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3/28/2023

Short Answer (4 to 5 sentences)

Describe three advantages of using activity networks for project scheduling.

Activity networks offer several advantages for project scheduling and successful project outcomes. First of all, they provide a visual representation of the project timeline and activities, making it easy to get a basic overview and also understanding potential risks or delays. Apart from that, they allow for the estimation of project duration, as well as budgeting when it comes to resource requirements etc. helping to ensure that the project is completed on time and within the previously set budget. Furthermore, activity networks enable project managers to adjust schedules in response to changes in project requirements or unexpected events, offering greater flexibility. Overall, the use of activity networks can lead to more efficient and effective project scheduling, resulting in better project outcomes.

Define the critical path in a project. Why is it important to understand what it is and what affects it?

The critical path is defined as the series of interdependent activities of a project, connected end-to-end, which determines the shortest total length of the project. These tasks must be completed on time to ensure that the project is finished within its deadline. Furthermore, any delay in this path will directly impact the project's completion time. Understanding the critical path is crucial for project managers as it enables them to prioritize tasks, allocate resources, and identify potential delays in advance, helping them to manage the project more efficiently and effectively.

Define the Critical Path Method (CPM). Both chapters might assist with this question.

The Critical Path Method is a network analysis technique used to determine the amount of scheduling flexibility on various logical network paths in the project schedule network, and to determine the minimum total project duration. Furthermore, it is used to identify the most critical tasks in a project and their impact on the overall project schedule. By analyzing given diagrams, managers can determine the critical path and see what exact tasks need to be completed on time in order for the project to be on the right path. Moreover, this method helps managers to identify possible areas where costs can be minimized and resources can be optimized.

Define Program Evaluation and Review Technique (PERT). Both chapters might assist with this question.

Program Evaluation and Review Technique (PERT) is a project management tool that is used to schedule, organize, and coordinate tasks within a project. It is a statistical method that breaks down projects into smaller tasks and helps project managers to estimate the time required to complete each task, based on the probability of different outcomes. This technique uses a network diagram to map out the tasks required to complete a project, how they are related to each other, and identifies the critical path that determines the minimum time required to complete the project. It is particularly useful for large and complex projects with many dependencies between tasks and uncertainties regarding time estimates.

The two most common methods for constructing activity networks are Activity-on-Arrow (AOA) and Activity-on-Node (AON). Briefly compare and contrast the two. Both chapters might assist with this question.

Activity-on-Arrow and Activity-on-Node network diagramming are intended to do the same thing: create a sequential logic for all activities with a project and, once they are linked, determine the project's duration, critical path, and slack activities. The benefits of AON are centered primarily in the fact that it has become the most popular format for computer software packages, and as more and more companies use project scheduling software, they are increasingly using the AON method for network diagrams. The primary drawback with AON networks occurs when the project is very complex with numerous paths through the model as the sheer number of arrows and connections can make AON networks difficult to read. On the other hand, the greatest benefit of AOA modeling lies in its accepted use in certain business fields, such as construction, where AON networks may be less widely used. Furthermore, in the case of large, complex projects it is often easier to employ the path process used in AOA.

The text describes four methods for reducing the critical path. Describe two of these.

There are different ways of how the critical path can be reduced. One of them is to eliminate tasks on the critical path: It may be the case that some of the tasks that are found on the critical path can be eliminated if they are not necessary or can be moved to noncritical paths with extra slack that will accommodate them. Another method would be to re-plan serial paths to be in parallel. In some circumstances, a project may be excessively loaded with serial activities that could be moved to parallel or concurrent paths in the network. Group discussion can help determine alternative methods for

taking serial activities off the critical path and moving them to concurrent, noncritical paths.

What is a Gantt chart? Describe two benefits of using them for project management.

Gantt charts are an extremely useful tool for creating a project network. They establish a time-phased network that links project activities to a project schedule baseline. A great benefit of them is that they are easy to comprehend, linking together all activities and creating a general overview. Furthermore, these charts enhance the step of identifying and planning resource needs, by laying the whole project out on a schedule baseline, permitting the team to begin scheduling resources well before they are needed.

What do we mean by 'crashing a project'? What are two reasons for crashing a project?

In project management, "crashing a project" refers to the act of shortening the project's duration by adding additional resources or increasing the intensity of the work to meet a tight deadline or to bring the project back on track. One reason for crashing a project may be external factors, such as the need to meet a regulatory deadline. This can occur when the project went off track and still needs to be completed in time. Another one would be internal factors, such as a delay in a critical path activity that threatens the project's completion date, making it necessary to speed up processes.

The text describes six techniques for crashing a project/accelerating it. Describe two of them.

There are a number of methods available for accelerating/crashing projects. One key aspect determining which method to use is how resource-constrained the project is, meaning whether there is additional budget space or extra resources available to devote to the project. A first option is improving the productivity of existing project resources, which means finding efficient ways to do more work with the personnel and other material resources currently available. Another option for accelerating project activities is to promote methods intended to change the working method employed for the activity, for example switching to computer-based project scheduling techniques.