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.

The Frantic, Sweaty Reality of Estimating

In the real world, estimating a project's duration and cost is a high stakes game. The client or executive wants an accurate estimate of the project costs and duration with a commitment from the PM to hit those numbers.

When asked for those estimates by an executive during the initiation process, a project manager may answer with any of the following:

1. 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.
2. We'll be done in 5 months or so and the cost will come in at about $110,000, but that's just a rough guess!
3. I will have no idea until we detail the deliverables, estimate the work and find out how many people I will have to do that work.
4. When do you want us to finish and what's the budget?

Answer #1 Is truthful but enrages executives.

Answer #2 Executives quickly forget "rough guess"and are happy.

Answer #3 Is the whole truth but is useless for executives.

Answer #4 Is very ingratiating but a project deathtrap.

Which choice do most project managers make? Choice #2. It deals with the reality of the situation. Executives are under the gun to make cost/benefit and priority decisions about projects. There are also strategic realities that force certain completion dates on everyone.

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. However, we make this situation a little better for everyone with a four-step estimating process that we announce during the initiation process. We explain the estimates executives will receive in each of four stages in the project lifecycle.

The Four Stage Project Estimating Process

1. Initiation: Project level analogous estimates based on similar projects.
2. Early in Planning: Project level and major deliverable analogous estimates.
3. Final project plan: Bottom up estimates from the team members.
4. Weekly status: Rolling estimates weekly until completion

Let's look at a four stage estimating process that we might use 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 but come back at 3:00. I want to know when you and your team can get it done."

So the PM thinks through prior experiences with similar projects and accesses the project archives for similar projects. At 3:00 the project manager is ready and says, "During the project I will give you 4 different estimates. The accuracy will get better and better as we know more and more. The best I can do now is give you a project-level, order of magnitude estimate based on prior experience. I'm 60% confident we can have that done in 18 to 35 working days."

The executive gives the PM a poisonous look and says, "Okay, come back when you can give me a better estimate."

The PM says, "I can give you a better estimare as soon as we have finalized the scope and major deliverables and you have signed off on what you want."

The executive frowns and replies, "I was planning to delegate that."

The PM smiles, "I would still need a sponsor's signature on the scope and deliverables."

The executive nods glumly, "OK lets get to it tomorrow at 8:00.

Project Certification

Business Projects
0-1 Year- Associate PM
1-3 Years- Certified PM
4 + Years- Sr. PM

IT/Systems Projects
0-1 Year- Associate PM
1-3 Years- Certified PM
4 + Years- Senior PM

Construction Projects
0-1 Year- Associate PM
1-3 Years- Certified PM
4 + Years- Senior PM

Healthcare Projects
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1-3 Years- Certified PM
4 + Years- Senior PM

PMP Certification
CAPM Certification

Program Manager Cert.

After the following day's 8:00 o'clock session, the executive frowns at the PM and asks, "Now, how long will the project 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 tighter estimate and also apply some ratios to that so I can give you estimates on each phase. I'm 75% confident we can finish in 23-30 working days. Using my experience and the ratios between phases on previous projects, I can also say that I'm 75% confident on the following phase estimates:

- Branch office managers signoff on requirements: 4-7 days
- Development test - Test group can complete the template < 60 minutes: 5-8 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 work estimates and get commitments on the people here at headquarters and in all 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 estimates from the people who will be doing the work 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 work breakdown structure done and the resource commitments I've noted, I'm 60% certain we can finish within 24-28 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 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 much tighter."

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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 by major deliverable using 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.

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 based 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 more accurate.

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 deliverables and assignments in the project. Estimating is difficult enough without the burden of a 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 more accurate" 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.

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