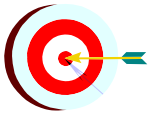


## Chapter 2: Planning and Time

### Objectives



### The learning objectives of this chapter

After reading and completely understanding this unit, you will be able to know:

- The key factors which should be considered in determining how far into the future an organization should try to plan.
- Why the length of plans within organizations should vary depending on the job level of the person planning.
- The role of planning tools such as GANTT and PERT charts in aiding short-term planning.

### How far ahead should we plan?

There is no fixed rule which says precisely how far into the future an organization should plan. There are, however, **a number of factors that should be considered carefully during the process of deciding the time span to be covered.** Among the most important are:

- (1) The expected degree of organizational permanency
- (2) The size and complexity of the organization
- (3) The nature of the products or services offered
- (4) The resources needed to implement the plan

### The relationship between the job level and the timing of planning

The particular job level or responsibility of any individual within an organization has an important impact on the time period for which that person should plan.

We can illustrate the relationship between the job level (the hierarchy of the organizational structure) and the time spent in planning in Figure 2.1.

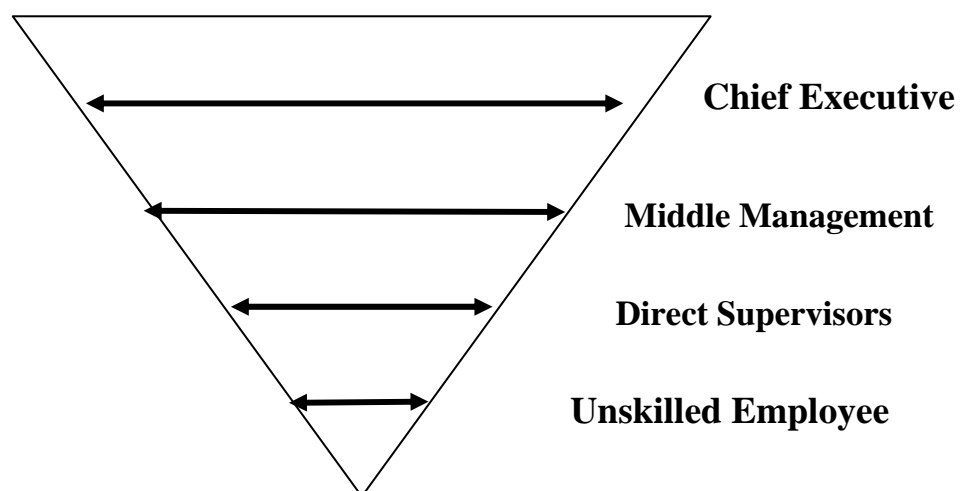


Figure 2.1: Relationship between job level and timing of planning

According to Figure 2.1, individuals at the top of an organization have to take a longer view than any other person. Conversely, those with the entry level responsibilities plan on very short horizons.

*The chief executive of an organization is responsible for the survival and overall direction of the organization. The person in that role should be thinking about what could and should be done in the months, years, and possibly generations ahead.*

*The middle manager, who is often charged with the responsibility of one area or function within the organization, must interrelate planning with other units of the organization and with the organizational structure in which he or she reports.*

*The direct line supervisor or manager may have significant impact on the future of an organization but typically has little personal involvement with the decisions reached about the future.*

*The individual whose job requires specific skills will confine most of his job planning to hours, days, and at most weeks.*

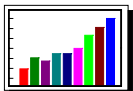
### Methods / Techniques for Short-Term Job Planning

Among the most common are:

- (a) Gantt charts.
- (b) PERT system/charts.

## 2.1 Gantt Charts

Gantt Charts



*Gantt charts are very helpful where there is little or no relationship between successive activities or where the times to complete a task have been established. Unfortunately, such ideal conditions do not always exist.*

**Gantt chart is essentially a bar graph with time on the horizontal axis and the resources to be scheduled on the vertical axis. It is used for scheduling resources, including management system inputs such as human resources and machines. We can illustrate this in Figure 2.2.**

