Factors of Inclusion for Trade Contractors in IPD Contracts from Industry Professionals

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Introduction

The Architecture, Engineering, and Construction (AEC) industry requires many trade experts to address the complexities in constructing our built world. However, scoping and organizing the relationship to coordinate responsibilities in traditional contracts can be challenging. Integrated Project Delivery (IPD) is a project delivery method in which a multi-party contractual agreement supports the cooperation of all key project partners through alignment of their interests with the project goals. Participants in the multi-party contract include, at minimum, the owner, architect, general contractor, and typically key trade contractors. The contract defines shared risk and reward among all signatory parties. Despite the growth in the use of multi-party contracts, the number of signatories to the contract varies from project to project. This research seeks to identify factors that influence which trade contractors should be included as signatories to the multi-party agreement. Through interviews with industry professionals that have worked on IPD projects, we start to establish general themes in the selection of which trade contractors should be signatories, thereby helping improve the process of IPD team selection.

Background

While many professionals in the industry have adopted the term IPD with differing meanings, this research will follow the definition used by Kent and Becerik-Gerber (2010) which identifies three components to qualify a project as IPD: a multi-party legal agreement, shared risk and reward by project participants, and early involvement of all parties. The multi-party contract dictates one common set of terms and expectations that are agreed upon and signed by the owner, architect, general contractor, and any other party with a primary role in the project. This differs from more common delivery methods where the owner or construction manager has separate contracts with each participant in the design and construction process, creating a more hierarchical contract structure (Figure 1). *IPD for Public and Private Owners* (2010) states that, at a minimum, the owner, architect, and contractor must sign the multi-party agreement, but in many cases, other critical trades are brought onto the contract as well, such as structural or mechanical contractors.

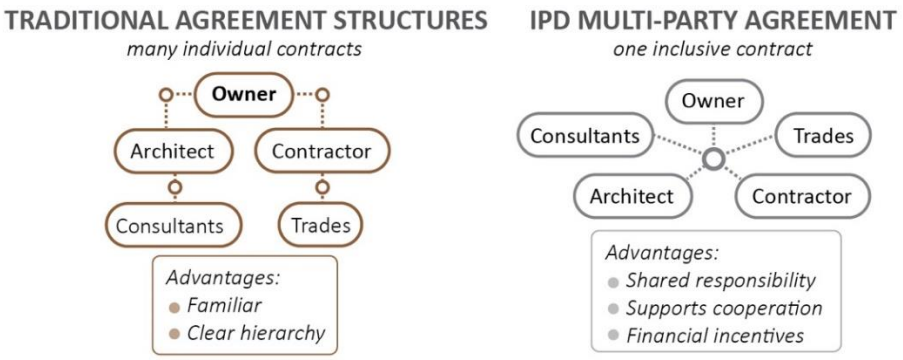

Fig 1. Diagram of the two extreme conditions in a traditional agreement and IPD multi-party agreements.

The benefits and processes for using IPD have been well studied, however the research regarding signatories, specifically which trade contractors should be included on the multi-party contract is limited (Cheng & Johnson, 2016; Tillmann et al., 2012; Cohen, 2010; Cheng, 2012; Viana et al., 2020). According to Bill Seed (2018) in a blog post on Lean IPD, projects with only primary participants sign a tri-party agreement, but any agreement with four or more signatories are known as multi-party or poly-party agreements. Early IPD industry guides, such as the AIA's 2007 guide, offer a baseline that broadly identifies two categories of team members that should be primary, signatory participants. One category is participants with substantial involvement and responsibility for the duration of the project, and the second is key supporting participants who play a vital role to the project but may be more discreet than the primary participants (AIA, 2007). *IPD for Public and Private Owners* (2010) is an early, conceptual guide and makes overarching suggestions for implementing IPD, as well as presenting case studies and lessons learned. More recently, *IPD: An Action Guide for Leaders* (Allison et al., 2018) details how the team should be structured, particularly regarding the Project Management Team and Project Implementation Teams but offers little information about which trade contractors should be chosen. Somewhat more specific, the AIA published a case study report of nine IPD projects (Cheng & Johnson, 2016) which had between 3-13 signatories, the most common being 3, and had between 4-24 additional contract parties in the risk and reward pools. While the total number of signatory partners was reported in all cases, only some listed which trade contractors were chosen and did not explain why.

