What Is a Project?

What do the following headlines have in common?

Virtual goggles are replacing computer monitors

Divers recover gold from sunken Spanish galleon

FARM AID concert raises millions for family farmers

Renovations of Olympic stadium begin

Self-cleaning refrigerator hits the market

All these events resulted from the management of projects. A project can be defined as follows:

A project is a complex, nonroutine, one-time effort limited by time, budget, resources, and performance specifications designed to meet customer needs.

Like most organizational effort, the major goal of a project is to satisfy a customer's need. Beyond this fundamental similarity, the characteristics of a project help differentiate it from other endeavors of the organization. The major characteristics of a project are as follows:

1. An established objective.
2. A defined life span with a beginning and an end.
3. Usually, the involvement of several departments and professionals.
4. Typically, doing something that has never been done before.
5. Specific time, cost, and performance requirements.

First, projects have a defined objective—whether it is constructing a 12-story apartment complex by January 1 or releasing version 2.0 of a specific software package as quickly as possible. This singular purpose is often lacking in daily organizational life in which workers perform repetitive operations each day.

Second, because there is a specified objective, projects have a defined endpoint, which is contrary to the ongoing duties and responsibilities of traditional jobs. In many cases, individuals move from one project to the next as opposed to staying in one job. After helping to construct a desalination installation along the Gulf of Mexico, an engineer may next be assigned to construct an oil refinery plant in Malaysia.

Third, unlike much organizational work that is segmented according to functional specialty, projects typically require the combined efforts of a variety of specialists. Instead of working in separate offices under separate managers, project participants, whether they be engineers, financial analysts, marketing professionals, or quality control specialists, work closely together under the guidance of a project manager to complete a project.

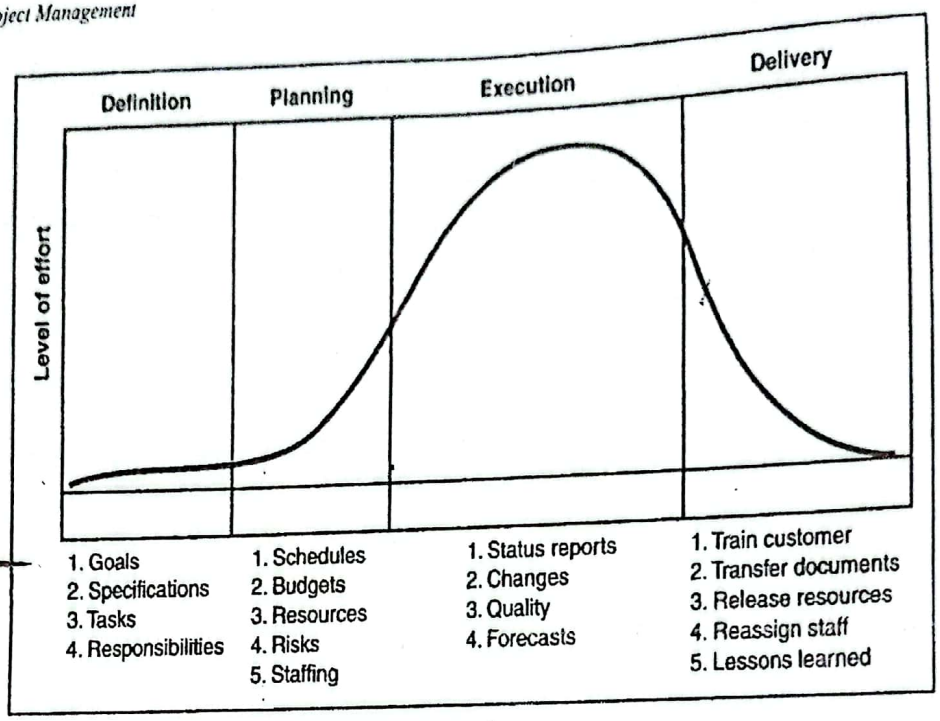
The fourth characteristic of a project is that it is nonroutine and has some unique elements. This is not an either/or issue but a matter of degree. Obviously, accomplishing something that has never been done before, such as putting a man on the moon, requires solving previously unsolved problems and breakthrough technology. On the other hand, even basic construction projects that involve established sets of routines and procedures require some degree of customization that makes them unique.

Finally, specific time, cost, and performance requirements bind projects. Projects are evaluated according to what was accomplished, what it cost, and how much time it took. These triple constraints impose a higher degree of accountability than you typically find in most jobs. These three also highlight one of the primary functions of project management, which is balancing the trade-offs between time, cost, and performance while ultimately satisfying the customer.

The Project Life Cycle

Another way of illustrating the unique nature of project work is in terms of the project life cycle. Some project managers find it useful to use the project life cycle as the cornerstone for managing projects. The life cycle recognizes that projects have a limited life span and that there are predictable changes in level of effort and focus over the life of the project. There are a number of different life-cycle models in project management literature. Many are unique to a specific industry or type of project. For example, a new

FIGURE 1.1
Project Life Cycle



software development project may consist of five phases: definition, design, code, integration/test, and maintenance. A generic cycle is depicted in Figure 1.1.

The project life cycle typically passes sequentially through four stages: definition, planning, execution, and delivery. The starting point begins the moment the project is given the go-ahead. Project effort starts slowly, builds to a peak, and then declines to delivery of the project to the customer.

1. **Definition stage:** Specifications of the project are defined; project objectives are established; teams are formed; major responsibilities are assigned.
2. **Planning stage:** The level of effort increases, and plans are developed to determine what the project will entail, when it will be scheduled, whom it will benefit, what quality level should be maintained, and what the budget will be.
3. **Execution stage:** A major portion of the project work takes place—both physical and mental. The physical product is produced (a bridge, a report, a software program). Time, cost, and specification measures are used for control. Is the project on schedule, on budget, and meeting specifications? What are the forecasts of each of these measures? What revisions/changes are necessary?
4. **Delivery stage:** Includes the two activities: delivering the project product to the customer and redeploying project resources. Delivery of the project might include customer training and transferring documents. Redeployment usually involves releasing project equipment/materials to other projects and finding new assignments for team members.

In practice, the project life cycle is used by some project groups to depict the timing of major tasks over the life of the project. For example, the design team might plan a major commitment of resources in the definition stage, while the quality team would expect their major effort to increase in the latter stages of the project life cycle. Because most organizations have a portfolio of projects going on concurrently, each at a different stage of each project's life cycle, careful planning and management at the organization and project levels are imperative.