

conference preview

THE BUSINESS CASE FOR INTEGRATED LEAN PROJECT DELIVERY

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Why and when IPD
is worth exploring.

“WE HAVE MET THE ENEMY and he is us.”

The words of Pogo’s creator, Walt Kelly, eerily reflect the day-to-day workings of the AEC industry. The authors of *The Commercial Real Estate Revolution* estimate that half of all construction activity is non-productive and discuss the ineffectiveness of many projects, and other research reveals similar findings. According to a report from Construction Industry Institute, *Lean Principles in Construction*, for example, studies of tool time (the amount of time actually spent working) have shown efficiencies as low as 19%. And Stanford University Professor Paul Teicholz has chronicled a continued decline in labor productivity over the last 20 years—despite all of the improvements in tools and construction technology and at the same time that industrial productivity has risen sharply.

Poor Performance

The poor performance of the design and construction industry is not a uniquely American phenomenon. Studies in the United Kingdom have reached similar conclusions regarding construction productivity, such as Sir Michael Latham’s “Constructing the Team: Final Report of the Government Industry Review of Procurement and Contractual Arrangements in the UK Construction Industry.” And in summarizing data from the United Kingdom, the United States and Scandinavia, Sir John Egan’s task force (“Rethinking Construction: Report of the Construction Task Force to the Deputy Prime Minister”) found that 30% of construction is rework, labor is only 40%

to 60% efficient, accidents absorb 3% to 6% of construction costs and at least 10% of all materials are wasted. A more recent study of international mega-projects concluded that half result in failure (using a very lenient measure of success) and that failure in some industries is as high as 78% (according to Edward Merrow in *Industrial Megaprojects: Concepts, Strategies, and Practices for Success*). And Roger Miller and Donald Lessard, in *The Strategic Management of Large Engineering Projects*, report that over 40% of their studied projects “performed poorly.” Although infrastructure is critical to the world’s welfare, it would seem that we are not doing very well.

These failures aren’t caused by a lack of trying or because the AEC industry is inept. Much of this abysmal performance can be explained by the very structure of traditional project delivery itself. In traditional project delivery, structural characteristics of fragmentation, misalignment and individual incentives all conspire against project success. The traditional design-bid-build approach to construction circumvents the optimum end result for a project as it does not adequately address the need to qualify its stakeholders on their competency to bring maximum value. It does the opposite. It deems that initial price, which may be based on substandard or incomplete design, will reflect an accurate end result with respect to total project cost. This is rarely the case.

A Fragmented Approach

Under a traditional construction contract model, the indi-



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vidual stakeholders are forced to ensure that their respective agendas take precedence over the project objectives—primarily because the firm, lump sum contract they are tied to is based on their approach of executing the project at the lowest cost for the company. The project objectives take a back seat as in most cases, the cheapest approach for a respective contributor does not necessarily serve these objectives.

Generally, project teams are inconsistent from job to job, and the ability to leverage learning and gain familiarity between stakeholders is lost once a project is complete. In team sports, if you were to change the people in the room from game to game, it would be difficult to expect that consistency in performance would be a reasonable expectation. If you took it a step further and you had two football teams competing against one another—one with the ability to use the huddle strategy and one without—wouldn't the end result be a forgone conclusion?

Success in projects and/or corporate execution strategies relies on the ability to effectively integrate. From a corporation's perspective, if all departments are cognizant of the needs and desires for the downstream process, they have the ability to make decisions that support the overall objective and not necessarily what will make their department look "good." At the end of the day, the only thing that matters is the end result of our collective efforts.

The integrated project delivery (IPD) process seeks to undo damage of fragmentation and focuses on the collective effort mindset. It is a project delivery structure designed to optimize project outcomes. Instead of segregating parties and incentivizing individual outcomes, IPD seeks to create a virtual organization that is aligned to project goals and tied to project outcome. Conceptually, this is accomplished through three, interrelated pieces: a new business model, a new contract model and enabling behaviors.

A New Business Model

The IPD business model rebalances the commercial structures to create a system where the parties must cooperate to achieve success, where project resources can be fluidly moved to wherever needed and that automatically tends to re-center itself if problems arise. The primary elements of the model are:

- Profit is separated from units of labor, material or equipment.
- Profit is an initially fixed amount adjusted based on project outcome.
- Variable costs (labor, material, equipment) are not capped.
- There are no change orders for team managed risks.

