The Brave New World of Integrated Project Delivery

— ByTom Brock & William Fitzpatrick

In the last decade, the demands of the marketplace and the need to remain competitive have forced most individuals and entities working in the various fields of development and construction to reconsider completely how they conduct their businesses. Today's post-recession market for building delivery demands a better product delivered in less time and for less cost. These trends echo the same forces that transformed the automotive industry at the end of the 20th century, when relatively obscure companies like Honda, Toyota, and Nissan (Datsun) were able to become major players in the global marketplace by delivering better quality than their competitors for lower cost. So it will be with the construction industry in the coming years. The transformation is already underway and those who have already begun to implement integrated delivery practices will enjoy a distinct advantage over their competitors.

Although there is little agreement among analysts on whether construction industry efficiency has been improving or declining since the turn of the century, they do agree that there remains significant room for improvement. A special task force of the National Research Council (NRC) recently identified five "Breakthrough Improvements" from among dozens of potential ideas as having the most potential for impact on efficiency and productivity in the construction industry. (See "Advancing the Competitiveness and Efficiency of the U.S. Construction Industry", NRC, 2009.) At the top of their list is the widespread deployment and use of interoperable technology applications, otherwise known as Building Information Modeling (BIM). But they go on to point out that BIM is not a panacea and should not be considered a stand-alone solution; that its effective use "…requires integrated, collaborative processes and effective planning up front and thus can help overcome obstacles to efficiency created by process fragmentation." According to the NRC, when it comes to obtaining greater efficiencies in building delivery, process fragmentation is at the very heart of the problem.

There are many factors pushing the trend toward further process fragmentation in our industry, the most pronounced of which is that the process of building delivery itself is becoming more complex and difficult. New performance requirements in the form of energy codes and federal- and state-mandated certification procedures like LEED, just to name a few, have added to the steps necessary to deliver a building successfully. Add to this the increasingly litigious environment for design and construction services and the subsequent emphasis on risk management and you can begin to understand why people are moving into silos of specialization: It is easier to manage and protect one's own turf. The other guys? Well, they'll have to fend for themselves.

The NRC's call for integrated, collaborative processes as a way of maximizing the potential benefits of BIM is seen as the best hedge against the factors promoting process fragmentation. Integrated Project Delivery (IPD) is a methodology that can quell these discontinuities by contractually binding the major stakeholders on a project from the onset. Unlike traditional delivery methods, risk and reward within an integrated project is shared among project participants, maximizing project success. Furthermore, parties agree to no-sue clauses, encouraging productive resolutions, as opposed to frivolous litigation and delays due to threats of such. This collaborative approach is enabled by taking full advantage of BIM hardware and software, creating models that are not only three-dimensional but

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The $320-million Sutter Medical Center in Castro Valley, California is being delivered under an unprecedented 11-party Integrated Project Delivery (IPD) agreement. Rendering courtesy of Devenney Group, Ltd, Architects

also contain data regarding time, cost, material properties, and sequencing. By sharing common models, data can be cross-referenced for coordination and clash detections, as well as logistical and programmatic discontinuities.

The major hurdles to true integrated project adoption are the current business culture in the real estate, architecture, engineering, and construction industries, and the deeply ingrained assumptions about the necessity for a "you do your job and I'll do mine" mentality as a hedge against unnecessary risk. While integrated contracts can tie parties financially and legally, contract language speaking to behavioral mandates only serves to weaken the integrity of the document. With the calls for stronger contracts and insurance products being the bulk of voiced concerns around true IPD feasibility, it must be accepted that the pivotal step towards real integration is a culture of trust in the motivations and qualifications of all parties involved. Even with the most ironclad contracts and ideal insurance protections, an integrated project could falter based on eroded relationships between project members.

A New World of Contracts

A drastic shift in the contractual arrangements among major parties (minimally, owner, architect, and general contractor) is where IPD draws its strength but also creates the necessity for a paradigm shift in the standard operating procedure of the industry. Traditional contractual relationships within a development project have no tie between the contractor and the architect. There is no duty whatsoever to each other apart from their common interests to the owner. This fosters the finger-pointing environment so familiar to those even tangentially associated with the business. An integrated project contract is typically achieved either by the creation of a single-purpose entity (the forming of a business entity whose sole purpose is the completion of a project) or through a multi-party agreement that binds all parties to shared risks and rewards. These relational contracts are fundamentally different from the transactional ones used in current delivery methods. Integrated contracts often require parties to put their profits at risk, a move most are inherently averse to. Transparency is another requirement of such contracts, a step that most business owners view as invasive if not stifling to their financial survival.

