



Integrated Project Delivery:

Findings from the SLCR Forum

BY HOWARD ASHCRAFT, JOHN IGOE (BCCR, SLCR) AND ERIC H. THORPE (BCCR, SLCR)

The construction industry at its most basic level hasn't changed much in millennia – fundamentally it's the organization of labor and materials to complete buildings of the right quality at the right cost and in the right amount of time. However, at every level of consideration above that, advances are occurring in methods, materials and technology that are driving significant improvements in building performance now and offering the potential for significant breakthroughs in the near future. Building durability, livability, energy efficiency and sustainability are improving continuously.

Achieving this potential, though, requires a corresponding improvement in project delivery and management. Trust-based partnering must replace the typical adversarial approach that results in increased risk for all participants along with unresolved defects, change orders, disputes, litigation and the corrosive effects of distrust.

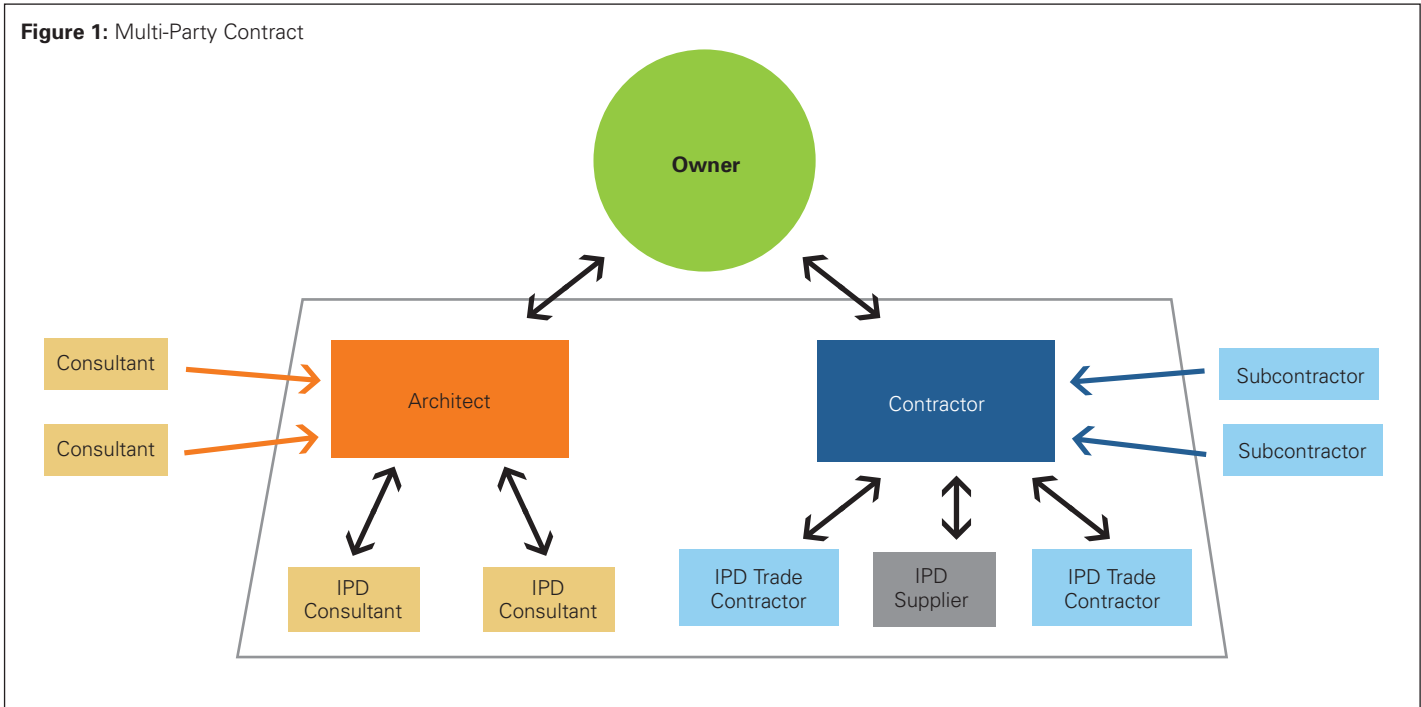
Integrated project delivery (IPD) was the topic discussed at the Orlando Senior Leader of Corporate Real Estate (SLCR) Forum with a panel of industry experts, including: **Howard Ashcraft**, Partner, **Hanson Bridget LLP**; **Greg Howell**, President, **Lean Construction Institute**; **Dave Seastrom**, Regional Manager, **DPR Construction**; **William Seed**, Staff Vice President, **Universal Health Services**; and **Steven Wilson**, Principal in Charge, **HMC Architects**.