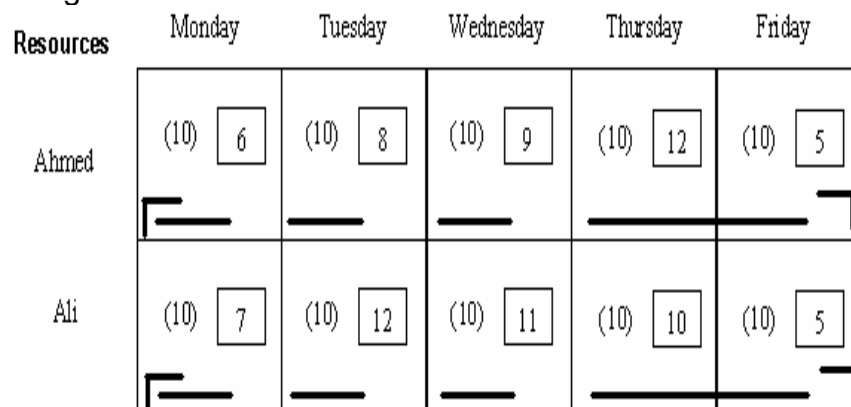


Figure 2.2: Work Week Second

( )	= planned units of production for period,
$\square$ 8	= actual units of production for period.
$\Gamma$	= when work is to begin.
$\lrcorner$	= when work is to end.
--	= percentage of work actually completed during a time period.

Figure 2.2 shows a completed Gantt chart for a work period. The resources scheduled over the five workdays on this chart were the human resources (Ahmed and Ali). During this week, both Ahmed and Ali were supposed to produce 10 units a day. However, the actual production deviated from planned production. There were days when each of the two workers produced more than 10 units, as well as days when each produced fewer than 10 units. Cumulative actual production for workweek shows that Ahmed produced 40 units and Ali produced 45 units over the five days.

**Features:** Although simple in concept and appearance, the Gantt chart has many valuable managerial uses, these are:

**First:** managers can use it as a summary overview of how organizational resources are being employed.

**Second:** from it, you can detect such facts as which resources are consistently contributing to productivity and which are hindering it.

**Third:** managers can use the Gantt chart to help coordinate organizational resources. The chart can show which resources are not being used during specific periods, thereby allowing managers to schedule those resources for work on other production efforts.

**Fourth:** the chart can be used to establish realistic worker output standards.



## 2.2 PERT (Program Evaluation and Review Technique)

*The main weakness of Gantt chart is that it does not contain any information about the interrelationship of tasks to be performed. Although all tasks to be performed are listed on the chart, there is no way of telling if one task must be performed before another can be started. The program evaluation and review technique (PERT), a technique that evolved partly from the Gantt chart, is a scheduling tool that does emphasize the interrelationship of tasks.*

**PERT:**  
Definition

**But, what do we mean by PERT?**

**PERT** is a network of project activities showing both the estimates of time necessary to complete each activity and the sequence of activities that must be followed to complete the project.

The PERT network contains two primary elements, activities, and events. Activities are specified sets of behavior within a project, and events are the completions of major project tasks. Within the PERT network, each event is assigned corresponding activities that must be performed before the event can materialize.

PERT: Steps  
for its design

#### **Steps in designing a PERT network**

When designing a PERT network, managers should follow four primary steps:

**Step (1): List all the activities / events** that must be accomplished for the project and the sequence in which these activities / events should be performed.

**Step (2): Determine how much time** will be needed to complete each activity / event.

**Step (3): Design a PERT network** that reflects all of the information contained in step (1) and (2).

**Step (4): Identify the critical path.** We can show this in Figure 2.3 that represents a PERT network designed for building a house.

**However, managers need to pay close attention to the critical path of PERT network – the sequence of events and activities requiring the longest period of time to complete. This path is called critical because a delay in completing this sequence results in a delay in completing the entire project.**

