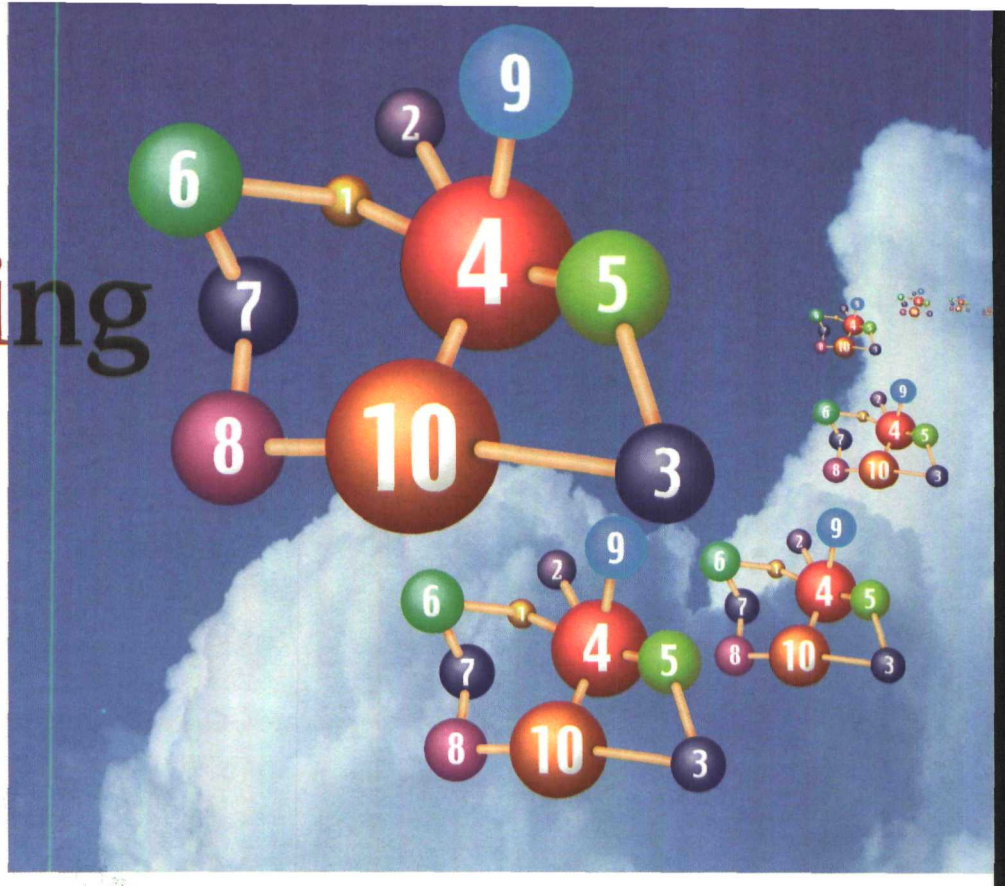
Cost estimating

Ten tips from top project managers



By Carl Pritchard
PMT's US correspondent

Different organizations have different expectations for cost estimates. Some see them as flexible glances into a crystal ball of what might be. Others see them as the future, carved immutably in mystic runes in ancient granite-unchanged and unchanging. In either case, the estimate is a key tool in expectation setting, and there are ways to improve the information used to build them and the expectations used to interpret them. Managers from around the United States offered their thoughts on how to make those improvements.

Top tip number one comes from Lambert Consulting Group, ceo, Lee Lambert, PMP. He suggests that estimates need to mirror implementation. 'If you create an estimate using input from a Subject Matter Expert (SME), you cannot execute the work using a Subject Matter 'Zero' (SM0) and expect to achieve 'estimate-to-actual integrity' for performance measurement.' Lambert stresses the term 'realistic' estimating, emphasizing organizations' inability to get realistic estimates without honest input.

Lee and a number of his peers echoed each other on **Tip 2**, which ties to building the work from past projects. He suggests that 'if the work you are estimating has not been done before, don't pretend that it has!' Use the concept of 'reserves'. Aristion Inc. chief project officer, Roger Beatty, concurs: 'You cannot expect to do a reasonable job of cost estimating if you don't have good historical data, or if you haven't done similar work at least once. The first time you do it, you build the historical information that might be appropriate'. Beatty says he marvels at the estimates provided by furniture and household movers. 'I think we should look at the moving companies who can look at your house and the contents and predict the weight and the number of boxes. 'I've been amazed at the accuracy of the good ones.'

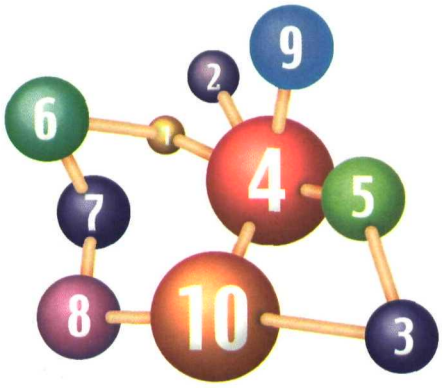
PWC Consulting (PriceWaterhouse-Coopers LLP) principal consultant, Nancy Denny, builds on Beatty's premise with **Tip 3**, emphasizing how you know that you're working from good historic data. 'I'm reviewing a lot of different projects right now', she offers, 'and I think the best way to tell if you're close enough is to talk to the project managers of the other efforts. We're trying to do thorough close-out reviews. We're trying to review the differences between the plan and the actuals. But the ideal is to talk with the project manager to find out what happened there.'