Following are some of the key points presented by this panel.

IPD: High-performance Project Delivery

A basic tenet of systems thinking is that structure affects behavior. Despite this truth, the architecture, engineering and construction (AEC) industry has approached facility development with little consideration of how project delivery structures affect project outcome; and results reflect this neglect with significant waste, loss of value and late and over-budget projects.

Figure 1: Multi-Party Contract



IPD addresses this situation by formulating business and legal structures that remove impediments to collaboration, encourage positive behaviors and are aligned to the desired goals.

IPD is designed to create intense, project-focused collaboration among all participants, throughout all project phases. Many of the most important recent advances in the AEC industry – building information modeling; lean design and construction; and sustainable, high-performance structures –

require early, intensive collaboration from designers, builders and owner participants. But these advances by themselves do not provide the structures to make collaboration happen; IPD provides that structure.

IPD should be distinguished from aspirational collaboration, such as in partnering, where parties seek to create informal relationships and commitments that improve cooperation and reduce disputes. But partnering doesn't change the basic

Figure 2: Poli-Party Contract

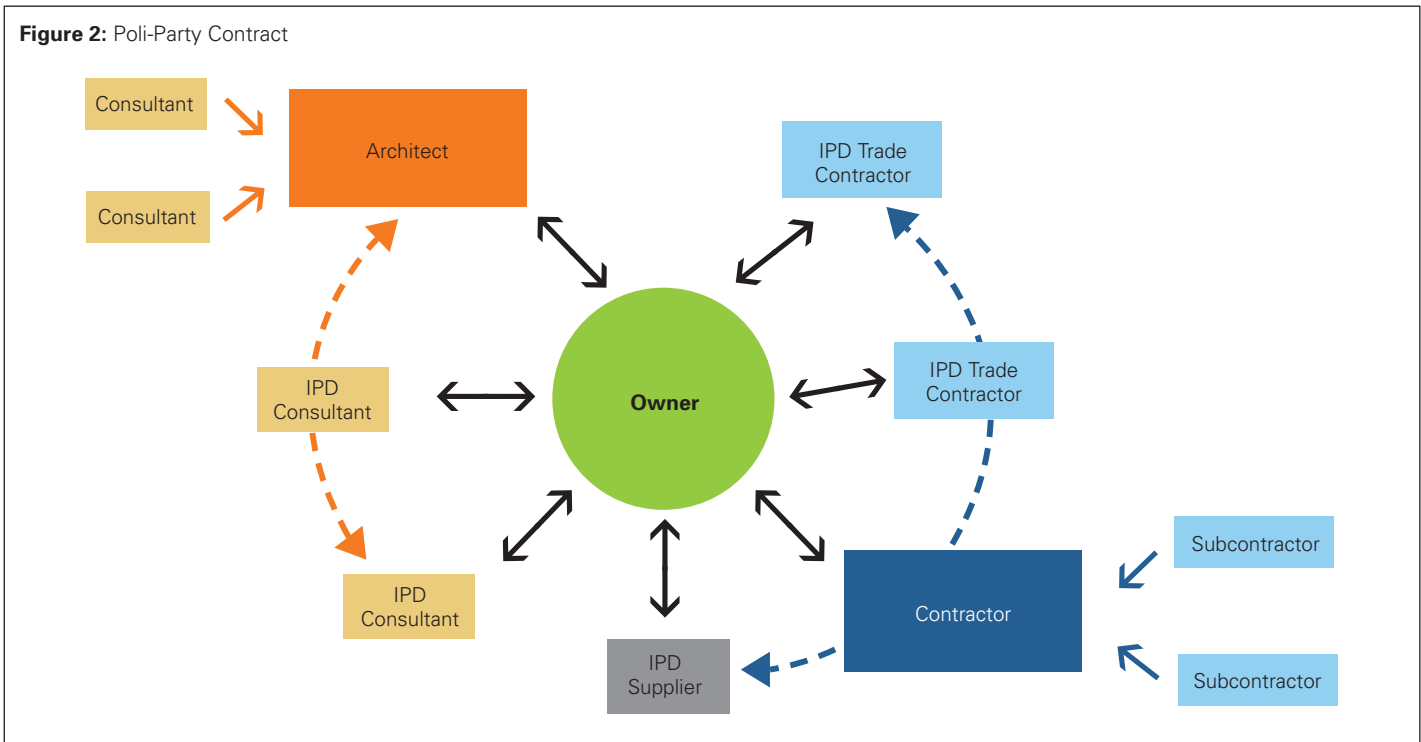
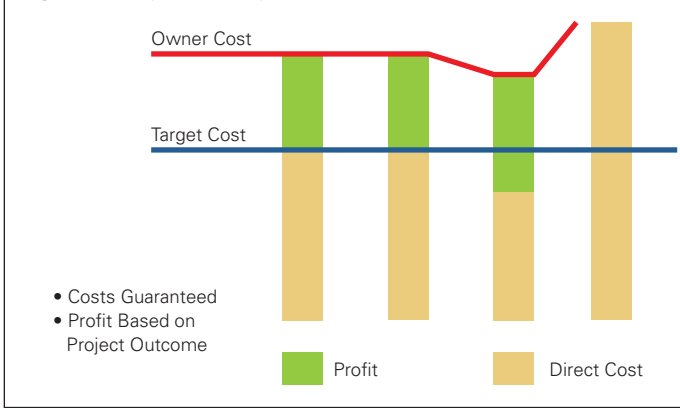


