

PROJECT ALLIANCES: AN INVESTIGATION INTO THE LOGIC BEHIND THE RANGE OF A DUTCH PUBLIC SECTOR CLIENT'S INITIATIVES

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For fifteen years, the Dutch railway agency (ProRail) has implemented various alliance elements in its procurement strategies. Several project alliancing applications have been developed and applied in succession, ranging from a limited shared risk domain to a directly tendered full alliance model. The progress seems to be evolutionary rather than planned. The emergence of these alliance variants suggests implicit motivations and expectations. Changing the implicit reasoning to explicit logic could help in the evaluation and development of alliance approaches, from project-based evolutionary adaptations to a conscious planned strategy. This study considers a number of alliance projects. The variation amongst these projects is mapped against a number of criteria derived from the literature. Contracting plans, the tendering board's minutes, contracts and other policy documents were scanned and interviews were held with key players to reconstruct the motivations for the various alliance approaches. The initial results confirm that changes and choices made in terms of the particular alliance domain are mostly implicit and only sparsely explained by motivations. This paper will present a first overview of ProRail's alliancing variants, corresponding motivations and expectations, plus more explicit insights into the prevailing implicit reasoning. This study offers a first step in mapping the variation in alliance methods, evaluating their effects and moving the implicit evolutionary development of alliance methods towards more deliberate planned choices in future alliancing variations. The next step in the research project will be to verify the validity of the expectations and logic regarding alliancing.

Keywords: project alliancing, procurement, motivation, decision analysis.

INTRODUCTION

Several new project delivery methods have been introduced in the construction industry over the past three decades. Before adopting a new procurement method, a client will explicitly consider the expected advantages and downsides. Once a method becomes more frequently used, the initial motives and arguments tend to become more implicit, and the method is amended and modified in an evolutionary way. Several variants of the original pure type (as in Weber's sociology) will emerge. A family of method variants grows organically. Since this spreads naturally from project

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to project, methods change in often unobserved ways and the considerations behind the changes go undocumented. Since altering the method implies adding new insights and arguments to the initial considerations, the underlying logic explaining the initial, pure type and the subsequent range of options becomes hidden, making it difficult to consciously and cautiously evaluate and improve the method. This trajectory from explicit to implicit reasoning may become an obstacle to evaluation and further development.

The Dutch state railway agency (ProRail) first applied the “project alliance” as a procurement and project delivery method in 1998. In the fifteen years since then, several projects have been procured in a way that can be labelled as a “project alliance” although the procurement approaches taken have differed somewhat from the original method. Since alliances are seen as a valuable method for the future, ProRail has recently started a study to evaluate the merits of the alliance method and to bring a more systematic approach to advancing the method. As such, ProRail should be able to move away from implicit organic development towards a more conscious and planned advancement of the alliance method.

This paper gives an account of the initial steps in this research project. The purpose is to present a quick overview of (a) ProRail’s project alliances over a fifteen-year period, (b) the key variations and (c) the traceable considerations, motivations and expectations. This quick-scan strategy is used to assess the conjecture that the reasoning and considerations are evolving implicitly, and to assess whether the implicit logic(s) can be traced back. A positive outcome on both these assessments would mean that there is a basis for a thorough reconstruction of the dominant logic behind the implicit reasoning. This will provide the necessary conditions for the next step in the research project, which is to verify the validity of the traceable considerations and logic regarding project alliancing.

Ibrahim et al. (2011) identify a current geographical research gap in the implementation of the concept of project alliances. As such, explicating the alliance practices of a major public sector client in the Netherlands will contribute to knowledge and to the debate on the reasoning used in implementing a project alliance. The insights into the dominant logic regarding project alliances reveal apparent dilemmas at a deeper level than the motivational level that research has so far considered. This study also identifies several variations of project alliances. Further, it sheds light on the dynamics in the evolutionary and planned development of procurement methods. These elements contribute to science as well as to practice.

The next section of the paper addresses the working definition of project alliance and the emergence of this method in a Dutch context. The following section explains the steps taken in developing the quick-scan overview, namely: (1) determine the criteria to select alliance projects from all the other ProRail projects, (2) determine the elements that vary amongst the alliance projects, (3) identify considerations given and (4) reconstruct the underlying logic. Once the research method has been explained, the results from the first two steps are presented in the 'first results' section. Reflections and conclusions then follow in the final two sections.

