

Primavera
2008 Project Management Report:
Standardized Best Practices
and Technology Adoption
in the AEC Industry

Executive Summary:

Primavera Systems conducted a survey in late 2007 to examine the technology, business procedures and best practices in use by North American firms and owners in the Architecture, Engineering and Construction (AEC) industry. Analysis of the survey results show that companies which implemented standardized best practices coupled with technology solutions complete a higher percentage of projects on time and on budget, are better able to mitigate the impact of late and/or over budget projects on their organizations and have better knowledge about the causes of poor performance.

Methodology:

This survey presents the findings of 390 online interviews with project managers, engineers, executives and schedulers in the AEC industry, including construction management companies, general contractors, and owners in the United States. In order to reach respondents with specific knowledge of project management tools and procedures, Primavera weighted the survey so that AEC project managers and executives represented a slightly higher percentage of the total number of respondents than they would in a completely random survey. As for the type of companies represented, general contractors accounted for 31.5% of the total pool of respondents, followed by construction management firms, which had 17.9% of the total. Engineering/design firms and public/private owners each accounted for approximately 11% of the total respondents. Respondents logged on to a secure online site and completed a twenty question survey. The margin of error was +/- 5 percentage points.

Primavera's analysis centered around three distinct groups of companies; comparisons made throughout this report will refer to each group as described below:

1. Companies who implemented Standardized Best Practices coupled with technology solutions (SBP+T);
2. Companies who report that they implemented Standardized Best Practices, but do not use technology solutions (SBP); and,
3. Companies that do neither ("neither").

Highlights:

On Time Delivery:

47.3% of SBP+T companies report that they complete 90-100% of their projects on time. This contrasts to 37.5% of companies in SBP and “neither” categories reporting that they complete 90-100% of their projects early or on time.

Conversely, fewer SBP+T companies report that less than 90% of their projects are completed early or on time. 47.5% of SBP companies and 49.9% of companies in the “neither” category report less than 90% on time project completion, compared to 38.2% of SBP+T companies.

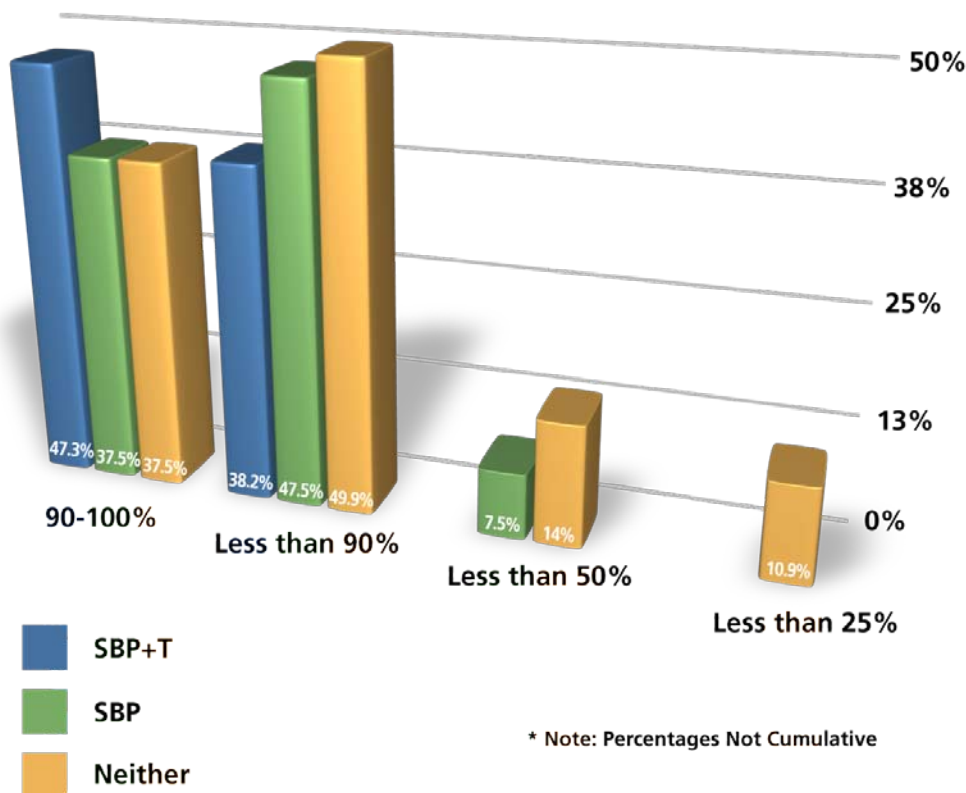
Primavera analyzed the number of companies completing less than 50% of their projects early or on time and found that no SBP+T companies report doing so. However, 7.5% of SBP companies and 14% of companies in the

