

## BY ARAMIS BANUET

I recently had the opportunity to attend a panel discussion at the Harvard School of Design about the research conducted from November 2004 to August 2005 on the benefits of online collaboration and project management (OCPM) technology. The research was based on actual project data analysis, and also focused on the future and long-term advantages of OCPM technology. It examined the impact that OCPM technology has on organizational culture and work conditions. In my review of this study, I focus on three major parts in analyzing the benefits of implementing a project management implementation system: tangible, quasi-tangible, and intangible.

### INDUSTRY PRACTICES

Based on 46,500 projects, 67 percent of OCPM investors are owners, general contractors, or construction managers, with the majority being public and private owners. The ultimate reason for investing in OCPM technology is to facilitate transparent and continuous communication with the entire project team, as well as with internal staff. Besides facilitation of team communication and construction processes, these organizations aim to:

1. Create standards and specific policies
2. Enable information availability and control
3. Improve project control and management
4. Gain competitive advantage
5. Gain efficiency

The most commonly used OCPM solutions are document management and cost management modules. Most projects use the OCPM solution to share cost information only in a limited way; usually the cost-related information is for internal use. Most of the documents are created and transmitted electronically, unless they are legal documents that require signatures and/or stamps, such as change orders, architect's instructions, shop drawings, and so forth. Successful implementations are those in which the managers make it clear that if a document is not in the OCPM solution, it is not official and doesn't exist. Some noted reasons for system failures include lack of communication, key persons involved have left or been promoted, and little or no implementation or configuration was enabled.

### OCPM TECHNOLOGY VALUE ASSESSMENT

A. Tangible benefits - Three specific job processes where dramatic tangible savings (i.e., quantifiable and measurable in monetary terms) become possible include electronic requests for information (e-RFI), electronic bidding (e-bidding), and electronic document transfer.

1. Request for information - The average paper RFI turnaround in the industry is approximately 14 days. The project manager spends a majority of his time constantly tracking these RFIs. In OCPM solutions, on the other hand, the RFI module is one of the most-used modules, shortening the lengthy and linear RFI process dramatically. The OCPM system stores all of the data of each RFI. The RFI number, creation date, and the author's company all provide a complete audit trail. The minute an RFI is created, the recipient receives a notification in his email inbox. The notifications and processes as to the decision each recipient makes have been built into the OCPM system, and this speed creates a realized, tangible benefit of OCPM: reduction of RFI turn-around time. The average turn-around time has been reduced to between five and six working days due mainly to e-RFIs. This may also reduce the number of administrative staff in an

office, or the same number of staff can spend more time on other issues due to the efficiency gained. This could lead to negotiating a lower contract price on a project because they know that less time will be needed.

2. Electronic bidding – The bidding process requires a great deal of time and effort. OCPM technology reduces the demand of complex procurement processes by improving the efficiency, speed, and accuracy of the bidding process. The primary benefits include enhancing time and cost savings for bid proposal preparation, and reducing the likelihood of litigation after bidding by establishing a complete audit trail. E-bidding offers significant time and cost savings by reducing paperwork, mailing, and copying.
  3. Electronic document transfer – This is one of the most important benefits of OCPM solutions. The ability to distribute transmittals, meeting minutes, RFIs, and design drawings on a construction site could substantially reduce individual project costs – even if we assume that only 50 percent of the documents are printed.
- B. Quasi-tangible benefits – These benefits are often not measurable in monetary terms. The top ten quasi-tangible benefits as a result of this study include:
1. Improved data availability – Enables users to reach and search project information globally. OCPM ensures and enforces data population and provides structured storage for easy retrieval.
  2. A complete audit trail – Archives all project information, including project communications, for ease of tracking.
  3. Improved information management – Provides an extensive file management system with controlled access.
  4. Faster reporting and feedback – Allows for timely, efficient, and standardized reporting, which translates into lower administrative costs, improved accountability, reduced risks, and more effective communication.
  5. Valid and accurate decision-making – Facilitates faster decision-making by enabling a more complete flow of information. Project visibility is enabled by organized construction information.
  6. Improved process automation and standardization – Allows project teams to monitor and guarantee a certain degree of consistency in their projects.
  7. Improved version control – Access to the latest documents and files ensures that everyone is working from the most current information.
  8. Better project/program monitoring and control – Automatically tracks everything related to the project. Allows the team members to create reports and easily search for documents. Having one centralized space helps the project managers to control the budget and the schedule more effectively.
  9. Improved timely capture of design/construction decisions – The ability for the entire project team to review multiple projects provides more effective management. An improvement in teamwork and professionalism is experienced when a positive attitude is created by using OCPM technology.
  10. Reduction in errors and waste/fewer information bottlenecks – Reduction in duplication of effort and waste.
- C. Intangible benefits – These benefits are non-quantifiable in monetary terms, but represent qualitative (i.e., business and/or performance) benefits. Performing the right tasks correctly, staying consistent with the organization's mission, vision, and

values, and supporting its goals and objectives have been among many organizations' most important goals in deciding to implement this technology. The top three benefits recognized are:

