



Delft University of Technology

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Volker, Leentje; Hoezen, M.

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## 8 Client learning across major infrastructure projects

Leentje Volker and Mieke Hoezen

### Introduction

As initiators of projects and as significant contracting agencies, clients are important actors in the construction industry (Atkin et al., 1995). By engaging directly in the planning and construction of new projects, they not only shape the product, but also the construction process (Hartmann et al., 2008). Recent research indicates that formal aspects of the legal contract, informal aspects of the relation between contracting parties and the involvement of stakeholders are of great influence to the governance of projects (Eriksson and Westerberg, 2011; Lizarralde et al., 2013).

The construction industry is showing a tendency for clients to involve their contractors in projects earlier. The contracts to govern construction projects are also signed earlier in the process, when client ideas are not yet fully developed and when the risk of unforeseeable contingencies are considerable. This makes both clients and contractors feel the need to have conversations before a contract is signed (Dorée, 2001). Thus, they are able to come to a better understanding on project details, the allocation of risks and the terms for cooperation. These aspects, which are of great influence to project success (Tabish and Jha, 2011), are discussed and negotiated during the procurement stage of projects.

In previous research, we demonstrated how formal and informal commitment simultaneously develop and grow during the procurement stage of projects (Hoezen, 2012; Hoezen and Volker, 2015; Volker, 2012). In this chapter, we explore how procuring agencies can learn from their own projects by studying the decision-making process in previous projects. This contributes to the W118 research and development agenda (Haugbølle and Boyd, 2013) by deepening the understanding of mechanisms behind the regulation of supply with the construction industry. The work focuses on elements influencing project success and reasons why certain client behaviour in procurement situations may be more effective than others. It, therefore, contributes to the understanding of governance mechanisms of client organisations. We describe how the learning experience of the

Dutch Highway Agency led to adaptation of project governance structures in three consecutive infrastructure projects.

## **Theoretical background**

### *Project governance*

Project governance concerns how a project is formally designed and controlled. Literature on project governance appears to focus on two different areas: governing projects in organisations (see e.g. Hobday, 2000; Ruuska et al., 2011; Thiry and Deguire, 2007), and governance of inter-organisational projects (e.g. Bosch-Sijtsema and Postma, 2010; Caldwell et al., 2009). In this research we focus on learning processes that relate to the governance of projects in organisations. Inspired by the structure–conduct–performance paradigm for strategic management (Mason, 1939; McWilliams and Smart, 1993), we identify structure, people and information as the three main pillars of project governance.

### *Commitment*

Ring and van de Ven (1994) indicate that how projects are governed is established and codified in a formal legal contract, and informally understood in a psychological contract between the parties. They conclude that the commitment stage of projects – during which those contracts are formed – is of major importance to the development of projects. Hellström et al. (2013: 712) explain this by their finding that ‘strong relationships and commitment open up opportunities for creating alternative paths during project appraisal, increase the array of available governance mechanisms, and hence lay the foundations for the final governance structure of the project execution phase’. This is further stressed by Eriksson and Westerberg (2011), who argue that projects managed within cooperative relationships are more successful than other projects. It is therefore essential for the learning capacity of an organisation to identify the lessons learned during the development of commitment and project governance under the influence of procurement processes.

The commitment of the client organisation and its contractor to the project forms the basis for cooperation between them (Ring and van de Ven, 1994). Legally, commitment often refers to the state of being bound to a course of action or to another party. It stems from both natural motivators as feelings of empathy or shared values, and from artificial motivators such as contract clauses and reward mechanisms. Commitment to the project by both the public client and the contractor is reflected in agreements and the signing of a contract (Kamminga, 2008). Commitment has a formal and an informal side. The informal part consists of an implicit set of expectations between the client and the contractor. It is a highly flexible, continually changing and undefined set of terms that is called the informal psychological contract (Hoezen, 2012). The formal establishment and codification of commitment between client and contractor is formed by the formal legal contract. Both formal and informal agreements are part of the implicit and explicit knowledge base within a client organisation that is used to design the governance structure of new projects. These are accomplished through decision-making and sense-making processes during the procurement stage of a project.

