The Program (or Project) Evaluation and Review Technique, commonly abbreviated PERT, is a method to analyze the involved tasks in completing a given project, especially the time needed to complete each task, and identifying the minimum time needed to complete the total project.

All plans are estimates and are only as good as the task estimates – unrealistic estimates equal unrealistic plans.

If the scope of a plan changes, all estimates must change – adding tasks equals added time and cost.
• PERT Analysis is a good way to “what if” before a project is launched
  • What tasks will it take to do the project?
  • What is the optimum order of the project tasks?
  • How long will it take to do the project?
  • How likely is the project to succeed?
  • What if the customers wants it earlier, what is the likelihood then?
Critical Path

• **Step 1:** Identify Critical Path Tasks (Column A)
The longest possible continuous pathway taken from the initial event to the terminal event. It determines the total calendar time required for the project; and, therefore, any time delays along the critical path will delay the reaching of the terminal event by at least the same amount.
• **Step 2:** Enter the following Estimates (in days) for all Critical Path Tasks:
  
  • **Optimistic O (Column B):** The minimum possible time required to accomplish a task, assuming everything proceeds better than is normally expected.
  
  • **Likely M (Column C):** The best estimate of the time required to accomplish a task, assuming everything proceeds as normal.
  
  • **Pessimistic P (Column D):** The maximum possible time required to accomplish a task, assuming everything goes wrong (but excluding major catastrophes).
Expected Duration

• **Step 3**: PERT calculator generates:
  - **PERT Expected Duration (Column E)**: a probability based expected duration. The best estimate of the time required to accomplish a task, assuming everything proceeds as normal (the implication being that the expected time is the average time the task would require if the task were repeated on a number of occasions over an extended period of time).

\[
TE = (O + 4M + P) \div 6
\]
Standard Deviation and Variance

- **Standard Deviation** (Column F): is the average deviation from the estimated time.
  - SD = (P-O)/6
  - As a general rule, the higher the standard deviation the greater the amount of uncertainty
- **Variance** (Column G): reflects the spread of a value over a normal distribution
  - V=SD^2 (Standard deviation squared)
Probability of Completion

- **Step 4:** Enter Desired Completion Time in days (Column C29)

- **Step 5:** PERT calculator generates:
  - **Probability of Completion** (Column G29)
  - **Z Number** (Column H29)
Q & A