Information regarding how many participants should be a signatory in an IPD multi-party agreement has only been informally discussed on the internet, blogs, and some published "how-to" guides for IPD adoption, but not verified by research. In a Lean IPD blog article, Bill Seed (2018) compares the benefits of using a multi-party agreement over a simple tri-party agreement, stating that he has seen up to 17 signatories on a single contract, with the average in his experience being eight. While he discusses the advantages of having as many signatories as possible, it can be hypothesized that too many signatory parties would render the decision-making process slow or burdensome. While existing literature concludes that other key supporting participants, including trade contractors, are necessary, it is still unclear which trade contractors should be invited to be signatories to an IPD contract to form the ideal team.

Interview Findings and Discussion

This research investigates the number of signatory parties that should be targeted in a multi-party agreement and what factors influence trade contractors' engagement in the multi-party agreement. To collect information from industry professionals active in practice, 13 semi-structured interviews were conducted, 11 of which were signatories to the main contract and two

of which were 2nd tier under one of the main signatory parties. Three interview participants were in the beginning stages of their first IPD project and choosing their signatory partners, while the other ten spoke about their most recently completed IPD projects. The seven projects discussed ranged from $70 million to over $1 billion, including healthcare projects, manufacturing facilities, educational facilities, and historic restoration work. One limitation of this research is the lack of representation of non-signatory participants to the agreement that had reasonable knowledge of the project and processes throughout. Participants were asked at the end of each interview to recommend other partners and project participants who worked on the discussed IPD project or any other industry professional whom they felt may have compelling knowledge.

The interviews were analyzed using inductive thematic content analysis to identify themes in the participants' responses to questions and discern unexpected feedback in their answers. Summaries of the participants' answers were established from the audio recordings of the interviews. Mind mapping techniques were used to organize the responses and recognize key ideas in the collected data.

In response to the question, "*What factors do you believe would dictate which trade contractors should be included as signatory parties?"* the participants' answers centered around a party's responsibility and experience. Specifically, five themes emerged: potential impact on project performance, risk, or profit; the percentage of their scope of the total project price; their willingness to embrace a collaborative culture; previous IPD experience; and previous technical experience related to the project. Regarding scope, it was recommended that approximately 70% of the total project scope should fall within the parties signatory to the IPD contract, with up to 30% subcontracted from those parties.

Additionally, participants were asked: "*What do you believe would be the ideal number of partners signatory to the multi-party agreement?"* Half of the participants reported that five to nine partners seemed appropriate; however, a substantial portion of the participants said that the number of partners is project dependent. They explained that it was difficult to choose an ideal number of participants to be a general rule because the number of signatories should always be project specific and would be dictated more by *who* should be on the project and *why* rather than *how many.*

Because the participants reported that the number of signatory parties is often project-specific, participants were asked to reflect on their most recent IPD projects. From the 13 interviews, seven projects were discussed, six of which were completed. The participants' reasons for why specific trade contractors were chosen to be on the multi-party agreement and what made them important to the project and decision-making process closely mirrored the five themes indicated by the participants when asked to name factors for an ideal team. However, a few participants noted that some of their trade contractors were chosen based on their potential to impact the project schedule. For example, electrical and mechanical contractors are often integral to the project's success in more technical projects, so they have a larger potential to impact the schedule. In addition, for all six of the completed projects, the electrical and mechanical contractors were signatories, with five also including the plumbing contractor. Although electrical, mechanical, and plumbing contractors are not suggested as signatory parties in published IPD guides, they are commonly included in practice. As one interview participant stated, "the electrical and mechanical contractors install the lungs and the neuropathways of the project, so they will always be on the contract."

To approach the question from a transverse direction, participants were also asked if there was anyone included on the multi-party contract that they felt should not have been included, or if someone had been excluded who should have been signatory. While only one interview participant noted that two signatories should not have been included on the main contract, half of

the interview participants who had completed an IPD project noted that they wished a contractor who held a more traditional contract or 2nd tier contract had been part of the profit pool and included in big room meetings as a main signatory.

One participant referenced wishing they had included the structural engineer as a signatory member, and two participants referenced that the steel erector should have been signatory. Notably, one of the steel erectors that was 2nd tier held separate contracts under the GC and mechanical contractors for rigging, mill working, as well as steel working and erection. One of the interview participants referenced a separate example of a project where they believed the OEM (original equipment manager) should have been signatory due to the amount of engineering required for customized mechanical parts, which would have saved significant profit had the partner been on the main contract. Another participant discussed that the masonry contractor (who they believe was in the risk pool) and the life safety contractor (who was not in the risk pool) should have both been signatory to the main contract on a historic preservation project due to complex historic materials and extensive owner equipment coordination and handoffs. One other participant mentioned their manufacturing facility project missed an opportunity to include the fire protection partner and some of the various core and shell partners. The last participant stated that, on their healthcare project, the concrete contractor should have been signatory due to their continued involvement in the project from beginning to end. From these examples, the concrete contractor and the OEM partner had been invited to sign the main contract but declined the invitation for a lump sum contract, and in doing so, both cost the project a significant amount of money from change orders and over-engineering. Notably, only one participant had regrets about trade partners who should not have been included as signatories.

