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FEATURED ARTICLE:
Integrated Project Delivery (IPD) in Public Works Projects
by Michael Ellegood, P.E.

IPD is a process of project delivery developed by the architectural community to enhance the collaboration and cooperation among the three parties to a capital project (Owner, Designer, Contractor). Unlike previous methods of improving collaboration like Partnering, Design-Build, CMAR, etc., IPD takes this to a new level using BIM software to foster the open exchange of information. Often the parties to the project enter into a multi-party agreement that describes not only the outcome of the project but also how risks are being shared and how the parties will be compensated. IPD is an open process based on transparent communication and mutual trust. The typical design-bid-build approach is a process of the past.

Although IPD has shown exceptional promise particularly in complex and innovative architectural projects, its direct application to public works projects remains elusive. Most public agencies have a very prescriptive contracting process designed to maintain a strict audit trail and to protect the public dollar at all costs. Even if IPD has been proven to deliver exceptional project value for all parties, it is probably not legal under current public contracting rules.

Although the contracting aspects of IPD are probably neither legal nor perhaps even practical for public projects, the philosophy behind IPD is certainly desirable and can be greatly beneficial in public project delivery. According to a pamphlet developed by the AGC, “Based on principles of trust and mutual respect, mutual benefit and reward, collaborative decision-making, early involvement of key project participants, early goal definition and intensified planning, and open communications, IPD is emerging as an effective project delivery choice for the industry.”

If we now consider why our public projects go over budget and are delivered behind schedule, we understand that most projects experience one or more of the following conditions:

- Inability to obtain rights of way on schedule
- Unexpected utility interferences
- Environmental permitting delays
- Public acceptance
- Construction “surprises”

Note that none of the above causes has anything to do with the technical aspects of the design. But we have tools in our toolbox to adapt IPD philosophies to our prescriptive project delivery process; we can for example:

- Integrate ROW, utility coordination, environmental permitting and PIO staff into the project team at the beginning of the project.
- Treat the “non-design” staff with the same respect and consideration as the designers, including them in project communications and considering their issues and processes as schedules and budgets are developed.

CONTINUED / PAGE 2
IPD: Seven Years Later
An Interview with Randy Lewis, Vice President of Loss Prevention and Client Education with XL Group’s Design Professional unit

Back in 2007, the American Institute of Architects (AIA), in collaboration with the AIA California Council (ALACC), produced Integrated Product Delivery: A Guide, which helps define IPD and offers guidance on principles and techniques. And ever since then, the adoption of IPD on construction projects has become a staple—resulting in collaborative projects of increasing value to the owners, with reductions in waste and inefficiency.

But does IPD have its drawbacks? Is it possible that IPD is just a trend? And what exactly has been its impact on the industry? PSMJ sat down with XL Group’s Design Professional unit’s Vice President of Loss Prevention and Client Education Randy Lewis to discuss these and other questions.

How do you feel IPD has affected the industry?
I think it has given owners and developers who are willing to embrace a new set of rules, roles, and responsibilities another option for getting what they want: a predictable project outcome. Of course, the delivery method in and of itself doesn’t guarantee predictable outcomes. It really depends upon the intent and involvement of all of the parties.

Is IPD an essential model? Or is it just a trend?
It’s only an essential model if the delivery team wants to have a really good opportunity to meet most or all of the objectives that the owner has established. I never saw it as a fad … I saw it as a real opportunity to address the weaknesses that exist in some of the traditional delivery models. The integrated model brings all stakeholders together early to help eliminate inconsistencies.

What do you think makes IPD most effective?
The emphasis on collaboration and innovation. Which is why selection of the right participants is key. Owners need to come at this from a quality perspective; where they are not selecting the players based on lowest first cost—which is bidding—but are selecting the players based on the players’ ability to deliver what the owner wants. There needs to be a high-level of communication and cooperation among the participants and a sincere attitude of “I’ll watch your back, you’ll watch mine.” Ultimately, the model is intended to bring the greatest value to the owner.

