

***Contemporary Project Management 5th edition
Kloppenborg Solutions Manual***

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Solution and Answer Guide

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Table of Contents

Chapter Review Questions—Suggested Answers	2
Discussion Questions	6
PMP Exam Study Questions.....	11
Integrated Example Projects.....	14
Suburban Homes Construction Project	14
Student Questions.....	15
Heritage Arboretum Development Project	15
Arboretum Introduction	15
Anderson Township and Green Space Introduction	15
Related Links	16
Student Questions.....	16
Arboretum Grading Suggestions	16
Semester Project Instructions	18

Chapter Review Questions—Suggested Answers

1. What is a project? (Objective #1-1, p. 4)

ANS: The narrow answer is: A **project** is a new, time-bound effort that has a definite beginning and a definite ending with several related and/or interdependent tasks to create a unique product or service.

The broader answer is: A project is an endeavor that requires an organized set of work efforts that are planned in a level of detail that is progressively elaborated as more information is discovered. Projects are subject to limitations of time and resources such as money and people. Projects should follow a planned and organized approach with a defined beginning and ending. Project plans and goals become more specific as early work is completed. The output often is a collection of a primary deliverable along with supporting deliverables such as a house as the primary deliverable and warranties and instructions for use as supporting deliverables. Each project typically has a unique combination of **stakeholders** people and groups who can impact the project or might be impacted by either the work or results of the project. Projects often require a variety of people to work together for a limited time, and each needs to understand that completing the project will require effort in addition to their other assigned work.

2. What is project management? (Objective #1-1, p. 4)

ANS: Project management is the art and science of using knowledge, skills, tools, and techniques efficiently and effectively to meet stakeholder needs and expectations. This includes work processes that initiate, plan, execute, control, and close work.

Project management includes both administrative tasks for planning, documenting, and controlling work and leadership tasks for visioning, motivating, and promoting work associates.

3. How are projects different than ongoing operations? (Objective #1-3, p. 6)

ANS: Projects are temporary, while operations are ongoing.

4. What types of constraints are common to most projects? (Objective #1-4, p. 12)

ANS: Project performance, comprising scope (size) and quality (acceptability of the results), is constrained by cost and schedule.

5. What are the three components of the Talent Triangle? (Objective #1-4, p. 11)

ANS: The core objectives include those that the Talent Triangle classifies as technical, behavioral, and strategic.

6. At what stage of a project life cycle is the majority of the “hands-on” tasks completed? (Objective #1-3, p. 8)

ANS: Executing.

7. During which stage of the project life cycle are loose ends tied up? (Objective #1-2, p. 8)

ANS: Closing.

8. What are the twelve project delivery principles? (Objective #1-6, p. 17)

ANS: Stewardship, stakeholders, interactions, tailor, complexity, adaptability, team, value, leadership, quality, risk, change.

9. What are the eight performance domains, according to the *PMBOK 7e*? (Objective #1-6, p. 17)

ANS: Stakeholder, team, approach, planning, work, delivery, measurement, uncertainty.

10. What are the four core values of Agile? (Objective #1-7, p. 20)

ANS:

1. Value individuals more than processes.
2. Value working software more than documentation.
3. Value customer collaboration more than negotiation.
4. Value response to change over following a plan.

11. What are Agile’s twelve principles? (Objective #1-7, p. 21)

ANS:

1. Customer satisfaction is given the highest priority.
2. Unlike a plan-driven approach, changes in requirements are appreciated at any point in the project with a view to exploit competitive advantage for the customer.
3. Present working software to the client frequently during the project execution phase.
4. People representing business and development teams must work together constantly.
5. A project team comprising motivated people must be engaged in the project; support and trust must be extended to the project team.
6. Face-to-face communication must be employed, which is considered effective and efficient. In other words, it is preferable to have a co-located project team.

7. Project progress is the progress made in developing working software.
 8. The Agile process is meant to create sustainable development, which demands sponsors, developers, and users work at the same pace for a long period.
 9. Uninterrupted attention to technical excellence and good design boosts agility.
 10. Simplicity—the art of maximizing the amount of work not done—is essential.
 11. Self-managed teams help develop the best architectures, requirements, and designs.
 12. If not daily, the team routinely considers how to improve effectiveness and amends its behavior accordingly.
12. How do you define project success? (Objective #1-4, pp. 12–13)

ANS: Project success is creating deliverables that include all of the agreed-upon features (meet scope goals). The outputs should satisfy all specifications and please the project's customers. The customers need to use the outputs effectively as they do their work (meet quality goals). The project should be completed on schedule and on budget (meet time and cost constraints).

Project success also includes other considerations. A successful project is one that is completed without heroics – that is, people should not burn themselves out to complete the project. Those people who work on the project should either learn new skills and/or refine existing skills. Organizational learning should take place and be captured for future projects. Finally, the parent organization should reap business-level benefits such as the development of new products, increased market share, increased profitability, decreased cost, etc.

