

Systems Analysis and Design 11th Edition

»» Chapter 2_part2
Managing Systems Projects

Chapter Objectives

- ▶ Explain project planning, scheduling, monitoring, and reporting
- ▶ Draw a project triangle that shows the relationship among project cost, scope, and time
- ▶ Create a work breakdown structure
- ▶ Describe various scheduling tools, including Gantt charts and PERT/CPM charts

Overview of Project Management

- ▶ **Project Management:** Planning, scheduling, monitoring and controlling, and reporting on information system development
- ▶ **What Shapes a Project?**
 - Successful projects must be completed on time, within budget, meet requirements, and satisfy users
- ▶ **What Is a Project Triangle?**
 - Challenge – To find optimal balance among the factors
 - Any change in one leg of the triangle will affect the other legs

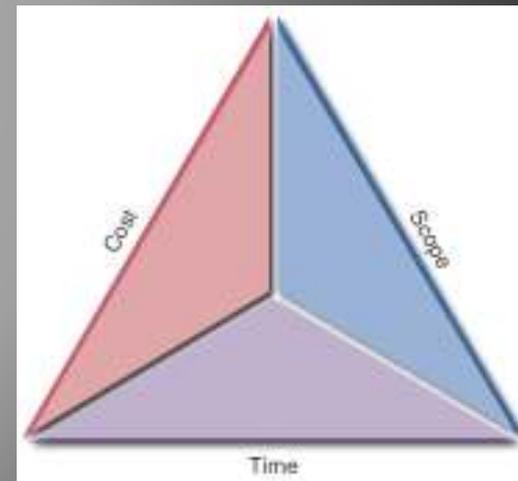


FIGURE 3-2 A typical project triangle includes cost, scope, and time.

Overview of Project Management

(Cont.)

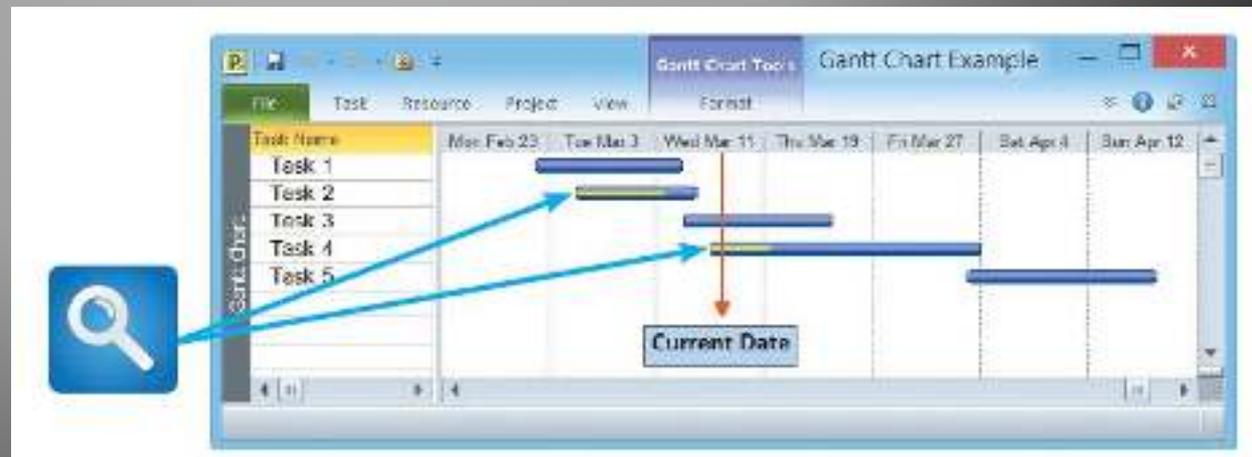
▶ What Does a Project Manager Do?

