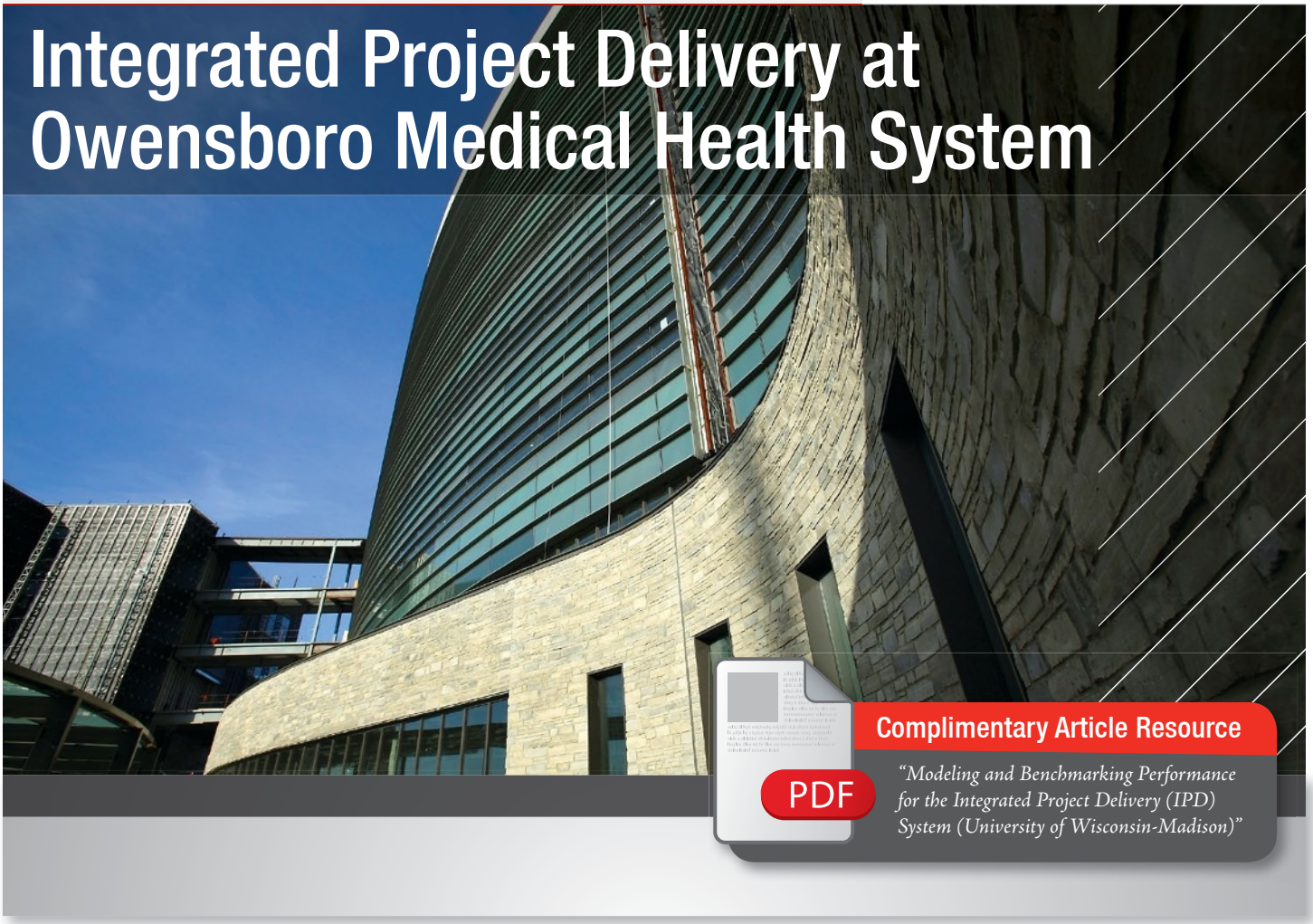
Integrated Project Delivery at Owensboro Medical Health System



By Tim McCurley and Linda Sadler

The Owensboro Medical Health System (OMHS) in Owensboro, Ky., USA, is building a replacement facility consisting of a nine-story, 780,000 square foot hospital and a three-story diagnostic and treatment building on a 160-acre site. Scheduled for completion in 2013, the project has utilized the integrated project delivery (IPD) method. While IPD can be beneficial to an entire project and all building team members, it has proven especially helpful for the technology design and deployment on this project.

KLMK Group (KLMK) served as owners' representatives on the project. In addition to mechanical, electrical and plumbing engineering services, Smith Seckman Reid (SSR) provided technology engineering services. The following describes the IPD experience for this project, and how one hospital is being built better as a result.

Technology is slowly but persistently gaining clout in facility design and construction. Its importance in the modern business world is undeniable, and while many have observed this for years, health facility budgets are starting to support the claim as well. The OMHS project spent approximately US$30 million on hospital technology; this figure comes remarkably close to the amount spent on mechanical and electrical, and is well more than what was spent on plumbing. Technology is the present and the future, and those who have spent their careers in construction are making mental room for technology to claim its rightful place next to mechanical, electrical and plumbing engineering services.

IPD overview and tactical differences

The IPD method is based on the premise that earlier and increased collaboration among a greater community of stakeholders as a means to capture their collective intellect and experience will result in a construction project that better meets the needs of that facility's users.

One expression of IPD collaboration is the use of "component teams," in which people representing the owner, architect, engineer, contractor and subcontractors are placed into groups that focus on the building's main systems. For OMHS, the component groups included site, structural, envelope, interior, thermal control, power and technology.

