2.8 Creating a Project Critical Path

Description:

This tool provides an overview of a Critical Path Analysis, and examples of a Critical Path Analysis Chart and Diagram.

How it can be used:

Every project, no matter how simple or complex, has a critical path.
The critical path is the sequence of activities that must be started and completed on time for the entire project to be completed on schedule.

An effective Critical Path Analysis can make the difference between success and failure on complex projects. Use the chart and diagram examples to guide you in creating a critical path for a small project to learn the basics before applying to a larger project.

What is a Critical Path?

A critical path is a series of activities that identify the start and finish of the project and represent the milestones of a project. When the last activity in the critical path is complete, the project is also complete. Activities that make up the critical path are typically interrelated by dependencies.

Why use a Critical Path?

Critical Path Analysis is an effective and powerful method of assessing:

- What tasks must be carried out.
- Where a parallel activity can be performed.
- The shortest time in which you can complete a project.
- Resources needed to execute a project.
- The sequence of activities, scheduling and timings involved.
- Task priorities.
- The most efficient way of shortening time on urgent projects.

By knowing and tracking the critical path for your project, as well as the resources that are assigned to each critical task, you can identify the tasks that can affect your project's finish date and thus discover whether your project will finish on schedule.

How to create a Critical Path

There are two key steps to creating a Critical Path.

1. Construct a chart of the project that includes the following:
    a. A list of all activities required to complete the project (sometimes referred to as a 'work breakdown structure' – WBS).
    b. The time (duration) that each activity will take to complete and whether it is completed in parallel with other activities or whether it is sequential.
    c. The dependencies between activities (i.e., upon which previous activity(ies) does this activity depend?)

Example Critical Path Chart: Creating a community plan for a new program.

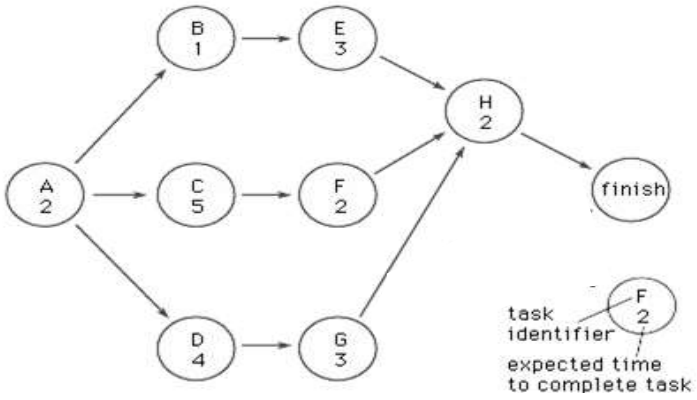
Activity	Earliest start	Length	Type	Dependent on	Resources required
Project planning meeting	Week1	2 weeks			Materials, facilitator, hospitality & travel
Meet with Elders	Week 3	1 week	Parallel	A	Materials, hospitality
Meet with youth	Week 3	5 weeks	Parallel	A	Materials, hospitality
Meet with Family Services	Week 3	4 weeks	Parallel	A	Materials, hospitality
Present draft content to Elders for validation	Week 4	3 weeks	Parallel	B	Materials, hospitality
Present draft content to youth for validation	Week 8	2 weeks	Parallel	C	Materials, hospitality
Present draft content to Family Services for validation	Week 7	3 weeks	Parallel	D	Materials, hospitality
Collate all materials into final report	Week 10	2 weeks	Sequential	E, F, G	Report writer
Present to Chief and Council	Week 12				

According to this Critical Path Chart, this project will take twelve weeks from initiation to completion. Activities on the critical path must start and end as scheduled or else the project schedule will need to be revised.

It is also possible to set up an additional critical path for each independent series of tasks. For example, sub-paths could be created related to developing content for focus group meetings with Elders, youth, and Family Services, and collating the materials into the final report.

For each activity on every chart, outline all the resources that are needed (i.e., human, financial, infrastructure, etc.)

2. Plot the information from the chart in a diagram:
   a. Use circles to represent activities and arrows to represent sequences.
   b. The letter identifies the task and the number is the expected time it will take to complete.



When reviewing your chart and diagram, see if you can identify areas where you can build in efficiencies by shortening the time required to complete an activity (i.e., by adding extra resources). Keep these in mind in case other activities go over time and you need to find ways to stay on schedule.

Source: First Nations Health Managers Association. *Knowledge Circle*. www.fnhma.ca.