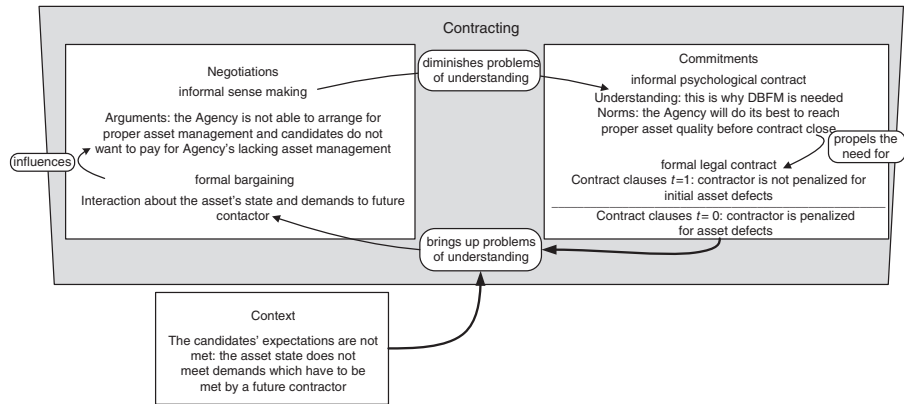


Figure 5.
Contracting process
critical event 3 (start at
 $t=0$, end at $t=1$)

6.1 Negotiations: interaction between formal bargaining and informal sense making

The formal bargaining process helps the participants to reduce complexity and focus each other's attention. The interactions through which the parties bargain help them in sharing and fusing knowledge, assumptions and mental models, and this aids the sense-making process and thus the understanding of each other. Several of such examples are described in the critical events. During the dialogue conversations, direct communication takes place. In so doing, they can confront each other with inconsistencies in reasoning, incomplete assumptions, judgemental errors and biases. However, besides reducing existing biases and judgemental errors, the conversations also give reasons for new biases.

During the project, both the Agency and the contractors are constantly confronted with actions and situations which are, in general, either congruent or contradictory with their ideas about how things should work. In the case of the final contractor, the Agency interprets practically all remarks by the contractor as pretexts for renegotiations. The contractor, on the other hand, repeatedly has reconfirmed the idea that the Agency does not quite understand what comes with constructing a project as large as the Coen Tunnel. These biases largely determine the sense-making processes of both parties.

Critical events show that these negotiation processes start with formal bargaining, move on to informal sense making and then back to formal bargaining and so to informal sense making again. This process will continue until problems of understanding are sufficiently diminished to enable the parties to move to the commitments stage.

6.2 Commitments: informal psychological and formal legal contract

In the informal psychological contract, the level of benevolence of the Agency and the contractor is neutral. Incentive control plays a great role during the contracting stage of the project. Dependence on the future relationship and reputation effects are taken into account when responding to each other.

As a result of the dialogue conversations, the formal incentive control elements of the formal legal contract are changed on some points. The allocation of risks is different for each of the candidates. The best bidder turned out to be the one who had left most risks with the Agency. The output specifications are subject to several

discussions. Although the Agency has indicated that changes to the specifications could be made when the dialogue conversations give good reason so to do, in practice only a few changes are made. This is mainly because the candidates are not experienced in working with functional specifications and, because of this, the Agency fears that it will not receive the product it is aiming for.

The monitoring system has become a major issue during the procurement stage and this carries over into the construction stage (see critical event 2). Being responsible for monitoring its own work is new to the contractor. The fact that the Agency fears ending up monitoring the contractor's work causes it to stick rigidly to its initial ideas about the management plan.

The most common route in moving from the negotiations to the commitments stage is through sense making linked to the informal psychological contract. However, other routes are also observed, such as from formal bargaining to a formal legal contract. In some situations, the pattern ends once the parties enter into contract structures but, in most situations within this stage, a small cycle of sense making is also seen. This could be from an informal psychological contract to reflecting on the informal understandings in more formal legal contractual terms, or from a formal legal contract to informal understandings/routines in the informal psychological contract. This finding, and the previous one, support *P3*: that formal and informal processes and structures are complementary.

6.3 Problems of understanding

The description of the critical events shows that, at a certain moment, in a situation of commitment, problems of understanding arise. These can either stem from the formal legal contract or from the informal psychological contract. The manner in which one of the parties acts upon the formal legal contract might conflict with the informal psychological contract of the other party; or new agreements might be needed due to contextual situations which are not foreseen in the formal legal contract. In such situations, a problem of understanding arises, which will have to be resolved through interaction processes. This finding supports *P1* and *P2*: during all phases of a project, from initiation through to delivery, the parties involved oscillate between interaction processes during negotiations and commitments in terms of formal and informal contracts depending on whether there is understanding or not. Further, the parties may be involved in interaction processes for some aspects, but in contract structures for other aspects of the project. Contract structures and interaction processes do not, however, coexist within a single aspect: the two act as substitutes.

