Critical path method (CPM) aka Critical Path Analysis (CPA) is a network diagramming technique used to predict the total project duration. Helps to combat schedule overruns. The critical path for a project is the series of activities that determine the earliest time by which the project can be completed. It is the longest path through the network diagram and has the least amount of slack or float.

Slack or float is the amount of time an activity may be delayed without delaying a succeeding activity or the project finish date.

The longest path, or the path that contains the critical tasks is what drives the completion date for the project.

To find the critical path for a project, you must first develop a good network diagram, which in turn requires a good activity list based on the WBS.

Once a network diagram is created, you must also estimate the duration of each activity to determine the critical path.

Important to know the critical path throughout the life of the project so the project manager can make trade-offs. If a task on the critical path is behind schedule, the project manager must be aware of the problem and decide what to do about it.

Actions could include:

Renegotiate schedule with stakeholders.

Allocate more resources to that task

Consider if project can finish behind schedule.

Technique that can help managers schedule trade-offs is determining the free slack and total slack for each activity.

(Network Diagram)