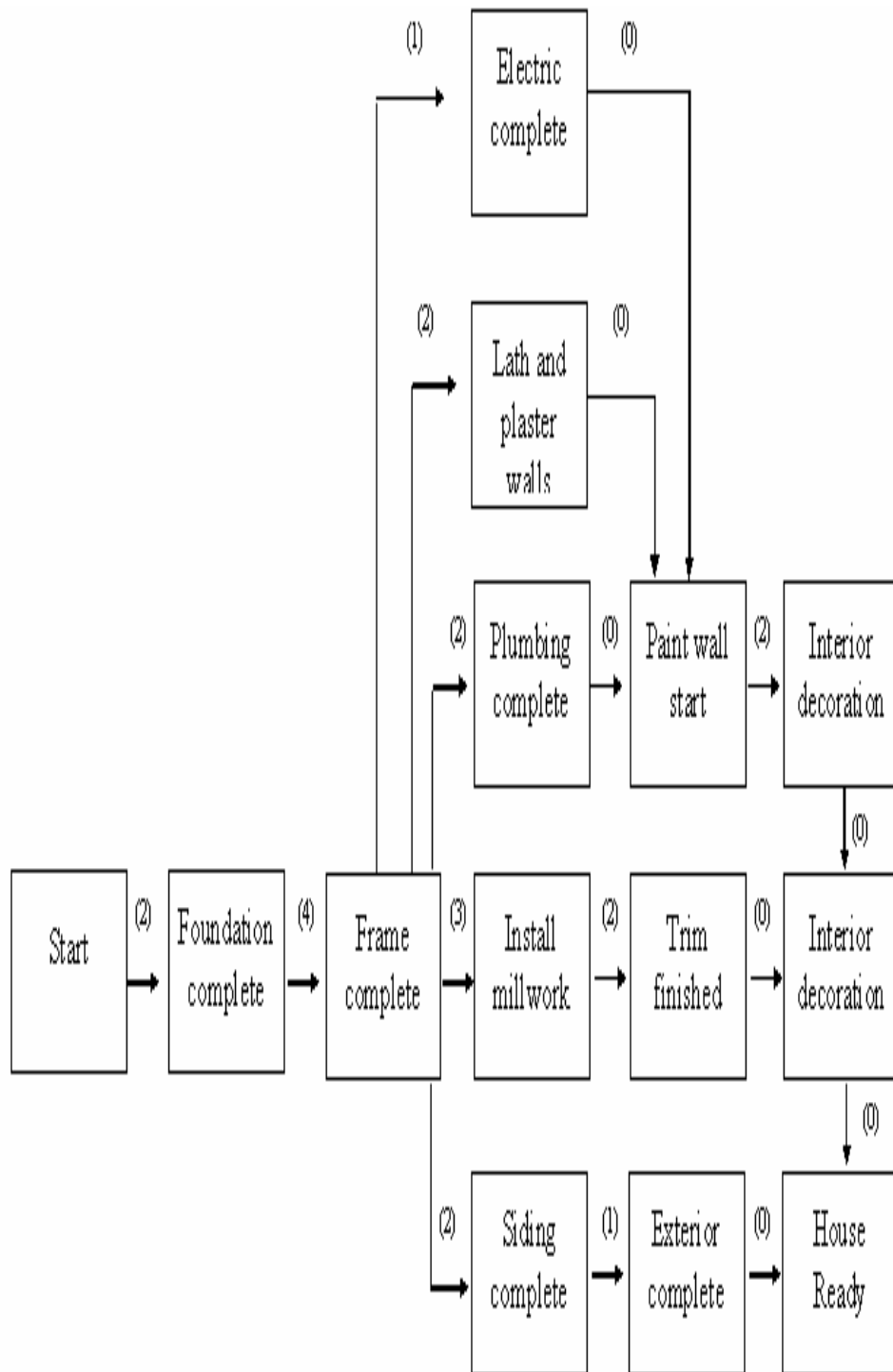


Figure 2.3: PERT network design for building a house

## Key Points



## Key Points to be Remembered

- There are many factors affect the time span of planning, among the most important of them:
  - (a) The expected degree of change.
  - (b) The size and degree of complexity.
  - (c) The nature of the product of service.
  - (d) The needed and the available resources.
  
- There is a relationship between the job level and the timing of planning.
  
- There are many methods and techniques for short-term planning, among the most important of them:
  - (a) Gantt chart.
  - (b) PERT system.
  
- Gantt chart is essentially a bar graph with time on the horizontal axis and the resources to be scheduled on the vertical axis.
  
- PERT = Program Evaluation and Review Technique: is a network of project activities showing both the estimates of time necessary to complete each activity and the sequence of activities that must be followed to complete the project.
  
- There are many steps to be followed for developing the PERT network.