

Project Success Method

Anticipating and Resolving Resource Overloads



The Concept of a Project Resource

In the context of project management, a *resource* is any entity that contributes to the accomplishment of project activities. Most project resources perform work and include such entities as personnel, equipment and contractors. However, the concept of a resource (and the techniques of resource management presented in this paper) can also be applied to entities that do not perform work, but which must be available in order for work to be performed. Examples include materials, cash, and workspace. This paper focuses on the resource that is of greatest concern to most organizations – personnel. In a project management system, personnel resources may be identified as individuals by name or as functional groups, such as computer programmers.

The Purpose of Resource Planning

After a detailed schedule has been developed for a project, a nagging question remains to be answered: Will the resources required to execute the project according to schedule be available when needed? In the process of developing each project schedule, the average availability of resources should have been taken into consideration when activity durations were estimated. However, this estimating process does not guarantee that the total workload on any given resource (person or functional group) from all projects and non-project assignments will not exceed the availability of that resource during any future period. When resource overloads occur, personnel are subjected to unnecessary stress, and project activities fall behind schedule. The quality of the deliverables produced is also likely to suffer. Thus, the purpose of resource planning is to anticipate resource overloads, so that they can be resolved for the benefit of both the people and the projects.

The Range of Approaches to Anticipating Resource Overloads

The approach taken to the challenge of anticipating specific resource overloads in specific future periods depends upon the number of simultaneous projects undertaken by the organization and the extent to which people are shared across multiple projects.

If the organization undertakes only a very small number of projects at one time or if each person is dedicated to work on only one or two projects at a time, a “short-cut approach” may be employed. The easiest and probably most effective short-cut approach is to:

- Give each person a copy of the newly-developed project schedule showing only those activities in which that person will be involved, and
- Ask the person to check the schedule against their personal calendar and other work commitments (including the schedules for the few other projects in which they may be involved) and report any obvious conflicts.

A person may realize for the first time that, during a week which is three months in the future, they are scheduled to work on five major activities in two different projects, while preparing their operating budget request for the next fiscal year and participating in a two-day training program. Clearly, “something’s got to give!” The key to this approach is that each person is given the opportunity and the responsibility to identify his or her own overloads.

However, if the organization shares resources (again, individuals or groups) across a significant number of simultaneous projects, short-cut approaches to the anticipation of resource overloads are inadequate. A “comprehensive approach” is required. To be effective the comprehensive approach must capture the workload associated with all projects in which the personnel are involved. Fortunately, most popular project management software systems support the comprehensive approach as described in the next section.

The Comprehensive Approach to Anticipating Resource Overloads

The first step in the comprehensive approach is called “resource loading,” and it occurs during the planning process for each new project. For each activity in the project schedule, the quantity of each resource required to perform the activity (typically measured in staff-hours for personnel resources) is estimated and entered into the project management software system. Thus, we might estimate that an activity called “Develop computer code” should require about 30 staff-hours of Linda Baker’s time and 120 staff-hours of effort from a group called “Computer Programmers.” Since the estimates are attached to the activities, the project management software has the ability to determine when the resources will be needed, based on the scheduled start and completion dates for the activities. In other words, we now have a time-phased projection of resource requirements or workload for each resource (e.g., Linda Baker and the Computer Programmers). It is also necessary and possible to estimate and enter resource requirements for project-level work (such as project management) and non-project work (that is, the ongoing background process workload) for each resource.

The next step is performed periodically and must be centralized at the project-portfolio level, rather than being performed at the project level. For each resource, the time-phased resource requirements are summed across all projects (as well as the non-project workload) within the project management software system. The resulting “resource profiles” can be displayed in graphical and/or tabular format. By comparing the total workload projection for each resource with the resource’s planned availability, overloads during specific future periods become obvious.

The above description makes the process sound easier than it really is. Challenges include:

- Developing, maintaining, and applying on all projects standard ways of identifying organizational resources.
- Developing the ability, confidence, and discipline to estimate resource requirements for all activities on all projects.
- Establishing the centralized infrastructure that supports the accumulation and analysis of total resource requirements across all projects.

Resolving the Anticipated Resource Overloads

Once a specific resource overload has been anticipated in a specific future period, explicit action must be taken to resolve the overload. The action will involve either increasing the planned availability of the required resource and/or decreasing the planned workload during the period of the overload.

Common methods of increasing planned resource availability include:

- If the overload is significant and long-term, use the resource analysis as the justification for seeking approval to hire additional personnel.
- Plan to use overtime.
- Plan to employ temporary personnel to supplement the resource group.
- Reschedule vacations, training, etc.

Common methods of decreasing workload on the resource include:

- Reassign project or non-project work to other people.
- Contract out work.
- Cancel or delay the start of low-priority projects.
- Delay the start of selected activities. Most popular project management software systems provide algorithms for selecting/suggesting activities to be delayed. Typically, these algorithms will start by selecting activities in the lowest priority project that can be delayed without affecting the scheduled completion date of the project (i.e., activities with slack).

If the methods listed above cannot resolve the overload, two last-choice options that are legitimate if authorized, but that should be avoided if possible, are:

- Reduction in the scope of one or more projects.
- Extension in the duration (scheduled completion date) of one or more projects.

The key to being able to resolve resource imbalances is the ability to anticipate them. Most of the methods listed above require advanced decision making and preparation in order to implement them when needed.

The good news is that you are not required to anticipate and resolve resource overloads. Indeed, few organizations make any attempt to do so. The overloads will always be resolved automatically. The bad news is that if you fail to resolve the overload, the default solution will virtually always be the unauthorized application of one or both of the two options listed above that should be avoided; that is:

- Some of the work on some of the projects will never get done, and /or
- Some of the projects will be completed late.

And, as mentioned earlier, the people working on the projects will experience unnecessary stress that is due primarily to the inadequacy of the organization's project management system.