



*AberdeenGroup*

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Architecture,  
Engineering, and  
Construction Project  
Portfolio Management

End-User Survey Results

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# Architecture, Engineering, and Construction Project Portfolio Management

## Executive Summary

The following are key findings from Aberdeen Group's survey of users of product portfolio management (PPM) solutions in the architecture, engineering, and construction (AEC) industries:

- Buyers of next-generation PPM solutions are very interested in enterprisewide benefits. However, if they let project managers roll out the new solutions one project at a time, they are susceptible to underachieving their potential value.
- One of the contributing factors to the construction industry's low productivity rate is the stand-alone nature of technologies used in this industry.
- Project managers look to optimize the results of their project(s) and not necessarily the enterprise that employs them.
- Huge benefits (e.g., expediting payments from customers, maximum utilization of equipment) are possible when AEC firms implement PPM solutions with an eye toward enterprise optimization.

In the spring and summer of 2004, Aberdeen Group surveyed a number of AEC PPM product users, many of which are users of newer Primavera product releases. Aberdeen employed a Web-based survey, and conducted telephone and in-person interviews to collect a number perspectives and data points regarding the ROI, value, and benefits possible from newer PPM solutions. Aberdeen Group verified its findings via independent sources.

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The potential for significant upside for new PPM solutions buyers is clear. Does your firm have the discipline to make it happen?

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## PPM Background

PPM solutions have evolved over the last couple of decades for AEC firms. In little more than 20 years, many AEC firms have embraced custom solutions, spreadsheets, and other tools to manage the complexities of major capital construction, renovation, or demolition projects. PPM tools have to accommodate workers in various trades and disciplines who may work for various subcontractors/constituencies and must coordinate their activities in massive, multistep, multiphase interconnected work plans.

Without PPM and related tools (e.g., scheduling software), AEC projects can be bedeviled with delays, cost overruns, and other adverse consequences. AEC firms have embraced project management tools from the onset because they can help improve the odds of completing their projects profitably and on time. With indus-

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try profit margins often being 1% to 5% of the total cost of construction, managers have absolutely no margin for error on project work plans and estimates.

### Typical PPM Deployments

Users of new Primavera Software systems (i.e., P3ec, Expedition 9.1, and/or PrimaveraVision) provided Aberdeen with some interesting background. They indicated that time pressures are continuing and unrelenting. Besides meeting traditional project completion milestones, they are also being challenged to complete all projects on ever shorter schedules. Competition and productivity pressures are shortening completion windows. If AEC firms cannot complete their tasks faster, they cease to be market relevant. In a conversation with a project manager at a major architectural firm, Aberdeen learned that this firm recently had to design a 10-story office complex in China in two weeks instead of the more typical ten-plus weeks. Time is not just money anymore it is a business beast that must be tamed.

Few PPM buyers/users believe PPM vendors' ROI claims. Interestingly, Aberdeen noted that few firms documented costs, processes, or other metrics before or after implementing new PPM solutions. Proof of value delivered is remarkably difficult to see in this environment.

PPM buyers are not skeptical regarding the potential for benefits from PPM solutions, though. In fact, person after person, via phone interview or Web survey, could identify benefit areas that they expected new solutions to fill. One of the most desired capabilities that PPM buyers identified was greater cross-project visibility via a centralized database. Several firms wanted greater integration between PPM products and back-office finance/accounting technologies.

In a Web-based survey of Primavera Software customers, Aberdeen made a number of observations. When asked for the top three pain points that Primavera Software buyers needed addressed, the most selected responses were:

- Pressure to improve cash flow from projects
- Need to minimize project risks and potential claims
- Unable to get common visibility to multiple related projects

When these same respondents were asked to identify the top three value-producing benefits that they personally experienced, they identified a very different set of value drivers. The highest rated responses were:

- Early problem identification
- Reduce time spent developing and updating reports
- Improve odds of project success
- Improve overall documentation

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After receiving these initial responses, Aberdeen did not immediately make a critical connection: the benefits that customers were observing were project-specific benefits, whereas the benefits that they desired were corporatewide benefits. This difference was to become most important.

Aberdeen's surveys indicated that AEC firms traditionally roll out new PPM solutions one project at a time and not enterprisewide. This finding is important because it indicates that benefits from PPM solutions have been accruing to the project manager and/or general contractor of a project. Benefits have not been sought by or oriented to owner/operators or construction firms in their entirety. Aberdeen's independent data collection efforts reinforced this observation.

