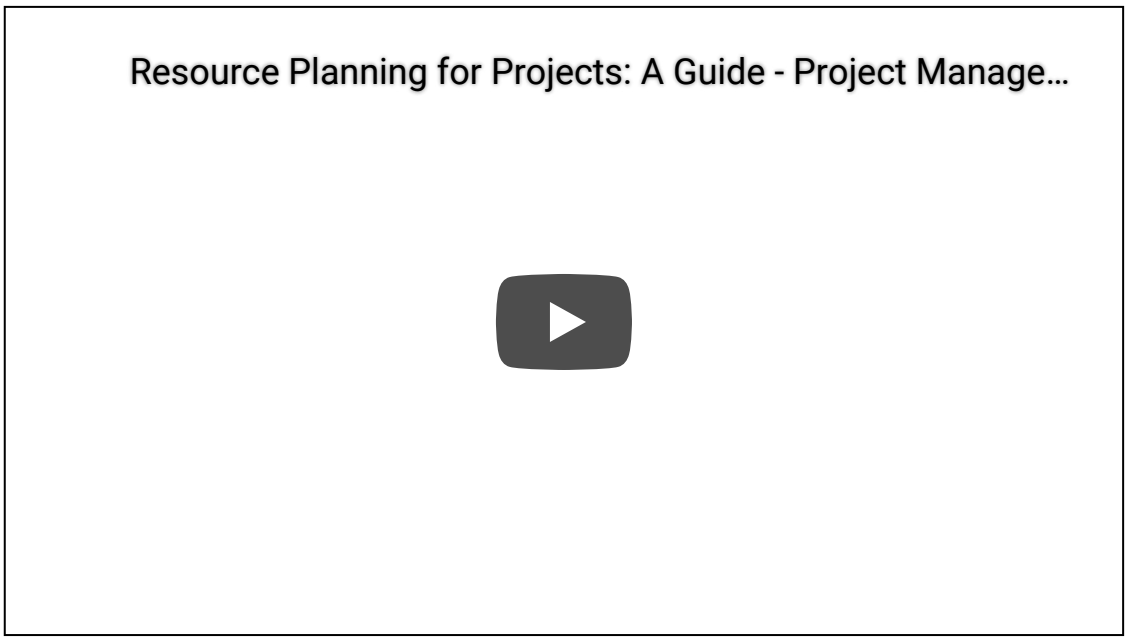
Lesson Proper for Week 11



Estimating the Resources

The goal of activity resource estimating is to assign resources to each activity in the activity list. There are five tools and techniques for estimating activity resources.

Expert judgment - means bringing in experts who has done this sort of work before and getting their opinions on what resources is needed.

Alternative analysis - means considering several different options for how you assign resources. This includes varying the number of resources as well as the kind of resources you use. Many times, there's more than one way to accomplish an activity and alternative analysis helps decide among the possibilities.

Published estimating data - is something that project managers in a lot of industries use to help them figure out how many resources they need. They rely on articles, books, journals, and periodicals that collect, analyze, and publish data from other people's projects.

Project management software - such as Microsoft Project will often have features designed to help project managers estimate resource needs and constraints and find the best combination of assignments for the project.

Bottom-up estimating - means breaking down complex activities into pieces and working out the resource assignments for each piece. It is a process of estimating individual activity resource need or cost and then adding these up together to come up with a total estimate. Bottom-up estimating is a very accurate means of estimating, provided the estimates at the schedule activity level are accurate. However, it takes a considerable amount of time to perform bottom-up estimating because every activity must be assessed and estimated accurately to be included in the bottom-up calculation. The smaller and more detailed the activity, the greater the accuracy and cost of this technique.

Estimating Activity Durations

Once you're done with activity resource estimating, you've got everything you need to figure out how long each activity will take. That's done in a process called activity duration estimating. This is where you look at each activity in the activity list, consider its scope and resources, and estimate how long it will take to perform.

Estimating the duration of an activity means starting with the information you have about that activity and the resources that are assigned to it, and then working with the project team to come up with an estimate. Most of the time you'll start with a rough estimate and then refine it to make it more accurate. You'll use these five tools and techniques to create the most accurate estimates:

Expert judgment - will come from your project team members who are familiar with the work that has to be done. If you don't get their opinion, there's a huge risk that your estimates will be wrong.

Analogous estimating - is when you look at similar activities from previous projects and how long they took. only works if the activities and resources are similar.

Parametric estimating - means plugging data about your project into a formula, spreadsheet, database, or computer program that comes up with an estimate. The software or formula that you use for parametric estimating is based on a database of actual durations from past projects.

Three-point estimating - is when you come up with three numbers: a realistic estimate that's most likely to occur, an optimistic one that represents the best-case scenario, and a pessimistic one that represents the worst-case scenario. The final estimate is the weighted average of the three.

Reserve analysis - means adding extra time to the schedule (called a contingency reserve or a buffer) to account for extra risk.