Denny also suggests (**Tip 4**) that a major component of estimating success will come in execution, through change control. She says that a failure to enforce rigorous change control can lead to the illusion that the original estimate was in error, even though the change in value was due to change, not bad estimating. 'The big thing you can do when you're actually executing the project is to enforce the change orders. You need those strong procedures in place, and the people to back them up.'

'Extreme' project management proponent Doug DeCarlo has a different perspective. He contends that when it comes to estimating his big **Tip (5)** is that 'Business owners have a legitimate right to ask for estimates. You have the right to tell them the truth'. DeCarlo (founder of the Doug DeCarlo Group) contends that an estimate 'is not a promise nor a guarantee, although the business owner will most likely take it as such. Your goal', he suggests, 'is to expose the business folly of coming up with a secure estimate. How? Educate with a quick and basic risk assessment'.

For those who find DeCarlo's contention too extreme, he offers some advice (**Tip 6**) that's less politically charged in some environments. 'Stay away from single-point estimates. Always give a range (even though they may take the midpoint or low end). You'll at least feel better for having told the truth.'

Dr Jim West is Dean of PM College, and believes that the heart of a good estimate is tied to risk and assumptions (**Tip 7**). 'Always document assumptions, but don't stop there, validate the assumptions as true or false.' West believes that a lot of estimators rely too heavily on common assumptions, when most assumptions are not commonly held. He suggests using a table with the assumptions, identifying which work package they affect



and the validity of the assumption. He says that way it's possible to keep track of which ones have been validated and which haven't.

West also believes that many weaker estimates are built without considering management time. He contends that project managers frequently fail to account for work that is not directly tied to doing the deliverables. Meetings, report generation and customer liaison work are often not accounted for, and that's to the detriment of the estimate. West says, 'When it comes to management time, I recommend at least 15% [of the deliverables-oriented work time] as a rule of thumb.' (**Tip 8**)

Rules of thumb are a big part of project management practice and validation at Compaq Computer Corporations' Global Services. Worldwide project management competency manager, Ron Kempf, PMP, says a big part of their cost estimating methodology is built on rules of thumb and parametric models. His **Tip** (**9**) is to use models and parametrics to 'check estimates against those values and see if you're in the ballpark ... to see if you're going to be able to make it work'. Kempf doesn't contend that the models should be used as the estimates, but instead posits that models provide a benchmark against which a project manager's sense of realism can be evaluated. Kempf says that Compaq Global Services uses a wide variety of different tools. Some are more rigid than others. One general rule is that customer service time and attention will represent about a fifth of the total project effort (which is not far afield from Dr West's 15% for administration). Kempf says some of the other guidance is far more involved.

'There's another [metric] on optimum project duration that's based in Barry Boehm's COCOMO [Constructive Cost Models].' He says that 'The optimum project duration is equal to 2.5 times the cube root of the total project effort. For example, if the total project is 64 person-months, the cube root is 4, so the optimum duration is 10 months.'

Kempf stresses that this is not the last word in any estimate. 'What this does is gives the project manager something to go back and check against. Is it reasonable? Is it based on experience? It provides a degree of reasonableness. Is it in the ballpark? If not, then we need to review and see if the estimate is correct, and if the estimate is different from these rules of thumb, then it's OK. But it gives them [project managers] something to check against.'

Tip 10 comes from Brian Burnett, senior manager of training and development for Interactive Marketing at America On-Line (AOL). He believes that sound estimates are rooted not in the mathematics, but in the relationships. 'I focus on trust and appreciation within a team. I like to be open and honest in terms of what's going on and what might be really sticky issues.' He stresses that he's much more likely to get accurate estimates from team members who trust him and who know that he'll appreciate their work if they get it right. 'One of the things that AOL has is a skybox at the MCI center [a sporting arena] and I'll reserve that for the team to enjoy some drinks and get away. I'll pay for pizza and beer and try to look at the project from the outside-in in terms of how we can improve our efforts and work together.' He says that his reward structure isn't always team-oriented, but sometimes acknowledges individual achievement. 'I always keep a couple of movie tickets in my back pocket to give out when they do something right.'

Part of Burnett's success stems from the types of communications they employ. He believes constant communication improves estimating practice. 'I touch base to find out where they're going. I tend to be non-threatening. I've found it useful for myself. A lot of times, we'll communicate via email. They tend to break down barriers via email. We're on-line with the AOL Instant Messenger and we'll break down barriers that way.'

It's notable that the top managers don't suggest hidden caches of project money for 'just in case' situations or inflated numbers to make project managers look like heroes. Instead, they contend that the best practices are those that encourage history, contingency, organizational effectiveness, lessons learned and other classic practices of project management.

TIP		TOOLS
1	Match the estimate to the resources applied on the project	Resource/Responsibility matrix
2	Map the estimate to historical data	Historical estimates and components database
3	Check the historical data with the project managers who built it	*Expert interviews*
4	Match the estimate to what it estimated. Don't try to fit changes under the original estimate	Change control methodologies
5	Clarify that an estimate is an estimate, not reality	Risk assessment
6	Provide the estimate as a range of possibilities, rather than a single data point	Range estimating
7	Document the assumptions and validate them	Assumptions documentation
8	Allot time for management and administration	Dr West's 15% 'rule of thumb'
9	Validate estimates against models and rules of thumb	Barry Boehm's Constructive Cost Model (and a host of others)
10	Build team trust and share rewards for estimating accuracy	Two tickets to Harry Potter and the Sorcerer's Stone and some time in virtual or face-to-face contact