


# Estimating Project Costs

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The Wideman Comparative Glossary of Common Project Management Terms  describes estimating cost as "The process of forecasting a future result in terms of cost, based upon information available at the time."

In his book 'How to be a Better Project Manager', Trevor L Young defines estimating as "A decision about how much time and resource are required to carry out a piece of work to acceptable standards of performance."



Many techniques, books and software packages exist to help with estimating project costs. A few simple rules will also help ensure you create an accurate and realistic estimate.

- Assume resources will only be productive for 80 percent of their time.
- Resources working on multiple projects take longer to complete tasks because of time lost switching between them.
- People are generally optimistic and often underestimate how long tasks will take.
- Make use of other people's experiences and your own.
- Get an expert view.
- Include management time in any estimate.
- Always build in contingency for problem solving, meetings and other unexpected events.
- Cost each task in the Work Breakdown Structure to arrive at a total, rather than trying to cost the project as a whole.
- Agree a tolerance with your customer for additional work that is not yet defined.
- Communicate any assumptions, exclusions or constraints you have to your customer.
- Provide regular budget statements to your customer, copying your team, so they are always aware of the current position.

Much data exists about the length of time particular items of work take, especially in the construction industry. A useful database of production rates can be found at Planning Planet .

## Common Mistakes

These are some of the common mistakes that can lead to inaccurate estimates.

- Not understanding what is involved to complete an item of work.
- Starting with an amount of money and making the project cost fit it.
- Assigning resources at more than 80 percent utilisation.
- Failing to build in contingency.
- Failing to adjust the estimate following changes in scope.
- Dividing tasks between more than one resource.
- Providing estimates under pressure in project meetings.
- Giving single-data-point estimates rather than range estimates.

## Three Point Estimating

Three point estimating is a technique that helps project managers produce better estimates. Rather than a ballpark estimate, project managers can use three point estimating to gain a greater degree of control over how the end value is calculated. The end value is the weighted average of three estimates.

To do three point estimating for a particular task or activity, ask the resource for their best-case, most likely and worst case estimates. Add the best-case estimate to four times the most likely, then the worst case and divide by six. This gives you your estimate (E value) which is a slightly more balanced view of how long the task or activity is likely to take.

The formula is expressed as:

$$E = (B + 4 M + W) / 6$$

- B = best-case (1/6)
- M = most likely (4/6)
- W = worst case (1/6)

## Monte Carlo Simulation in MS Excel

The Monte Carlo method of estimating project cost is based on the generation of multiple trials to determine the expected value of a random variable. There are several commercial packages that run Monte Carlo simulation; however a basic spreadsheet such as Microsoft Excel can be used to run a simulation.

 Monte Carlo Simulation in MS Excel

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**Proverb:** The same work under the same conditions will be estimated differently by ten different estimators or by one estimator at ten different times.

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