Project Schedule and Critical Path

The project schedule should be approved and signed off by stakeholders and functional managers. This ensures they have read the schedule, understand the dates and resource commitments, and will cooperate. You'll also need to obtain confirmation that resources will be available as outlined in the schedule. The schedule cannot be finalized until you receive approval and commitment for the resource

assignments outlined in it. Once the schedule is approved, it will become your baseline for the remainder of the project. Project progress and task completion will be monitored and tracked against the project schedule to determine if the project is on course as planned.

The schedule can be displayed in a variety of ways, some of which are variations of what you have already seen. Project schedule network diagrams will work as schedule diagrams when you add the start and finish dates to each activity. These diagrams usually show the activity dependencies and critical path.

The critical path method is an important tool for keeping your projects on track. Every network diagram has something that is called the critical path. It's the string of activities that, if you add up all of the durations, is longer than any other path through the network. It usually starts with the first activity in the network and usually ends with the last one.

Resource Management

Resource management is the efficient and effective deployment of an organization's resources when they are needed. Such resources may include financial resources, inventory, human skills, production resources, or information technology (IT). In the realm of project management, processes, techniques, and philosophies for the

best approach for allocating resources have been developed. These include discussions on functional versus cross-functional resource allocation as well as processes espoused by organizations like the Project Management Institute (PMI) through the methodology of project management outlined in their publication A Guide to the Project Management Body of Knowledge (PMBOK). Resource management is a key element to activity resource estimating and project human resource management. As is the case with the larger discipline of project management, there are resource management software tools available that automate and assist the process of resource allocation to projects.

HR Planning

The most important resource to a project is its people—the project team. Projects require specific expertise at specific moments in the schedule, depending on the milestones being delivered or the given phase of the project. An organization can host several strategic projects concurrently over the course of a budget year, which means that its employees can be working on more than one project at a time. Alternatively, an employee may be seconded away from his or her role within an organization to become part of a project team because of a particular expertise. Moreover, projects often require talent and resources that can only be acquired via contract work and third party vendors. Procuring and coordinating these human resources, in tandem with managing the time aspect of the project, is critical to overall success.

Managing the Team

In order to successfully meet the needs of a project, it is important to have a high-performing project team made up of individuals who are both technically skilled and motivated to contribute to the project's outcome. One of the many responsibilities of a project manager is to enhance the ability of each project team member to contribute to the project, while also fostering individual growth and accomplishment. At the same time, each individual must be encouraged to share ideas and work with others toward a common goal.

Through performance evaluation, the manager will get the information needed to ensure that the team has adequate knowledge, to establish a positive team environment and a healthy communication climate, to work properly, and to ensure accountability. Managing the project team includes appraisal of employee performance and project performance. The performance reports provide the basis for managerial decisions on how to manage the project team.

Employee performance includes the employee's work results such as:

• Quality and quantity of outputs

• Work behavior (such as punctuality)

• Job-related attributes (such as cooperation and initiative)

After conducting employee performance reviews, project managers should:

• Provide feedback to employees about how well they have performed on established goals

• Provide feedback to employees about areas in which they are weak or could do better

• Take corrective action to address problems with employees performing at or below minimum expectations

• Reward superior performers to encourage their continued excellence

Techniques for Managing Resources

One resource management technique is resource leveling. It aims at smoothing the stock of resources on hand, reducing both excess inventories and shortages. The required data are the demands for various resources, forecast by time period into the future as far as is reasonable; the resources' configurations required in those demands; and the supply of the resources, again forecast by time period into the future as far as is reasonable. The goal is to achieve 100% utilization. However that is very unlikely, when weighted by important metrics and subject to constraints; for example: meeting a minimum quality level, but otherwise minimizing cost.

Resource Leveling

Resource leveling is used to examine unbalanced use of resources (usually people or equipment) over time and for resolving over-allocations or conflicts.

When performing project planning activities, the manager will attempt to schedule certain tasks simultaneously. When more resources such as machines or people are needed than are available, or perhaps a specific person is needed in both tasks, the tasks will have to be rescheduled sequentially to manage the constraint. Resource leveling during project planning is the process of resolving these conflicts. It can also be used to balance the workload of primary resources over the course of the project, usually at the expense of one of the traditional triple constraints (time, cost, scope).

When using specially designed project software, leveling typically means resolving conflicts or over-allocations in the project plan by allowing the software to calculate delays and update tasks automatically. Project management software leveling requires delaying tasks until resources are available. In more complex environments, resources could be allocated across multiple, concurrent projects thus requiring the process of resource leveling to be performed at company level.

In either definition, leveling could result in a later project finish date if the tasks affected are in the critical path.

Working with Individuals

Working with other people involves dealing with them both logically and emotionally. A successful working relationship between individuals begins with appreciating the importance of emotions and how they relate to personality types, leadership styles, negotiations, and setting goals.

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Fair Warning

2nd Semester Enrollment

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