What do you think are IPD’s biggest drawbacks?
I can think of three. First, there’s really no standard model for first-timers to follow. Second, there are a limited number of standard form agreements. AIA and ConsensusDocs IPD forms are available, but many organizations end up creating their own. Third, it’s often difficult to convince owners to get on board with the IPD model. I’ve talked to people who’ve said that the scariest day in their lives was the day they signed the contract because they were agreeing to things that they had never agreed to before. But when they’d completed the project, they said they were sorry that it was over, that they’d made money, and were still friends with everyone else around the table—and they couldn’t wait to do the next project. That’s rarely the case at the end of a construction project. That’s why I think IPD represents a great opportunity.

In 2012, you said it was “not for everyone.” Do you still feel that way?
I do. Because of public procurement laws, I don’t think IPD will gain traction in the public sector. The laws would have to change significantly in that sector for IPD to work. Also, PPPs (public-private partnerships) are starting to gain favor in the public sector. But in the private sector, I think IPD offers a great opportunity. That said, I was recently asked by someone at an AIA conference about project insurance for a multi-million dollar project. I suggested that they use IPD instead of buying the insurance—and was promptly told that the board of directors wanted to buy project insurance so they could have the option of suing somebody if they wanted to. So when I say IPD is not for everyone, I mean it!

For more information, email Randy.Lewis@xlgroup.com or call 303-690-1473.

Integrated Project Delivery (IPD) in Public Works Projects
(continued from page 1)

• Include the end user and construction experts in design review and coordination.
• Employ partnering with the contractor and believe in it.
• If possible, use alternative methods of project delivery (D-B, CMAR) that allows you to select the contractor based on qualifications and best value rather than lowest cost.

The IPD philosophy is not new; in fact, it harkens back to the era of the master-builder. But the notion of collaboration, communication and shared responsibility, mutual respect and reward are as applicable now as they were in times past.

Michael Ellegood, P.E., has over 40 years of project delivery experience both as a private consultant and as a county engineer/public works director. He has developed and presents highly acclaimed project management seminars for public works agencies in the US and Canada. He is a Senior Consultant with PSMJ Resources and a frequent contributor to PSMJ’s Project Management journal. He can be reached at mellegood@psmj.com.
Eighteen months ago, I wrote an article querying whether IPD could be a “sea-change” in the design & construction industries. That article appears in this issue; I have continued to ask that question. And I think the answer is “No”. Here’s why:

1. IPD, like BIM, is not disruptive technology or even revolutionary. Both are evolutionary, and big system evolution takes time. We are now two decades or more into the BIM movement – and although everybody is “doing” BIM, almost all are only doing the parametric modelling parts of BIM.

2. Undoing the entrenched, ill-conceived “best value” idea noted in my earlier article will take decades: Legislation is another evolutionary system that moves at glacial speed.

3. IPD is just the latest in a very long line of delivery model ideas aimed at producing better and more enduring value in built environment design and construction. None have ever really delivered the results that their proponents hoped for. Will IPD be different?

4. The reluctance of many players to give up their rights of legal action against their IPD team partners.

5. The vast number of players and the traditional lack of any over-arching responsibility for outcomes make the “integration” part of the concept hugely difficult.

6. The integration skills required are extremely rare; they simply are not part of any of the main design discipline training programs, as far as I know.

The last of these points is where we might find one of the keys to unlock the potential of IPD, and is the focus of this article. Depending on how you count them, there are at least 25, and probably 30 or more, distinct design disciplines in the built environment industry. We are as specialized as the medical and legal professions, but our task-sharing and referral habits aren’t as good as either.

We need one more professional design discipline, which I call Coordination & Integration. This discipline, in my view, needs its own systems, tools, syllabus of study, and certification. If it fits anywhere in the current panoply of design disciplines, it would be part of design management – itself a quite new idea.

I’m surprised that project management organizations such as the Project Management Institute and PRINCE2 haven’t already moved to “put their foot” on this new bit of high ground. However, the skills required to comprehensively coordinate and integrate the outputs of two dozen or more design disciplines are as rare in project management circles as they are in architecture and engineering circles. “Coordinating and integrating” tasks go much deeper than management tasks, and require a deeper understanding of the design processes than most PMs have learned.

