

**Solutions to Accompany**

# **Information Technology**










## **Project Management,**

### **Ninth Edition**

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# CHAPTER 1

## Introduction to Project Management

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### ***DISCUSSION QUESTIONS***

1. Why is there a new or renewed interest in the field of project management?

More and more projects are being done by a variety of organizations. The projects are more complex and often involve the use of new technologies. Organizations are struggling to find better ways to manage their projects.

2. What is a project, and what are its main attributes? How is a project different from what most people do in their day-to-day jobs? What is the triple constraint? What other factors affect a project?

A project is “a temporary endeavor undertaken to create a unique product, service, or result” (PMBOK® Guide, 2017). In addition to being temporary and unique, other attributes of projects are that they drive change and enable value creation, are developed using progressive elaboration, require resources from various areas, should have a primary customer or sponsor, and involve uncertainty. Projects are different from day-to-day activities primarily because they have focused goals and definite beginning and ending dates. The triple constraint is managing scope, time, and cost goals. Other factors that affect a project include quality, risk, human resources, communications, and stakeholders.

3. What is project management? Briefly describe the project management framework, providing examples of stakeholders, knowledge areas, tools and techniques, and project success factors.

Project management is “the application of knowledge, skills, tools, and techniques to project activities in order to meet project requirements” (PMBOK® Guide, 2017). The project management framework graphically shows the process of beginning with stakeholders’ needs and expectations, applying the nine project management knowledge areas and various tools and techniques to lead to project success and then enterprise success. For example, if a project were to implement an ERP system for a large company, the stakeholders would include managers and users from many different departments (finance, manufacturing, human resources, IT, etc.), all nine knowledge areas would be important, numerous tools and techniques would be applied, and project success might be based on implement key functions by a certain time for a certain cost or having the new system pay for itself within a certain time period.

4. What is a program? What is a project portfolio? Discuss the relationship between projects, programs, and portfolio management and the contributions they each make to enterprise success.

A program is “a group of related projects, subsidiary programs, and program activities managed in a coordinated manner to obtain benefits and control not available from managing them individually” (PMBOK® Guide, 2017). Project portfolio management focuses on managing projects as is as a portfolio of investments that contribute to the entire enterprise’s success. Projects are part of programs which are part of portfolios.

5. What is the role of the project manager? What are suggested skills for all project managers and for IT project managers? Why is leadership so important for project managers? How is the job market for IT project managers?

The project manager is ultimately responsible for project success. Many suggested skills are listed in this chapter, including strong leadership skills, organizational skills, technical skills, and many soft skills. IT project managers require the same skills as general project managers, but they should also know something about the technology used for the project and the types of people who work on information technology projects. Leading by example is the most important trait of effective project managers. The job market for information technology project managers continues to remain strong, especially for those with strong business and leadership skills.

6. Briefly describe some key events in the history of project management. What role does the Project Management Institute and other professional societies play in helping the profession

Some people say that building the Egyptian pyramids or the Great Wall of China were projects, but modern project management began with the Manhattan Project or development of the atomic bomb. That project took about three years and cost almost \$2 billion in 1946 and had a separate project manager and technical manager.

Gantt charts were first used in 1917, and network diagrams were used in 1958. PMI is the main professional society for project managers, and they run several certification programs.

7. What functions can you perform with project management software? What are the main differences between low-end, midrange, and high-end project management tools?

Project management software can assist in developing schedules, communicating information, tracking progress, etc. Low-end tools are the least expensive, and several are available as apps. Midrange tools can usually create Gantt charts, perform critical path analysis, etc. High-end tools often perform portfolio management and can be used across a large organization.

8. Discuss ethical decisions that project managers often face. Do you think a professional code of ethics makes it easier to work in an ethical manner?

Answers will vary. Some examples might include working on projects that you personally do not believe in (such as military projects, projects for different political parties, etc.), being asked to hire a friend or relative who is not as qualified as someone else, being offered bribes, etc. It is still difficult to work in an ethical manner even with a professional code of ethics.