RESEARCH CONTEXT

Project alliancing is a relatively young construction project delivery method. Searching on “alliance” in the Arcom database lists only 66 papers, and only four of these date from before 2000; The first paper was by Badger et al. (1995) and the

history reflects that collaborative forms of project delivery are increasingly being developed in order to move away from the customary adversarial behaviour of the traditional approach (e.g. Lahdenperä 2012). An offshore project in the North Sea, initiated by British Petroleum, is commonly considered to be the origin and first application of alliancing (e.g. Bakshi 1995; Halman and Braks 1999). Scheublin (2001), focussing mainly on the petrochemical sector, was the first to describe project alliances in the Netherlands. In the Dutch public infrastructure sector, the first project alliance was initiated in 1998 by the Dutch railway agency. Since then, project alliancing in Dutch infrastructural projects is much debated but there have been few implementations. Of the Dutch public sector agencies, ProRail has been the most frequent user of project alliancing forms. Since the initial project in 1998, ProRail's concept of project alliancing has seen both minor and major changes in successive projects; and several alliance variations have been implemented. However, only one of these project alliances has been reported in the international scientific literature (Laan et al. 2011).

Alliances and alliancing are not clearcut concepts. Several authors warn over possible confusion regarding the interpretation (Yeung et al. 2007; Chen et al. 2012). Yeung et al. (2007) observe that numerous definitions of alliancing are available in the literature. Moreover, Lahdenperä (2012) points out that concepts such as project alliancing are not stable and have developed over time in interactions with other project delivery methods, and will probably keep on developing in the future. Therefore, the scope of the project alliancing concept as used in this study needs to be explained to avoid misunderstandings. Alliances can be categorized as either project, programme or strategic (Wood and Duffield 2009; Chen et al. 2012), and this study deals only with the 'project alliance' form: 'a project alliance is generally formed for a single project, after which the team is usually disbanded' (Wood and Duffield 2009). From the range of available high-level descriptions of project alliancing, the description provided by the State of Victoria's Department of Finance and Treasury fits well with the ProRail context: "a method of procuring (and sometimes managing) major capital assets, where a state agency (the Owner) works collaboratively with private sector parties (Non-Owner Participants or NOPs)" (State of Victoria 2010). This description serves as an initial high-level definition of a project alliance for the purposes of this study.

RESEARCH APPROACH

Our basic question is how to move from successive implicit evolutionary developments in the project alliance method to explicit design rules and planned advancement. The research approach adopted is to analyse a number of successive ProRail alliancing applications through applying the perspective of knowledge mapping and dominant logic. The overall study is divided into two phases. First, the chronology of the variations and corresponding motivations in the implemented alliancing applications are reconstructed and mapped. The second phase is to verify the validity of the expectations and logic regarding alliancing. Phase 1 aims to establish a factual basis on which one can verify the initial assumptions. This involves: (1) distinguishing the alliance projects from all the other ProRail projects, (2) determining the elements that vary within the selected projects, (3) investigating whether the motives for these variations are explicitly stated in the project documents, and (4) holding interviews to investigate the logic used in each instance. This study has only recently started, and therefore this paper homes in on the early results from the first three of the above steps.

Step 1 – Characteristics of alliance projects

How can one identify and single out projects that can be regarded as project alliances? In order to identify alliance projects among the thousands of ProRail projects between 1998 and 2012, selection criteria are needed, and the literature provides some suggestions. Yeung et al. (2007) distinguish: 'soft (relationship-based) elements' and 'hard (contractual) elements'. Under hard elements they include the 'formal contract' and 'real gain-share/pain share'. In this initial phase of the study, the 'soft elements' (i.e. trust, long-term commitment and cooperation and communication) are disregarded because selecting past contracts based on these criteria would be arbitrary or require a subtle set of criteria for objective decision-making, which is not available. Furthermore, by their nature, these are the 'hoped-for' results of a project alliance and cannot be fully created by the contract alone (Bresnen and Marshall 2002). In terms of the hard contractual elements, the 'formal contract' is viewed as providing the evidence of the existence of an alliancing arrangement between companies in the form of a signed contract; and genuine sharing of pain and gain is the key criterion. A literature search indicates that there is no general consensus on the precise meaning of 'real gain-share/pain share', although a compensation model derived from Australian practice is considered typical (Love et al. 2011). Following these authors, this ProRail research considers a compensation element to reflect the project alliance form if the client and other participants have a contractual arrangement that somehow relates to over- or under- run of targeted outturn costs. This compensation element is chosen as the main determiner in identifying projects delivered through an alliance method.