Together, these elements align the parties to the project (profit based on project outcome), remove incentives to expend excess resources and require the team to jointly manage (and be responsible for) most project risks.

A New Contract Model

The new contract model creates the structure to bring multiple parties together, encourages communication and collabora-

tion and locks the parties to the new business model. The key elements of the new contract model are:

- Early involvement of key participants
- Reduced liability among risk/reward members
- Joint project management
- Jointly set targets and goals
- Shared risk/reward

Getting the right people involved at the right time improves efficiency and creativity. Because liability is reduced among them, they can readily share information and communicate without fear of liability.

Designers considering constructability and contractors commenting on designer are no longer prohibited; they are encouraged. Alignment is achieved through joint target setting and is maintained by shared risk/reward. And unlike partnering, when the going gets tough the team has to keep going because they are contractually bound. If a problem arises, the teams must solve it together because the exit door is closed.



Enabling Behaviors

Getting the structure right sets the stage for a successful project. Like a skeleton, the IPD project structure supports the project and makes the muscles more efficient. But like a skeleton, it does not move by itself. It needs enabling behaviors, such as:

- Optimize the whole, not the parts
- Trust
- Integration of people, processes and systems
- Continuous improvement/learning
- Appropriate technology
- Real collaboration

These enabling behaviors embrace Lean principles and procedures, are driven by high-performance teaming and are built on earned trust. They bring the project structure to life and, if adopted by the team, create great outcomes.

But keep in mind that not all corporations are fit to support IPD projects. If you cannot effectively integrate within your own four walls, you will not be able to support an IPD contract. If you cannot trust in or execute on Lean principles, you will have less to offer in an integrated environment. That's why the competency-based approach to assessing stakeholders is so important. You may have the right process or contract model in place, but if you have players that are unfamiliar with identifying and removing waste, you will very likely fall short of your objective.

Manufacturing companies with the ability to identify and remove waste from a process are better positioned to support an integrated approach to construction. At the same time, construction managers and owners who recognize this ability are more likely to identify competent contractors to support the objective of maximizing the potential outcome of a project. The two work hand in hand and no compromises can be made that take the focus off the best possible project outcome.

IPD is a prescription for an ailing industry. It removes dysfunctions, breaks down silos and encourages good behavior.

Don't Leave Successful Projects to Chance

For most people, the idea of an IPD model at least sounds like it makes sense. What's not to like about knowledgeable people working together in a collaborative fashion to accomplish a worthy goal?

We've all seen it work before, even in DBB projects. We work with people we trust. We work with people who are experts in their field and hold each other accountable for results. We might even like the people we're working with, which makes getting up every day and heading to the job that much easier. The end product? A building to be proud of and a happy repeat client. But the problem with a DBB project is that those conditions for success only seem to happen by accident. If the team is assembled based solely on the criteria of lowest price, then key things like trust, accountability and expertise are left to chance.

The first step when taking the IPD approach is getting the right people. Notice that I didn't say right companies. The culture of a partner company is important, but even more important is the mindset of the specific people who

are going to be part of the team. Are they collaborative? Are they capable? Are they willing to commit to learning a new process? I like to remind our teams that companies don't build buildings; people do.

After you assemble a great team, there is still much to be done. It's highly likely that many of your team members will be new to the culture required to make an IPD project work. People in our industry are used to working in an environment that is really not all that collaborative. Changing that mindset, one that has been decades in the making for many, is often a difficult challenge. It requires a lot of commitment. It requires learning and adhering to new processes that at first seem awkward and chaotic. Leaders need to commit to coaching as opposed to directing. All of this is different, and we all know change is hard. Making change at a cultural level is just that much harder.

The good news is that if an IPD team is set up properly and processes are introduced and followed with rigor, a successful project will result.

—Dave Hagan

It aligns the parties to the agreed goals and locks them into achieving it together. And, because the parties are focused on achieving the project together instead of battling each other, it is also fun. ■

This article is a preview of Session Z2 "The Business Case for Integrated Lean Project Delivery" at NASCC: The Steel Conference, taking place March 25-27 in Nashville. Learn more about the conference at www.aisc.org/nascc.