1. Knowledge Management – Knowledge is tied to the experience, years of work, and completion of several projects. It mainly resides in people's minds. OCPM technology provides a framework for creating, discovering, capturing, storing, transmitting, and re-using knowledge to gain competitive advantage.
2. Process and workflow reengineering – The OCPM solution enables organizations to review their existing processes and workflow, and provide a new way to re-engineer them. This allows them to achieve improvements in critical, contemporary measures of performance such as cost, quality, service, and speed.
3. Competitive advantage – Many companies have implemented OCPM technology to save time and effort, to gain competitive advantage, to improve productivity, and to better align objectives. Clients today are more interested in the use of OCPM technology and how quickly a contractor can go live with the tool, especially on large projects. These benefits include competitive tender pricing, improved cost performance, high engineering standards, differentiated services, and better service to the client.

Many of the topics discussed throughout the day revolved around the maximization of ROI. Leading-edge companies all over the world from various industries have increased their overall IT expenditures by double-figure percentages annually. In many cases, the investors hadn't focused on tangible benefits during or after the decision to incorporate OCPM technology. They were more focused on organizational-level business benefits. The realization made by all in attendance was that the process of identifying the benefits and estimating the value of the economic benefits were problematic, difficult, and imprecise – and that the real value would be realized by quantifying the quasi-tangible benefits. The question in fact was, "What would you lose if you didn't have the system in place?"

According to the consulting firm School Services of California, since November 2000 196 school bond measures have gone to voters in districts throughout California. Of those, 173 won approval. One of the main factors involved in passing these measures was winning credibility. By being able to report timely and informative construction information to the various forms of oversight committees, skepticism can be thwarted by having informed professionals at the planning table. The old adage 'Measure twice, cut once' instills the need for a tool that will measure and assist in calculating the complex tasks involved in program management.

As a case in point, the San Diego Unified School District passed a bond issue in 1998 known as Proposition MM. The \$1.5 billion measure was to renovate 165 schools and build 13 new schools. In a brief two years, the Independent Citizen's Oversight Committee mentioned that the start of the Prop MM Program had been difficult and disappointing as the program stalled due to planning, organization, and management challenges. Despite the rocky start, in 2002 the taxpayer's association recognized the San Diego USD with an award for its efficient use of tax dollars. This was accomplished by staying on track and minimizing the surprises through effective communication. The ability to deliver what was promised is a combined result of OCPM technologies, collaborative planning, and ultimately, a maintained focus on a systematic process that emphasizes discipline, efficiency, and planning.

Paul Abramson, an education industry analyst for SP&M and president of Stanton Leggett Associates in Harrison, New York, recently stated:

"On a national scale, school construction completed in 2005 totaled more than \$21.6 billion, the highest one-year total in our nation's history. Of that amount, almost \$12.8 billion (59.2 percent) was spent on entirely new schools. The balance went into existing buildings, adding space (just less than \$5 billion) and renovating existing space (almost \$3.9 billion). Altogether, about \$8.8 billion was spent expanding and improving existing school facilities. Region 11, including Arizona, California, Hawaii, and Nevada, was the highest spending region, with more than \$3.5 billion worth of construction put in place. More than 16.2 percent of the nation's school construction dollars were spent in Region 11. With two of the nation's fastest growing states (Nevada and Arizona) within the region, it is not surprising that better than three out of four construction dollars went to providing new school buildings. As a matter of fact, more money was spent on new buildings alone in Region 11 than was spent on all construction in nine of the nation's 12 regions. School districts in Region 11 did spend almost \$500 million on renovating existing space and another \$315 million on additions."

With additional school building programs needed due to growth, there is an estimated \$35 billion dollars allocated for construction over the next two years. The use of OCPM technology will positively impact our revenue, along with our children's education and growing communities. With our increased ability to track schedules and costs, combined with the increased ability of oversight committees to monitor spending with timely information, we can do our part to ensure that tax dollars for school construction are spent wisely.

#### ABOUT THE AUTHOR-

**Aramis Banuet** - With over 8 years experience in tracking and reporting costs in construction projects ranging from airport terminals and runways to schools, Mr. Banuet serves as a Project Controls Specialist with PinnacleOne. His broad expertise includes project management, procurement management, budget tracking; systems verification and integration; database implementation, migration, and administration; and key metric reporting.

Mr. Banuet possesses specialized skills in programs such as Primavera, Prolog Manager and Prolog Customization Manager, and Crystal Reports. Currently he supports projects in the Southern California Region, including 3 school bond programs, Oceanside Unified School District, Poway Unified School District and College of the Desert.