### *Procurement processes*

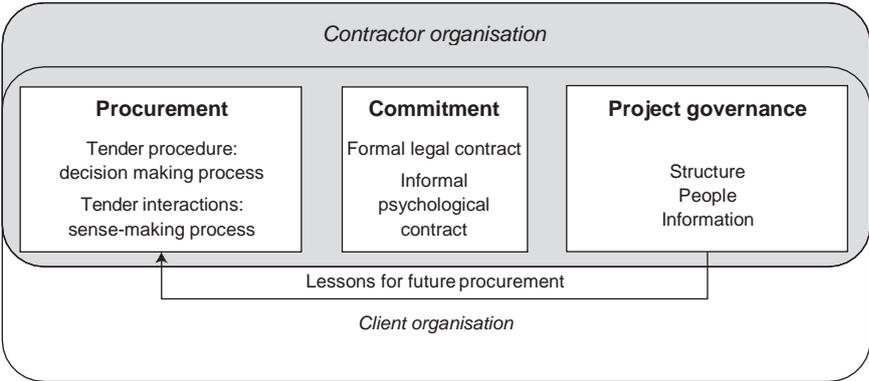
Procurement processes can be considered as decision-making processes in a particular legal setting (Volker, 2012). Procurement decisions are intentions for action that include an element of choice

(Hodgkinson and Starbuck, 2008): for example, in tendering, a winner is chosen from all candidates that submitted proposals for a building project. Also, making prior announcements of decision criteria and decision methods could help to instantiate the basic EU principles of transparency, objectivity and equal treatment, and inform participating companies what to expect (Arrowsmith, 2005; Rowlinson and McDermott, 2005). However, procurement decisions also have to be considered as high-stake decisions due to their political sensitivity, the large sums of public money involved and the high impact of the built environment on the citizens' wellbeing (Cairns, 2008).

Procurement processes can also be considered as sense-making processes. In these, clients and contractors construct and reconstruct meaning through interactions with each other during the procurement stage, thus providing their understanding of the world and how to act collectively (Balogun et al., 2008; Weick, 1995). People produce or reactivate accounts to deal with uncertainty and ambiguity, especially in dynamic and turbulent situations, and these are included in the mental models of individuals in order to make decisions (Basu and Palazzo, 2008; Maitlis and Sonenshein, 2010). Procurement decisions can thus be characterised as an interactive search, in which the representatives of a client body aim to find a contractor who can deliver the project that is desired. Essential to this process is the interaction between the decision makers and the stakeholders in order to make sense of the options (Kreiner, 2006) and to come to a mutual commitment. These processes therefore strongly contribute to learning processes in organisations.

*Analytical framework*

Procuring agencies could learn from (un)successful projects by studying the governance of these projects and by identifying the decisions in the procurement stage of the projects that were key to the governance of the projects. Since many researchers in project management literature display the difficulties of inter- project learning, we focus in this chapter on how procuring agencies can learn from sequential projects. We address the interrelationship of procurement processes and project governance, based on the assumption that commitment is created in a procurement situation and embedded in project governance structures within a client organisation. The empirical work is limited to public infrastructure projects for which procurement regulations apply.



*Figure 8.1 Client learning from project procurement and project governance through commitment*

Our line of reasoning is built on the assumption that a procurement process (tender procedure and interactions) leads to a formal legal contract and an informal psychological contract between client and contractor. These commitments influence the manner in which the project will be governed. It is important to note that cooperative relationships are thus not only determined by the legal

obligations, but also by the informal psychological agreements as understood at the signing of the contract and thus at the beginning of the project. Figure 8.1 shows how we identify the procurement process as a major determinant for the commitment of the parties involved influencing the governance of a project. Organisational learning occurs by experiencing the successful or unsuccessful elements of existing governance mechanisms, which (ideally) then are incorporated in new tenders. Besides individual learning of project managers and tender consultants, who take on lessons learned in one project to their next project and adapt accordingly, institutions can learn by adjusting their policies and instruments. When the client–contractor relationship in one project is perceived to prevent a project from becoming a success, the client organisation will ideally think of manners for the governance of next projects to improve the project performance.

