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A Comparative Analysis of Alliancing and Integrated Project Delivery on Complex Projects: Parallel Systems Sharing a Common Objective

Abstract

Relational contracting methods are a natural evolution from the many versions of project delivery that have been developed over the past two decades aimed at increasing the amount of integration and collaboration among mega-project stakeholders. Alliancing was born in the 1990's in North Sea oilfields and imported down under to Australia and New Zealand where it has used to deliver over 300 complex projects. The litigious environment present in the North American construction sector led project owners to implement partnering programs to enhance the quality of relationships on projects of all sizes delivered using the full spectrum of delivery methods. Integrated Project Delivery (IPD) made its appearance in 2002, employing nonbinding partnering program objectives into multi-party relational contracts. While developed separately, alliancing and IPD share the same objective: an environment where decisions are made on a "best-for-project" basis and all stakeholders share the both the pain and the gain associated with ultimate project performance. This paper chronicles the evolution of project delivery methods, as well as their successes and failures. The paper finds that each approach has been tailored to maximize collaboration within each culture's legal and business environment. It also finds that alliancing appears to offer the most advantages and has a well-documented record of success. Lastly, the paper recommends that the commercial building project IPD currently used in North America needs to be revised to increase its potential on complex megaprojects.

Keywords

alliancing; integrated project delivery, relational contract, partnering

Disciplines

Construction Engineering and Management

Comments

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A COMPARATIVE ANALYSIS OF ALLIANCING AND INTEGRATED PROJECT DELIVERY ON COMPLEX PROJECTS: PARALLEL SYSTEMS SHARING A COMMON OBJECTIVE.

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ABSTRACT: Relational contracting methods are a natural evolution from the many versions of project delivery that have been developed over the past two decades aimed at increasing the amount of integration and collaboration among mega-project stakeholders. Alliancing was born in the 1990's in North Sea oilfields and imported down under to Australia and New Zealand where it has used to deliver over 300 complex projects. The litigious environment present in the North American construction sector led project owners to implement partnering programs to enhance the quality of relationships on projects of all sizes delivered using the full spectrum of delivery methods. Integrated Project Delivery (IPD) made its appearance in 2002, employing nonbinding partnering program objectives into multi-party relational contracts. While developed separately, alliancing and IPD share the same objective: an environment where decisions are made on a "best-for-project" basis and all stakeholders share the both the pain and the gain associated with ultimate project performance. This paper chronicles the evolution of project delivery methods, as well as their successes and failures. The paper finds that each approach has been tailored to maximize collaboration within each culture's legal and business environment. It also finds that alliancing appears to offer the most advantages and has a well-documented record of success. Lastly, the paper recommends that the commercial building project IPD currently used in North America needs to be revised to increase its potential on complex mega-projects.

KEY WORDS: alliancing; integrated project delivery, relational contract, partnering

1. BACKGROUND

Relational contracts have been touted as methods to develop high levels of collaboration and integration on mega-projects (Lahdenperä 2012), and most of the empirical evidence shows it can. However, relational contracts are by definition multi-party agreements, and the US construction industry has virtually no experience with developing and executing these hybrid legal instruments. Such is not the case in Australia and New Zealand, where alliance contracts have been used for nearly three decades. The results are impressive. In 324 alliances formed since 1996 on \$60 billion worth of infrastructure and industrial projects, only one failure was observed and the average cost and schedule savings were 3.5% and 7% respectively (Tamburro et.al 2009). The US version is called Integrated Project Delivery (IPD) and has gained traction in the commercial building sector with the greatest use being found in the health sector. The difference is that the Australian alliance program is largely composed of mega-projects; whereas, the US IPD program is not.

There are various means to achieve increased integration of mega-project teams, but in the simplest case, integration on any project requires including the project's owner, designer, and builder in a project development process in a contractual manner permitting each to make substantive input to early scope definition decisions. The US industry uses alternative contracting methods (ACM) like construction manager/general contractor (CMGC) (West et al. 2012) and design-build (DB) (Touran et

al. 2009) to obtain early contractor involvement in the final scope of work (Actis et al. 2012). Employing ACMs does increase the level of integration, but all are implemented using a two-party contract in which disputes can easily devolve into costly and time-consuming litigation. Chen et al. (2012) posits that "...long-existing problems, such as cost overrun, delay, adversarial relationship, dispute, customer dissatisfaction and low productivity which primarily stem from the traditional 'risk transfer' approaches, fragmentation and inadequate cooperation in the construction industry, have led to the poor performance of construction projects."

