

and Review Technique) is an event oriented system. The method by which the planning logic of a project is displayed on the network diagram in each of these systems is shown in the exhibit.

In CPM, the activity is shown as an arrow. The length or direction of the arrow has no significance other than that the activity starts at the tail of the arrow and is completed at the head of the arrow. The order in which the arrows are joined (head to tail) indicates the order in which the activities represented by the arrows must be performed. The arrows depict the performance of an activity and the junction points, or "nodes", are events which indicate a point in time when all the activities leading to the node have been completed and all the activities leaving the node may start.

The PERT network uses an arrow diagram similar to the CPM network, with the main exception being that the events are identified in the nodes on the PERT diagram. The arrows joining the nodes show the time that must elapse before a subsequent activity can start.

CPM and PERT evolved with different emphasis, one on activities and the other on events, as the result of development in two different management environments. CPM developed in the construction industry, where the activities and activity times could be well defined, the project was located in one location, and was usually controlled by one dominant organization.

PERT, on the other hand, evolved in the research and development field, where activities between specific milestones could not be accurately defined nor accurate time estimates provided, but completion by milestone target dates was important for success of the project. Also, PERT projects usually involved massive programs with many large organizations involved, and with extensive operations taking place in many different locations.

Precedence diagramming is a combination of CPM and PERT in which the activities are shown in the node and the restrictions they might impose on subsequent activities are shown by joining the nodes, either with arrows or connecting lines without arrows.

Precedence diagramming is the most effective technique for showing the planning logic of a project on a diagram. The arrow diagramming used in CPM and PERT often requires complicated networks to show the proper relationship amongst activities. For example, the only relationship which can be shown on an arrow diagram is the "finish-start" relationship, where one activity must finish before the next one may start. In practice, however, many activities overlap, with one activity starting before the previous one is completed. To show this type of relationship on an arrow diagram requires the activity to be sub-divided to show the point at which the subsequent activity may start. In precedence diagramming, a variety of relationships can be shown without destroying the identity of each activity.