“neither” category report that they complete less than 50% of their projects on time. And, surprisingly, 10.9% of companies in the “neither” category report that less than 25% of their projects are delivered early or on time, i.e. more than three-quarters of their projects are delivered late.

Analysis:

The data suggest that more SBP+T companies complete the majority of their projects early or on time. Additionally, implementing standardized best practices may not be enough to improve project performance. This is evidenced by the same percentage (37.5%) of both SBP and companies in the “neither” category responding that they complete the majority of their projects early or on time.

Percentage of Projects Delivered Early or On Time*



Performance on Late Projects:

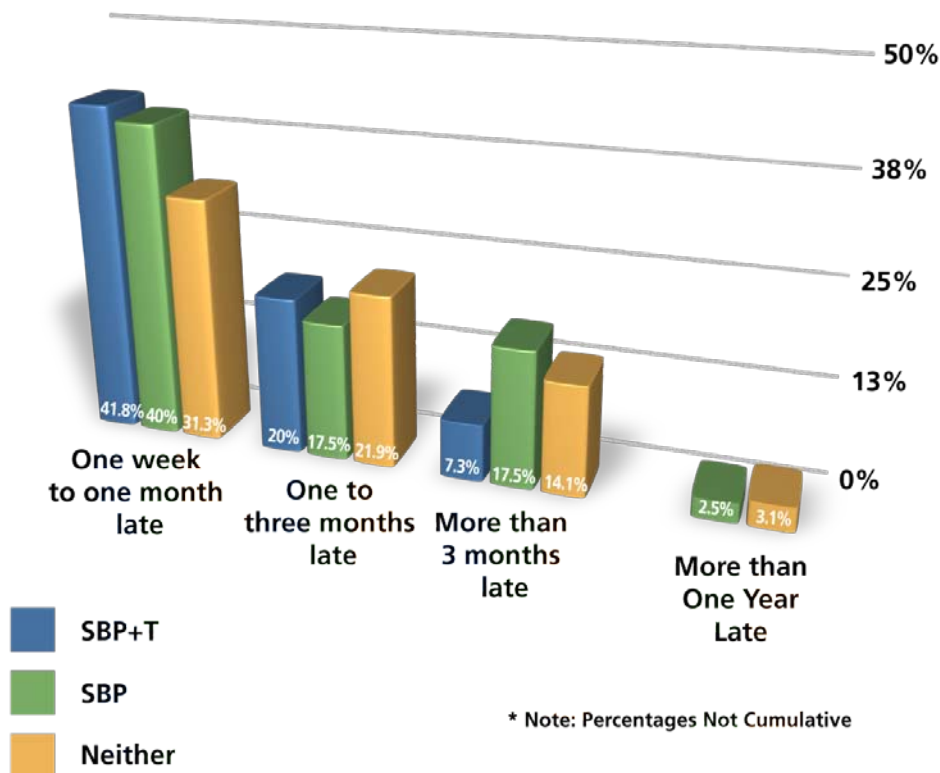
41.8% of SBP+T companies report that late projects are typically delivered just one week to one month late. This compares to 40% of SBP companies and 31.3% of companies in the “neither” category.

