

## Project Estimates: Good, Bad and "in the Ballpark"



**By Dick Billows, PMP, GCA**

**Summary: Estimating is tough for every project manager and doing it well is often the difference between consistent success and frequent failure. Let's look at some of the estimating fantasies and then how to do it right.**

### Executive's Fantasy of the Estimating Process

A project manager glanced at the wall clock in the executive's office; they were just 10 minutes into the initial planning discussion for the "New Millennium Customer Service Project." There had been talk of new functionality and improved processes and procedures, with mottos like "delight the customer" and "world-class customer service" thrown in. They'd agreed on the project's acronym (NMCS) and then an executive popped the critical question.

"I think you have a general idea of how important this project is and what we want. Can you give us an estimate of how long and how much?"

In this fantasy world, our cool and supremely confident project manager leaned back to think for a moment rubbing his chin thoughtfully and then shielding the screen from prying eyes, he keyed in a secret project management algorithm into his cell phone's calculator. Looking up at the executives, the PM said, "We'll be done on Nov. 16<sup>th</sup> but not until 5:45 PM and the project will cost \$1,467,327.56 including 22 donuts for each status meeting. I'll stake the lives of the entire team and my unborn children on those numbers."

### The Frantic, Sweaty Reality of Estimating

In the real world, estimating a project's duration and cost is a high stakes game of brinksmanship, played with people who out rank the PM and may even sign his paycheck.

The truthful answer to a decision-maker's question is about cost and duration is, "With what little I know at this point, I'm 60% confident that we can finish the project within a duration range of 3-8 months and a cost between \$50,000 and \$250,000. As we proceed through the planning process, I'll be able to give you narrower and narrower ranges, but even then there will be uncertainty. The risk won't go away completely until the day the project is 100% complete."

This kind of answer infuriates most decision-makers because it doesn't meet their needs. They're under the gun to make cost/benefit and priority decisions about projects. There are also strategic realities that force certain completion dates on everyone, and hearing about risks of the estimate doesn't give an executive a warm and cozy feeling. In addition, decision-makers need to allocate people and money to projects and they want to know how long it will take and what it will cost before they take the plunge.

Instead of addressing the risk of the estimating process, project managers qualify their estimate numbers with caveats like, "You can't hold me to this" and, "These are very rough numbers" which the decision-makers totally ignore. Then the PM gives the estimate, which the executives instantly carve into stone. Any future deviation is a gross violation of a solemn personal promise.

In the estimating process, there are also pressures for unjustified optimism in the estimates. We want everybody to be happy about us and enthusiastic about the project at the beginning. We don't want people to react to our initial estimates with thoughts like, "It won't take that long! This clown has no idea about to manage a project."

The project manager is caught in a narrow vise when asked to provide estimates, particularly when the scope of the project is vague and the availability of resources is largely unknown. We make this situation a little bit better for everyone with a four-step estimating process that specifically addresses the risk of the estimate in each of four stages in the project lifecycle. An important benefit of addressing estimating risk is that we often can use the decision-makers desire for more precise numbers as a way to engage them in our scope definition and scope control process.

## The Four Stage Project Estimating Process

Let's look at a four stage estimating process as we might use it on a very simple project. An executive invites you into the conference room and says, "All these weekly reports from the branches come in with different data in different formats and I want you to develop a consistent template, pronto. This is a high priority for me and you'll get everyone's cooperation. Listen, I have to run to a meeting right now. When can you and your team get it done?"

Now our project manager has developed and rolled-out new templates before. However, the PM also knows that the template development is the tip of the iceberg: the project must include the process changes in all the branches or it will fail. So the PM thinks through prior experiences with similar projects or accesses the PM databank for similar projects. The comparison projects should include not only the development of templates but also the rollout to users and the process changes they have to make to give the sponsor the desired consistency in the reporting.