Figure 3: Simplified Compensation Model



business arrangements and incentives, nor does it alter the limitations, obligations and liabilities imposed by the parties' contracts. Thus, when the going gets tough, collaboration is easily sacrificed to individual interest.

In contrast, IPD changes the rules and enforces them contractually. It is focused on causes, not just symptoms, and binds the parties in a closed, self-regulating system. If the project starts to drift off track, the constraints (such as limited availability of change orders and waiver of claims among IPD participants) combined with the incentives (profit based on overall project outcome) drive the project back on course. Teams must learn to anticipate and rapidly solve problems because the structure gives them no other practical choice.

What Does IPD Look Like?

There are many possible ways an IPD project could be executed, but the simplest and most common approach uses a single contract to bind the owner, architect and contractor into a business structure where the owner pays the IPD team's costs (without profit) and the team places their anticipated profit at risk depending upon project outcome, with the possibility of increased profit if the project exceeds targeted expectations. Other key project participants are bound to this business deal through joining agreements to the prime IPD agreement, or subcontracts that flow through the claims waivers and risk/reward principles.

The risk/reward structures vary considerably in order to tune the IPD structure to the desired outcomes. For example, if lowest cost was the primary objective, the risk/reward metrics would emphasize delivering the project at or below target cost. If value for budget is more important, then the metrics emphasize what features or qualities can be included in the project while maintaining budget. Life cycle costs, sustainability, suitability for use

or other performance metrics can also be included.

The IPD structure is designed to make collaborating to achieve project goals the best way to achieve individual success. Although there are variations, five essential elements are part of full IPD projects.

1. Early Involvement of Key Participants. In a groundbreaking study, Dr. Victor Sanvido and Dr. Mark Konchar found that in the best-performing projects the key participants – designer, contractor, consultants and trade contractors – were on board before the design was 20 percent complete. Their findings fit well with behavioral research and common sense. Creativity requires knowledge, which means that designers need all of the available information, much of which resides with trade contractors and vendors before they start design. Creativity also flourishes amidst diversity, and the differing perspectives of designers, trades and facility managers lead to more innovative outcomes. Finally, harvesting these insights before the design unfolds avoids the wasted time and effort of design, price, value engineer and redesign that plagues many projects.

2. Reduced Liability Exposure. Liability among risk/reward team members in an IPD project is radically limited to improve communication, collaboration and creativity. Although challenge spurs performance, fear creates defensiveness. Parties who fear being sued for providing information or extending outside

of their traditional behaviors retreat into their silos. Reduced liability exposure lowers communication and creativity barriers and stimulates creativity. As an added benefit, it also reduces wasted litigation costs.

3. Joint Project Management. IPD places authority for project management squarely in the hands of the personnel with the greatest understanding of the project and the ultimate responsibility for project success. The benefits of this

Trust-based partnering must replace the typical adversarial approach that results in increased risk for all participants along with unresolved defects, change orders, disputes, litigation and the corrosive effects of distrust.

approach are faster and better decision making and greater commitment to the project. In IPD projects you often find parties deeply concerned about all aspects of the project, not only those that are within their immediate responsibility. You can tell a project is working well when an outsider would have difficulty telling who worked for which company.