Companies were also asked about significantly late projects. 7.3% of SBP+T companies report that late projects are delivered more than three months late. This compares to 17.5% of SBP companies and 14.1% of companies in the “neither” category. Finally, no SBP+T companies report delivering projects more than one year late, compared to 2.5% of SBP companies and 3.1% of companies in the “neither” category.

Analysis:

With respect to performance on late projects, the data suggest that SBP+T companies do consistently better completing late projects with less delay (one week to one month behind schedule) than do either SBP companies or companies in the “neither” category. SBP+T companies are also better at limiting the length of overrun on late projects: Comparatively fewer SBP+T companies report that late projects are delivered more than three months late, and none of them report delivering projects more than one year late.

Performance on Late Projects*



Budget Performance:

Almost half, 49.1%, of SBP+T companies report that they deliver 90-100% of their projects within budget. This compares to 45% of SBP companies and 42.2% of companies in the “neither” category. When analyzing less than 90% on budget performance, 87.4% of SBP+T companies report that a majority of their projects (50% or more) are delivered within budget. 82.5% of SBP companies and 85.9% of companies in the “neither” category report 50% or more of their projects delivered within budget.

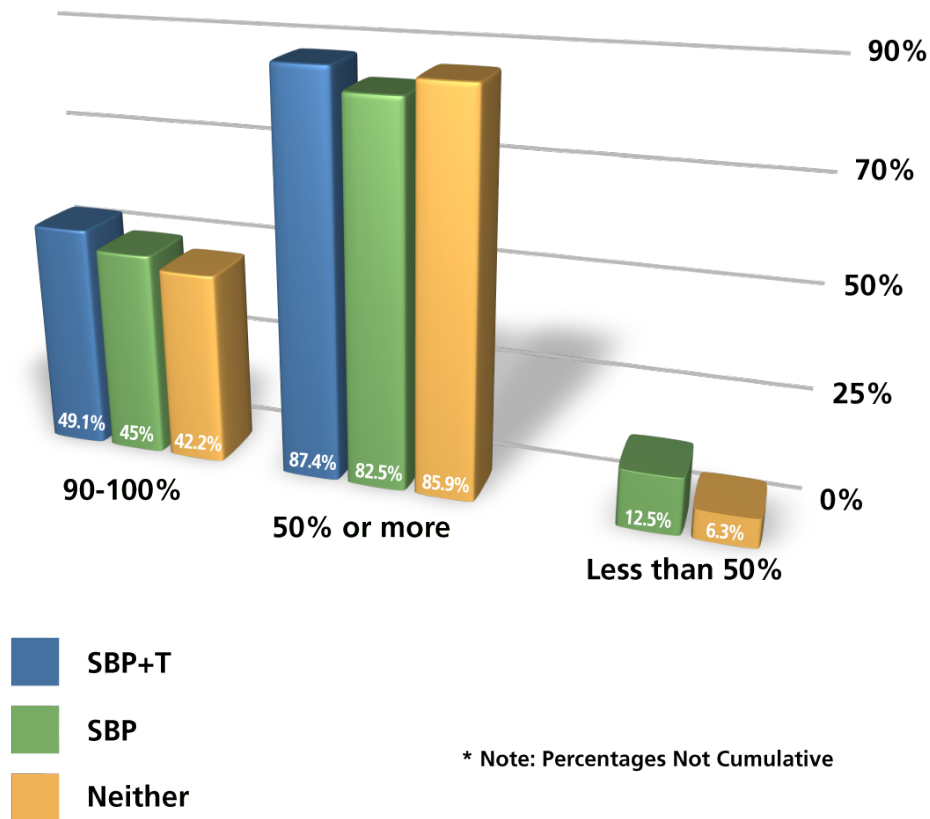
On the other end of the spectrum, no SBP+T companies report that less than 50% of their

projects are delivered within budget. This compares to 12.5% of SBP companies and 6.3% of companies in the “neither” category reporting this low level of on budget performance.

