

MEASURE UP

Researchers in ASU's Del E. Webb School of Construction have developed a hands-off approach to managing contractors in the construction industry. Their less-is-more style has been successfully applied to projects in many states and at several corporations. And the list continues to grow. by Melissa Crytzer Fry



imagine hiring painting crews to complete

11 high-dollar projects, but giving them no technical specifications.

You are the project manager.

But imagine their surprise when you also refuse to check the quality of their work...work that is budgeted at \$2.3 million.

Then imagine your delight when you realize this hands-off approach saved you \$700,000, resulted in on-time and ahead-of-time delivery, and a higher quality finished product.

"Why would somebody hire an expert and then manage him?" asks Dean Kashiwagi, director of the Performance Based Studies Research Group (PBSRG) in Arizona State University's Del E. Webb School of Construction. Because it's been done for years is simply not a good enough answer for Kashiwagi. And his research proves that a less-is-more management style really does work.

Kashiwagi's concept is called the Performance Information Procurement System (PIPS). It works contrary to traditional price-driven construction procurement.

"The traditional model includes a Request for Proposal (RFP). Owners set minimum requirements for a project, send them to all vendors, and the lowest bidder wins," explains Kashiwagi.

The end result is not a winning combination. Because the contract is based on price, the highest performing contractor isn't always selected. "This means the client—or owner—has to manage and inspect to make sure the contractor is meeting that minimum standard," Kashiwagi says.

Contractors also won't exceed those minimum standards, he says, because it's not part of their contract. They'll do only what they are told. The final outcome is an owner who must assume all risk associated with the project.

The price-based model also fosters poor performance, late projects, and increased change orders, according to the PBSRG research team that includes Kashiwagi, Kenneth Sullivan, John Savicky, and Jacob Kashiwagi.

"PIPS is a pure outsourcing methodology. We never tell the contractor what to do, because we're hiring him to know what he's doing," explains Kashiwagi. "It's based on just a few simple concepts."

THE 1-2-3 OF PIPS PIPS helps owners select contractors based on past performance. It also relies on a project risk-assessment plan that demonstrates the contractor's ability to complete the project on-time and on-budget. In this model, the onus of responsibility is placed on the contractor, not the owner.

First, interested contractors ask past clients to complete and submit performance satisfaction surveys to PBSRG. The client responses are fed into a computer system and earn weighted "points" in various categories.

Each contractor then receives the owner's project requirements and are asked to submit an estimate and develop a risk-assessment plan. "We're asking the contractor to minimize risks they don't control," explains Kashiwagi, pointing to things such as late supply deliveries and material quality. "All we're really forcing them to do is to think about what they're going to do before they do it."

Such a plan weeds out the inexperienced from the experienced, he says. "A high-performing contractor looks ahead on a project, lays out his schedule, and sees the risk that's coming because he's done it before," Kashiwagi says.

Meanwhile, PBSRG staff members are interviewing key contractor personnel to determine their value to the project. The performance data, contractor bids, and contractor interview scores are entered into a "displaced ideal" decision-making model. The computer program assigns numerical ratings to each contracting company. "We weight price and various performance categories. Then we add the contractors' scores. It's all multiplication and addition. It's a simple linear model," Kashiwagi says. "The contractor with the biggest score wins."

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TAKING A BITE OUT OF FOOD SERVICES PROCUREMENT

When Arizona State University’s annual \$25 million food services contract was up for bid, Ray Jensen and John Riley turned to experts at the Del E. Webb School of Construction for help.

Sound like a strange place to look for help? Not when you consider that those experts were Dean Kashiwagi and Kenneth Sullivan, members of the Performance Based Studies Research Group (PBSRG). That group developed the innovative and highly effective Performance Information Procurement System (PIPS).

“Food services people traditionally try to impress evaluation committees by serving them really good food,” says Riley, ASU executive director for procurement and business services. “There’s no sense in asking them if they can serve food; that’s their business. Dean Kashiwagi says the best contractor will be the one that can identify risk and come up with a written plan to mitigate that risk.”

“To have the burden on the buyer to be able to recognize where the risk may be in a successful relationship, is kind of setting yourself up for failure,” adds Jensen, associate vice president for University Business Services at ASU. Traditional procurement functions in this way.

“Shifting that in an appropriate way to the supplier—through risk management and relationship management tools—we believe will be more effective,” he says.

One such tool is the risk-assessment plan submitted by contractors. Once a vendor is selected, he works side-by-side with PBSRG to develop a metrics and reporting system. “PIPS clarifies for the contractor their responsibility, accountability, and what they need to do to be successful,” explains Jensen.