Joint project management is mirrored in cross-functional teams that perform the daily work of the project. The IPD management supervises teams, often called cluster groups, that are drawn from contractors, owners, designers, trades and facility managers and are formed around specific problems or related systems, such as a mechanical-plumbing-electrical-fire suppression group. Within their areas, these teams have responsibility for scope, schedule and budget.

4. Joint Target Setting. Target setting in IPD is a critical

activity. The owner wants to know that the targets are sufficiently aggressive. The team wants to clearly understand what it is being asked to do, and the targets need to be set early enough that the team is incentivized to be as creative and efficient as possible during design development. In IPD, we not only want to build a building efficiently, we want to build the right building. The validation process ensures that all parties have a common understanding of the goals to be achieved, and more importantly, have committed themselves to achieving these goals. This common understanding and commitment is developed well before the design is fully developed and guides the team throughout the project.

5. Shared Risk/Reward Based on Project Outcome. Risk and reward are shared among the participants through a series of related financial agreements, including the integrated form of agreement. First, the participating parties profit is eroded dollar for dollar if costs exceed target and is increased by a shared savings formula if costs are less than the agreed target. Second, there is no cost cap. The owner pays costs until the target is reached, the team's profit is then eroded, and if fully eroded, the owner would pay costs until completion. The team agrees that it can only receive change orders for very limited reasons (primarily owner-elected scope changes, differing site conditions and changes in laws).

Shared risk/reward leads to project commitment, alignment on goals and selfless action. After all, what sense is there in taking individual action that reduces project success – and thus your own profit?

What Enhances IPD?

- Key participants bound together as equals
- Shared risk and reward based on project outcome
- Fiscal transparency between key participants
- Early involvement of key participants
- Jointly developed project target cost
- Collaborative decision making
- Lean construction methodologies to drive out waste
- Focus on what is best for the project as a whole

There are several adjuncts to IPD that, while not absolutely required for an IPD project, significantly enhance it.

Team Colocation (Big Room). The ideal project work environment is complete and continuous colocation. Daily work is performed side-by-side in cross-functional/cross-disciplinary teams. Interactions among teams are spontaneous and continuous. Status of specific systems, performance to budget and schedule, performance metrics and progress toward goals are prominently displayed and promptly communicated to the full team. The joint project managers can see everything that is happening and can plan or intervene appropriately.

Where full colocation is not possible, IPD leadership must develop alternate strategies for achieving comparable benefits such as combining a period of intense full colocation with episodic colocation using appropriate technology.

Lean Design and Construction. Lean is a process of designing work to eliminate waste and improve productivity and flow. The Lean Construction Institute has adapted or developed principles

and tools from a broad range of sources, including the “Toyota Production System.” Lean focuses on continuous improvement not only among projects, but within a project itself. Many of the Lean tools, such as pull-scheduling, value stream mapping, A3 reporting and the Plan Do Check Act analysis have been adopted by high-performing contractors and designers.

Building Information Modeling. BIM can be viewed as a tool to prepare drawings or a means of visualizing in 3D, but it is much more. BIM is also a common framework for sharing information among project participants that enhances their common understandings. It is a space where ideas can be prototyped and the construction process simulated and refined. From an IPD standpoint, BIM is not just a technology it is a framework for collaboration.

About the Authors



Howard Ashcraft heads the Construction Group at **Hanson Bridgett LLP** in San Francisco. A graduate of Stanford University and Boalt Hall (University of California School of Law), he has practiced construction law for more than 30 years and is at the leading edge of project delivery innovation and use of digital technologies.



John Igoe is the Director of Real Estate, Design and Construction for **Google**. He is responsible for all real estate for the Northern California region, as well as the design and construction of all projects in that region. **The Google Real Estate and Workplace Services** team is renowned for building and maintaining unique, invigorating environments that allow its employees to focus on innovation.



Eric Thorpe is Managing Partner of **Terra Novo Partners**, a corporate real estate advisory practice focused on turning real estate insights into business results for small- and mid-cap clients and Fortune Global 500 companies.

For more information on this topic, please search for this title on our Knowledge Center Online.

The Lean Construction Model
Orlando Summit Breakout Session