My own work in this area comes from a decade of building a design management software application (see www.iprojects.net.au), and in the structure of a book on the topic that’s in the making. I can’t begin to condense all that information into a 800-word article, but I can outline a few critical points that are required if the concept of “integration” is to have useful meaning:

1. The “Coordination & Integration Manager” (CIM, to coin a new acronym) must prepare a preliminary coordination matrix that identifies, insofar as possible, all of the points where coordination is likely to be an issue. This matrix will necessarily be incomplete, but will serve as the starting point.

2. Each consultant in a project team must review the above matrix, and in addition think for themselves what coordination is required with what other design disciplines, and feed those potential coordination points back to the CIM.

3. The client / client group and the general or coordinating contractor similarly must provide input into the matrix.

4. The focus of these steps must go beyond identifying “problems”, such as clash detection, but must search for synergies growing out of a coordinated approach that can deliver greater value to the client and reduce unnecessary cost and time for the contracting team.

5. A project-wide key task allocation methodology is required, whereby service gaps and overlaps are eliminated, and tasks that can be performed by more than one consultant are programmed for the best-qualified team member. (In the iProjects model, we call this “TeamWork”)

6. As project work progresses, the CIM tracks resolution of all potential coordination issues, and takes a proactive, managerial role in the integrative process. In particular, the CIM’s role is to keep rework at a minimum for all team members.

7. Tools such as Visioning Workshops, Design Reviews and Coordination Checklists will make it much easier for the CIM to track and monitor compliance.

8. In all of this, the CIM works closely and in parallel with the project manager to achieve the best possible outcome.


If you have back copies of Project Management, these past articles by the author are closely related to this topic: Inter-Team Coordination: The Basics (April 2014) Pre-Agreement Precautions (March 2014) Visioning Workshops (June 2013) Getting the Brief Right (May 2012)
The Good and Bad of Integrated Project Delivery (IPD)

by David Whitemyer, AIA

Clients want projects to be good, inexpensive, and fast. No project can be all three, and clients often have to sacrifice one of these goals in order to get the job done. But through recent attempts to accomplish all three, Integrated Project Delivery (IPD) was born. IPD is a fusion of the familiar approaches to project delivery: Design-Bid-Build, Design-Build, and Construction Management; and so it retains many of the best attributes for each of those approaches, while shedding most of the inefficiencies.

Engineers, architects, and builders/contractors—rather than being pigeon-holed into their traditional roles—come together as one at the beginning of a project, with shared risks and incentives. But whether or not IPD is a universally successful route to project completion is still up in the air, with a lot of debate.

This debate was highly publicized back in 2010 when a study done by the AIA and the AIA California Council showed successful application of IPD in numerous building types, of varying project scales, and in different parts of the country. The leader of the study, Jonathan Cohen, stated that IPD “allows for creativity and innovation in the way stakeholders approach a project, avoiding a ‘one size fits all’ formula, and instead finds solutions unique to the specific building issues.”

As with any project delivery method, there are pros and cons, upsides and downsides.

Here are a few related to IPD.

Clearly, the biggest benefits from IPD are the open communication, clarity of costs, and protection from liability through group ownership of the entire process, from design through construction. There are more pros than cons, but that doesn’t necessarily mean that the pros outweigh the seriousness and risk of the cons.

If you can suggest other pros and cons about Integrated Project Delivery, based on your firm’s experience, please share them with PSMJ. Send an email to editor@psmj.com and let us know what you think about IPD.

IPD PROS

- Owners see improved cost management.
- Very early in the project, a detailed, fairly accurate GMP is determined.
- There is less potential for litigation, as there is only one shared responsible entity.
- According to recent studies, through team-build approach, design services cost around 2% to 5% less than traditional methods.
- Final project cost is often about 6% less than with a typical design-bid-build delivery.
- There are no mark-ups through competitive bids.
- There are no change orders due to errors and omissions, because of the ownership and acceptance of all parties.
- Builders/contractors enjoy more pre-planning time and a deeper understanding and involvement in the design and design process.
- The owner is involved in the selection of subcontractors through open bidding, while the prime contractor is responsible for the subs.
- Architects complete less formal documentation, allowing more time for actual design.
- There is open communication between all contractors and the client.
- The designer and general contractor have shared accountability, but remain separate, which enables them to keep each other in check.