7. Conclusion

In this study the development of a complex project is described in order to find an answer to the question of how interaction processes during negotiations and commitments in terms of formal and informal contracts develop over time in a CD procured construction project. Analysis of three critical events for the Coen Tunnel case has led to the following conclusions.

7.1 The effectiveness of the CD

In both phases of procurement, the most common route for diminishing problems of understanding is by reaching commitment through sense making. The fact that parties meet in person enables them to hold formal bargaining conversations which directly help the sense-making process. Formal bargaining through writing, which happens in

the more traditional procurement procedures, results in sense making being based on indirect interpretations of what the other party is bringing to the bargaining process.

Alongside the virtues of having a dialogue within the CD procedure, there is an element which delivers an opposite effect. Problems of understanding also arise due to risk aversion actions by at least one of the parties involved. Whether it is due to the fear of not gaining the contract (due to competition), of a failed tender (due to transparency demands and maintaining a level playing field) or of becoming involved in new negotiations (due to uncertainty/complexity), risk aversion largely determines the actions of the parties. Elements in the CD procedure that encourage risk aversion activities might lead to the dialogue developing less promisingly than hoped for.

7.2 Scientific contribution

The first scientific contribution is related to the academic debate concerning the question whether formal and informal control are substitutes or complements to one another. This framework combines the substitutes perspective (more formal legal contracts mean less informal psychological contracts, and vice versa) with the complementary perspective (formal legal contracts and informal psychological contracts coexist alongside each other). It shows that competing views can be brought into line by focusing onto the problems these parties experience in understanding each other and onto the contract which relates them to one another. In other words, the framework shows how interaction processes during negotiations and commitments in terms of formal and informal contracts dynamically interact as problems of understanding are identified and resolved. Future research should focus on these problems of understanding when studying procurement.

The second scientific contribution is providing insights into how the used procurement procedure (which is setting the rules and conditions for negotiations) influences the early stages of interorganizational projects, thus determining to a large extent how self-enforcing cycles start to develop. It can be concluded that the existence or absence of dialogues between the principal and the contractors during procurement determines whether the formal legal contract and the informal psychological contract develop simultaneously or not. Shared understanding of the contract, combined with expectations about the extent to which this understanding is mutual, determines to a large extent the amount and gravity of problems of understanding during the construction stage of the project, and also how these problems of understanding are handled by the parties involved. These results are confirmed by recent case studies on CD-procured road maintenance projects (see Hoezen *et al.*, 2011).

7.3 Practical contribution

There are two ways in which this research contributes to practice. First, the influence of critical events has been mapped, thus giving insight into their effects on the development of the interorganizational relationship between the parties involved. This study shows how interaction processes during negotiations develop in either positive or negative cycles, and that these are hard to break. If managers of both the procuring authorities and the contractors are aware of these cycles and of the processes which play a role, they might be able to influence and use them to their mutual benefit. This latter contribution helps to create more cooperative working relationships and a reduction in failure costs in large complex projects.

Second, given the lack of a structured, thorough evaluation of the CD procedure, this study adds to the practical knowledge on the effectiveness of the CD procedure in

terms of the goals set by the EC. The data show that the CD procedure is still less effective than anticipated by the EC. The large transaction costs, the lack of clarity about when the procedure may be used, the risk aversion and opportunistic behaviour of the parties involved, combined with their lack of openness resulted in less dialogue than intended and less trust. The results of a survey amongst practitioners working in 16 CD procured construction projects confirm these results (Hoezen *et al.*, forthcoming).

7.4 Improving the use of the CD in practice

In terms of improving the use of the CD procedure in practice, three suggestions can be made. First, both parties at the dialogue table could start by looking at the opportunities and possibilities and lower their tendencies to avoid risk. One could start with more-functional specifications instead of prescribing every little detail, or by having “real” conversations instead of steering the dialogue on the basis of predetermined questions.

Second, opportunistic behaviour could be punished, and openness rewarded. Past performance could be taken into account in the selection process, or cooperation made a selection criteria. These two measures are likely to lead to more dialogue, decrease opportunistic behaviour, enhance mutual trust and improve innovation.

Third, one could look for options to limit the dialogue to the complexity which was defined in advance. That is, if the project was defined as financially complex, one should not also discuss all the legal and technical aspects, unless these have a connection with the financial complexity. In so doing, one could decrease the transaction costs and thus open up the dialogue process to smaller contractors, creating stronger competition and enhancing innovation since candidates would be able to focus on what is to them the most interesting part of the project and thus focus in the conversations on the more important aspects.