- **Project planning:** Identifying all project tasks and estimating the completion time and cost of each
- **Project scheduling:** Creating a specific timetable showing tasks, task dependencies, and critical tasks that might delay the project
- **Project monitoring:** Guiding, supervising, and coordinating the project team's workload
- **Project reporting:** Creating regular progress reports for management, users, and the project team itself

Creating a Work Breakdown Structure

- ▶ **Work breakdown structure (WBS):** Breaking down a project into a series of smaller tasks
- ▶ **Gantt Chart**
 - A horizontal bar chart representing a set of tasks
 - Shows planned and actual progress on a project
 - Simplifies complex projects using a **task group**

FIGURE 3-3 In this Gantt chart, notice the yellow bars that show the percentage of task completion.



Creating a Work Breakdown Structure (Cont. 1)

▶ PERT/CPM Charts

- **Program Evaluation Review Technique (PERT)**
 - Developed by the U.S. Navy to manage complex projects
- **Critical Path Method (CPM)**
 - Developed by private industry
- Utilizes a **bottom-up technique**
- Useful for scheduling, monitoring, and controlling actual work
 - Displays complex task patterns and relationships

Creating a Work Breakdown Structure (Cont. 2)

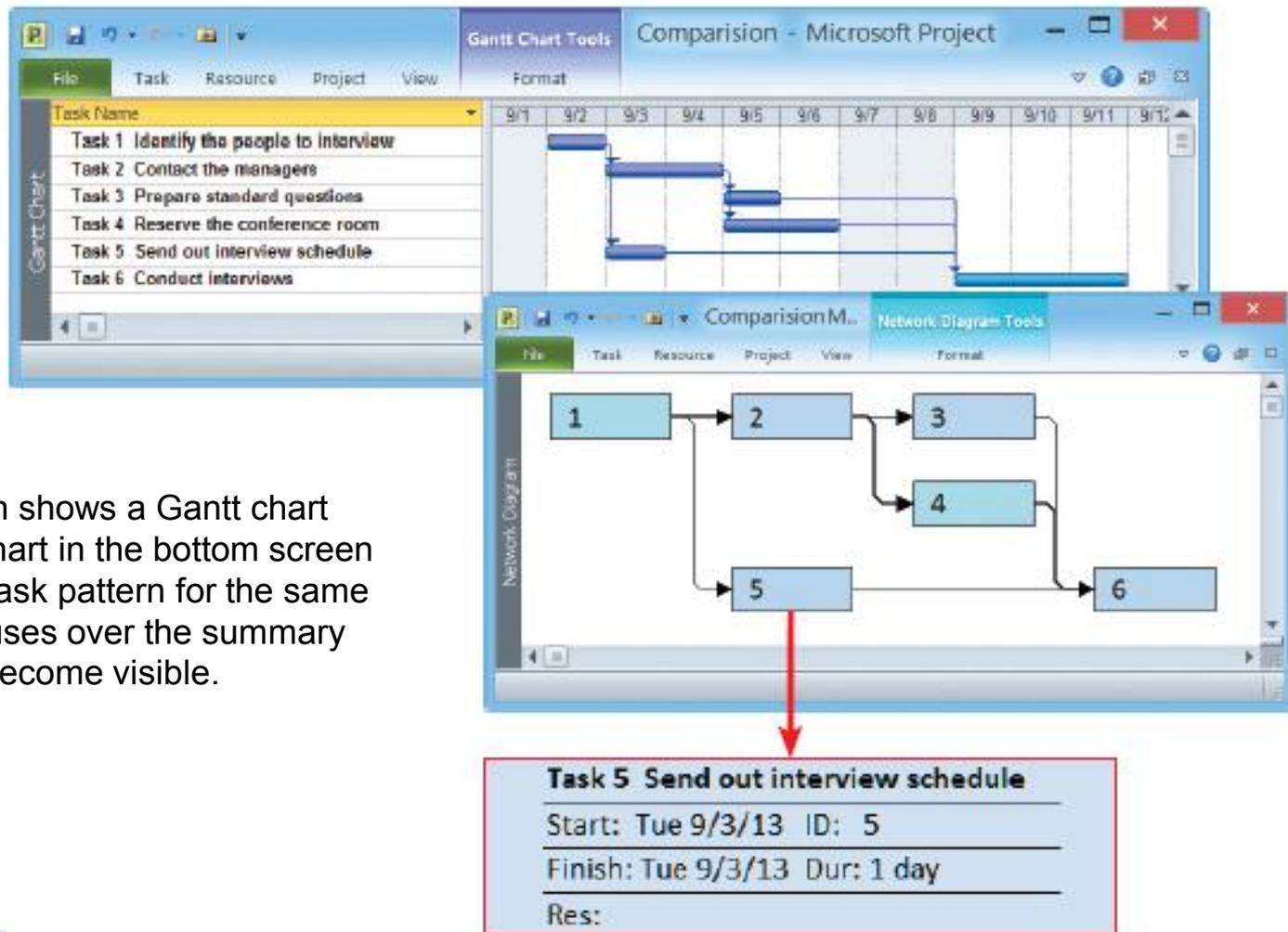


FIGURE 3-4 The top screen shows a Gantt chart with six tasks. The PERT chart in the bottom screen displays an easy-to-follow task pattern for the same project. When the user mouses over the summary box for Task 5, the details become visible.

Creating a Work Breakdown Structure (Cont. 3)

▶ Identifying Tasks in a WBS

- **Task or activity:** Any work that has a beginning and an end
 - Requires the use of company resources such as people, time, or money
 - Should be small and manageable
- Projects have events or milestones
 - **Events or milestones:** Recognizable reference points used to monitor progress

Creating a Work Breakdown Structure (Cont. 4)

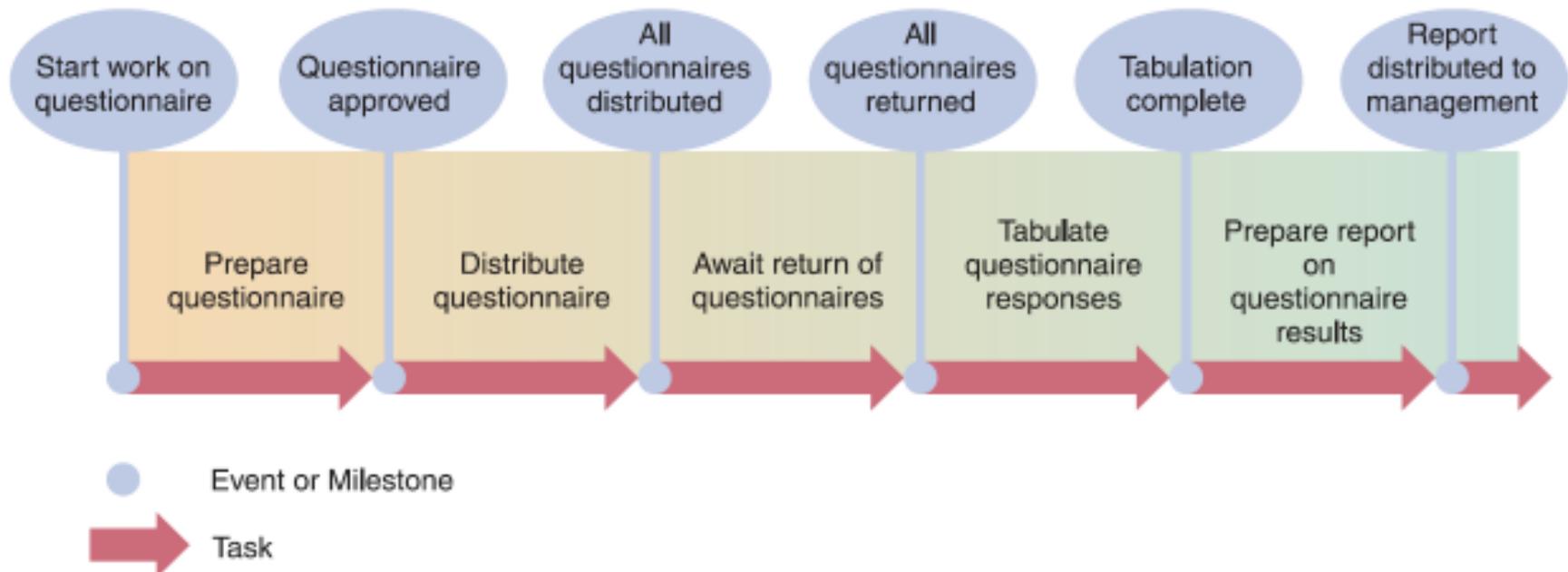


FIGURE 3-5 Using a questionnaire requires a series of tasks and events to track the progress. The illustration shows the relationship between the tasks and the events, or milestones, that mark the beginning and end of each task.