## **Research approach**

### *Data collection and analysis*

Based on the case of the Dutch Highways Agency, we describe how procuring agencies can take lessons from early projects on to future projects. Three complex infrastructure projects show how formal and informal aspects of commitment between project partners were established during the procurement phase, and how these influenced the client–contractor relationship within the three aspects of project governance: information, structure and people. The comparison of the cases indicates how the Dutch Highways Agency used the lessons of the projects when designing a new project.

Three major infrastructure projects (a tunnel and two highway routes) were used as rich empirical case studies involving particular but typical social situations developed from a variety of data sources (Easton, 2010). All three projects were initiated by the Dutch Highways Agency (in Dutch: Rijkswaterstaat) and can be considered as embedded cases (Yin, 2009). In each project the formal procurement requirements were similar. Nevertheless, formal and informal contractual processes differed. The cases were followed in time, enabling the client organisation to incorporate lessons learned in the procurement situation.

Most of the data was collected by interviews. In each project, the project leader and tender manager of the client and of the main contractor were interviewed. They all were involved in the procurement and the first stages of the case projects. On each project, two to four people from each party were interviewed, ranging from 60 to 90 minutes duration and based on semi-structured questioning. The semi-structured interviews involved general questions about the project characteristics, the legal contract details, the informal relational elements and the psychological development of the relationship. Interview data was captured by note-taking and digital recording that were transcribed verbatim in order to develop a comprehensive database of all three projects.

The data were initially analysed as separate case studies and then systematically compared across cases on constructs that emerged through the process as described by Yin (2009). Throughout data analysis and reporting the authors were frequently going back and forth between the interpretation and the original data. This process can be characterised as ex ante use of theory in qualitative research (Andersen and Kragh, 2010). The general aim of this approach is ‘not to build consensus among diverging theoretical perspectives but rather to use their divergences as vantage points for creating new insights’ (Andersen and Kragh, 2010: 53). Therefore, we analysed the data to indicate

which elements of commitment were key to the development of project governance structures based on the analytical framework as developed from theory (Figure 8.1). We first describe the character of the case and then discuss the findings according to our theoretical perspective on the learning curve between procurement, commitment, client–contractor relationship and project governance.

#### *The case of the Dutch Highways Agency*

As the executive organisation of the Ministry of Infrastructure and Environment, the Dutch Highways Agency maintains and develops national roads, waterways and open waters, and supports a sustainable environment. The organisation originated in 1798, when it was founded to take control of public works and water management. Nowadays, the organisation has around 8,800 employees, with an annual budget of EUR 5 billion. It manages 90,310 km<sup>2</sup> of surface water; 236 kilometres of dikes, dunes and dams; 5 storm surge barriers; 6,976 kilometres of canals, rivers and waterways on the open water; 3,076 kilometres of main highways, including traffic signalling systems; 2,843 viaducts; 24 tunnels; and 767 moveable and fixed bridges. The projects described in this case are construction projects meant to create additional highway capacity. The Dutch Highways Agency used several design–build–finance–maintenance contracts (DBFM) to govern these construction projects. In this kind of contract, the contractor is required to maintain the existing roads and tunnels, to design and build the additional capacity, and to find financial means to cover the costs. The Dutch Highways Agency pays a monthly fee for the availability of road capacity. After the building phase, when the road capacity is enlarged, a one-off payment is made that covers the construction costs. For the rest of the contract duration, the agency pays a monthly fee for the availability of road capacity and the contractor takes care of maintenance. All three projects included in this study were based on DBFM contracts.

The first project here is the Coen Tunnel project. The Coen Tunnel project consists of widening approximately 14 kilometres of highways at the north and south entrances to the existing 40-year-old Coen Tunnel, expanding the tunnel's capacity from two lanes to three in each direction plus two further reversible lanes, enabling five lanes of traffic in one direction during peak hours. The duration of the contract has been set at 30 years, from 2008 to 2036, with a contract value of EUR 600 million. The construction stage for the new tunnel started in 2009 and finished in 2014.