## ***EXERCISES***

Answers to all of these exercises will vary. The main purpose of these exercises is to have students begin doing some independent research to further explore the field of project management. You could have students discuss the results of these exercises in class to enhance participation, assign some for homework, or do both.

# CHAPTER 2

## The Project Management and Information Technology Context

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### ***DISCUSSION QUESTIONS***

1. What does it mean to take a systems view of a project? How does taking a systems view of a project apply to project management?

Taking a systems view means looking at the big picture of how a particular project fits into the rest of the organization. It is important for project managers to understand the broader organizational environment to ensure their projects meet organizational needs.

2. Explain the four frames of organizations. How can they help project managers understand the organizational context for their projects?

The four frames of organizations are summarized below:

- Structural: deal with how the organization is structures and focus on roles and responsibilities. It's important to understand these roles and responsibilities when dealing with project stakeholders, especially in procuring resources.
  - Human resources: focuses on meeting the needs of the organization and its people. Project managers must understand various human resources policies and procedures.
  - Political: addresses organizational and personal politics. Many project managers fail because they do not understand the political environment.
  - Symbolic: focuses on symbols and meanings. It's important to understand an organization's culture, dress code, work ethic, and so on in managing projects.
3. Briefly explain the differences between functional, matrix, and project organizations. Describe how each structure affects the management of the project.

Functional organizations have managers or vice presidents in specialties such as engineering, manufacturing, information technology, and so on. Their staffs have specialized skills in their respective disciplines. Project organizations have project managers instead of functional managers reporting to the CEO. Matrix organizations represent the middle ground between functional and project structures. Personnel often report to both a functional manager and one or more project managers. Project managers have the most authority in project organizational structures followed by matrix, and then functional.

4. Describe how organizational culture is related to project management. What type of culture promotes a strong project environment?

Organizational culture is a set of shared assumptions, values, and behaviors that characterize the functioning of an organization. This culture can definitely impact project management. For example, if an organization values project management and follows the guidelines for applying it, it will be much easier to practice good project management. Project work is most successful in an organizational culture where employees identify more with the organization, where work activities emphasize groups, and where there is strong unit integration, high risk tolerance, performance-based rewards, high conflict tolerance, an open-systems focus, and a balanced focus on people, control, and means-orientation.

5. Discuss the importance of top management commitment and the development of standards for successful project management. Provide examples to illustrate the importance of these items based on your experience on any type of project.

Top management commitment is the number one factor associated with the success of information technology projects, so it's very important to get and maintain this support. Top management can help project managers get adequate resources, approve unique project needs, get cooperation from other parts of the organization, and provide support as a mentor and coach to project managers. Examples will vary.

6. What are the phases in a traditional project life cycle? How does a project life cycle differ from a product life cycle? Why does a project manager need to understand both?

A traditional project life cycle is a collection of project phases—starting the project, organizing and preparing,

carrying out the work, and finishing the project. These phases do not vary by project. Product life cycles vary tremendously based on the nature of the project. The PMBOK® Guide – Sixth Edition briefly describes five product or development life cycles. Two factors are important in deciding which life cycle to use: the degree of change in requirements and the frequency of delivery of useful results. For example, for a product with a low degree of change in requirements and low frequency of delivery, a predictive life cycle would be appropriate. Project managers need to understand both because they manage projects and often help create products.

7. What makes IT projects different from other types of projects? How should project managers adjust to these differences?

IT projects are different from other types of projects because they can be very diverse in terms of size and complexity, they often include team members with very diverse backgrounds and skills, and the technologies involved are also very diverse. Project managers should adjust to these differences by paying careful attention to the goals of the project and the needs of various stakeholders.

8. Define globalization, outsourcing, virtual teams, and agile project management, and describe how these trends are changing IT project management.

Globalization has created a “flat” world where everyone is connected and the “playing field” is level for many more participants. Outsourcing is when an organization acquires goods and/or services from an outside source. Agile project management is a method for managing projects when requirements are unclear or change quickly. Virtual teams occur when a group of individuals who work across time and space using communication technologies. Each of these trends has affected the way in which project work is done and how projects need to be managed. It is very rare for a project team to sit in the same work area and work at the same time. Management and coordination is much more complicated.