There are currently three major standardized contract documents for integrated projects:

- AIA-C191 Series [multiparty agreement]
- ConsensusDOCS300 Series [integrated form of agreement]
- AIA- C195 [single-purpose entity]

These contracts provide a solid

groundwork for structuring integrated business arrangements but most integrated contracts will need to be custom-tailored for each individual project. Contractually, the decision must be made as to what extent team members are willing to be bound to each other.

Multiparty agreements create relational commitments among the major project participants. This is also known as an Integrated Form of Agreement (IFOA) or a tri-party agreement. The agreement sets forth the duties of each party to all other parties, unlike a traditional contract, which only addresses the obligations of each party to the owner. A central management committee is created and an incentive pool encourages a collaborative environment, but silos of responsibility are still intact (Thomsen).

The formation of a single-purpose entity, most commonly a limited liability corporation (LLC), goes a step further than the multi-party agreement and creates a business entity with the sole purpose of developing, designing, and building a project. This corporation then contracts with the major (prime) project participants–who are also the owners of the business–to perform the tasks necessary for the completion of the building. All subcontracts or participants outside the LLC can either be contracted by the individual prime businesses or by the LLC itself. In this scenario the team is truly integrated and given incentive to collaborate. Problem solving becomes a collective activity. No longer can one party sit back and passively wait for another to resolve a mistake or miscommunication. Risks and rewards are shared in this scenario, rather than allocated to individual businesses.

This sharing of risk often involves the key participants to put some, if not all, of their profit on the line, with the potential reward of profits should certain goals be met, such as early or under budget completion. Rewards can be structured in several contractual ways; often the remaining dollars in contingency funds are dispersed at agreed upon percentages based on each participant's involvement. In addition to sharing the left-overs from a successful project, incentives and award fees are used to promote measured progress of team members and further encourage collaborative and innovative behaviors. These mechanisms typically manifest themselves as performance-based bonuses targeted to key participants and may be tied to qualitative analysis in addition to quantitative metrics.

The issue is whether these incentives and alternative payment structures are worth the risk for those involved. David Hatem, a lawyer representing architects and engineers in development projects says his clients are wary about taking on this additional risk. Hatem has written extensively on integrated contracts but is still hesitant about the promises of IPD. He explained that the hurdle to new collaborative approaches does not lie in the complexity of technologies used in the process but rather in the inherent cultural attitudes within the industry.

A New World of Insurance

New insurance solutions for integrated projects similarly challenge traditional fundamentals of how parties are protected. Insurance policies are structured to be triggered by an "event". The named insured is issued a policy that outlines specifically what qualifies as an insurable event, and based on their involvement with said event, if they are covered and to what extent. This protects not only the insured, when they are at fault, but protects those who may be damaged as a result. In the case of an architect's errors and omissions in construction documents, the insurance will protect the architect from potentially devastating financial exposure by making solvent the general contractor for rework as well as damage incurred to the owner for delays. Within an integrated project all parties agree to hold-harmless agreements that essentially provide a no-fault atmosphere within the team, excepting, of course, cases of gross negligence or fraud.

Additionally, all parties agree to resolve issues as a team regardless of who is at fault. They are contractually bound to ensure that there are no "events," and this can pose a major challenge for insurance companies who must write a policy that is an umbrella that mitigates the risk of the entire team. These policies typically come in the form of an owner controlled insurance policy (OCIP) coupled with a single project policy. Projects may also use a contractor-controlled policy (CCIP). Traditionally, the costs of the innumerable policies carried by the various companies on the project are passed off to the owner as part of the bids. In an OCIP or similar policy the economies of scale can result in a more affordable coverage that is a line item reflected as a true cost in the budget.