The second project is the extension of Highway A15, which connects Rotterdam Harbour to the European hinterland and is therefore an important traffic corridor in the Netherlands. Since a significant increase of traffic is expected due to the expansion of the harbour, the project consists of capacity extension of 37 kilometres of highway between de Maasvlakte and the Vaanplein crossing. The contract was tendered through a competitive dialogue just before the contract of the third case (Highway A12) was closed in December 2010. Total budget is around EUR 1,500 million, which makes it one of the biggest contracts ever awarded by the Dutch Highways Agency.

The third project is Highway A12. The Highway A12 project concerns part of the main traffic corridors of the Netherlands from the main ports (Schiphol Airport and Rotterdam Harbour) to the eastern part of the country, connecting Germany and other European countries. The project consists of reconstruction and capacity extension of the route Utrecht–Lunetten–Veenendaal in the middle of the corridor, 30 kilometres of highway in total. Part of the project belongs to measures taken by the Dutch government to boost the economy following the 2009 economic crisis. In the project the

maintenance for the next 20 years will be executed by the same contracting consortium. The contract value is EUR 263 million.

## **Results**

### *Procurement process*

In formal terms, the procurement stage was identical in all three projects. The tender procedure was designed as follows: in three rounds of a competitive dialogue, parties were brought back from N candidates to three final bidders, of which one bidder was awarded the contract. Downsizing from N to 3 was based on dialogue products, handed in by the candidates and assessed by the procuring agency. These products included several aspects of the projects, such as schemes of action, risks inventories and management plans. The characteristics of the projects mainly differed due to the differences in project size, the time period and the project teams involved since the core elements of the procedure appeared to be satisfactory. The duration of the dialogue varied between 18 and 35 months, which induced high transaction costs for both the client and the participants.

In all projects the dialogue was aimed at project control, which reflected in the award criteria, starting with risks to be transferred from the agency to the future contractor. This resulted in many discussions on the budget conditions and limitations. In all projects, the award criteria turned out to be distinctive: parties came with varying views and solutions, both to the risk transfers and to the added award criteria. These views and solutions were based on the dialogues that happened to focus on the award criteria. In Project 1 dialogues focused on the case-specific risks; in Project 2 on technical solutions; and in Project 3 dialogues were focused on time gains. Time was not one of the award criteria. Yet, since the payment for availability of the road related to this issue, the candidates considered the bonus for time gains to be so high that their focus was on that aspect.

The tender interactions differed significantly, though. In Project 1, the award criteria raised questions of inconsistency and subjectivity, whereas participants in Project 2 and Project 3 were much more positive. This also had to do with the quality of the dialogues undertaken between the client and the future contractors. During the dialogues, contractors sought the agency's reasons for specific award criteria, came with possible solutions and asked for responses. It varied from project to project whether this worked or not. In Project 1 the agency's team were anxious not to make legal mistakes, so a lawyer attended all meetings and dialogues. In case of doubt, they would rather give no answer than risk misinforming the candidates. The agency's team took the rational approach to the tender process. They were careful not to develop a preference for one of the candidates and to be as objective as possible. Retrospective interviews indicated that the dialogue was characterised by participants as distant, formal and technocratic, which did not help them to come to an understanding of the agency's actual goals and preferences for any solution beforehand. It also contributed little to making sense of the project. This was reflected in the formal questions asked: 23 per cent of the questions regarded the procedure itself. In Projects 2 and 3, this number of questions on the procedure decreased to 12 per cent and 8 per cent respectively.

Candidates were much more positive about the dialogues in Projects 2 and 3. In Project 2, there was more attention on soft aspects of cooperation, reflected in the award criterion 'cooperation and distribution of roles'. Furthermore in Projects 2 and 3, the agency was already more experienced with the competitive dialogue, and better aware of the legal consequences of its actions. The teams

that were involved in the dialogue felt more confident with regard to the restrictions of objectivity and equal treatment. They were therefore able to operate in a less formal and distant manner than the team in Project 1. The candidates in Projects 2 and 3 reported in the retrospective interviews that the dialogue fundamentally contributed to their ability to make sense of the project and to determine the aspects that mattered most to the agency.