## ***EXERCISES***

Answers to all of these exercises will vary.



# APPENDIX A

## Guide to Using Microsoft Project 2016

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### ***DISCUSSION QUESTIONS:***

1. What are some unique features of project management software?

You can use it to create work breakdown structures, Gantt charts, and network diagrams; you can integrate scope, time, and cost data; you can set a baseline and track progress; it provides other advanced features like resource leveling.

2. What are some unique features of project management software in general?

- Creating work breakdown structures, Gantt charts, and network diagrams: As mentioned in this text, a fundamental concept of project management is breaking down the scope of the project into a work breakdown structure (WBS). The WBS is the basis for creating the project schedule, normally shown as a Gantt chart. The Gantt chart shows start and end dates of tasks as well as dependencies between tasks, which are more clearly shown in a network diagram. Project management software makes it easy to create a WBS, Gantt chart, and network diagram. These features help the project manager and team visualize the project at various levels of detail.
- Integrating scope, time, and cost data: The WBS is a key tool for summarizing the scope of a project, and the Gantt chart summarizes the time or schedule for a project. Project management software allows you to assign cost and other resources to activities on the WBS, which are tied to the schedule. This allows you to create a cost baseline and use earned value management to track project performance in terms of scope, time, and cost in an integrated fashion.
- Setting a baseline and tracking progress: Another important concept of project management is preparing a plan and measuring progress against the plan. Project management software lets you track progress for each activity. The tracking Gantt chart is a nice tool for easily seeing the planned and actual schedule, and other views and reports show progress in other areas.
- Providing other advanced project management features: Project management software often provides other advanced features, such as setting up different types of scheduling dependencies, determining the critical path and slack for activities, working with multiple projects, and leveling resources. For example, you can easily set up an activity to start when its predecessor is halfway finished. After entering dependencies, the software should easily show you the critical path and slack for each activity. You can also set up multiple projects in a program and perform portfolio management analysis with some products. Many project management software products also allow you to easily adjust resources within their slack allowances to create a smoother resource distribution. These advanced features unique to project management are rarely found in other software tools.



### 3. What are the new features of Project 2016?

The new features are summarized below.

#### More flexible timelines

With Project 2016, not only can you leverage multiple timelines to illustrate different phases or categories of work, but you can also set the start and end dates for each timeline separately, to paint a clearer overall picture of the work involved.

#### Better control over resource scheduling

Some resources have limited availability, and may have their time scheduled by a resource manager. With Project Professional 2016 and Project Online, project managers and resource managers can negotiate an agreement, called a resource engagement, to make sure that resources are being used appropriately and effectively throughout your organization.

#### Do things quickly with Tell Me

You'll notice a text box on the ribbon in Project 2016 that says Tell me what you want to do. This is a text field where you can enter words and phrases related to what you want to do next and quickly get to features you want to use or actions you want to perform. You can also choose to get help related to what you're looking for.

#### New themes for Project

There are now three Office themes that you can apply to Project 2016: Colorful, Dark Gray, and White.

### 4. How do you create a WBS in Project 2016?

When you enter the tasks, you indent tasks to show the WBS hierarchy.

### 5. How do you enter task durations and establish dependencies between tasks.

You can enter durations in the Duration column of the Entry table and dependencies in the Predecessors column. See other options in the text.

### 6. How do you establish a baseline in Project 2016 and enter actual information?

Select Tools from the Menu bar, then Tracking, Set Baseline. You can enter actuals in the tracking table.

### 7. What type of information do you see in the Earned Value table?

The Earned Value table shows the PV, EV, AC, SV, CV, EAC, BAC, and VAC.

### 8. What are some of the reports built-in to Project 2016? Which ones do you think are commonly used?

Some of the reports are categorized as overview, current activities, costs, assignments, workload, custom, and visual reports. Answers will vary on which are commonly used.

### 9. How can you access other application files from within Project 2016?

You can insert Hyperlinks to tasks to link to other files.

## ***EXERCISES:***

Answers to the exercises will vary. Several can be checked using the screen shots of figures in the text.