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## PROGRAM (PROJECT) EVALUATION AND REVIEW TECHNIQUE (PERT)

- Program (Project) Evaluation and Review Technique (PERT) is a project management tool used to schedule, organize, and coordinate tasks within a project
- It is basically a method to analyze the tasks involved in completing a given project, especially the time needed to complete each task, and to identify the minimum time needed to complete the total project.



## OBJECTIVE

- The main objective of PERT is to facilitate decision making and to reduce both the time and cost required to complete a project.

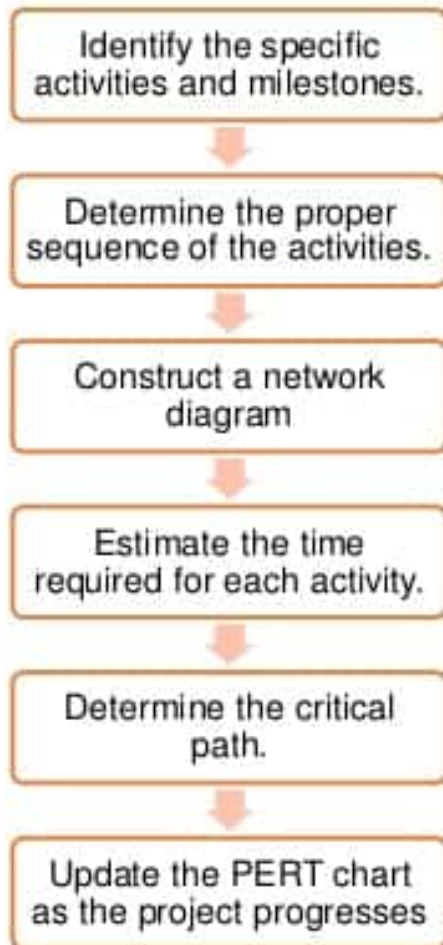


## PREREQUISITES

- Personnel should already have a good understanding of formal project management terminology, tools, and techniques
- PERT form template of equivalent tool (e.g. software)
- Create of project plan
- Choose the most appropriate scheduling method
- Select and organize a team to perform project tasks.



# STEPS



## IDENTIFY THE SPECIFIC ACTIVITIES AND MILESTONES.

- The activities are the tasks required to complete a project. The milestones are the events marking the beginning and the end of one or more activities. It is helpful to list the tasks in a table that in later steps can be expanded to include information on sequence and duration.



## DETERMINE THE PROPER SEQUENCE OF THE ACTIVITIES

- This step may be combined with the activity identification step since the activity sequence is evident for some tasks. Other tasks may require more analysis to determine the exact order in which they must be performed.



## CONSTRUCT A NETWORK DIAGRAM.

- Using the activity sequence information, a network diagram can be drawn showing the sequence of the serial and parallel activities.
- Each activity represents a node in the network, and the arrows represent the relation between activities.
- Software packages simplify this step by automatically converting tabular activity information into a network diagram.





## ESTIMATE THE TIME REQUIRED FOR EACH ACTIVITY

- Weeks are a commonly used unit of time for activity completion, but any consistent unit of time can be used. A distinguishing feature of PERT is its ability to deal with uncertainty in activity completion time.
- For each activity, the model usually includes four time estimates:
  - ❖ *Optimistic time*
  - ❖ *Most likely time*
  - ❖ *Pessimistic time*
  - ❖ *Expected time*



## TIMES

- **Optimistic time**
- **It is** generally the shortest time in which the activity can be completed.
- **Most likely time** – the completion time having the highest probability. Note that this time is different from the *expected time*.
- **Pessimistic time** – the longest time that an activity might require.
- **Expected time** =  $(\text{Optimistic} + 4 \times \text{Most likely} + \text{Pessimistic}) / 6$
- This expected time may be displayed on the network diagram.



## DETERMINE THE CRITICAL PATH.

- The critical path is determined by adding the times for the activities in each sequence and determining the longest path in the project.
- The critical path determines the total calendar time required for the project.



## UPDATE THE PERT CHART AS THE PROJECT PROGRESSES.

- Make adjustments in the PERT chart as the project progresses.
- As the project unfolds, the estimated times can be replaced with actual times.
- In cases where there are delays, additional resources may be needed to stay on schedule and the PERT chart may be modified to reflect the new situation.



## BENEFITS OF PERT

PERT is useful because it provides the following information:

- ❖ Expected project completion time;
- ❖ Probability of completion before a specified date
- ❖ The critical path activities that directly impact the completion time;
- ❖ The activities that have slack time and that can be lend resources to critical path activities;
- ❖ Activity start and end date.



**Thank  
You**