Personal interviews with Primavera Software customers showed that:

- Most firms are quite familiar with PPM solutions and have derived many benefits from earlier generations of solutions.
- Scheduling and PPM are the most potent and desired solutions.
- Few firms actually document the performance and costs of existing PPM, scheduling, and reporting processes. In Aberdeen's survey pool, only 5% of respondents had collected process, financial, and other data necessary to compute realized ROI. A third party that Aberdeen contacted had similar results when this firm sought ROI data from AEC firms that implemented new PPM solutions.
- Few firms document the benefits realized when new products are implemented.
- New groups of user constituencies are emerging, and their value needs are larger and more expansive than those of prior solution buyers.

### Benefits Rising

The new benefits expectations are coming from owner/operators and strategic-thinking AEC firms. These groups are keen on deriving significant benefits in the following areas:

- Rapid realization of cash via better proof of earned value earlier in project life cycles
- Increased collaboration between AEC firms, subcontractors, facilities managers, property managers, and so forth
- Enhanced utilization of construction firm equipment and corresponding reductions in the utilization of leased equipment
- Enhanced and more efficient utilization of human resources on projects
- Improved productivity (more revenue per employee)

These new expectations are defining a dividing line between traditional and leading-edge AEC firms.

Traditional firms are still focused on improving a project manager's productivity and little else. AEC firms whose new PPM rollouts were designed to help a project manager spend less time preparing Gantt charts and respond to requests for documentation are likely leaving much of the solution's potential value on the table.

Leading-edge firms are looking at benefits that cross multiple projects and deliver value in other ways besides making project managers efficient.

Some noteworthy examples of leading-edge AEC firms that are implementing PPM with enterprise benefits in mind include:

- A large construction firm getting equipment utilization information across all projects. Company-owned equipment is a \$250 million asset for this firm, and it is wasted whenever project teams rent redundant equipment elsewhere.
- A construction firm planning and completing hundreds of retail stores simultaneously, thus improving the retailer's top-line revenue for the year by 14%.
- Use of a central database and standard work plans to give immediate comparability and reporting on hundreds of concurrent projects. This practice reduced travel, administrative, and other costs.
- An architecture firm completing a massive office complex design in just two weeks instead of several months via the global collaboration tools available in newer solutions.
- An owner/operator who knows that all the subcontractors are working off of the same plans, have all the change orders, are on the same schedule as others, and so forth. The reduction in rework, delayed projects, and penalties is incalculable.

Leading-edge AEC firms are interested in tackling productivity improvements. They are asking for or developing wireless applications for job sites. They are utilizing Web-service-based applications and getting out of the (non-value-added) IT support activities with which they used to burden their project managers. These firms are focused on metrics like:

- Increasing revenue/employee (worker productivity)
- Increasing the velocity and receipt of cash (cash efficiency)
- Increasing the speed of solution development (time to market)
- Increasing utilization of human and equipment assets while decreasing costs paid to third parties for leased equipment (capital efficiency)

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In looking at these benefits, it is clear that leading-edge AEC firms are trying to outdistance their competitors, improve their operating margins, and enhance their corporate longevity.

### **Conclusion**

Aberdeen Group finds the continued practice of implementing PPM solutions one project at a time to be woefully suboptimal for the firms pursuing this path. Better managed, better disciplined firms are looking at ways of optimizing the whole enterprise, not just the individual component projects that a firm has undertaken. The better managed firms will be stronger firms, competitively and economically, and those that do not expand their PPM implementation viewpoints will most likely fare worse in the marketplace.

Productivity in the construction industry could be improved, and technology can help reverse this situation when implemented wisely.

Best-in-class firms are looking at a broader set of metrics that define value to their enterprise and have moved past just improving the work performance of a project manager.

More firms need to document their current performance and measure their efforts to improve it after new solutions are implemented. A firm cannot tell if a new PPM solution has been successfully implemented and delivering value if no data exists pre-/post-implementation. The lack of benchmarks undermines the potential for value realization. If people really do what they are measured against, then it is time for some new measures in AEC firms.

To provide us with your feedback on this research, please go to [www.aberdeen.com/feedback](http://www.aberdeen.com/feedback).

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This document is the result of research performed by Aberdeen Group that was underwritten by Primavera Software. Aberdeen Group believes its findings are objective and represent the best analysis available at the time of publication.