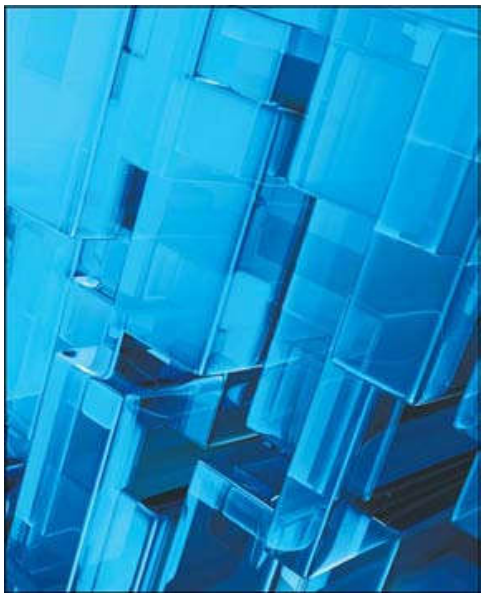


The Estimating Problem[1]

Barbara just received the good news: She was assigned as the project manager for a project that her company won as part of competitive bidding. Whenever a request for proposal (RFP) comes into Barbara's company, a committee composed mainly of senior managers reviews the RFP. If the decision is made to bid on the job, the RFP is turned over to the Proposal Department. Part of the Proposal Department is an estimating group that is responsible for estimating all work. If the estimating group has no previous history concerning some of the deliverables or work packages and is unsure about the time and cost for the work, the estimating team will then ask the functional managers for assistance with estimating.

Project managers like Barbara do not often participate in the bidding process. Usually, their first knowledge about the project comes after the contract is awarded to their company and they are assigned as the project manager. Some project managers are highly optimistic and trust the estimates that were submitted in the bid implicitly unless, of course, a significant span of time has elapsed between the date of submittal of the proposal and the final contract award date. Barbara, however, is somewhat pessimistic. She believes that accepting the estimates as they were submitted in the proposal is like playing Russian roulette. As such, Barbara prefers to review the estimates.

One of the most critical work packages in the project was estimated at twelve weeks using one grade 7 employee full time. Barbara had performed this task on previous projects and it required one person full time for fourteen weeks. Barbara asked the

estimating group how they arrived at this estimate. The estimating group responded that they used the three-point estimate where the optimistic time was four weeks, the most likely time was thirteen weeks, and the pessimistic time was sixteen weeks.

Barbara believed that the three-point estimate was way off of the mark. The only way that this work package could ever be completed in four weeks would be for a very small project nowhere near the complexity of Barbara's project. Therefore, the estimating group was not considering any complexity factors when using the three-point estimate. Had the estimating group used the triangular distribution where each of the three estimates had an equal likelihood of occurrence, the final estimate would have been thirteen weeks. This was closer to the fourteen weeks that Barbara thought the work package would take. While a difference of 1 week seems small, it could have a serious impact on Barbara's project and incur penalties for late delivery.

Barbara was now still confused and decided to talk to Peter, the employee that was assigned to do this task. Barbara had worked with Peter on previous projects. Peter was a grade 9 employee and considered to be an expert in this work package. As part of the discussions with Barbara, Peter made the following comments:

> I have seen estimating data bases that include this type of work package and they all estimate the work package at about 14 weeks. I do not understand why our estimating group prefers to use the three point estimate.

"Does the typical data base account for project complexity when considering the estimates?" asked Barbara. Peter responded:

> Some data bases have techniques for considering complexity, but mostly they just assume an average complexity level. When complexity is important, as it is in our project, analogy estimating would be better. Using analogy estimating and comparing the complexity of the work package on this project to the similar works packages I have completed, I would say that 16–17 weeks is closer to reality, and let's hope I do not get removed from the project to put out a fire somewhere else in the company. That would be terrible. It is impossible for me to get it done in 12 weeks. And adding more people to this work package will not shorten the schedule. It may even make it worse.