Creating a true team where risks and rewards are equally distributed and within which decisions are no longer made in the hierarchical fashion required in a two-party contract is no easy task. The critical element is a change in the ultimate decision criterion for each party from "best for me" to "best for project." (Gransberg and Scheepbouwer 2015). One proven solution for attaining inter-team equity is the alliance contract found in Australia and New Zealand. Love et al. (2011) describes it as shown below:

"When forming an alliance's culture, equality in sharing cost risk/reward was commonly described as establishing good behavioral principles at the outset which subsequently guided participants' behaviors. Such principles included equal ownership and commitment, ensuring that all participants 'won together or lost together,' driving equal and collaborative relationships with open and honest communication, thus avoiding disputes." (Love et al. 2011)

Barlow (2000) maintains that "... practitioners view alliancing as an alternative project delivery method to deal with fragmentation and lack of integration, to improve the efficiency and performance of the construction industry." The fundamental paradigm shift is a pragmatic 'win together or lose together' relationship (Love et al. 2011) not the idealistic 'win-win' relationship often touted by proponents of project partnering and IPD (Broom 2002). The major distinction between partnering and IPD in the US and alliance contracting is "whether the express good faith agreements are binding on the parties to the agreement" (Scheepbouwer and Gransberg 2014). Put another way, alliance contracts bind each party to a commitment to resolve disputes without recourse to litigation.

2. RELATIONAL CONTRACT COMPARISON

A paper by Lahdenperä (2012) aimed to disaggregate the various existing forms of relational contracts into a framework of relational principles found in the literature and then provide a piece-by-piece comparison. The term project partnering in Lahdenperä's study is used to describe a contractual partnership and as such, should not be confused with the non-binding brand of partnering in use in the US. Figure 1 is from the study and graphically displays the outcome of Lahdenperä's analysis. One can see that all three alternatives are quite similar. The series of lines shown around the central core are author's relative rating of each alternative against the others. If the relative rank with respect to each alternative is recorded as shown in Table 1 **Error! Reference source not found.**, one can see that alliance contracting seems to be the preferred option for achieving high degrees of both integration and collaboration. The author attributes the relative ranking differences to the "different degrees of integration ... between the RPDAs [relational project delivery arrangements]." The major conclusion of the study is that alliance contracting is indeed a project delivery method in its own right because:

"the contractual structure of PA [project alliancing] differs from those traditional risk-allocating contractual frameworks. Therefore, the differences between RPDAs are not minor details of little importance or matters of opinion—they are so definitive that various RPDAs are undoubtedly applicable to different types of projects guided by different constraints and objectives." (Lahdenperä 2012).

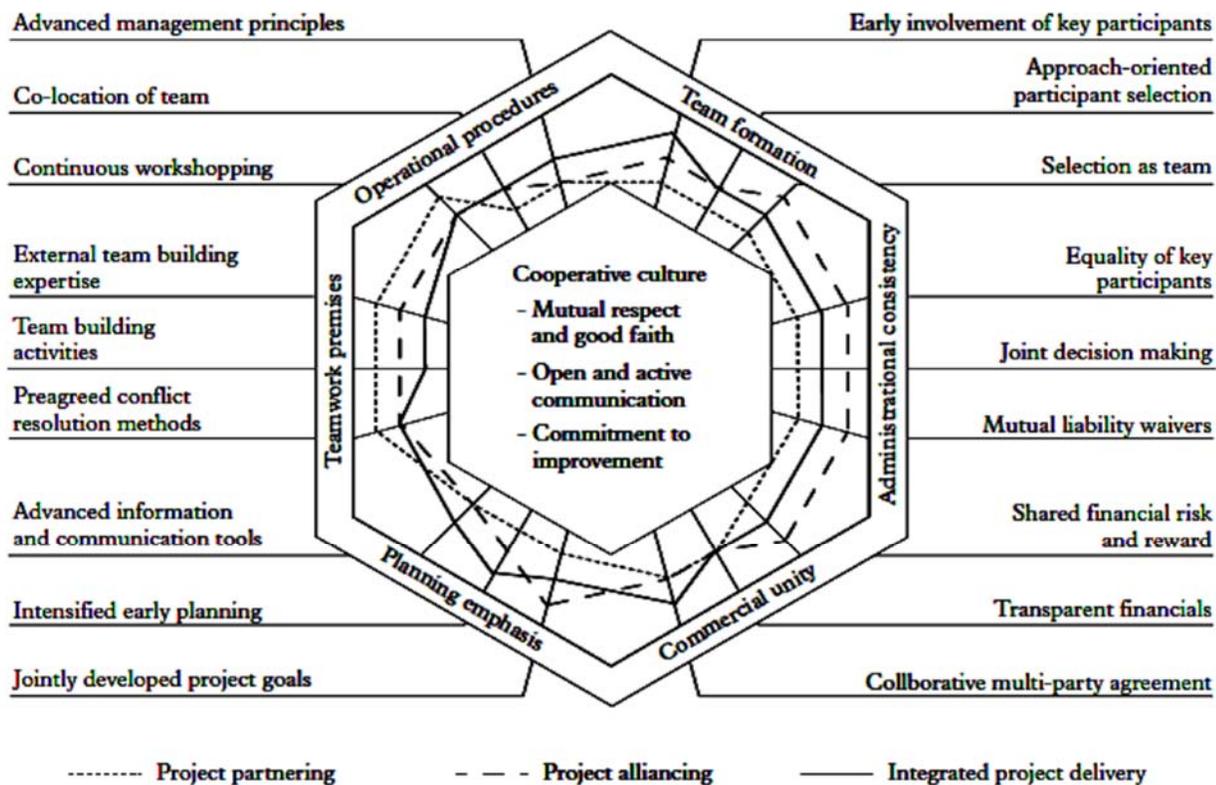


Figure 1. Synopsis of partnering, alliancing, and integrated project delivery principles (Lahdenperä 2012).

