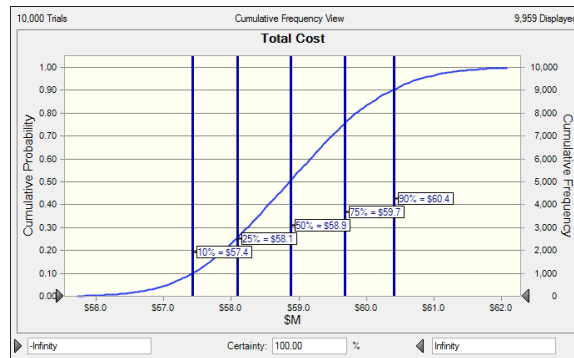


**Project Uncertainty: Cost and Duration**

For any major project, there may be significant uncertainty in the total cost of the project and in the time required to complete the project. This uncertainty is of key importance to those responsible for the project and others, such as those bidding to complete the work. The parties involved may be facing a wide range of potential values for the cost and the end date of the project, which complicate decision-making in the near term. Simulation can be performed on both the cost and schedule using a tool such as Oracle Crystal Ball in order to better understand the probability of particular outcomes and the impact of individual risks on the overall project budget and timeline.

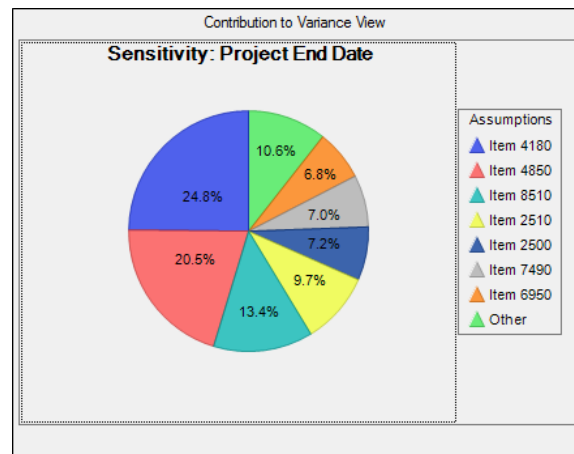
**Simulating Project Costs**

First, the base case is developed in an Excel spreadsheet using the most likely cost of each item. For any item for which the cost is uncertain, the range of possible cost values must be defined. When the user has identified the minimum and maximum potential cost values for an item, a probability distribution is assigned. Then, during simulation, a single cost value for each item is selected from its distribution in each trial. The costs of each item are summed, and one resulting Total Cost is calculated for that trial. A simulation may include tens of thousands of trials.



**Simulating Project Duration**

The project schedule will likely be developed using a tool like Primavera P6 or Microsoft Project. To apply Crystal Ball, the schedule must be converted into a Microsoft Project file. The minimum and maximum activity durations are defined by the user and Crystal Ball is applied to simulate the project duration over hundreds or thousands of trials, while keeping the project scheduling logic, such as predecessor and successor tasks and constraints intact.



**Results**

Performing this type of analysis allows the user to determine the probability of achieving specific outcomes, such as meeting a particular budget or completing the project by a certain date. It can also provide the value for cost or project completion date that corresponds to a particular level of certainty. This information can inform all types of decisions related to the project.

Sensitivity analysis indicates which items contribute most to the uncertainty of the forecast. This information can be used to minimize the cost associated with gathering more information when the user wishes to reduce the overall uncertainty in the forecast.

**About Black Belt on Demand**

Black Belt on Demand helps businesses and individuals be more effective, make better decisions, and succeed in ways they might not have realized were possible using tools including Six Sigma, Monte Carlo simulation, data analysis, and coaching for individual clients.

We bring exceptional experience and knowledge to every project. We enjoy providing the flexibility required to meet the needs of small businesses and teaching our clients as much as they want to learn about the processes we utilize.

Contact us to learn more about evaluating your project’s cost and schedule risks.



Ph: 303 895 5452  
info@BlackBeltOnDemand.com  
[www.BlackBeltOnDemand.com](http://www.BlackBeltOnDemand.com)