Step 2 – Differentiation within the project alliance category

How can the implicit evolutionary development of the project alliance method be observed and assessed? Alongside a time reference, this requires an ability to identify differences among the alliance projects. Here, some basic characteristics were chosen to differentiate in terms of context: project size, type of work, type of contract tendered (i.e. Design (D) - Design & Construct (D&C) - Design, Construct & Maintain (DC&M) - Project Alliance (PA)), type of partner (contractor consortium (CC) - engineering firm (EF)), when the alliance agreement was signed (i.e. number of months after awarding the tendered contract) and changes relative to the first implemented alliance agreement (minor - major - new contract).

Distinctions within the project alliance category are derived from the 'real gain-share/pain share' characteristic mentioned above. The majority of project alliance definitions emphasize 'collaboration' as a key to achieving high performance. This collaboration is primarily stimulated by aligning objectives (Love et al. 2011), and this is established through the gain and pain sharing arrangements. In contracts, pain and gain sharing can be directed towards specifically recognized shared project activities and/or risks, but it cannot include all activities and risks. Some domain boundaries must be set in the contract (such as the risk that the client makes major scope changes). Some activities typically remain with the client or with the NOP's.

Further, the existence of a shared domain suggests the needs for procedures or an organization to manage the domain. The State of Victoria's 'Practitioners Guide' and Mills et al. (2011) propose an Alliance Leadership Team (ALT) and an Alliance Management Team (AMT) to manage the shared domain (State of Victoria 2010). Where the shared domain is very small, this could be scaled back e.g. to procedures or an Alliance Manager (AM) only.

Based on the above, the pain and gain sharing element can be differentiated in terms of the following aspects:

- domain of shared activities (broad / narrow);
- domain of shared risk (broad / narrow);
- management arrangement (ALT, AMT, AM, no specific arrangement).

Steps 3 and 4 – Identification of explicit motivations and expectations

Assuming that the project alliance method undergoes organic evolutionary development, what are the motives and expectations that drive this differentiation? Can the motivations and expectations be retrieved from ProRail documentation? To answer these questions, project-related documents including contracting plans, tendering board minutes, contracts and policy documents were reviewed. During the overall project, more documents will be studied and analysed in greater detail, and interviews will be conducted to deepen and crosscheck the data (Step 4).

In their overview of alliancing research, Chen et al. (2012) distinguish between 'motivations to use alliancing', 'alliancing benefits' and 'the applicability of alliancing'. Each of these contains various items that can be considered as potential motives for forming a project alliance in the context of our study. However this division into three categories adds little value at this early stage of this study. Motivation largely consists of the expected benefits. The first column in Table 2 presents a list of motivations derived from the general literature complemented with motivations found in the ProRail documentation.

By interviewing key players and investigating other, less formal, documents, such as PowerPoint presentations, the implicit reasoning will be reconstructed to explain the dominant logic behind the major choices that have been made.

INITIAL RESULTS

Based on the pain/gain sharing criterion, the initial scan identified eight projects that could be interpreted as project alliances. Two of these projects encapsulated multiple project alliances, with project #3 containing three separate project alliances and #6 two. The eight projects were mapped in terms of the alliance characteristics developed in Step 2. Table 1 shows the results of these two steps.

Table 2 shows the results of Step 3. As in Table 1, the columns represent the eight selected projects, and this time the rows contain identified motives. Where a particular motive was identifiable in the project documents this is reflected by a (✓) at the row/column intersection. A conclusion from Table 2 is that motivations for an alliance initiative differ per project or are of an implicit nature (project #7). The bottom row shows 'not found' if no explicit motivations were found for choosing a different approach from that previously used. The table indicates that the reasons for change are rarely explicitly stated.

This initial overview also shows that specific procedures and organizational forms to manage the shared domain become more elaborate as the size of the shared domain increases. Over time, the frequency of alliancing applications in projects seems to grow while the size of the shared domain reduces. In terms of the dominant logics used by the client, one particularly interesting aspect seems to emerge from Step 3 concerning the 'real gain-share/pain share' criterion. In the literature, this aspect is considered essential to the concept of project alliancing on the basis that this mechanism will align interests and thus behaviour among project participants, which is assumed to enhance project performance. As such, attention is drawn to the

substantial variation in the shared domain, for which little explicit motivation has been found.

