Project Management 101. Skills for Leading and Working in Teams, pt. 3

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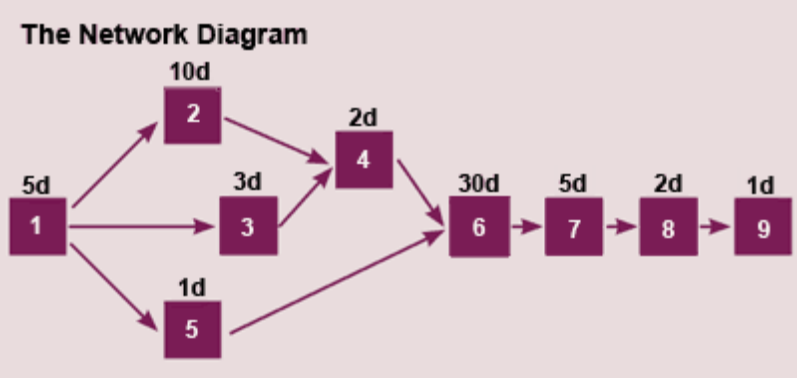
In previous columns we described early project steps, from developing the charter to creating the scope statement and work breakdown structure. This month we will look at the Project Management Institute's knowledge areas of time, cost, and quality.

Time Management

Managing time begins with the creation of a network diagram, a planning tool that shows the relationships among the activities in a project. Preparation for the network diagram includes determining the duration and precedence for the project activities. An example from our software update project is shown in the table below.

Establishing Activity Duration and Precedence		
Activity	**Duration**	**Precedence Activities**
1. Create project plan	5 days	-
2. Buy new software version	10 days	1
3. Create test plan	3 days	1
4. Test new software version	2 days	2, 3
5. Create software installation plan	1 day	1
6. Install software, broken into 10 departments	30 days	4, 5
7. Random testing	5 days	6
8. Customer acceptance testing	2 days	7
9. Customer acceptance and sign-off	1 day	8

The network diagram (below) illustrates the sequential flow of activities. Activities are indicated by the numbers from the table, and the estimated duration in days is indicated above each activity. For example, activity 1 (creating the project plan) has no preceding step and is estimated to take five days; activities 2 (10 days), 3 (three days), and 5 (one day) are preceded by activity 1, and so on. When creating a network diagram, it can be helpful to arrange Post-it Notes representing each activity until all precedence has been established.



The time knowledge area places the network diagram against time to determine the planned start and finish dates of each activity. The resulting timeline is called a Gantt chart. In our network diagram example, we can see that if we start the project on day 0, activity 1 is scheduled to finish on day 5, activity 2 on day 15, activity 4 on day 17, and so on, with the project scheduled for completion on day 55.

The longest path through the network is called the critical path. In our example, this is the path through activities 2 and 4, as the path through activities 3 and 4 or the path through activity 5 represent shorter durations. Identifying the critical path allows the project manager to focus on the activities that have the greatest potential for delaying the project.

Cost Management

Cost management allocates the budget to activities and over time, allowing for the crucial tasks of monitoring and control. Allocating the budget to activities provides an initial cost estimate to determine available budget for overtime, contingency planning, and unexpected events. Allocating the budget over time provides a measure by which project spending can be monitored to determine when budget overruns may occur.

Spending on a project generally is small in the early planning stages and peaks in the execution phase. Therefore it is important to monitor actual costs against what has been budgeted at given points in the project. Just monitoring the budget does not tell the whole story, however. The relatively new concept of earned value analyzes the value received for the time and money spent. This helps estimate if the project will be completed on time and within budget.

Quality Management

Quality is achieved when the project's deliverables meet the expectations of the customer. Thus it is the responsibility of the project's customer to determine the level of quality desired. Once this is established, the project manager plans and monitors the performance measures for each deliverable. For example, in our registration project, the customer (along with the end users he or she represents) should help develop the plans to test the software version and installation.

In IT development projects, the customer must create detailed business requirements for system features and functionality as well as performance requirements. These include system response time, number of users, security requirements, content on each screen, and backup procedures.

Building ongoing quality checks into the system—such as activity sign-offs and approval by the customer—helps reduce quality problems and misunderstandings later in the project.

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