IPD CONS

- It’s a challenge to accurately point fingers when problems arise. As the saying goes, when everyone is responsible for the outcome, no one is.
- IPD is still a fairly new project delivery concept and hasn’t been completely bought into by the international A/E/C industry. Many firms are still unfamiliar, uncomfortable, or simply inexperienced with it.
- Decisions are made by committee rather than by sole individuals or organizations, which sometimes requires more time or results in a lowest common denominator.
- Insurance companies have been slow to embrace the benefits of IPD.
- IPD requires strong personal relationships and good rapport amongst the team members, which can be a challenge when chemistry doesn’t align.
- IPD’s transparent process provides opportunities for clients to overly micro-manage all aspects of the project.

71%... the percentage of projects that are completed successfully when they’re aligned with the organization’s strategy, according to the PMI 2014 Pulse of the Profession report. The number is a low 48% when projects are misaligned with company strategy.

12... the number of positive experiences it takes to make up for one unresolved negative experience, according to author Ruby Newell-Legner.
In late 2013 Harvard Business Review published a book (in paperback and e-book format) that includes a compilation of the top management advice. It’s worth a read, as the bulk of the suggestions—for managing both work and life—are applicable and extremely helpful to A/E firm leaders and project managers. Here are five of HBR’s top management tips.

1. Reserve Time For Yourself.
This is not intended to preach a work-life balance or recommending that you take up a new hobby. It just means that you shouldn’t spend 40-60 hours each week only working for your clients and your supervisor(s). Devote a bit of time to your professional improvement. HBR suggests that you actually schedule a meeting with yourself.

2. Quality Over Quantity.
You’ve heard it before, but here it is again. Multi-tasking does not work. It’s inefficient and requires a limited focus on whatever items you’re working. HBR recommends prioritizing your tasks and postponing the ones that don’t need your immediate attention.

3. If You Don’t Have It, Pretend Like You Do.
Don’t waste time or energy thinking about what you can’t do or what you can’t finish. HBR says that professionals that are able to imagine themselves succeeding and completing challenging tasks, usually do.

4. Divide And Conquer.
Instead of focusing on the big picture—the project completion, for example—divide your large, overwhelming tasks into small, bite-sized chunks. Not only does this conserve energy, it helps to provide a realistic perspective of what you can accomplish each day—or even in just a few hours.

5. Accomplish At Least 3 Tasks By Lunchtime.
It’s much easier to complete 3 – or more! – tasks by noon if you sit down each morning and plan your day. Organized leaders and managers have to-do lists, and you should be able to knock off at least 3 of your to-dos by lunchtime. And then, enjoy your lunch!

Changing Our Idea Of Change

We live in a world of change, and as PMs, we manage change daily in our operations. Frequently the changes that take place are of gigantic proportions—more frequently, they are little things.

All change is difficult because it is new and different and this disturbs our sense of security, but difficult or not, change must be managed. As PMs, we deal with the people who must accept these changes. For this reason, it is essential to note the precise reasons why people often resist change.

The purpose of change is unclear. If we are ambiguous or vague, our people will find it difficult. It is essential, therefore, that we understand why the change is being brought about and that we communicate our understanding clearly to those we manage.

They are not involved in planning for the change. People tend to support what they create. As managers, we are responsible for the overall plan toward new creative methods or procedures. However, if we involve our people in this planning, we can minimize the resistance.

The change is based upon a personal appeal for change. Our subordinates might indeed have loyalty, and it is no small thing to have this quality today. But it is insufficient and ineffective if we appeal only to their loyalty and ask that they “do to for me.” To lessen this resistance, we must make clear “what’s in it for me?”

You ignore the standards of acceptance of the work group. The worker satisfies his needs from the response he receives from his peers more than his supervisors. We as managers must affect the whole work group so that the emphasis will be on cooperation toward change rather than resistance to it.

CONTINUED / PAGE 6
Does IPD Herald a Sea-Change In The Design & Construction Industry?

By Charles Nelson AIA LFRAIA

Frank Stasiowski, Founder and President of PSMJ Resources, Inc., in his book entitled IMPACT 2020, talks about “10 earthquakes to come in our professions.”