### *Commitment*

Regarding the formal legal contract, we found that the incentives in all three projects were to deliver the construction works as soon as possible: the contractor would receive payment on the date that the new constructions would open. Furthermore, the roads needed to be accessible at all times. Contractors received payment for accessibility; fines for non-accessibility were set within the contract. However, experiences now show that this kind of incentive mechanism has limitations. Early delivery before the estimated date could, for example, seriously change the project structure, which would increase the risks of other elements in the project due to interdependencies in the construction process, such as between permits and groundwork. Since the limits of acceleration were mainly negotiated out during the procurement process, the latitude for additional activities appeared to be narrow.

Following on from Project 1, it was decided that Project 2 would have one additional bullet payment moment due to the change in economic conditions. This fitted the scale and character of the project and increased the options of the consortia financing the project. In Project 3 the incentive schemes that related to the delivery dates were used by the consortium to innovate the engineering and construction process of overpasses. The additional costs for the development of this new construction method balanced the additional revenues, but reduced the risks of late delivery.

The contract clauses used in Project 1 were less mature than the clauses in Projects 2 and 3, which showed the learning curve of the awarding authority. In terms of opportunity control, project 1 constrained the opportunities for contractor's strategic behaviour the least, while project 3 controlled the opportunities the most. This was mostly due to the output specifications of the contracts. The specifications in Project 1 were not complete because of concern with the technical demands. Further, the process specifications were non-specific and open to interpretation. The contract for Project 2 was more SMART (meaning specific, measurable, achievable, relevant and timed) on the technical specifications, and it contained added system demands. The process specifications became even more SMART with each project where they were applied. Especially, the specifications for Project 3 were extended with lean and mean system demands and specific requirements for a dynamic traffic management system. Yet, searching for a concrete performance measurement system remains a challenge, especially in the realisation of the agreements. With regard to the monitoring system, the three contracts are comparable. All contracts made use of a monitoring system based on the project management system (PMS) of the contractor. As part of a risk assessment, the client checked the contractor's system, its processes, or specific products.

In contractual terms several standards were agreed. However, our results indicate that building relationships are of critical importance because the formal agreed arrangements and systems do not completely fit reality. This confirms the presence of sense-making processes, which change the mental models of the actors involved in the projects. In Project 3, both parties were flexible in finding a solution for the problems that arose during the project, while in Projects 1 and 2 these discussions

led to considerable differences of opinion. The tone of such discussions appears to have been set during the procurement phase and stemmed from problems of understanding and information asymmetry. For the exchange of information, the agency relied on several management systems. In all projects, these systems provided the information that was input for communication about the project progress. In general, this worked fine for them. However, Project 2 showed that, when there is lack of understanding about what both parties can expect from the management system, it is not only a source of information, but also a possible cause for disputes.

Regarding the informal psychological contract, the procurement stage of the three projects differed significantly, leading to various levels of benevolence at the start of the projects. Whereas the contractors of Projects 2 and 3 shared mutual understandings with the client, this was not the case in Project 1. Here, contractual renegotiations, disputes and legal processes occurred even before the contract was signed resulting in a lack of benevolence. By the time the contract was signed, it was clear to both parties that their ideas of the project content and norms concerning their relationship differed. This resulted in a complete lack of empathy and affection between the parties. The complete opposite appeared in Project 3. Here, both parties invested in growing mutual understandings during the procurement stage, resulting in shared norms and values, and creating a basis for empathy between client and contractor, which supported the constructive relationship during execution of the contract. In Project 2, the level of shared understandings at the time the contract was signed was average. Norms and values were comparable, and there was a kind of distant empathy between the contractor and its client. However, recent experiences have shown that problems of understanding occurred around the contractor's quality measurement system (and, with that, conflicts about payment), thus putting pressure on the relationship. After almost a year of conflicts, both the contractor and the agency replaced some of their key personnel. After this, the agency worked alongside the contractor in a cooperative yet strict manner (government payments need to be accounted for very carefully), so that the project could be managed more easily with distant cooperation.

Although all three projects were contracted to a one-off consortium involving more than one company, the non-material incentives to utilise opportunities for opportunism differed between the parties. Project 3 was contracted to a consortium that consisted of cooperating subsidiaries of one large Dutch construction firm, and thus was always associated with the parent company. The on-going relationship and reputation were much more important to this contractor than to contractors in the other two projects, where the contractors were consortia existing of several cooperating firms. Nevertheless, the companies involved in the consortium of Project 2 regularly worked together, and the companies in Project 1 were also active in other infrastructure projects, either singlehandedly or in consortia.