Valery Onderka, an underwriter with Lexington Insurance, in speaking about a policy for the new $385 million hospital for Owensboro Medical Health System (OMHS) in Kentucky states, "The premium is reflective of lower risk than traditional design-bid-build." This insurance product has been touted as the first truly integrated solution on the market. Lexington provided a policy that covered the professional liability insurance for the core members on the project team (owner, architect, general contractor, and MEP engineer). The fact that core members of the team participate in phases of the project not typical of their services, such as the contractor in the design, was previously a hurdle to an integrated insurance solution. The Victor O. Schinnerer Company has also released an integrated, project-specific professional liability insurance product for use in IPD projects up to $300 million. These are the first policies designed to mitigate the complex risks associated with integrated projects.

A New World of Technology

With all core members part of the same company and under common insurance protection, true early collaboration and integrated solutions can thrive. This process is largely enabled by BIM and project management information systems (PMIS). There is no standardized suite of programs and technologies used within an IPD project; much like the contract and insurance solutions these systems must be customized to the project's need and participants. Current modeling software allows a project to be virtually built before ground is ever broken on the site. This provides unique opportunities for the project team to partake in an iterative approach to collaborative design. Using 3D models, the construction of all the components of the design can be simulated to identify problems, from physical misalignments (often called clash detection) to cost and coordination issues. Design teams working on the HVAC systems, for example, can instantly understand how their choices affect the design of electri-

cal systems, physically, financially, and logistically. This platform fosters dialogue around key design decisions and makes available information critical to innovative solutions.

All major parties are able to obtain pertinent project data (with varied levels of access) at a single source. The PMIS is hosted on the web for universal accessibility and acts as the knowledge base for the entire project. This includes current data on cost, schedule, and workflow, as well as outlining the roles and responsibilities of team members (Thomsen). This centralized virtual file cabinet encourages collaboration through the democratization of project documents. Centralization of data insulates a project from waste associated with information redundancies and inefficient document management.

A Case In Point

Hospitals are often willing to put in the additional up-front resources to insure on time, on budget, quality work. The complexity of these projects, and the commitment to continued construction leads these large institutions to choose IPD as a flexible methodology for efficient development of facilities. The Owensboro Medical Health System elected to use IPD in construction of their new hospital facility. Though this project is yet to be completed, an investigation into the project specifics serves to understand the key decisions necessary in an IPD project and their repercussions. Driven by the owner, an Integrated Form of Agreement was selected as the contract type, which created the IPD Team consisting of:

Owner - Owensboro Medical Health System
Architect – HGA Architects and Engineers
Construction Manager – Turner Universal
MEP Engineer – Smith, Seckman, Reid Inc.
Project Manager – KLMK Group

Each team, with the exception of KLMK who act as an impartial facilitator, received one vote in project decision-making and appointed a representative to the Core Team. The Core Team is charged with directing the project and providing general governance. After a target budget and schedule were set, six Component Teams were established to develop specific aspects of the design. Each team, with its own budget and schedule, contains representatives from the core partners as well as major subcontractors and consultants.

These "cross-pollinated" teams allowed decisions to be made collectively and in a dialogue with the other component teams. Implications of key design decisions were seen through the entire project. A guaranteed maximum price (GMP) was set at 60% completion of construction documents. This was achieved through a collaborative environment of trust among project participants who built relationships over the course of the design process. Transparency alleviated elements of surprise so often prevalent in construction projects. The Core Team along with major trade contractors devised an incentive pool of funds, available for disbursement should the project be delivered under budget and ahead of schedule. As of the writing of this article, the project was proceeding under budget and on schedule.

Another hospital project that is using IPD is the Sutter Medical Center in Castro Valley, Calif. The 230,000 sq. ft. hospital had an unprecedented 11-party agreement. The 164-bed project is over 70% complete, on budget and planned to open six-weeks ahead of schedule in Nov. 2012.

Planning on IPD

Given the current economic climate and the increasing complexity of building delivery it is increasing likely that construction-related businesses will encounter some form of Integrated Project Delivery in the coming decade. Therefore it is important, whether the idea appeals or not, to stay up to date on the latest thinking and best practices in IPD and, if not already immersed in the discipline, look for contracts that allow for wading into intermediate levels of collaboration rather than full-blown relational contracts. Early identification and definition of total project scope will be an even more crucial aspect in decision-making about involvement in IPD projects, regardless of levels of immersion. Having a work force that is well-versed in integrated project practices may well be the difference that sets firms apart and, much like those backwater automotive companies from the seventies, may allow them to thrive in the conditions of the new marketplace.

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