We agree with these ten examples but think there is another fundamental movement of the “tectonic plates” that undergird the built-environment professions, which will have significant and unpredictable outcomes for the way we work.

This key change is the recognition, finally, that a half-century of reliance on the idea that “best value” could be obtained by breaking a project into a lot of pieces and buying each piece for the lowest price was a massive mistake that simply could not deliver best value. Unfortunately, this presumption is now enshrined in thousands of laws, and millions of client brains, and will die slowly and painfully.

The fact that both GSA (the US General Services Administration – one of the world’s largest clients for designers) and the US military have not only accepted IPD but are moving to redefine procurement to use it as the preferred model is an incredibly powerful force and a massive change with consequences that are hard to predict. But it will require realignment of the entire delivery model and the roles of everybody in it.

In many ways, IPD is a child born of the Partnering movement and the Design-Build movement, incorporating the best genes of both, but outgrowing some of the inherent problems of both. Australia has its own version of IPD, called “project alliances.”

The core ideas that put alliances and IPD into the same genus are (a) a charter of project intent (much like that in the partnering concept) agreed by all parties, and (b) a typically required agreement entered into by all parties that they will not take legal action against each other.

The theory embodied here is that if the possibility of litigation can be removed from the mix, it eliminates a major risk factor for all participants – and in the process forces all participants to act in the common interest, rather than maximizing self-interest.

Some project alliances are very successful, delivering significant benefits to all players. Others have been less successful – generally when the large construction entities that put them together have used their power and position to “muscle” the design team into making design decisions that are not ultimately in the clients’ best interests.

We’ve already seen one of the consequences of the project alliance movement in Australia: lawyers have quickly moved to reposition their roles to no longer rely on litigation as a primary means of making money – and have quickly created new service lines in (a) writing the project alliance agreements, and (b) advising clients planning to enter into them. The intellectual property value of the first of these is significant: Just try to find a template for these online!

Which Electronic Document Management Software (EDMS) package does your firm prefer to use?

A. Adept
B. AutoEDMS
C. Control Central
D. FileNet
E. Meridian Enterprise
F. Open Text
G. ProjectWise
H. Vault Collaboration

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Changing Our Idea Of Change

(continued from page 5)

There is poor communication about the effect of the planned change. The rumor mills will work overtime should we fail to indicate clearly what is happening. Fear of what it will mean to our people and their jobs will disrupt morale unless truth is spoken. What is it that we cannot tell our people? Truth clearly communicated is the greatest weapon against rumor and resistance to change.

There is fear of failure. Managers who are willing to create a climate of security throughout the period of change will eliminate fear. We must assure our people that we are aware of the difficulties if we want them to become eager cooperators.

Charles Nelson, AIA, LFRAIA, is the Director of PSMJ’s Australasia practice. He is also known for writing and speaking extensively on project and practice management. Charles can be reached at cnelson@psmj.com.
A Project Manager’s Perspective on Integrated Project Delivery (IPD)

by Peter Rauma, AIA, NCARB

As a project manager, do you have one project that stands out in your mind as being more successful than others? As I found out by talking with Renee Cheng, AIA, Head of the University of Minnesota’s School of Architecture, “… that experience probably included exceptional team work, collaboration and communication…”

Renee is known as the preeminent expert on IPD. She is the Principal Investigator for a recent landmark study on IPD—Integrated Project Delivery: 2012 Case Studies, AIA/AIA-Minnesota/University of Minnesota from March 2012.

Here, I talk with Renee about her recent research.

How is IPD different from other design/construction methodologies?
Since IPD is a relatively new delivery model, it is not surprising that there is less project experience with IPD than with traditional or design-build delivery models. As project managers, we have all had experience with collaborative or even integrated team delivery (usually in the form of Design-Build but sometimes found even in Design-Bid-Build settings), but IPD in its pure form requires significant rethinking of many core processes.

What are the consequences of IPD and how does it influence project outcomes?

• Participation by general contractors may be influenced by the economy. During difficult financial times they may be less eager to participate in IPD if traditional “bidding” opportunities are available. Traditional construction projects are more familiar and less risky with more predictable outcomes.

