Blog On Cost Estimating Techniques

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PMBOK 4th edition states “project estimating includes the estimating of activity resources, Activity durations, and costs required to complete a project” (as cited in PMI, 2010, p9). For this assignment I will assume that we are talking about a detailed project estimate not the preliminary broad based tope down estimate used to decide if a project is feasible. The term “good project estimate” could cover both but each has a different purpose. You will not have the needed information from the top down estimate required to apply adequate control measures.

Estimating Techniques

Top down estimates are often derived from analogy, group consensus or mathematical relations ships whereas “bottom-up estimates are based on element found in the work breakdown structure” (Larson & Gray, 2014, p129). The WBS breaks down the project into pieces allowing a closer look at required costs and time. These two factors are the foundation of estimating and controlling a project. Whenever project successes or failures are discussed schedule and budget or cost and time is the litmus test. We’ve all heard how a project was under/over budget and/or ahead of/behind schedule.

The essential element of accurately estimating resources, time and cost are related to the level of breakdown for each subject. A quality work breakdown structure (WBS) with itemized materials cost, labor cost and other direct cost provides the frame work of such an estimate. Outside influences can affect both cost and schedule such as holidays, weather, or material shortages. While you may not be able to control these you can often account for them through proper planning. For example, Housing construction is usually planned for the spring and summer months with the weather is more conducive to working outside. The availability of resources also affects these estimates.

Obtaining accurate information to apply in the WBS is critical to the accuracy of the estimate. Past experience with materials, people and the organizational culture proves a starting point for an estimate. When there is limited pasted experience, it may take time but, research can provide much of this information by averaging what others have done on similar projects and obtaining costs from the material source. Another "key for getting estimates that represent realistic average times and costs is to have an organization culture that allows errors in estimates without incriminations" (Larson & Gray, 2011, p147). Allowing room for some error reduces the desire to pad the estimate to keep from under estimating increasing inaccuracy.

Personal Experience

This discussion doesn't apply to my current work so to explain how I've used these concepts I have to reach back a few years. As a teenager I worked at an auto parts store and machine shop. I was very good at remembering numbers and understood the complexities of the internal combustion engine. One day after work a friend of my fathers asked me what I thought it would take to rebuild the 225 cubic inch 6 cylinder engine in his Plymouth.

Without the benefits of my current understand of PM I did what came natural. I grabbed a piece of paper and began listing all the tasks and materials required to do the job. It didn't have the tables and analytical quality of a gant chart but what I was creating was a WBS.

Using my experience with costs for machine work, individual parts and other related items I plugged in the numbers. The only thing I didn't have was an idea of how much time it would take him to accomplish the project and frankly for my part it didn't matter. When it was all added up I gave him the cost for the project, time required for machine work and some idea of how much he needed to set aside as a contingency for other non-related items that may come up. The next day he showed up at the parts store.

Conclusion

When the project was completed we discovered my estimate was $20 over on a $900 bid. I was pretty ecstatic. I didn't know it then but looking back I can see how I used many of the principle we are discussing today.

Reference:

Larson, E. W., & Gray, C. F. (2011). *Project management: The managerial process*. Retrieved November 10, 2016, from http://www.engr.sjsu.edu/fayad/current.courses/cmpe203-fall2013/docs/Articles/Project Management 5th Edition.pdf

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Project Management Institute (PMI) (2011). *Practice standard for project estimating*.