The PM says, "The best I can do now is give you a project-level, order of magnitude estimate. Early on in a project, the best I can do is a top-down estimate based on prior experience. I'm 60% confident we can have that done in 18 to 35 working days. I'll be going through a series of these estimates and will give you better and better numbers as the project becomes clear."

The executive gives the PM a poisonous look and says, "Okay, come back at 3:00."

After the 3:00 o'clock session, the executive frowns at the PM and asks, "Now, how long will this take?"

The PM looks over the notes on a yellow pad and says, "At this point, I can give you a better project-level estimate. We're still working top-down based on similar projects, but I can give you a somewhat better project-level estimate and also apply some ratios to that to give you estimates on each phase. I'm 60% confident we can finish in 19-30 working days. Using my experience and the ratios between phases on previous projects, I can also say that I'm 60% confident on the following phase estimates:

Branch office manager signoff on requirements; 4-7 days

Development test; - Test group can complete the template in less than 60 minutes; 5-11 days

Training; user can complete template in 45 minutes; 4-5 days

Rollout and enforcement; - 95% compliance; 10-15 days”

The executive scowls again and asks, “When will I get better numbers?”

The PM answers, “As soon as I detail the plan and get commitment on the resources here and from the branches. Then, I can give you a bottom up estimate, which will be more precise than the top-down estimates we’ve been using. Bottom-up is more accurate because I’ll be using actual assignments, along with people’s estimates, and aggregating them into the overall numbers.”

A few days later, the PM returns to the executive’s office and says, “Here’s the bottom-up estimate I mentioned. With the WBS done and the resource commitments I’ve noted, I’m 60% certain we can finish within 14-19 working days.”

The executive gives another slightly less venomous sigh and says, “Okay, this is getting better but I’d still like a really tight estimate.”

The PM nods and says, “The fourth type of estimate I’ll be giving you is a rolling weekly estimate. As we progress further and further into the process, the uncertainty will decrease and I’ll regularly give you new estimates. We call these rolling estimates. As an example, once the requirements are approved the uncertainty in the development work will go down a lot and that estimate will get a lot tighter.”

## **Is this Statistical Hocus Pocus?**

The simple four-step process we’ve gone through illustrated how a project manager gave estimates and changed estimating techniques as the uncertainty about the project declined. In the example, the PM used analogous estimates based on information about previous projects. Next working top-down, the PM estimated the phases with ratios from previous projects. However, this information could have come from an organizational project databank, from commercial estimating methodologies or from elaborate statistical analysis of previous projects. Whatever the source of the data, the top-down estimates provided relatively broad ranges in the overall estimates.

Expressing ranged estimates this way is not usually well received. The fantasy estimating process discussed at the top is deeply ingrained in many organizations. One benefit we gain with our four-step process is engaging executives in the effort to reduce the uncertainty by helping us clarify the scope and requirements more tightly, which is very valuable.

In the third and fourth estimating techniques, the PM used the work breakdown structure and duration/work estimating techniques at the level of individual assignments. Then the numbers got a lot better because the PM could use a bottom-up approach and aggregate the estimates of project team members to develop the overall project estimate. In this bottom-up approach, the PM bases the estimate on the team member’s own estimates for their individual assignments. The fourth estimate type was the rolling estimates, also based on a bottom up approach, with the team members making regular weekly re-estimates of their work/duration. As we complete tasks, the uncertainty decreases each week and the estimates become better and better.

The one consistent thread through each of the steps was that our PM had the benefit of a clear and unambiguous scope definition and equally measurable outcomes for each of the phases and assignments in the project. Estimating is difficult enough without the burden of vague project scope or mushy team member assignments.

## Enterprise Processes and Data

A major step to consistent project success and vastly improved estimating comes from a modest investment in archiving data from previous projects. This whole estimating process becomes more effective when the organization stops playing those fantasy games with project estimates and adopts a consistent methodology for developing the kind of "better and better" estimates we've been discussing.

To learn more about these estimating techniques consider our [one-on-one courses](#) over the Internet as well as in-person [seminars for organizations](#).