“We’re telling you, the contractor, that we can become your premier account if you better manage your contract,” adds Riley. “You have an interest in doing that because you’re interested in maximizing sales for your bottom-line profit.”

Likewise, ASU has an interest in the vendor’s success.

“In a revenue contract, the vendor pays a commission back to the university based on sales,” explains Jensen. “That revenue is put back into student-related programs and support for the food service program.”

Jensen and Riley agree that PIPS presents a win-win situation for all parties.

Results of the ASU food services contract will not be available until the close of the 2007-2008 academic year. However, if the success rate of PIPS’ more than 400 projects is any indication, both buyer and seller may walk away with the sweet taste of success. *Melissa Crytzer Fry*



DEAN KASHIWAGI

“WE DON’T CARE WHY YOUR PROJECT IS BAD—EXCEPT THAT YOU ARE THE GUY WHO MADE IT BAD.”

The ASU researchers have also developed a computerized risk model that uses the same performance information to prioritize contractor/vendor proposals based on risk. "The farther you are from the best number, the bigger risk you become," Kashiwagi adds.

Once a contractor is selected and the project is underway, contractors submit mandatory weekly reports to the owner. The reports identify any risks that might jeopardize the schedule, budget, or project quality. "The contractor documents everything," says Kashiwagi. If an outside source tells the contractor he will provide an item or service by a specified time, it's written down. If someone signs off late on a review, it's documented.

"Anyone who touches the contractor is measured," explains Kashiwagi. He and his team developed a computerized barcode system that tracks the activity of each player in the project. "An owner can click on any project in the weekly spreadsheet report. The report will tell him exactly the individual who is bringing him the risk for that project."

What Kashiwagi's team has found is that everyone working with the contractor—others on his construction team, individuals at the owner's organization, sub-contractors—wants to avoid landing on the weekly report.

The resulting minimized bureaucracy doesn't leave room for excuses, says Kashiwagi. "We don't care why your project is bad—except that you are the guy who made it bad," he says.

A FORMULA FOR SUCCESS The high-accountability approach is working. Since 1995, PIPS has been applied to more than 440 construction projects worth more than \$488 million. Among those clients was the University of Hawaii, for which the 11 painting projects were procured. The projects came in 28 percent under the amount budgeted by the university. Internal management, inspection, and decision-making was also minimized by 80 percent.

Across all of the PIPS projects completed to date, owners report 98 percent on-time delivery from contractors, zero change orders, and an 80 percent reduction in management functions.

"PIPS is about finding the best people and contractors to do your job and getting them to plan ahead," says Nathan Chong, assistant chief of staff for Installations, Environment & Facility Management, U.S. Army Medical Command. During the past three years, Chong has applied PIPS concepts to more than 120 construction renovation projects at Army medical facilities in the continental United States, Hawaii, and Alaska.

"Before using PIPS, a lot of our contractors were showing up on site to do work and not understanding what the scope was," he says. "We took PIPS pre-planning concepts and developed tools that we could use at our facility."

Each week, PBSRG sends a report to Chong. That report updates the total construction budget, number of on-time and on-budget projects, the change order rate, the total number of delays, and the number of overdue risks. "They give me a report that tells me the top 10—most risky—projects we should concentrate on," says Chong.

The benefits of the PIPS system are not one-sided. "A lot of contractors have said that they were looking for a way to define why they are better than other contractors," adds Chong. PIPS provides that leverage.

"The system promotes a partnering 'win-win' scenario between the owner and the contractor that requires minimum project management resulting in on-time, on-budget, and outstanding quality construction," said Charlie Serikawa of University of Hawaii in a letter to PBSRG staff. One-hundred percent of the contractors completing the 11 painting projects felt the PIPS process was fair.

RESEARCH FUNDING COMES DIRECTLY FROM PIPS INDUSTRY CLIENTS. THE TECHNOLOGY IS LICENSED BY ASU. SINCE THE PROGRAM'S INCEPTION, MORE THAN \$6 MILLION HAS BEEN GENERATED FOR NEW RESEARCH AND MODIFICATION OF THE EXISTING PROGRAM. FOR MORE INFORMATION, CONTACT DEAN KASHIWAGI, DEL E. WEBB SCHOOL OF CONSTRUCTION, 480.965.4273. SEND E-MAIL TO: DEAN.KASHIWAGI@ASU.EDU. VISIT THE WEBSITE AT: [HTTP://WWW.FULTON.ASU.EDU/~PBSRG/](http://www.fulton.asu.edu/~pbsrg/)