Analysis:

The data suggest that SBP+T companies outperform others with respect to the highest level of on budget performance (90-100%) and also did better overall as evidenced by the fact that none of these companies fall into the category of having less than 50% of their projects delivered on budget.

Percentage of Projects Delivered Within Budget*



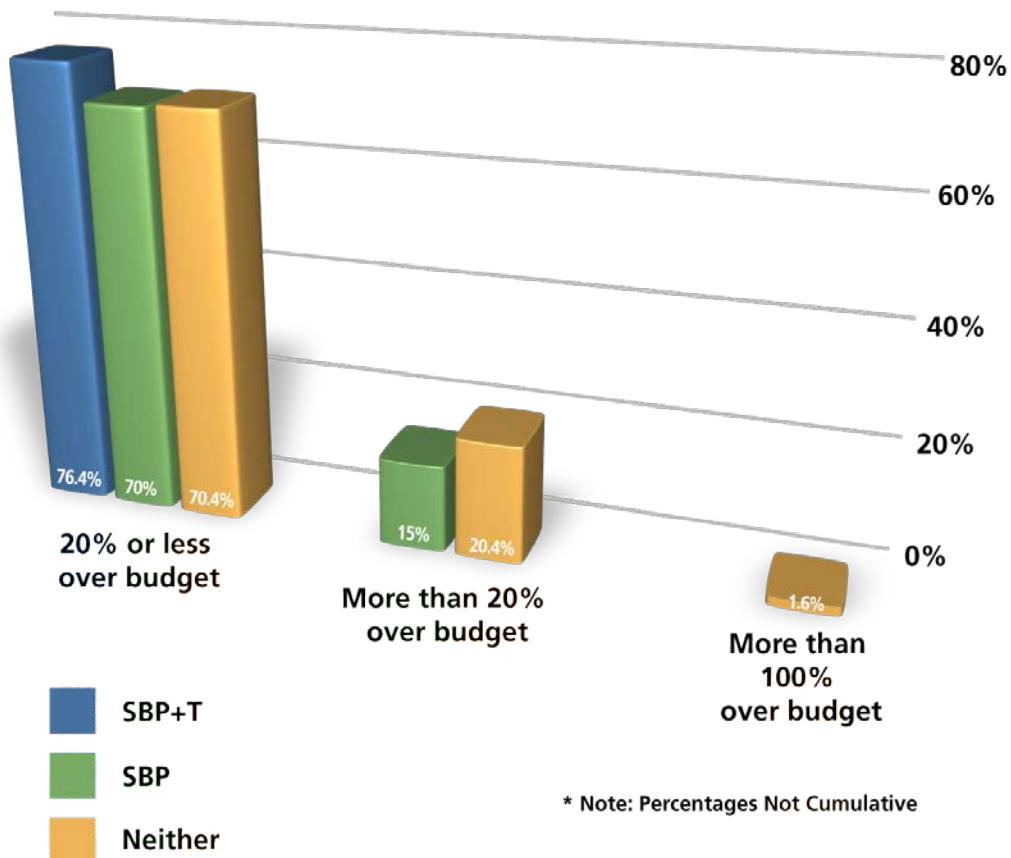
Cost Containment on Over Budget Projects:

More than three-quarters, 76.4%, of SBP+T companies report that over budget projects are typically no more than 20% over budget. This compares to 70% of SBP companies and 70.4% of companies in the “neither” category. Conversely, no SBP+T companies report that over budget projects are completed more than 20% over budget, while 15% of SBP companies and 20.4% of companies in the “neither” category report doing so. A subset of the data reveals that 1.6% of the companies in the “neither” category report that projects over budget are typically completed at 100% or more over budget.

Analysis:

SBP+T companies do well containing costs on over-budget projects: the vast majority, over 76%, report that they keep cost overruns on these projects at 20% or less. The data suggest that simply implementing standardized best practices without using technology solutions does not help contain costs more effectively than doing neither of these things. This is evidenced by the approximately 70% of companies in both categories reporting that over budget projects are delivered at no more than 20% over budget.

