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PERT was developed in 1958 by Booz, Allen and Hamilton under the sponsorship of US Navy.

The aim was to finish the Polaris Fleet Ballistic Missiles Programme two years in advance. PERT describes basic network technique which includes planning, monitoring and control of projects. PERT finds applications in planning and control of complex set of tasks, functions and relationships.

PERT is a research and development tool where activity timings could not be estimated with enough certainty. Therefore, three time estimates-optimistic time, Pessimistic time and normal time are made. Optimistic time is the best time that could be expected if everything went exceptionally well. Pessimistic time is the worst time if everything went wrong. Normal time is estimated for normal circumstances.

Methodology of PERT:

The PERT involves following steps

1. The project is broken down into different activities systematically.
2. Activities are arranged in logical sequence.
3. The network diagram is drawn.
4. Events and activities are numbered in the network diagram.
5. Using optimistic, pessimistic and normal time, the expected time is calculated.
6. Standard deviation and variance for each activity is calculated.

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7. Earliest starting time (EST) and latest finishing time (LFT) are calculated.
8. Expected time, EST and LFT are marked on the network diagram.
9. Slack is calculated.
10. Critical paths are identified and marked on the network diagram.
11. Length of critical path or the total project duration is found out.

Advantages of PERT:

1. PERT forces the management to plan carefully and study how the various parts fit into the whole project.
2. PERT enables the business managers to predict time and cost of the project in advance.
3. PERT is a forward-looking control device for management. PERT calls attention on the timely completion of the project and avoids delay.
4. PERT enables the determination of the probabilities concerning the time by which activity and project would be completed.
5. PERT suggests areas for increasing efficiency and reducing cost.
6. It provides up-to-date information of the project programme so that the necessary steps may

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be taken to minimize the delays and interruptions.

7. PERT assists in coordinating the different parts of the total projects.

Limitations of PERT:

1. In PERT, it is assumed that all the activities involved in the project are known in advance. In projects like research and development (R and D), it is not possible to list out all the activities in advance.
2. The assumption that a project can be sub-divided into a set of predictable and independent, activities may not hold true always.
3. PERT emphasizes only on time and not the costs.
4. PERT is based on time estimates and there may be error in estimating time.
5. For active control of a project, PERT requires frequent updating and revising of calculations. It is an expansive and time consuming exercise, which requires highly trained personnel.