

Integrating Project Delivery

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The subject matter of this book (Fischer *et al.*, 2017) was of specific interest to me and so I was pleased to note that it was available. Integrated project delivery (IPD) is a new and emerging form of project delivery that is distinctly different to the many traditional project delivery forms in the construction sector.

Traditionally, building owner clients have tended to favour a more differentiated approach to project procurement such as design-bid-build and design and construct (D&C). Traditional approaches strictly segregate the owner from the project design and delivery teams through contracts, team and individual behaviours and governance arrangements. IPD by contrast seeks to integrate the “triad” of “project owner, design team and delivery team”.

IPD integrates not only the triad entities but also adopts a totally different philosophical project outcome aim from a client-defined product to collaboratively arrive at a value delivery outcome. It also integrates the triad’s combined potential knowledge, experience and decision-action making capabilities. IPD comes in a variety of guises with a number of nuances and particular foci. My own interest in this book stemmed from my research over the past 20 years into an IPD form called alliancing (Hauck *et al.*, 2004; Lloyd-Walker and Walker, 2016; Walker and Harley, 2014; Walker and Lloyd-Walker, 2015; Walker *et al.*, 2015) that has been successfully adopted in Australasia (Davis and Love, 2011; Ibrahim *et al.*, 2015; Love *et al.*, 2010), Finland (Aaltonen *et al.*, 2017; Lahdenperä, 2009, 2014) the UK (Boukendour and Hughes, 2014; Smyth and Pryke, 2008) and the Netherlands (Laan *et al.*, 2011). Other forms of IPD have also achieved remarkably positive transformative outcomes in the UK. The positive experiences and lessons learned on British Airports Heathrow Terminal Five (T5) project delivery, for example, were migrated through a range of mega programs/projects including the London Olympic Games, London’s Crossrail and the Thames Tideway (Davies *et al.*, 2016). IPD has more recently appeared presenting a serious challenge to the traditional project delivery forms in the USA with its appearance through what has been termed the Integrated Form of Agreement used by Sutter Health in the USA (American Institute of Architects – AIA California Council, 2007; NASF *et al.*, 2010). Thus we see a growing and diverse interest in the various forms of IPD developing across the globe.

This book in my opinion provides a highly authoritative account of the development and practice of IPD within the US context. I welcome its arrival and the reason that I am writing this book review is because I believe that it makes a valuable, strong and commendable contribution to the field. I urge all scholars and practitioners in this general IPD field and the project management sub-set known as construction management to read this book. I was somewhat disappointed in the way that this book is so US focussed. It neither acknowledges IPD’s precursor forms nor attempts to discuss other IPD forms. However, all books have to limit their scope and focus and if the reader accepts that this book is a highly US-centric



publication (including use of technical terms that are probably unique to the USA) and reads it in that light, then they will probably gain much from its insights and content.

There are many useful insights and concepts that are very well explained and articulated in this book. There can be a danger that many relationship-based project delivery approaches are being lumped together as an IPD form. Partnering is one example that springs to mind along with seeing D&C as being “integrated” and joint ventures as also an integrated form of delivery. This book adds clarity to counter that tendency for confusion about what IPD actually means. I will start by highlighting my own personal takeaway from this book in how it helped me to better understand IPD before I explain the structure of the book.

IPD’s philosophical stance

The authors articulate five perspectives or angles that IPD can be considered from on page xxiii of the book. These are: value definition, the IPD framework, the environment in which IPD exists and thrives, the interactions that the IPD environment facilitates, and the IPD participant knowledge network. The authors refer to this as their “magic formula” and present it in their Table P.1 on that page. When you think in terms of these five perspectives, I believe that it is easier to see the differences in the various IPD forms compared with not only other collaborative approaches but also the traditional forms of project delivery such as partnering, D&C and joint ventures. IPD’s industry transformation aspect becomes clearer.

IPD’s basic premise

The purpose of IPD, and its main departure from many traditional and even other collaborative forms of project delivery, is summarised in their Chapter 18. They talk about “the project” as being merely a tool for the end goal of providing a means to create value. A hospital is a tool to provide health care for example. This highlights addressing two connected issues: “building the right building” and “building the building right”. To build the right building (and the same could be said of an IT system or a government policy or a pharmaceutical drug) requires more than a client merely working with an architect (or design expert) to articulate a brief based on the identified needs. A client can get what they asked for but not necessarily what they really want or need. That first step can be enhanced through IPD by including representatives of the delivery team to help the client explore options that they may not have contemplated and effectively validate those options. The second issue involves IPD to two things. First, ensure that there is both clarity of purpose and the means to deliver clear output and outcome standards. Second, use of appropriate and effective tools and techniques to minimise waste, optimise value and deliver what was promised. Thus IPD extends the available “intelligence” from the triad of project owner, design and delivery team participants to co-create the end result. This is different from the traditional dyad of owner-architect (designer) at the project front-end and the architect-builder (delivery entity) at the project implementation end. Indeed, the book also introduces the concept that the “owner” also includes the operational expertise of facilities.

