Solutions for Information Technology Project Management 9th Edition by Schwalbe

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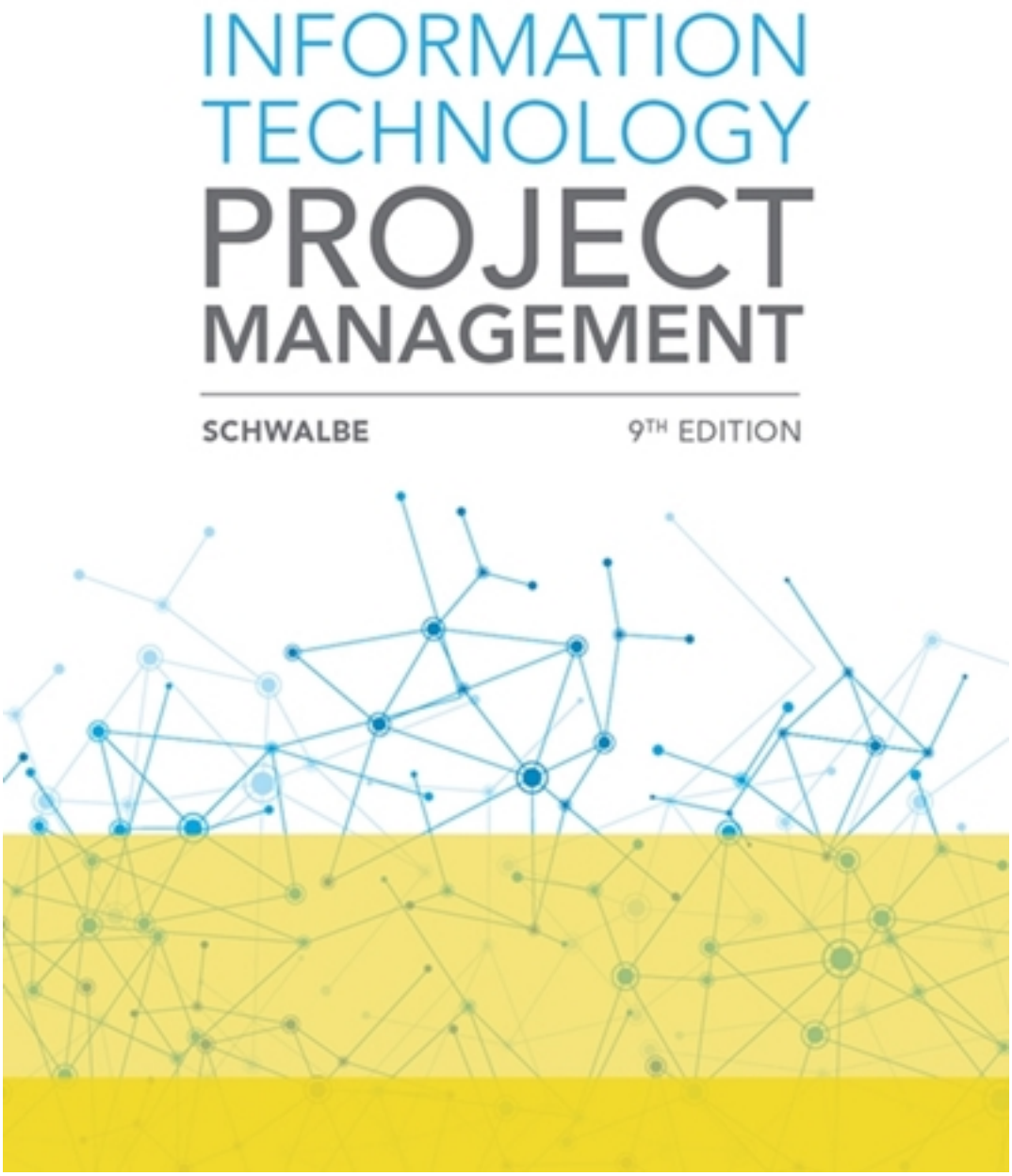

Solutions

Solutions to Accompany

Information Technology Project Management, Ninth Edition

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CHAPTER 1

Introduction to Project Management

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

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 he 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 sources 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.

Chapter 1: Introduction to Project Management

Chapter Overview

Chapter 1 provides an introduction to the field of project management, emphasizing the area of information technology projects. It defines what a project is, what project management entails, the role of the project manager, and important key terms. It also provides a brief history of project management and discusses the project management profession.