Table 1: Results of Steps 1 and 2

Project	#1:	#2:	#3:	#4:	#5:	#6:	#7:	#8:
Year of publication	1998	2005	2005	2006	2008	2009	2011	2012
Value (€ million)	>100	25-50	<25	>100	>100	>100	25-50	<25
Technical scope	civil works	civil works	installation	civil works	civil and railinfra works	civil and railinfra works	civil works	civil works
Contract type	DC&M	D&C	D	D&C	D&C	PA	D&C	D&C
Type of party	CC	CC	EF	CC	CC	CC	CC	CC
Agreement on alliance contract	<4 months	<5 months	<9 months	<6 months	<4 months	-	-	-
Changes to reference contract	NA	minor	major	new contract	new contract	major	new contract	new contract
Activity domain	broad	broad	broad	narrow	-	broad	-	-
Risk domain	broad	broad	broad	narrow	narrow	broad	narrow	narrow
Man'ment arrangement	ALT & AMT	ALT & AMT	ALT & AMT	ALT	-	ALT & AMT	-	-

The risk and activity domains are classified as either narrow or broad. These are qualitative indicators that do not reveal the actual contents of the shared domain or the pain/gain clause(s). Recollection of past discussions, and other contingent evidence, indicate that two dominant and conflicting logics may have emerged over time. On the one hand, a formulation is found in the documents that explicitly proclaims the extension of the pain/gain sharing domain to its “reasonable maximum”. On the other hand, contingent evidence indicates an implicit preference to limit the shared domain to that “considered strictly necessary”. The latter is demonstrated in the move towards sharing only specific risks. The dominant logic underlying the first formulation seems to follow the logic of alliance goal alignment: the greater the shared domain, the fewer conflicts of interest may be expected. The latter's dominant logic seems to be driven by defence and risk avoidance. A reconstruction of this shifting logic suggests that the reasoning was as follows:

- Transfer risks to the party that can best manage them, but:
- If that party has only limited influence on a specific risk, then the client will not benefit much from transferring that risk;
- In such situations, perhaps the risk is more manageable when the client and the other party have a common interest in avoiding or managing that risk;

- A common interest is best stimulated by including pain/gain sharing arrangements.

The dynamic created between the “domain maximizers” and the “domain restrictors” perhaps holds clues to the evolutionary development of the alliance method.

Table 2: Results of Step 3

Explicit motivations for alliance initiative:	#1:	#2:	#3:	#4:	#5:	#6:	#7:	#8:
Cost reduction	✓	✓	✓	✓	-	-	-	-
Tight time constraint	✓	-	≡	≡	≡	≡	-	-
Flexibility in development	-	-	-	≡	≡	≡	≡	✓
High quality	≡	≡	≡	≡	≡	≡	≡	≡
Innovation required	-	≡	≡	≡	≡	≡	-	-
Earlier commencement	≡	≡	≡	-	≡	✓	≡	-
Economizing on resources	≡	≡	≡	-	-	-	≡	≡
Source of learning	-	≡	≡	≡	≡	-	≡	≡
Enhancing reputation	-	≡	≡	-	≡	≡	≡	≡
Improving competitive advantage	≡	≡	≡	-	-	-	≡	≡
Dispute avoidance	≡	≡	-	✓	≡	≡	≡	≡
Improving non-cost outcomes	≡	≡	≡	≡	-	-	≡	≡
Project complexity	≡	≡	-	-	≡	✓	≡	≡
High risks	✓	-	≡	≡	✓	✓	≡	≡
Complex stakeholder issues	≡	✓	✓	≡	≡	✓	-	-
Complex external threats	≡	≡	≡	≡	≡	≡	≡	≡
Other ...	-	-	≡	✓ ^a	≡	≡	-	-
Explicit motivations for alliance change:	NA	Not found	✓ ^b	Not found	Not found	✓ ^c	Not found	Not found

a) Stimulate cooperation over seven specific problem areas, b) No added value for contractor as NOP, c) Direct PA tender requires reference changes; maximize alliance domain.

The purpose of this first quick scan was to assess whether it would be possible and worthwhile to study the implicit reasoning behind the evolutionary development of the alliance project delivery method. The initial results indicate an increase in the number of alliance projects taking place and variation in their key characteristics. Further, the reconstruction of the motives involved suggests implicit reasoning in the decision-making process and possible contradictory dominant logics. Changing the implicit reasoning to using an explicit logic would provide the necessary basis for evaluation purposes and enable the further development of project alliance variations. As such, the conclusion is that the mooted second research phase can be considered worthwhile.

REFLECTION

The reported study is still in its initial stage. The concepts developed are not yet sufficiently precise and the data gathered are not on the scale and detail needed to satisfy the overall aims of the research project. Nevertheless, the findings provide some interesting initial results and insights.