IPD’s premise is therefore based on a triad of entities that co-create the “tool” that will deliver the required value that represented the project’s *raison d’être*. The view of the project outcome (as a “tool”) and the need, and indeed value, for the triad to make that happen is made very clear in this book.

Collaboration only effectively happening through open social human interactions

What especially came across strongly to me in this book is that IPD is an effective way to bind human motivation to a common purpose. The notion is given a lot of lip-service in many forms of project delivery but this book explains clearly how intense collaboration may occur for IPD.

I was taken with a comment made about Peter Senge's (1990) *Fifth Discipline* and the use of true dialogue in IPD (on page 302 of the book) explaining that the participants to a discussion share mental models to build solutions. This is quite different from parties to a conversation advocating a position to persuade others to adopt a set position. In building a solution, the parties explore their world views so that by sharing perspectives and challenging assumptions they can develop more powerful solutions to challenges they encounter. This requires both knowledge and power asymmetries to be removed so that parties can legitimately argue and explore options constructively. I have seen this to be the case in my research into alliancing (Walker and Lloyd-Walker, 2014) and it is clearly presented in this book particularly in Chapter 14. The description of how people are brought together in what they term a "big room" is particularly clear in this book. The real-life examples provide (see e.g. from pp. 329-355) details on how the co-location facility was set up, what technologies and facilities were required and how it drew people together to collaborate and jointly solve problems. The book provided, for me, the best-documented examples of co-location and collaboration examples that I have seen or read about.

IPD tools and techniques

I must admit to previously having some bias, or perhaps scepticism, against strident calls for lean construction to be adopted as a new and effective way to deliver projects. Lean has some very sound basic concepts that have been well explained by others (Ballard and Howell, 2002; Cheng *et al.*, 2016; Koskela, 2000; Koskela and Howell, 2008; Lichtig, 2005). When linked to IPD, lean thinking addresses the "human energy waste" aspect of efficiency. Lean has been argued as an effective and useful way to look at how IPD and alliancing for example may be operationalised (Vilasini, 2014; Vilasini *et al.*, 2011). Up to the time of reading this book, I had tended to view the lean construction concept as somewhat imposing itself on IPD (and alliancing), but this book makes clear links to Lean Construction approaches as being a vital part of IPD. I found this book useful in articulating the significance of "why lean is vital" type questions that had previously plagued me. For example, the book explains in detail, and particularly well in Chapter 15, how the Last Planner tool is actually used (Ballard and Tommelein, 2012; Ballard, 2000). The book is particularly strong at providing real-life examples from the case study projects with quotes and insights from senior-level participants who used these tools. New lean construction IPD practices are discussed in Section 15.4.2 on production planning. For example the practice of widespread use of building information models (BIMs) to help visualise the simulations for work flow operations is an eye-opener, particularly when teams use this tool to coach coal-face workers to increase their operational effectiveness in much the same way that sports coaches help athletes through visual feedback. The IPD power-knowledge asymmetry reduction and use of tools in this IPD (or alliancing) environment helps explain how valuable this approach can be. In Chapter 7, using another real-life example, the authors explain how the integration of process knowledge of designers (client side) facility managers, the main contractor and specialist subcontractor developed a building services rack that achieved cost, time and usability efficiencies that created much real value to the project.

Book structure

The book comprises 18 chapters. Chapter 1 serves as an introduction and sets the tone of the book explaining how IPD has achieved the stated benefits and efficiencies attributed to it. Chapter 2 provides an interesting "owner" perspective on why they decided to use IPD and what that required of them. It highlights the need for an engaged sophisticated open-minded client for IPD to work. Chapter 3 is titled "A simple framework" that explains and maps how integration of information, systems, processes and organisations facilitate measurable value,