All three consortia felt that their project performance would affect the attitude of the client towards the cooperating companies in future large projects. The contractor in Project 3 thought it would suffer from a bad reputation in both large and small future projects, involving both the parent company and its subsidiaries. We learned, however, that the importance of reputation management should not be overestimated. Despite the fact that a need exists to take the shadow of the future and the shadow of the past into account when selecting contracting parties, this has not been officially implemented yet in the Netherlands. The main reasons for this are the limited room for discrimination in current European procurement regulations and the complexity of measuring

performances and comparing results among projects (Petit, 2010). Preliminary experiences in other Dutch client organisations do show that the differences between contractors are generally minimal, so the discriminating value of such instruments appears to be limited.

Furthermore, we found that routines (informal understandings about the working manners in the specific projects) differed between the client–contractor teams in all three projects. In Project 3 the contractor invested in the internal routines, which in turn led to the quick development of routines in the relationship with the client. These routines were little developed in Project 2, and even less in Project 1. The results indicate that this was caused by little previous co-working experience between the members of the consortium. Neither the contracting firms nor the client had invested in developing routines. Even though in Project 2 specific attention was given to cooperation and role distribution, the difference in interests turned out to be major, overshadowing the cooperative intentions of the parties involved. We believe that the more that formal incentive control mechanisms are internalised, the less there is a need to make use of them during conflicts and in the final settlements.

### *Project governance*

Regarding the structure of the projects, all three projects involved a DBFM contract, which requires the engineering, construction and maintenance for a considerable amount of time. In each project the client and the consortium assigned a project leader and a contract manager, who communicated about the issues arising during the project. The client was not concerned with the project structure as long as the consortium delivered according to plan. In Project 3, the financial institution required the consortium to govern the project as one integrated engineering and maintenance organisation during construction. During maintenance, the engineering project company would be taken out of the consortium. They could fulfil this need relatively easily since most partners belonged to the same corporation. This was not the case in Projects 1 and 2. These consortia were built from different companies with different backgrounds and organisational cultures. This appears to have caused more friction within the consortia and seemingly also more conflicting relations between the client and the consortium.

The strict financial plan of a DBFM contract compels the consortium to think about maintenance at an early stage of the project. In all projects, deviations in functionalities were usually discussed with the client first and then financially calculated in a business case for the bank. According to the project leader of Project 3 this even ‘makes it fun to think about maintenance’, which shows a shift in the perception of the underlying importance of new construction works in relation to the integrity of existing works. Yet, in general, the structure of these projects did not show very much integration of building phases. So, despite the theoretical added value of integrated contract and continuous discussions on costs from a life cycle perspective during the procurement phase, results indicate that only during the execution of the project does awareness arise about the value of integration.

Results indicate that people make a large difference in project governance. In Project 1, both client and contractor teams had negative attitudes to each other based on a conflict that occurred in the time between the final bid and the contract award (for a detailed description, see Hoezen, 2012). The cooperation started somewhat hostilely, and it took a while before the air cleared. It helped that the agency’s project team was changed during the project. The main reason for this change was that the knowledge of the first members of the client’s project team was only needed for the initialisation of

new DBFM projects. This concerned not only projects prepared by the agency itself. First, a large number of people were hired as consultants and so they started searching for new projects after the contract was awarded. Second, on the contractor's side, the project members' experience was needed in other projects. Besides, the actual start of the work asked for different specialisations in each stage of the project. The contractor in Project 1 organised the work in a rather traditional manner, operating as one main contractor, and dividing the work into work packages for several sub-contractors. It took them some time to find a modus operandi in their relationship with the stakeholders, which was a cause for changes in the general project team as well.

Despite the innovative procurement and contracting relations, Project 2 can also be considered as a rather traditional project organisation. The project leaders and contract managers from both sides regularly communicated about evolving issues, keeping in mind which issues were the responsibility of whom. The problems that arose in the construction phase indicate a delicate relation between both parties involved in the contract. Based on the current data it is hard to elaborate on the actual reasons for this, but we assume that communication during the procurement stage did not focus on how the contractor and the client understood their formal agreement. Furthermore, the attitude of the project leaders appears to be an important factor. Although cooperation and distribution of roles were award criteria during the tender, the consortium that was awarded the contract for Project 2 merely won the tender due to their low bid.