Percentage Over Budget by Project*



Reasons for Poor Project Performance:

Companies were asked to cite the main cause for late and/or over-budget project delivery. The reasons ranged from owner and contractor change to subcontractor performance and supply chain issues, to force majeure. 40% of SBP+T companies report owner and contractor change as the main cause of late and/or over budget project delivery. This compares to 55% of SBP companies and 65.6% of companies in the "neither" category.

As far as subcontractor performance and supply chain issues, 21.7% of SBP+T companies, 15% of SBP companies and 11% of companies in the "neither" category identified this as the main reason for poor performance.

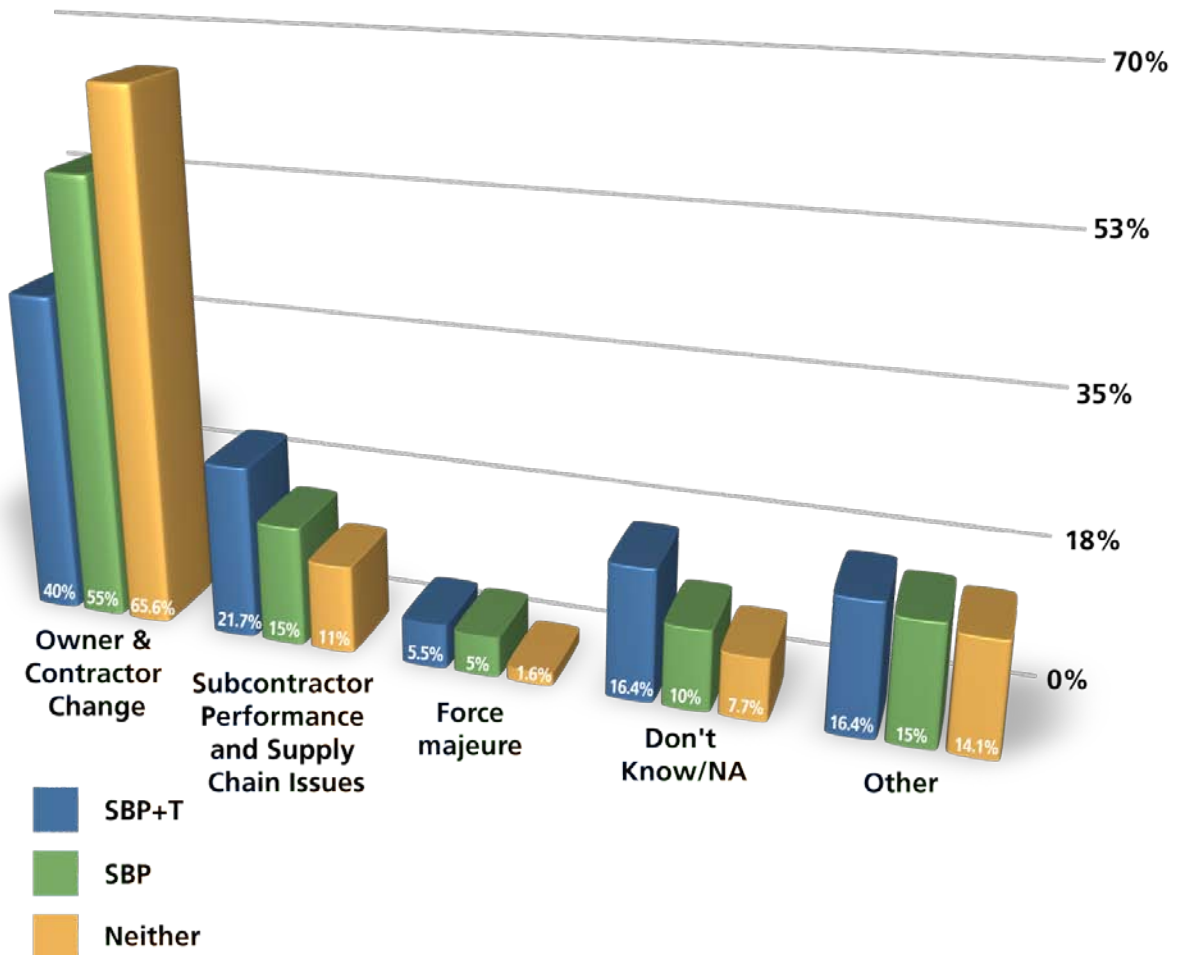
Finally, force majeure, an extraordinary event or circumstance, was identified by 5.5% of SBP+T companies as the main cause, while 5%

