

Aligning Cost Breakdown Structure With Work Breakdown Structure

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An adage in construction is that a successful project is any project that comes in under budget and ahead of schedule. Or at least one that doesn't considerably over-run either one.

In some cases, however, we have completely different audiences monitoring each of these two pillars within the triangle of scope, cost, and time. While project teams in the field certainly care about costs, their focus in many cases appears to be on schedules: what are we doing this week, what do we need to prepare for next week? And while teams monitoring the costs back in the office do care about costly schedule over-runs, their primary focus is on comparing actual vs budgeted costs.

The Essence of Cost and Work Breakdown Structures

When we think of a cost breakdown structure (CBS) we typically think of execution budgets. In many cases, these budgets are summarized from a more detailed project plan and lose the granularity which ties back to specific construction activities. For instance, a project may have a budget code for concrete, which is the "all-in" cost for all the concrete used on the project, whether it is a walkway, a structure, or a foundation.

In this case, we don't have the context of how the work was originally planned, and what resources are required to do each



type of work. We also lose sight of the fact that some of this work will be more costly and time consuming than the other concrete work we're doing on the project.

When we think of a work breakdown structure (WBS), we sometimes think of intimidating schedules with massive plans containing tens of thousands of individual line items, whose purpose is to be able to articulate when something is planned to be built. The interdependencies between the tasks is also a concern plus a vision into the resources required to do the work.

WBSs can be incredibly helpful for understanding what work is coming up, such as 7-day and 14-day look-aheads, how delays today may affect work in the future, and finally, the best way to coordinate the work across many trades.

The Difference is in the Details

In many cases, the level of detail in the CBS is different than in the WBS, and this can lead to confusion and uncertainty about the way costs and schedules may be connected. Sometimes we spend way too much time trying to align a summary budget with a detailed schedule or a detailed cost breakdown with a summarized schedule.

In both the budgeting and scheduling worlds, the least common denominator may be a list of schedule milestones that can be aligned with a cost breakdown structure. WBS Summaries and Level of Effort tasks can help with this. Done this way, we don't need a one-to-one relationship between each line item in the schedule and each budget item in the detailed cost breakdown. Instead, we can summarize one to feed the other.


In cases where costs won't be distributed evenly between start and finish dates, customized cost curves can be created which reflect how the work will be performed over time. For example, if we know certain exterior work can't be done during the rainy season, we can model how much work will be performed before and after the period in question.

Breakdowns That Bring it All Together

Why tie the two together at all? Many organizations are keen to understand the time-phasing of their costs, revenue, and even resource utilization. During execution, it may be important to analyze a time-phased forecast of remaining costs. Many Key Performance Indices are used to measure individual and corporate performance, which are based on the timing, progress, and budgets of the work.

Schedule performance index (SPI), for example, combines the amount of work which should've been completed during a particular period to the actual amount of work performed at that time. This can be particularly helpful to identify those activities, which if left alone, might have a dramatic negative effect on the project if not identified early and course corrected.

The ability to time-phase budgets and forecasts is particularly helpful in managing funding sources for owners and can help contractors better understand the relationship between the costs they incur when they perform work, and the revenue they receive when they will get paid for that work. Having this visibility into a project's cash flow can lend substantial value to owners as well as contractors.

Today's technology allows for a straightforward marriage of a project CBS and WBS and provides valuable input to those folks who are responsible for bringing the project in under budget and ahead of schedule. 



About the Author

Since 1998, Rick Deans has worked with InEight customers in more than 35 countries to help identify innovative solutions that address their biggest project management pain points. As executive vice president of industry engagement, Rick leads InEight's efforts to engage with its most strategic customers through the Industry Advisory Group (IAG). Rick works with IAG member companies to evaluate InEight solutions before they are put to work on projects and also to identify industry best practices.

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