Project success summarized in Exhibit 1.4 include the following:

- **Meeting Agreements**—Cost, schedule, and specifications met
- **Customer' Success**—Needs met, deliverables used, and customer satisfied
- **Performing Organization's Success**—Market share, new products, and new technology
- **Project Team's Success**—Loyalty, development, and satisfaction

13. How do you define project failure? (Objective #1-4, p. 13)

ANS: Project failure is not meeting all of the success criteria listed earlier. Serious project failure is when some of the success criteria are missed by a large amount and/or when several of the success criteria are missed by even a small margin.

14. List four common causes of project failure. (Objective #1-4, p. 13)

ANS:

- Incomplete or unclear requirements
- Inadequate user involvement

- Inadequate resources
- Unrealistic time demands
- Unclear or unrealistic expectations
- Inadequate executive support
- Changing requirements
- Inadequate planning

15. What are three common ways of classifying projects? (Objective #1-4, p. 14)

ANS: Projects can be classified by industry, size, timing of project scope clarity, and application.

16. What is predictive or plan-driven planning, and when should it be used? (Objective #1-6, p. 18)

ANS: Predictive or plan-driven planning occurs when the majority of planning is done before any part of the project is executed. This is used when it is easy to estimate the amount of work required, and therefore, there is a high degree of certainty as to what the project scope will be.

17. What is adaptive or change-driven planning and when should it be used? (Objective #1-7, p. 18)

ANS: Also known as iterative planning, this is used when there is a great degree of uncertainty at project inception as to what its overall scope will be. As the project moves forward and more details emerge, planning changes from general to specific. Agile is an example of adaptive or change-driven project management.

18. What makes someone a project stakeholder? (Objective #1-1, p. 4)

ANS: Stakeholders are people or organizations that are actively involved in the project, or whose interests may be positively or negatively affected by either the process of performing the project or the project results.

19. What are the four project executive-level roles? (Objective #1-5, p. 15)

ANS: The four plan-driven project executive-level roles are the sponsor, customer, steering team, and the project management office.

20. List and describe each of the managerial and associate roles. (Objective #1-5, pp. 15–16)

ANS: The first executive-level project role is that of a sponsor. A modern definition of the executive sponsor is “a senior manager serving in a formal role given authority and responsibility for successful completion of a project deemed strategic to an organization’s success.”

The second executive-level project role is that of the customer. The customer needs to ensure that a good contractor for external projects or a project manager for internal projects is selected, make sure requirements are clear, and maintain communications throughout the project.

The third executive role is the steering or leadership team for an organization. This is often led by the top leader (CEO or other officer) and their direct reports who select, prioritize, and resource projects.

The fourth executive-level project role is that of the project management office (PMO), which is defined as “a management structure that standardizes the project-related governance processes and facilitates the sharing of resources, methodologies, tools, and techniques.”

The project manager is the person assigned by the performing organization to lead the team that is responsible for achieving the project objectives. The project manager is directly accountable for the project results, schedule, and budget.

Another key management role is the functional manager (sometimes called a resource manager). Functional managers are the department or division heads—the ongoing functional managers of the organization.

A third managerial role is that of facilitator. If the project is complex and/or controversial, it sometimes makes sense to have a person help the project manager with the process of running meetings and making decisions.

The project team is composed of “a selected group of individuals with complementary skills and disciplines who are required to work together on interdependent and interrelated tasks for a predetermined period to meet a specific purpose or goal.” In this book, these individuals are called core team members.

The core team, with the project manager, does most of the planning and makes most of the project-level decisions. The temporary members who are brought on board as needed are known as subject matter experts.

[\[return to top\]](#)

Discussion Questions

1. Using an example of your own, describe a project in terms that are common to most projects. (Objective #1-4, Understanding, p. 9)

ANS: Answers vary. The example should include some reference to project goals (scope and quality), project constraints (budget and schedule), stakeholders, communication needs, and the project life cycle.

2. Why are more organizations using project management? If you were an executive, how would you justify your decision to use project management to the board of trustees? (Objective #1-1, p. 5)

ANS: When project managers successfully make these trade-offs, the project outcomes meet the agreed-upon requirements, are useful to the customers, and promote the organization.

3. Explain how to scale up or down the complexity of project planning and management tools and what effect, if any, this might have on the project life cycle. (Objective #1-4, Evaluating, p. 14)

ANS: Projects range tremendously in size and complexity. In considering construction projects, think of the range from building a simple parking lot to building a massive hydropower generation system. In both cases, one would need to determine the wants and needs of the customer(s), understand the amount of work involved, determine a budget and schedule, decide what types of workers are available and who will do which tasks, and then manage the construction until the owner accepts the project results. It should be easy to see that while both projects require planning and control, the level of detail for the parking lot is a tiny fraction of that for the hydropower generation project. In this book, we first demonstrate concepts and techniques at a middle level and then use a variety of project examples to demonstrate how to scale the complexity of the techniques up or down.