Creating a Work Breakdown Structure (Cont. 5)

- ▶ **Identifying Tasks in a Work Breakdown Structure (WBS)**
 - Listing the tasks
 - Estimating task duration – Can be hours, days, or weeks
 - Time estimates made by project managers
 - **Best case–estimate (B), probable–case estimate (P), and worst–case estimate (W)**
 - After making estimates, the manager assigns a **weight** to each estimate and calculates the task duration

Creating a Work Breakdown Structure (Cont. 6)

First version

First, reserve the meeting room. Then order the marketing materials and brief the managers. After the briefings, send out customer emails and burn sample DVDs. When the emails are sent and the DVDs are ready, load the new software. When the marketing materials have arrived and the software is ready, do a dress rehearsal.

Second version

First, reserve the meeting room. Then order the marketing materials and brief the managers. After the briefings, send out customer emails and burn sample DVDs. When the emails are sent and the DVDs are ready, load the new software. When the marketing materials have arrived and the software is ready, do a dress rehearsal.

Third version

- First, reserve the meeting room.
- Then order the marketing materials and brief the managers.
- After the briefings, send out customer emails and burn sample DVDs.
- When the emails are sent and the DVDs are ready, load the new software.
- When the marketing materials have arrived and the software is ready, do a dress rehearsal.

| Task No. | Description | Duration (Days) | Predecessor Tasks |
|----------|-------------------------------|-----------------|-------------------|
| 1 | Reserve the meeting room | | |
| 2 | Order the marketing materials | | |
| 3 | Brief the managers | | |
| 4 | Send out customer e-mails | | |
| 5 | Burn sample DVDs | | |
| 6 | Load the new software | | |
| 7 | Do a dress rehearsal | | |

FIGURE 3-7 In this table, columns have been added for task number, description, duration, and predecessor tasks, which must be completed before another task can start.

FIGURE 3-6 The three versions show how to transform a task statement into a list of specific tasks for a work breakdown structure.

Creating a Work Breakdown Structure (Cont. 9)

| Task No. | Description | Duration (Days) | Predecessor Tasks |
|----------|-------------------------------|-----------------|-------------------|
| 1 | Reserve the meeting room | 1 | |
| 2 | Order the marketing materials | 9 | |
| 3 | Brief the managers | 2 | |
| 4 | Send out customer e-mails | 3 | |
| 5 | Burn sample DVDs | 3 | |
| 6 | Load the new software | 2 | |
| 7 | Do a dress rehearsal | 1 | |

FIGURE 3-8 Task durations have been added, and the WBS is complete except for predecessor task information. The predecessor tasks will determine task patterns and sequence of performance.



FIGURE 3-9 This Microsoft Project screen displays the same WBS, including task number, task name, duration, and predecessor tasks.

Chapter Summary

- ▶ Project management is the process of planning, scheduling, monitoring, and reporting on the development of an information system
 - A successful project must be completed on time, within its budget, and deliver a quality product that satisfies users and meets requirements
- ▶ A project triangle shows three legs that require balancing— project cost, scope, and time

Chapter Summary (Cont. 1)

- ▶ Planning, scheduling, monitoring, and reporting all take place within a larger project development framework, which includes key steps—such as creating a work breakdown structure

Chapter Summary (Cont. 2)

- ▶ A Gantt chart is a horizontal bar chart that represents the project schedule with time on the horizontal axis and tasks arranged vertically
- ▶ A PERT/CPM chart shows the project as a network diagram with tasks connected by arrows
- ▶ Most project managers use powerful software such as Microsoft Project to plan, schedule, and monitor projects