

5.2: Resource Availability

Resources are people, equipment, places, money, or anything else that you need in order to do all of the activities that you planned for. Every activity in your activity list needs to have resources assigned to it. Before you can assign resources to your project, you need to know their availability. Resource availability includes information about what resources you can use on your project when they're available to you, and the conditions of their availability. Don't forget that some resources, like consultants or training rooms, have to be scheduled in advance, and they might only be available at certain times. You'll need to know this before you can finish planning your project. If you are starting to plan in January, a June wedding is harder to plan than one in December, because the wedding halls are all booked up in advance. That is clearly a resource constraint. You'll also need the activity list that you created earlier, and you'll need to know how your organization typically handles resources. Once you've got a handle on these things, you're set for resource estimation.

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 have done this sort of work before and getting their opinions on what resources are 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.

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 to 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 in 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.

Human Resources Management

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 work 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.

Techniques for Managing Resources

One resource management technique is **resource levelling**. 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.

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