The selection criteria used in Step 1 led to eight projects that - at least at first glance - can be considered to be project alliances. However, the choice of 'formal contract' and 'real gain-share/pain share' as the selection criteria appears somewhat crude and a bare minimum. The literature offers several other contractual criterion options in the form of informal or non-contractual aspects, e.g. trust, long term commitment (Yeung et al. 2007) or cultural differences between traditional and alliance projects (Reed and Loosemore 2012). However, the application of additional criteria would probably have led to the selection of fewer projects. Some of these criteria can, and probably should, be used in a later stage of the study as evaluation criteria. The "soft" (relationship-based) criteria in particular might be viewed differently by the shared domain "maximizers" and by the "restrictors".

The selection method employed did identify alliance projects, but excluded those projects in which a project alliance was considered but then rejected as the delivery method. These projects would be valuable in research aiming to uncover the dominant motivations and expectations. As such, the selection strategy rejected relevant data and data sources. A broader study of tendering board minutes and early stage project reports might be a first step in identifying such data.

Similarly, in Step 2, additional variation characteristics could have been considered. The limited number used in this study was sufficient for the purpose of confirming the initial assumption of there being variations among the alliance applications. The distinctions between activity and risk and between narrow and broad are crude categorizations. As the study progresses, these need to be elaborated and developed.

Step 3 identified a number of potential motivations for alliance projects. The study of formal documents showed that the choices made over the alliance method are either apparently "different per project" or "seldom explicitly motivated in the documents". This is indicative of the implicit nature of the reasoning in selecting a procurement method. Planned interviews will probably add more information and insight enabling one to reconstruct the reasoning behind the choices made for specific projects. However, this might not be as successful as one hopes due to selective memory and biased hindsight regarding many projects. Longitudinally observing project teams as they decide over a delivery method might reveal a clearer picture of the logic and reasoning used.

Further, the 'standard' motivations derived from the literature could be elaborated and sharpened. For instance, 'cost reduction' might be anticipated through several factors such as greater efficiency, fewer conflicts and better design optimization. Attributing documented project motivations to items on such an extended list would probably require less interpretation.

The dominant logics reconstructed in Step 4 are, at this stage, plausible rather than definite. They require confirmation of the implicit reasoning and potentially conflicting stances that drive the evolutionary process towards variation in alliance project delivery methods.

Although still in a preliminary stage, this study seems to confirm that ProRail is following a trajectory, as identified by authors such as Lahdenperä (2012), towards project delivery methods that are more collaborative. Although this trend is visible in terms of frequency of alliancing applications, remarkably the alliance collaborative domain seems to be narrowing.

CONCLUSIONS

It was fifteen years ago that the Dutch railway agency (ProRail) first opted for the alliance project delivery method. Since then, at least seven other alliance-based projects have followed. Recently, a four-year study has started to evaluate the alliance delivery method as practiced by ProRail. The first steps of this four-year project are described in this paper: the approach, the initial data and the preliminary results. Based on a literature study, “pain and gain sharing” was identified as a way to distinguish project alliances from other procurement methods. An assessment of the eight so-identified project alliances and their characteristics shows that several variations of the concept have been applied. Alongside the basic characteristics such as size, date and contract type, particular attention was given to the alliance collaborative domain, and this was assessed in terms of activities, risks and management structure. A literature study identified potential motivations for using alliance project delivery. A review of documents related to the eight identified ProRail projects revealed that the motivations for changing the alliance approach with specific shared domains were seldom explicitly stated. A reconstruction of the reasoning seems to point towards there being two implicit dominant logics regarding the scale of the shared domain: one that reasons for “maximizing the shared domain to align the interests of the client and the contractors” and one that reasons for “restricting the shared domain to reduce the client’s risk”.

Already, the initial stage of this study has produced insights and contributions that are relevant for other scholars. The paper explains a strategy to distinguish alliance projects from other delivery types, introduces an initial rationale, based on a typology of the shared domain, for mapping variety among alliances, hints at opposing logics regarding the shared domain and provides an overview of potential motives for opting for an alliance form of contract. The paper also develops a prototype theory concerning the evolutionary development of the alliance method. Practitioners considering alliance project delivery could use these early results to reflect upon their motives and logics regarding the shared domain and pain/gain structures.

In terms of the objectives of the four-year research project, this initial step confirms it is possible and valuable to explicate the implicit evolutionary development of the current alliance method and to use the results to work towards more deliberate planned choices in determining future alliance forms.

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