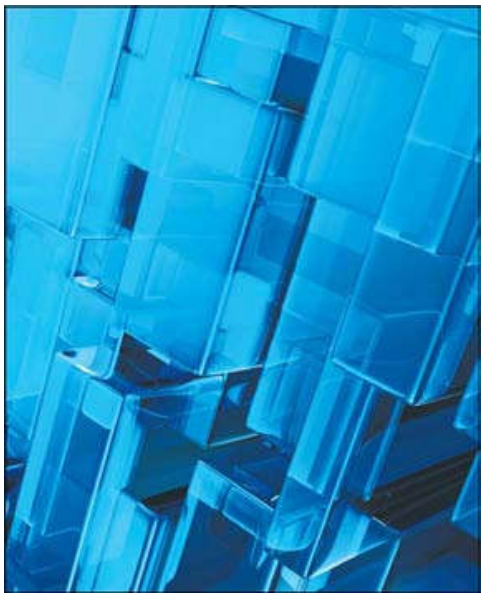
Barbara then asked Peter one more question:

> Peter, you are a grade 9 and considered as the subject matter expert. If a grade 7 had been assigned, as the estimating group had said, how long would it have taken the grade 7 to do the job?

"Probably about 20 weeks or so" responded Peter.

QUESTIONS

1. How many different estimating techniques were discussed in the case?
2. If each estimate is different, how does a project manager decide that one estimate is better than another?
3. If you were the project manager, which estimate would you use?



Payton Corporation

Payton Corporation had decided to respond to a government RFP for the R&D phase on a new project. The statement of work specified that the project must be completed within ninety days after go-ahead, and that the contract would be at a fixed cost and fee.

The majority of the work would be accomplished by the development lab. According to government regulations, the estimated cost must be based on the *average* cost of the entire department, which was $19.00 per hour (unburdened).

Payton won the contract for a total package (cost plus fee) of $305,000. After the first weekly labor report was analyzed, it became evident that the development lab was spending $28.50 per hour. The project manager decided to discuss the problem with the manager of the development lab.

Project manager: "Obviously you know why I'm here. At the rate that you're spending money, we'll overrun our budget by 50 percent."

Lab manager: "That's your problem, not mine. When I estimate the cost to do a job, I submit only the hours necessary based on historical standards. The pricing department converts the hours to dollars based on department averages."

Project manager: "Well, why are we using the most expensive people? Obviously there must be lower-salaried people capable of performing the work."

Lab manager: "Yes, I do have lower-salaried people, but none who can complete the job within the two months required by the contract. I have to use people high on the learning curve, and they're not cheap. You should have told the pricing department to increase the average cost for the department."

Project manager: "I wish I could, but government regulations forbid this. If we were ever audited, or if this proposal were compared to other salary structures in other proposals, we would be in deep trouble. The only legal way to accomplish this would be to set up a new department for those higher-paid employees working on this project. Then the average department salary would be correct.

"Unfortunately the administrative costs of setting up a temporary unit for only two months is prohibitive. For long-duration projects, this technique is often employed.

"Why couldn't you have increased the hours to compensate for the increased dollars required?"

Lab manager: "I have to submit labor justifications for all hours I estimate. If I were to get audited, my job would be on the line. Remember, we had to submit labor justification for all work as part of the proposal.

"Perhaps next time management might think twice before bidding on a short-duration project. You might try talking to the customer to get his opinion."

Project manager: "His response would probably be the same regardless of whether I explained the situation to him before we submitted the proposal or now, after we have negotiated it. There's a good chance that I've just lost my Christmas bonus."

QUESTIONS

1. What is the basis for the problem?
2. Who is at fault?
3. How can the present situation be corrected?
4. Is there any way this situation can be prevented from recurring?
5. How would you handle this situation on a longer-duration project, say one year, assuming that multiple departments are involved and that no new departments were established other than possibly the project office?
6. Should a customer be willing to accept monetary responsibility for this type of situation, possibly by permitting established standards to be deviated from? If so, then how many months should be considered as a short-duration project?