of SBP companies and 1.6% of companies in the "neither" category identified it as the main cause of poor performance.

Analysis:

The majority of companies in both the SBP and the "neither" category identified owner and contractor change as the most significant reason for late and/or over budget project delivery. SBP+T companies were less likely to identify owner or contractor initiated change as a cause of poor performance. SBP+T companies also indicate a greater likelihood that subcontractor performance and supply chain issues were to blame for poor performance. This suggests that SBP+T companies are better able to manage change among stakeholders, whether owners or contractors, and are able to better recognize the project performance impact of subcontractor performance and supply chain issues.

Reasons for Poor Project Performance



When all listed factors are reviewed and compared among the three types of companies, SBP+T companies have the most even assignment of poor performance across all factors including subcontractor performance and supply chain issues. Although more SBP+T companies identified force majeure as a cause of poor performance, these companies did not report any other factor as having an inordinate impact on project performance, which may indicate a greater ability to accurately assess the causes of poor performance. Additionally, these results may indicate that SBP+T companies have better control over their projects than other companies and are better able to mitigate some of the traditional risks of project failure.

Discussion:

Analysis of survey data shows that SBP+T companies are better at completing projects on time and on budget. Of all companies surveyed, these companies had a higher percentage than any other group, 47.3%, reporting that 90-100% of their projects are delivered early or on time. Similarly, they also had the highest percentage, 87.4%, reporting that more than half of their projects are delivered on budget.

SBP+T companies are also better at mitigating negative impact from late and/or over budget projects. Of these companies, 41.8% complete late projects within one week to one month, more than any other group. The vast majority, 76.4%, also deliver over budget projects within 20%. This indicates that SBP+T companies are better able to limit the negative impact of late and/or over budget projects.

The analysis also suggests that SBP+T companies have better visibility into the causes of late and/or over budget projects. All companies were asked about the main cause for poor performance. No more than 40% of SBP+T companies reported any one category as the main cause of late or over-budget projects. However, more than 50% of companies in both the SBP and the "neither" category reported owner and contractor change as the main reason. The data suggest that SBP+T companies are more accurate at assigning the major causes of poor project performance.

Conclusion:

The AEC project management survey results reveal a consistent profile of those companies that deliver projects early or on time more frequently, meet budgets more often, and are better able to limit the negative impact from projects that are late and/or over budget. They have implemented standardized best practices coupled with technology solutions.

The data suggest that the combination of both elements – standardized best practices coupled with technology solutions – that leads to better performance, since those who simply implement standardized best practices perform as well as or only slightly better than companies in the "neither" category in several areas.

AEC firms and owners face increased pressure to manage their projects more efficiently and to do more with less. These companies should note that without technology solutions, implementing standardized best practices has a limited impact on project performance in some critical areas. The data indicate in more than one instance that the combination of both of these factors seems to lead to a synergy that translates into more efficient project management.

The data also suggest that SBP+T companies actually have better visibility into and are able to provide greater specificity on the causes of poor project performance. Since these companies consistently outperform others, it is logical to assume that they have the ability to more accurately assign the reasons for poor performance and take the necessary remedial action.

The analysis found a strong correlation between implementing standard best practices coupled with technology solutions and successful project performance. For more information on the survey or the results, please visit: www.primavera.com/standardization.