As opposed to the traditional design process, IPD component groups provide more space and time for each of these chief functions to plan in a way that focuses solely on the group's function. When the technology component group met, they focused only on technology needs, which gave technology a greater voice in the process. Additionally, the component teams include representatives from all the main project players and all disciplines, so more questions can be answered during the meeting, allowing for decision making to proceed more quickly and with greater team support. For the architect, the difference between hearing personally from a designer about specific concerns and reading about those concerns in the form of meeting minutes is like night and day. Meeting minutes lack the emphasis, nuance, gravity and countless other dimensions of communication that a face-to-face meeting provides.

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An example of the technology component team at work at OMHS involved the decision to use rack-mounted uninterruptible power supply (UPS) or a centralized UPS. While there are pros and cons to each option, having both technology and electrical disciplines and an owner's representative present during this discussion resulted in a decision that was sound and satisfactory to the whole team, not just the technology consultants. With IPD there are fewer "shots in the dark," because there are more opportunities to receive input when and where it is needed.

Another collaborative process used by IPD is the integration session, during which the entire project team focuses on a specific space. During the OMHS design, an integration session focused on the communications rooms gave the technology function a chance to express its needs earlier in the process, which resulted in less frustration

from technology engineers who traditionally come in after design is fairly far along and have to indicate significant design changes to accommodate critical needs. Another integration session involved the placement of copy machines. Getting exact dimensions of the specified copiers years before the ground even was broken meant that space for those copiers could be allocated early, allowing for proper planning of surrounding casework and overall space planning. Using mockup rooms with cardboard cutouts of devices, equipment and furnishings was a tactic used during OMHS design to more fully experience a space before setting the design in stone.

The "pull schedule" is another chief difference between traditional design and IPD. Conventionally, design and construction are driven by deadlines set by facility owners who are trying to meet community expectations, financial obligations or other drivers. Those deadlines then set the schedule for design and construction professionals, who typically find these deadlines hard to meet. By contrast, IPD uses a pull schedule to set deadlines, starting not with a date, but with the tasks to be achieved. Working backward from goals, dates then are set and a master schedule is conceived. It's a slight paradigm difference, but the end result is a schedule which the project team can adhere more realistically.

Target value design is the IPD method of budget development, and like the pull schedule, takes an old process and reverses the flow. With target value design, each component team is given a budget by the construction manager who bases the budgets on years of experience with similar projects and knowledge obtained from the owner on the specific project at hand. As opposed to traditional design, in which designs drive the budget, with target value design, budgets drive the design.

The IPD philosophical difference

Component groups, integration sessions, pull schedules and target value design are all tactical differences between IPD and traditional design, but the more significant difference is philosophical. Traditional design is highly top-down, hierarchical and linear. With each step away from the top, the players know less and less about the full picture, resulting in a silo effect where the lack of a complete picture brings about inefficiencies and uninformed judgment. With IPD, leadership is more equally shared among participants, and the process is more circular and collaborative. This circularity gives players a greater voice and, as importantly, it gives them a better view of the total project. When professionals know more about what they are working on, they perceive better; they make better decisions.

A strong example of this trust, and a big IPD win for the OMHS project was the management of the technology piece. Although technology is on its way to being considered equal to mechanical, electrical and plumbing as a chief building system, fully coordinated and BIM modeled, the health care industry still operates in somewhat of limbo territory where technology is concerned. Technology traditionally was managed by the owner because, until the last 10 years, it covered minor support systems such as phone, data cabling, coaxial cabling and nurse call. It wasn't that complicated, and it didn't involve life support. It often was done after all other work was done and was expected to tuck in wherever it could.

Today's technology systems are highly integrated with multiple other building systems, some of which directly affect human life. Coordinating with all the other cabling activity going on in the ceiling is intense work. However, the increasing use of technology throughout a hospital hasn't been proportionally matched by an increase in attention and oversight on the design side. Technology suppliers and contractors have found themselves operating independently on the fringes of a project, often with little supervision or collaboration.

At OMHS, the owners understood the importance of technology and its need to be treated with greater priority. Without much industry precedent, they looked to their IPD team for a solution. KLMK challenged the IPD team to develop a solution to effectively manage the installation, coordination and turnover to OMHS, all within the tight budget that had previously been set through target value budgeting. Through the IPD integrative, collaborative process, SSR and Turner Construction, the construction

manager, devised a plan for SSR to manage the technical oversight under the supervision of Turner. By taking on the role of technology contracting, SSR brought cohesion to the contractors for nurse call, security systems, audio/video systems and others, giving them a single point of contact who could coordinate their efforts within the component team context. The benefits of this coordination were many, but one example is the alignment of all cabling contracts, which allowed all cable to be pulled together. When one team pulls cable after another team already has pulled cable, the first cable nearly always sustains damage from the pulling of the second cabling, damage that causes confusion, delay and repair costs.

Pulling the cable together, which only could happen with someone managing all the cabling contracts, avoided the cost of multiple pulls and any subsequent damage. The constant connection between the construction manager and the multiple technology providers made a huge difference in the ease of which technology was deployed at OMHS.

Is it a good fit

Not all projects are perfect fits for IPD. For IPD to be successful, there must be a high degree of trust among team members, and an owner must be ready to relinquish a certain amount of control. Where the goals and style of the owner and the project team members are a good fit for IPD, the project can reap significant rewards. Where the owner isn't truly ready to rely on the intellect, experience and wisdom of all team players (and if team players aren't able to rely on each other), IPD would be an exercise in frustration.

It may appear that IPD involves much more time in meetings, and that most likely is true. However, IPD meetings have a far more productive nature, they get to the heart of matters more effectively and with the buy-in of a greater portion of stakeholders. While the overall process may not always be easier, it's undoubtedly a better process and ultimately, one that results in a better facility. Such is the case at OMHS, which will open in summer 2013 as a thoroughly well-designed facility. FMJ

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