Chapter Objectives

- Articulate the growing need for better project management, especially for information technology (IT) projects
- Explain what a project is, provide examples of IT projects, list various attributes of projects, and describe the triple constraint of project management
- Define project management and discuss key elements of the project management framework, including project stakeholders, the project management knowledge areas, common tools and techniques, and project success
- Discuss the relationship between project, program, and portfolio management and the contributions each makes to enterprise success
- Summarize the role of project managers by describing what they do, what skills they need, the talent triangle, and career opportunities for IT project managers
- Recall key aspects of the project management profession, including important components of its history, the role of professional organizations like the Project Management Institute (PMI), the importance of certification and ethics, and the advancement of project management software

Instructor Notes

Introduction

To motivate students to study project management, you can point out the statistics on pp. 2-3. Although many other professions and fields have declined a lot in recent years, the need for people working in IT and for good IT project managers is still strong.

Also mention the figures in the What Went Wrong section, especially the fact that only 16.2% of information technology projects were considered successful in the 1995 CHAOS study. This number went up to 29% in 2015 (see the What Went Right, p. 15), but there is still room for improvement.

Good project management is very important to making effective use of information technology and people.

What is a Project?

Many people do not understand the basic characteristics of projects. You should focus on the definition of a project as a temporary endeavor undertaken to create a unique product, service, or result. Provide examples of projects to which your students can relate. The attributes of a project should be noted as well. A project:

- Has a unique purpose.
- Is temporary.
- Drives change and enables value creation.
- Is developed using progressive elaboration.
- Requires resources, often from various areas.
- Should have a primary customer or sponsor.
- Involves uncertainty.

Describe several projects with which you are familiar. Students like to hear about their instructor's experiences and share their own. You can also discuss the **triple constraint** of project management—balancing scope, time, and cost goals. Use a visual example that will help students remember scope, time, and cost. (I describe a Far Side coffee mug I have that shows Einstein wearing thick spectacles (specs are like the project scope) and looking puzzled at an equation he wrote on a chalkboard. At the end of a complicated math proof is the conclusion that *time = $*.) Give examples of each constraint on various projects with which you are familiar. Some of these examples should have a stronger emphasis on scope, and others should be more focused on time and cost. The project management course, itself, can be used as an effective example of a project. The time and cost of the course are fairly inflexible, so the main constraint you can control is the scope.

What is Project Management?

There are several important concepts in this section. **Project management** is the application of knowledge, skills, tools, and techniques to project activities in order to meet project requirements. Figure 1-2 provides a great visual framework for discussing this definition. Review the other definitions. Students appreciate seeing a preview of what new tools and techniques they will learn in a class. Show the class examples of a WBS, Gantt chart, network diagram, and earned value chart, which are a few of the tools that are unique to project management.

Program and Project Portfolio Management

Discuss what a program is and how a program manager provides leadership and direction for the project managers heading the projects within a program. Also, explain that project portfolio management is an emerging business strategy in which organizations group and manage projects and programs as a portfolio of investments that contribute to the entire enterprise's success. PMI defines a portfolio as "projects, programs, subsidiary portfolios, and operations managed as a group to achieve strategic objectives." Organizations group projects into portfolios to help them make better investment decisions, such as increasing, decreasing, discontinuing, or changing specific projects or programs based on their financial performance, risks, resource utilization, and similar factors that affect business value. This practice is called organizational project management.

The Role of the Project Manager

Discuss what project managers do. Review the job descriptions in the text. An interesting activity is to use an online job search tool, such as www.indeed.com, to search for project manager job openings in your area. See how many jobs are found, and then review some of the job titles, companies, and job descriptions that are provided.

The Project Management Profession

Briefly summarize the history of project management and emphasize that many organizations and industries are still struggling to understand and apply good project management to their unique situations. Students are usually very interested in learning more about career options. Many may not have considered being project managers or their roles as project team members. Highlight the survey results in Table 1-4 listing the ten hot tech skills, pointing out that project management is listed as the second hottest skill. Invite a guest speaker to come in and discuss what it is like to be a project manager. Many local chapters of PMI are available, and members are glad to speak to students about the project management profession. The PMP certification and code of ethics are also important parts of the profession that should be discussed. Students should also be aware of the growth in project management software products in the past few years. Let them know that they can download a trial version of Microsoft Project Professional 2016 and learn to use the software with the detailed instructions in Appendix A. They can also join PMI at reduced rates and view free online versions of some of their publications.

Classroom Activities

1. Triple Constraint
   Have students form two-person groups to discuss the triple constraint in more detail. One person should explain in his or her own words what the triple constraint means and provide an example of it in a real project. Then assign roles to the students. One student should be the "talker" and the other person the "listener" who will actively listen to his or her teammate, ask questions, take notes, and be ready to share information with the class. After five to ten minutes, ask for volunteers to describe a project they discussed that did not go well and why. Have students explain the scope, time, and cost constraints and how the project fared in each. Then ask for an example of a project that went very well. Continue getting examples as time and interest allow.

2. Project Attributes
   Have students form groups of three to four people to relate the attributes of a project to the project management class. Then have them discuss their expectations as major stakeholders in the class. What do they expect to get out of the class? What do they expect from the instructor, their classmates, and themselves in order for the class to be a success? Have each group present their findings and collect their recorded comments.