effective production management, collaboration through co-location and how simulation and visualisation assists in this whole framework to achieve high performance-building facilities. Chapter 4 has a focus on what a high performance-building may look like and how it may be achieved. Chapter 5 then hones in on how a high performance building may be achieved and what makes it of value. Chapter 6 then explains how systems integration fits into this IPD picture with a useful example of a real-life example of a case study of a facility aimed to have a new zero energy building. The inclusion of photographs and rendered images very clearly explains how IPD operates effectively in this context. Chapter 7 has a focus on how process knowledge may be integrated and this is supported and illustrated with real-life examples. The explanation of how a building services rack development evolved is particularly interesting. Chapter 8 explains how integrating organisations was achieved on Sutter Health projects to illustrate the practicalities of IPD. Table 8.4 and Figure 8.10 on page 162 are very useful in understanding this aspect of IPD. The University of California San Francisco (UCSF) Mission Bay Hospital case study provides a practical illustration to support this chapter. Chapter 9 has a focus on leading integrating teams. This highlights the transformational thinking required of IPD participants. It supports other IPD publications that I have read that stress collaborative project leadership, for example Heathrow T5 (Doherty, 2008). Chapter 10 explains the importance of integrated project information. This goes beyond a focus on BIM but on how BIM and visualisation can provide tangible efficiency and effectiveness outcomes using the UCSF Mission Bay Hospital case study to illustrate more insights into integrated project information examples. Chapter 11 addresses the measurement of value and use of metrics in IPD. I found the insight into how video was used to analyse repetitive processes to assist coaching (on page 258) to improve work flow particularly interesting. Chapter 12 leads into a focus on visualisation and simulation of performance this clearly shows how important integrated information and BIM can be to achieve the level of understanding required by decision makers in choosing between multiple potential options to make an appropriate choice. This capacity not only reduces design clashes but also opens up opportunities to optimise work flow that otherwise would not be considered. Chapter 13 focusses on collaborating in an integrated project and what it would look and feel like. An interesting insight in this chapter is presented on page 300 in the description of how a “values workshop” was undertaken to help align a range of participants to better understand what each part valued and to help negotiate an agreed priority list. This (page 302) is where the goal of a true dialogue is not to persuade but to build solutions is explained. Once participants understand what each other values then it opens up the possibility for solution building rather than compromises that may be sub-optimal and it also facilitates a systems approach rather than a piecemeal “fixing” approach. Chapter 14 is about the value of co-location. This chapter stresses the point that physical co-location with its propensity for people interaction is far superior in trust building as well as relationship building than virtual forms of collaboration. Whereas information integration is essential and the use of technology for that to happen, people make decisions and judgements based on their physical interactions. Chapter 15 is about managing production as an integrated team. As explained earlier in this review, I felt that this chapter offers a lot of new insights and has an excellent real-life case study example to support the explanation of how this may happen effectively. Chapter 16 is brief and I felt rather disappointed by it. It discusses the pitfalls of traditional contracts. It was very sketchy, perhaps the book’s page count necessitated this but I felt that it could have at least pointed towards the large body of literature that exists both within the USA but also globally that provides a critical review of traditional project procurement approaches. Chapter 17 has its focus on a discussion of the way that IPD is shaped by its contractual arrangements. This follows a similar form to other literature on alliance agreement forms (Department of Treasury and Finance Victoria, 2010; Lahdenperä, 2014; Ross, 2008). In many ways, the USA IPD form and alliancing are close family relatives in the Wittgenstein sense (Yeung *et al.*, 2007).

Chapter 18, the last chapter, discusses delivering the high performing building as a product. I found the section on the links between building the right project and building the project right to be of most interest to me personally. This draws heavily on a paper by Christian and Bredbury (2014). The chapter also has insights discussed by six IPD experts with an in-depth explanation of how innovation may be sparked in IPD to add value. They draw from real-life examples that really flesh out concepts and add meaning to IPD.

In summary

This book review ended up much longer than I intended and from a selfish perspective, it is one that I will attach to my “endnote” entry for the book as a useful set of notes and reminders of the book’s content. I hope that it will serve the same purpose for many readers of this review.

The book is very US-centric and that is disappointing on the one hand. This is because, by not acknowledging what has been happening in the UK following on from T5 and in Australia and New Zealand, for example, over several decades of alliancing, readers may be left with the impression that IPD is a completely US proprietary concept. The fuller story of IPD in the broader global sense is available and I have tried to alert the readers to additional sources in my book review introduction. There are many more papers, books and reports that readers interested in IPD may refer to.

However, this book is by any measure a truly strong contribution. Its strength lies not only in the way that it explains how lean construction, BIM and visualisation (that should be advanced for all construction projects) enhance productivity and delivery performance, but the book also places a great focus on explaining in detail how people collaboration in IPD is the key. The absolutely fabulous illustrations of supporting arguments, insights and contextual materials through reports on real-live project analysis set the book apart from other sources on IPD that I have read. On that basis alone, it is a must-buy for many practitioners and university libraries and would be valuable for special academic or training courses on IPD. I am glad I read it and felt that this was a sound (time) investment doing so and also reflecting on it in this book review.

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