In the construction stage of Project 3 both sides of the project team (client and constructor) started with getting to know each other 'to make them trust you'. Consequently an open, constructive and cooperative environment was built. A statement by the project leader of the consortium – 'I don't have secrets, they are allowed to see everything' – shows the level of trust and openness of the project leader. It is also in line with the course that the Dutch Highways Agency has set for the future in collaborating with suppliers. Results indicate that the key players in this project were selected based on their cooperative attitude. According to the project leaders from both the contractor and the client this trust-based attitude in combination with 'I enjoy this profession' also reflects upon the rest of the project members, monthly some 3–500 people, leading towards a unique cooperative project climate that has been awarded several awards lately.

In all projects information was transferred via specific management systems that were agreed upon during the tender. Since all three projects involved replacement or maintenance on existing assets as well as construction of new infrastructure, considerable risks needed to be taken by the consortia. The data indicate that openness about these risks requires a trustful environment. Given the high level of legal awareness in Project 1, the agency assessed each request for information during the tender on the possibility that a party could use the information as an option for claims during the realisation stage of the project. Due to this, the risk provisions were high and the solutions less optimal than possible. In Project 2 it was found that, when contractor and client shared information on payment risks, the solution to the conflict over the quality management system became closer. This shows that, although in case of (possible) conflicts it seems strategically right not to share information, the solution to problems of understanding does lie in sharing. In Project 3 this worked out very well: the investment in creating shared understanding by sharing information led to cooperation between the agency and the contractor. Both parties relied on the management systems to their mutual satisfaction.

## Conclusion

Based on three complex infrastructure projects, we explored how learning experiences from procurement processes influence project governance within one client organisation. The differences found in the projects related mainly to problems of understanding such as contract clauses, grounds for fines (Project 1) and specifications of the quality management system (Project 2). In response to conflicts, the teams renegotiated the formal agreements (Projects 1 and 2), replaced key personnel (Project 2) and started conversations to overcome information asymmetry (Project 2). Due to the openness within the client organisation on these matters, the project teams in Project 3 were able to anticipate these possible differences in understanding by investing in a cooperative relationship from the beginning of the project. Although these problems of understanding cannot be fully avoided, results indicate that client organisations can become more sensitive in providing room for prevention and act upon their experiences in situations that would otherwise escalate.

Concerning the commitment and relationship building, we saw that a shared organisation culture can stimulate the development of internal routines. This is strengthened by the explicit vision to steer not only on formal structures, but also on people and (trust in) a reliable information system. Without room for sense-making in the realisation of these agreements, sincere tensions develop between both parties. Searching for a win-win situation in an open project climate proved to be most beneficial for gaining commitment as can be seen from the experiences of Project 3. This attitude requires not only formal approvals from senior management from the beginning but also perseverance of all employees and willingness to change the organisational culture, which cannot be found in every organisation, especially not in a traditionally oriented sector such as construction. We found that in establishing the project governance structure both parties can set the tone in the 'design' of the project governance, and provide the people and information systems that support this structure. Each project required specific adjustments for new approaches and governance structures. Yet, learning from previous projects increases the level of sense-making and understanding, which then again enhances the possibilities to 'master' the design process by reducing uncertainties of the actors involved.

A formal evaluation of each project on the procurement and project governance aspects of projects can contribute significantly to the learning capacity of a client organisation. This would also open up interesting opportunities for further research, since we only included three projects of one client in this study. Information for these kinds of evaluation does not have to be collected separately. For example, Verweij et al. (2015) recently explored correlations within the existing project databases of the Dutch Highways Agency. If other clients would also open up their databases, it would be possible to make comparisons between clients in different sectors and different countries. This would expand the learning capacity within a client organisation to learning between client organisations, contributing to increased performances in the construction industry in general. Furthermore, it would be interesting to see not just how the client organisation learns and adapts after a first project, but also how the contracting organisations learn and anticipate on their project experiences.

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