3. Project Management Profession and Additional Information
   Visit the author's website at www.kathyschwalbe.com to see many resources and links related to project management. Visit sites like www.pmi.org and show students how to read samples of their publications for free. Visit other sites to show students all the information available, including the companion website for this text. Also show them how to use your school's online resources, if available, to access even more information. Discuss the local job market for project managers.

Troubleshooting Tips

Strong starts are very important in projects and in classes. Show your own enthusiasm for project management and teaching. Take time to have students fill out a survey (a sample is

provided in this manual) and introduce themselves. Include a fun topic to add to general introductions. For example, in addition to having everyone say what their major is, where they work, and so on, have students describe one thing that is unique about them that most people wouldn't know. Other ideas include having students describe their favorite hobby, favorite food, and so on. When introducing yourself, provide your response to the additional introductory question, too. Set a good tone for the entire course and encourage a lot of participation. Try the above classroom activities or similar ones to get students engaged in the course and to help them meet their classmates. Also, show students how to access the companion website for this text (www.cengagebrain.com).

Quick Quiz

1. What three knowledge areas comprise the triple constraint of project management?
   ANSWER: Scope, time, and cost
2. Name two tools and techniques that are unique to project management.
   ANSWER: Project charter, WBS, Gantt chart, network diagram, critical path analysis, cost estimates, earned value management, or any item listed in Chapter 1.
3. Modern project management began with what project?
   ANSWER: The Manhattan Project
4. What is the popular designation for people certified as project managers by the Project Management Institute?
   ANSWER: PMP (Project Management Professional)
5. What project management certifications can students earn without work experience?
   ANSWER: Certified Associate in Project Management (CAPM) from PMI.

Discussion Questions

1. Why is the topic of project management getting more attention lately?
2. What do you think about the CHAOS study's definition of a successful project? Do you think there are better definitions of success besides meeting scope, time, and cost goals?
3. Can recent college graduates expect to be project managers right away? What is a typical career path for a project manager?

Key Terms

best practice An optimal way recognized by industry to achieve a stated goal or objective

charismatic People that can inspire others based on their enthusiasm and confidence.

DevOps A fairly new term used to describe a culture of collaboration between software development and operations teams to build, test, and release reliable software more quickly

enterprise project management software Software that integrates information from multiple projects to show the status of active, approved, and future projects across an entire organization; also called portfolio project management software

ethics A set of principles that guides decision making based on personal values of what is considered right and wrong

Gantt chart A standard format for displaying project schedule information by listing project activities and their corresponding start and finish dates in calendar form

interactional This leadership style is a combination of transactional, transformational, and charismatic

laissez-faire Meaning "let go," this hands-off approach lets teams determine their own goals and how to achieve them.

leader A person who focuses on long-term goals and big-picture objectives while inspiring people to reach those goals

manager A person who deals with the day-to-day details of meeting specific goals

megaproject A person who deals with the day-to-day details of meeting specific goals

organizational project management A "framework in which portfolio, program, and project management are integrated with organizational enablers in order to achieve strategic objectives"

portfolio Projects, programs, subsidiary portfolios, and operations managed as a group to achieve strategic objectives

portfolio management See project portfolio management

program A group of projects managed in a coordinated way to obtain benefits and control that are not available from managing projects individually

program manager A person who provides leadership and direction for the project managers heading the projects within a program

project A temporary endeavor undertaken to create a unique product, service, or result

project and portfolio project management software Software that integrates information from multiple projects to show the status of active, approved, and future projects across an entire organization; also called enterprise project management software

project management The application of knowledge, skills, tools, and techniques to project activities to meet project requirements

Project Management Institute (PMI) An international professional society for project managers

project management knowledge areas Project integration management, scope, time, cost, quality, human resource, communications, risk, procurement, and stakeholder management

Project Management Office (PMO) An organizational group responsible for coordinating the project management functions throughout an organization

Project Management Professional (PMP®) Certification provided by PMI that requires documenting project experience and education, agreeing to follow the PMI code of ethics, and passing a comprehensive exam

project management tools and techniques Methods available to assist project managers and their teams; some popular time-management tools include Gantt charts, network diagrams, and critical path analysis

project manager The person responsible for working with the project sponsor, the project team, and the other people involved to meet project goals

project portfolio management When organizations group and manage projects as a portfolio of investments that contribute to the entire enterprise's success

project sponsor The person who provides the direction and funding for a project

servant leader People using this approach focus on relationships and community first and leadership is secondary

stakeholders People involved in or affected by project activities

transactional This management by exception approach focuses on achieving goals or compliance by offering team members appropriate rewards and punishments

transformational By working with others to identify needed changes, these leaders empower others and guide changes through inspiration

triple constraint Balancing scope, time, and cost goals