Table 1. Numerical Ranking of Figure 1 Ranked Attributes.

Relational Parameters	Relative Rank – 1 is best.		
	Partnering	Alliancing	IPD
Early involvement of key participants	1	2	3
Approach-oriented participant selection	1.5	1.5	3
Selection as team	2	1	3
Equality of key participants	2	1	3
Joint decision making	2	1	3
Mutual liability waivers	2	1	3
Shared financial risk and reward	2	1	3
Transparent Financials	2	2	2
Collaborative multi-party agreement	1	2.5	2.5
Jointly developed project goals	2	1	3
Intensified early planning	1	2	3
Advanced information and communication tools	1	2.5	2.5
Pre-agreed conflict resolution methods	2.5	1	2.5
Team building activities	2	1	3
External team building expertise	2	1	3
Continuous work shopping	2.5	1	2.5
Co-location of team	1.5	1.5	3
Advanced management principles	1	2.5	2.5
Total	31	26.5	50.5

3. ALLIANCING VERSUS INTEGRATED PROJECT DELIVERY

The term “integrated project delivery” was first created by the American Institute of Architects and as such is normally associated with the US commercial building sector. As a result, attempting to implement IPD on mega-projects entails a thorough restructuring (Lahdenperä 2012). The National Association of State Facilities (2010) describes IPD as both a “philosophy and a project delivery method.” Its relatively recent appearance on the US scene means there is little rigorous performance data is available in the literature. El Asmar (2013) found that IPD delivered higher quality facilities with no significant cost increase and Franz (2013) concluded that it “increased team integration and group cohesion.” The only empirical data comes from a study by Mesa (2016) on a complex hospital project where the author estimated 25% cost savings, 27% schedule savings and 30% quality enhancement when compared to other ACMs. Three serious studies that compared IPD and alliance contracting were completed by Raisebeck et al. (2010), Lahdenperä (2012) and Johnson et al. (2013). All three concluded that IPD will require further usage and study before it can be concluded to be equal to or better than alliancing. Table 2 synthesizes the Raisebeck et al. (2010) comparison of alliancing, IPD and DBB.

Table 2: Comparison of Alliancing, IPD, and DBB (Raisebeck et al. 2010).

Phase	Alliance	IPD	DBB
Pre-Design and Schematic Design	Team formation of client, contractor and main consultants based on performance and capabilities Cost estimation and performance targets determined No Collocation	Team formation of client, contractor, consultants and subcontractors based on performance and capabilities Cost estimation and performance targets determined Collocation in a "Big Room" environment	Client and consultants (e.g. architect) No collocation Early cost estimation
Design Development	Use of BIM at discretion of stakeholders	Mandated use of BIM BIM integration with sub-contractors	Cost estimation
Construction Documentation	Cost estimation	Mandated use of BIM BIM integration with sub-contractors	Cost estimation No integration with subcontractors
Bidding/Tendering	No bidding or tendering process * GMP developed in SD stage	No bidding or tendering process GMP developed in SD stage	Bidding costs incurred by contractors
Construction	Alliance Team Governance Conflict resolved within leadership team.	Alliance team Governance Conflict resolved within leadership team	Contract Governance Conflict resolved through adversarial negotiation
Post Construction	Profit distribution based on agreed formula No recourse to litigation	Profit distribution based on agreed formula No recourse to litigation	Adversarial negotiations Litigation a possibility
*Only true for pure alliance.			

4. CONCLUSIONS

Based on the above discussion and analysis, the following conclusions are drawn:

- Both Alliancing and IPD have each been tailored to maximize collaboration within each culture’s legal and business environment.
- Alliancing is not only the most mature but it also has a well-documented record of success.
- Alliancing appears to offer more advantages than IPD.

- The lack of a “no sue” dispute resolution commitment in IPD reduces its value for implementation on complex mega-projects.
- The commercial building project IPD currently used in North America needs to be revised to make it useful for implementation on complex mega-projects.

To summarize, both alliancing and IPD have been developed to achieve the same goal: increased integration among the business entities and enhanced collaboration amongst the people that will ultimately deliver the project. The two clearly share the same objective. What remains to be done is to conduct the rigorous empirical research on IPD that has been conducted on alliancing to make the business case for investing in the reengineering of commercial IPD to make it an acceptable method to delivery complex mega-projects.

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