When asked, *"In your experience, what are some reasons that a trade contractor may decline an invitation to be signatory?"* some interview participants mentioned that contractors may hesitate to accept an invitation to be signatory and join the profit pool, despite the financial advantages. Four reasons emerged: a fear of the unknown for the new contract; discomfort in having transparent finances as necessary for the open-book nature of the IPD contract; concern for other project partners having a direct influence on their profit; or a lack of staff or resources to handle the extra time needed for IPD management and implementation.

Figure 2 summarizes the suggested considerations from the professionals' perspectives. Although the interviews did not produce a clear formula for who should be included, the resulting feedback does provide a framework by which to guide IPD signatory party decisions. This work is grounded in feedback from several industry professionals, which is missing from much of the previous literature reporting on IPD procedures. While adding more signatories on a contract does not guarantee improved team efficacy, the interviewed professionals advise including parties that may have a direct or lasting impact on the progress of a project and are experts in their trade. A primary limitation to parties joining an IPD agreement is a lack of experience or preparedness for an IPD process. Although IPD contracts are gaining popularity in construction, leading parties should be mindful to keep all partners on a project well informed of expectations and advantages of the IPD work structure. Exact party inclusion may vary by project type and size with specialty trades playing key roles. With this initial, qualitative report of advisable signatory parties, future research can explore detailed questions of financial efficacy and procedures within IPD projects.

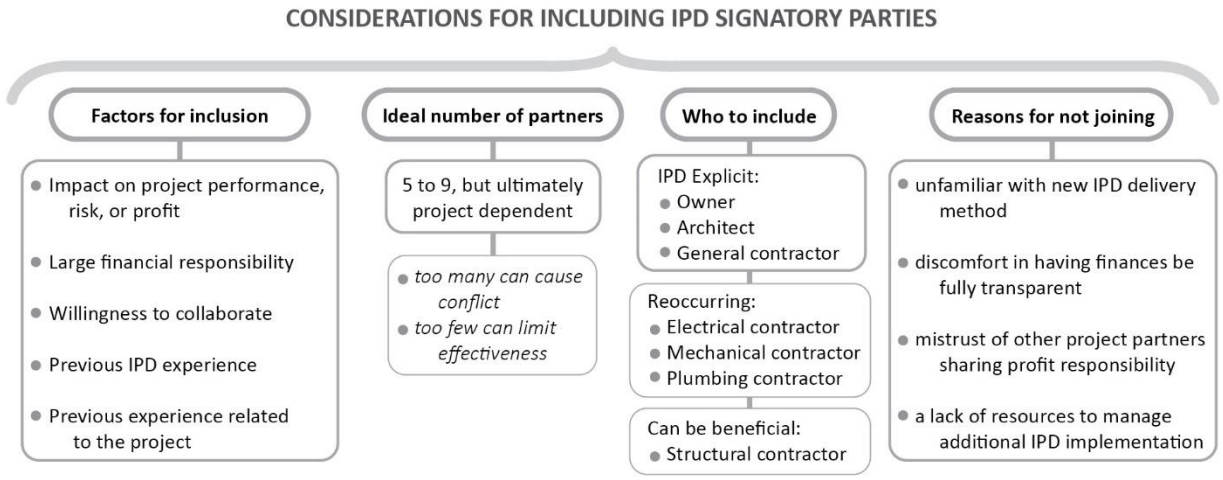

Fig 2. Summary of considerations for including IPD signatory parties

Conclusion

From these semi-structured interviews, it can be found that the target number of trade contractors to be signatory on an IPD contract is hard to specify as a rule and more dependent on the people and the project, although the suggested number of participants typically ranged from five to nine. It has been previously established that for a project to be a multi-party IPD project, the owner, architect, and contractor must sign a tri-party agreement. From the interviews in this research though, electrical and mechanical contractors, and often the plumbing contractor and structural contractors, will almost always be included as signatory parties. Past these findings, trade contractors should be chosen based on five themes: potential impact on project performance, risk, or profit; the size and importance of their scope of the project; their willingness to collaborate; previous IPD experience; and technical experience as it relates to the project requirements. Further steps for this research would be more interviews, particularly with a larger representation of 2nd tier contractors or contractors who held more traditional contracts on IPD projects.

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