• Architects should be aware that IPD is more intensive in the pre-design and planning phase while construction phase services require less effort. If executed as conceived, IPD “reduces the number of mistakes which results in fewer punch list items and less change orders.”

• Successful IPD requires LEAN practices. Lean Construction extends from the objectives of a lean production system—maximize value and minimize waste. It uses specific techniques, such as the Last Planner System, Target Value Design, and applies them in a building project delivery process.

Is IPD a trend/fad?... is it worth keeping?... and where will it be in 5-10 years?
I believe that IPD is here to stay, but since it is in its relative infancy some issues will continue to evolve as it becomes more mainstream:

• There is not any established “case law” based on IPD. In this delivery method liability, risk and reward are formalized in the contract. Behavior is directed to “finding solutions” rather than “finger pointing.”

• Team members need to work with their professional liability insurance carrier to determine if acceptable errors and omission coverage exists on existing policies.

• The case study indicated that more private building owners have selected IPD as compared to public agencies. Also clients in urban areas are more likely to use this methodology than their rural counterparts.

Renee concluded by saying “collaboration will continue to be in demand” by building owners and that delivery methods should “evolve over time, adapt and embrace” the positive outcomes prescribed by IPD.

Peter Rauma, AIA NCARB, is an independent consulting architect practicing in Minneapolis, MN. He can be reached at peter.rauma@aia@gmail.com.
Integrated Project Delivery: Now and in the Future

PSMJ sat down with PM Bootcamp instructor and IPD expert Chris Martersteck to discuss the implications of IPD.

Click here to listen to Chris’s audio interview with PM editor, Lauren Terry.

Chris Martersteck has more than 35 years of experience in the A/E/C industry. He currently leads teams in Project, Program, and Construction Management as well as Design-Build engagements for a 500-person international architecture, engineering, and construction firm. As Director of Integrated Services, he is responsible for client relationships as well as training, development, and management of project delivery processes for fully integrated and unbundled A/E services for commercial, corporate, and institutional facilities. For over 30 years, Chris has successfully managed technically complex and accelerated design-build projects as well as more conventional A/E projects ranging from smaller efforts to ones exceeding $125 million. He has trained thousands of A/E/C PMs in the best practices of project delivery.

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1. According to PSMJ’s A/E Pulse Poll, what percentage of owners value their company’s stock through outside valuation?
   a. 34%
   b. 19%
   c. 8%
   d. 39%

2. PSMJ identifies the following reason why people often resist change:
   a. The purpose of change is unclear
   b. They are not involved in planning for the change
   c. The change is based upon a personal appeal for change
   d. All of the above

3. According to Pulse of the Profession, when projects are misaligned with company strategy, projects are only completed successfully this frequently:
   a. 48% of the time
   b. 32% of the time
   c. 57% of the time
   d. 23% of the time

4. According to an article by Design Intelligence, profitability can shrink from 15% to 5% if what is not addressed?
   a. Timely raises
   b. Focused feedback
   c. Time-wasting habits
   d. Interpersonal skills

5. According to author Ruby Newell-Legner, how many positive experiences does it take to make up for one unresolved negative experience?
   a. 10
   b. 8
   c. 7
   d. 12

6. According to Randy Lewis, what makes IPD most effective?
   a. An emphasis on collaboration and innovation
   b. An emphasis on innovation and communication
   c. An emphasis on attitude and communication
   d. None of the above

7. According to Charles Nelson, how many distinct design principles are there in the built environment industry?
   a. At least 15, probably 20 or more
   b. At least 25, probably 30 or more
   c. At least 30, probably 40 or more
   d. At least 35, probably 40 or more

8. According to PSMJ, why do public projects go over budget and are delivered behind schedule?
   a. Inability to obtain rights of way on schedule
   b. Unexpected utility interferences
   c. Environmental permitting delays
   d. All of the above

9. According to Harvard Business Review, what is a Top 5 Management Tip?
   a. Quality over quantity
   b. Fake it until you make it
   c. Always lead with good news
   d. Promote from within

10. According to PSMJ, what is a drawback (con) of using IPD?
    a. Final project cost is about 6% less than typical design-bid delivery
    b. There are no mark-ups through competitive bids
    c. Decisions are made by committee rather than by sole individuals or organizations
    d. None of the above

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