Furthermore, it is likely that as time goes by, the parties to CDs become familiar with the procedure, and gain confidence in how to act and what to expect from the other partner. This confidence is likely to induce more openness in the conversations, provided that experiences will be positive.

References

- Ahadzi, M. and Bowles, G. (2004), “Public–private partnerships and contract negotiations: an empirical study”, *Construction Management and Economics*, Vol. 22 No. 9, pp. 967-78.
- Alderman, N., Ivory, C., McLoughlin, I. and Vaughan, R. (2005), “Sense-making as a process within complex service led projects”, *International Journal of Project Management*, Vol. 23 No. 5, pp. 380-5.
- Baccarini, D. (1996), “The concept of project complexity – a review”, *International Journal of Project Management*, Vol. 14 No. 4, pp. 201-4.
- Balogun, J. and Johnson, G. (2005), “From intended strategies to unintended outcomes: the impact of change recipient sensemaking”, *Organization Studies*, Vol. 26 No. 11, pp. 1573-601.
- Blanken, A. (2008), *Flexibility Against Efficiency? An International Study on Value for Money in Hospital Concessions*, University of Twente, Enschede.
- Blomqvist, K., Hurmellina, P. and Seppänen, R. (2005), “Playing the collaboration game right: balancing trust and contracting”, *Technovation*, Vol. 25 No. 5, pp. 497-504.
- Brown, A.D. (2000), “Making sense of inquiry sensemaking”, *Journal of Management Studies*, Vol. 37 No. 1, pp. 45-75.
- Bruner, J. (1991), *Acts of Meaning*, Harvard University Press, Cambridge, MA.

- Cheung, S.O., Yiu, K.T.W. and Suen, H. (2004), "Construction negotiation online", *Journal of Construction Engineering and Management*, Vol. 130 No. 6, pp. 844-52.
- Chi, C.S.F. and Javernick-Will, A.N. (2011), "Institutional effects on project arrangement: high-speed rail projects in China and Taiwan", *Construction Management and Economics*, Vol. 29 No. 6, pp. 595-611.
- Department of Economic Affairs (2011), *National Public Private Partnership Policy, Government of India*, Department of Economic Affairs, New Delhi.
- Egan, J. (1998), *Rethinking Construction*, DETR and HMSO, London.
- Eisenhardt, K.M. (1985), "Control: organizational and economic approaches", *Management Science*, Vol. 31 No. 2, pp. 134-49.
- Hebly, J.M. and Lorenzo van Rooij, N. (2006), *European Public Procurement: Legislative History of the "Classic" Directive 2004/18/EC*, Kluwer Law International, Alphen aan den Rijn.
- Heijboer, G. and Telgen, J. (2002), "Choosing the open or the restricted procedure: a big deal or a big deal?", *Journal of Public Procurement*, Vol. 2 No. 2, pp. 187-216.
- Hoezen, M., Voordijk, H. and Dewulf, G. (2011), "Formal and informal contracting processes in the competitive dialogue procedure: a multiple-case study", *Engineering Project and Organization Journal*, pp. 1-14, iFirst.
- Hoezen, M., Voordijk, H. and Dewulf, G. (forthcoming), "Procuring complex projects using the competitive dialogue", *International Journal of Project Organization and Management*.
- Hoezen, M., Rutten van, J., Voordijk, H. and Dewulf, G. (2010), "Towards better customized service-led contracts through the competitive dialogue procedure", *Construction Management and Economics*, Vol. 28 No. 11, pp. 1177-86.
- Isabella, L.A. (1990), "Evolving interpretations as a change unfolds: how managers construe key organizational events", *Academy of Management Journal*, Vol. 33 No. 1, pp. 7-41.
- Kadefors, A. and Laan, A. (2010), "Trust production in construction: a multilevel approach", in Atkin, B. and Borgbrant, J. (Eds), *Performance Improvement in Construction Management*, Spon, London, pp. 128-37.
- Kale, S. and Arditi, D. (2001), "General contractors' relationships with subcontractors: a strategic asset", *Construction Management and Economics*, Vol. 19 No. 5, pp. 541-9.
- Katz, D. and Kahn, R.L. (1978), *The Social Psychology of Organization*, John Wiley, New York, NY.
- Laufer, A., Denker, G.R. and Shanhar, A.J. (1996), "Simultaneous management: the key to excellence in capital projects", *International Journal of Project Management*, Vol. 14 No. 4, pp. 189-99.
- Maitlis, S. (2005), "The social processes of organizational sensemaking", *Academy of Management Journal*, Vol. 48 No. 1, pp. 21-49.
- National Audit Office (2007), *Improving the PFI Process*, National Audit Office, London.
- Nellore, R. (2001), "Validating specifications: contract-based approach", *IEEE Transactions on Engineering Management*, Vol. 48 No. 4, pp. 491-504.
- Poole, M.S., Van de Ven, A.H., Dooley, K. and Holmes, M. (2000), *Organizational Change and Innovation Processes: Theory and Methods for Research*, Oxford University Press, New York.
- Putnam, L.L. (2003), "Dialectical tensions and rhetorical tropes in negotiations", *Organization Studies*, Vol. 25 No. 1, pp. 35-53.
- Ring, P.S. and Van de Ven, A.H. (1994), "Developmental processes of cooperative interorganizational relationships", *Academy of Management Review*, Vol. 19 No. 1, pp. 90-118.
- Stake, R.E. (1995), *The Art of Case Study Research*, Sage, Thousand Oaks, CA.
- Sutcliffe, K.M. and Huber, G.P. (1998), "Firm and industry as determinants of executive perceptions of the environment", *Strategic Management Journal*, Vol. 19 No. 8, pp. 793-807.

-
- Swanson, R.A. and Holton, E.F. (2005), *Research in Organizations: Foundations and Methods of Inquiry*, Berrett-Koehler Publishers, San Francisco, CA.
- Vlaar, P.W.L., Van den Bosch, F.A.J. and Volberda, H.W. (2006), "Coping with problems of understanding in interorganizational relationships: using formalization as a means to make sense", *Organization Studies*, Vol. 27 No. 11, pp. 1617-38.
- Weick, K.E. (1993), "The collapse of sensemaking in organizations: the Mann Gulch disaster", *Administrative Science Quarterly*, Vol. 38 No. 4, pp. 628-52.
- Weick, K.E. (2001), *Making Sense of the Organization*, Blackwell, Oxford.
- Weick, K.E. and Roberts, K.H. (1993), "Collective mind in organizations: heedful interrelating on flight decks", *Administrative Science Quarterly*, Vol. 38 No. 3, pp. 357-81.
- Yin, R.K. (2009), *Case Study Research Design and Methods*, 4th ed., Sage, Thousand Oaks, CA.

Further reading

- Ring, P.S. and Van de Ven, A.H. (2000), "Formal and informal dimensions of transactions", in Van de Ven, A.H. (Ed.), *Research on the Management of Innovation: The Minnesota Studies*, Oxford University Press, New York, NY, pp. 171-92.

Appendix. Case study protocol

1. Introduction

- Period of time involved in the project.
- Position during procurement and execution.
- Experience with projects of this size and contract form.
- First opinion about procurement by the CD procedure.

2. The dialogue

See Table AI.

- How do you look back at the dialogue?
- How do you think that the participants look back at the dialogue?
- To what extent do you think that the fact this contract was drawn by the CD procedure contributed to a balanced allocation of risks and interests (both in positive and negative sense)?
- How do you think the winning construction firm perceives the contract?
- Does it matter for the contract with the winning construction firm that the project was procured by the CD procedure?

3. Relationship development

- How would you describe the team spirit in your own project organisation? Which are the differences between the procurement and now?
- Do you feel that the winning construction firm committed itself to the project, both the people and the organisation?
- How would you describe the attitudes of both organisations? Which are the differences between the procurement and now?
- How is the contact between both organisations (formally/informally)? Which are the differences between the procurement and now?

Table AI.

Important documents/general or confidential question	Important events
<p>Describe the document/the question: what kind of document/question was it, and what was its purpose? <i>Process: tactics</i></p> <p>Where was the focus in this document/question? How were your interests reflected in this document/question? Do you think that enough attention was paid to your interests? Why? <i>Substance</i></p> <p>What were the considerations before the document/question was sent in this form to the other party/parties? (demands and judgment) How did the other party/parties think of that? What makes you think that? What were consequences of this document/this clarification for the development of the procurement?</p>	<p>Describe the event: what happened, and why?</p> <p><i>Beliefs & Actions (matching or not)</i></p> <p>What did you think of the event? How do you think the other party/parties have experienced this event? Why do you think so?</p> <p><i>Expecting & Arguing, Commitment & Manipulation</i></p> <p>Which considerations determined how you acted in this event? How did this event affect the relationship between you and the other party/parties? How did the development of this event determine your attitude in the build-up to the bid?</p>

- Were there changes in personnel in either of the organisations? How were such changes affecting the project?
- What is the project planning for coming year?
- Which are potential bottlenecks and how do you expect both organisations to cope with that?

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