4. List and describe several issues that pertain to each stage of the project life cycle. (Objective #1-3, p. 8)

ANS:

- **Initiating**—when a project is proposed, planned at a high level, and key participants commit to it in broad terms;
- **Planning**—starts after the initial commitment, includes detailed planning, and ends when all stakeholders accept the entire detailed plan;
- **Executing**—includes authorizing, executing, monitoring, and controlling work until the customer accepts the project deliverables; and
- **Closing**—all activities after customer acceptance to ensure the project is completed, lessons are learned, resources are reassigned, and contributions are recognized.

5. Name the ten project management knowledge areas and briefly summarize each. (Objective #1-4, pp. 10–11)

ANS: Answers will vary. Students should be able to defend their answers. There are five process groups:

1. Integration management—processes and activities to, combine, and coordinate
 2. Scope management—processes to ensure that the project includes all the work required and only the work required
 3. Schedule management—processes to manage timely completion
 4. Cost management—processes involved in estimating, budgeting, controlling cost
 5. Quality management—processes to plan, manage, and control quality
 6. Resource management—processes to identify, acquire, and manage resources
 7. Communications management—processes to ensure timely planning, creation, and distribution of project information
 8. Risk management—processes of risk identification, analysis, response planning, response implementation, and monitoring
 9. Procurement management—processes to purchase or acquire products, services, or results
 10. Stakeholder management—processes to identify and analyze the people, or groups that could impact or be impacted by the project, and develop strategies for engaging them
6. Discuss how a project could be successful in terms of some measures yet unsuccessful in others. (Objective #1-4, p. 13)

ANS: Project success also includes other considerations. A successful project is one that is completed without heroics—that is, people should not burn themselves out to complete the project. Those people who work on the project should learn new skills and/or refine existing skills. Organizational learning should take place and be captured as explicit knowledge for future projects. Finally, the performing organization should reap business-level benefits such as the development of new products, increased market share, increased profitability, decreased cost, etc. A contemporary and complete view of project success is shown in Exhibit 1.4.

Project failure can be described as not meeting the success criteria listed in Exhibit 1.4. Many projects are fully successful in some ways but less successful in other aspects. The goal of excellent project management is to reach high levels of success on all measures on all projects. Serious project failure—when some of the success criteria are missed by a large amount and/or when several of the success criteria are missed—can be attributed to numerous causes.

7. What does project failure mean? What are some examples? (Objective #1-4, p. 13)

ANS: Project failure can be described as not meeting the success criteria. Some basic causes of failure are as follows:

- Incomplete or unclear requirements
- Inadequate user involvement

- Inadequate resources
- Unrealistic time demands
- Unclear or unrealistic expectations
- Inadequate executive support
- Changing requirements
- Inadequate planning

8. Compare and contrast advantages and disadvantages of predictive/plan-driven and adaptive/change-driven project life cycle approaches. (Objective #1-7, p. 22)

Comparison of Plan-Driven and Agile Approaches for Project Introduction		
Project Introduction Questions	Plan-Driven	Agile (Adaptive)
What is the typical project timing issue?	Agreed end date	Time boxed, yet can be ongoing
What are the primary origins of this project approach?	Construction and aerospace 1950s	Information Technology 1990s
What primary source describes this approach?	<i>PMBOK 6e and 7e</i>	Agile manifesto, multiple Agile approaches, <i>PMBOK Guide 7e</i>
What is the typical project life cycle?	Initiate, plan, execute, close	Initiate, either series of time-boxes or continuous delivery with continual planning and executing, transition
What are typical roles?	Sponsor, project manager, core team member, subject matter expert (SME)	Sponsor, product owner, scrum master, development team member
What project characteristics exemplify this approach?	Scope can be defined early, major changes not likely	Scope hard to define at the start, many changes expected
How is change handled?	Baseline plans with firm design, formal change control	Emergent design, no changes within time box, may pivot or stop at end of time box
What common metrics are used?	On-time, on-budget, meet agreed to specification	Viability and value, predictability, quality, happiness

9. You are given a project to manage. How do you decide whether to use a plan-driven or adaptive approach? (Objective #1-7, p. 23)

ANS: Plan-Driven—Plan-driven projects do most of the planning before executing. The scope can be defined early, and major changes are not likely.

Adaptive—Adaptive projects alternate with a little planning and executing for each portion of work. The scope is hard to define at the start, and many changes are expected.

10. Contrast project managers and functional managers. (Objective #1-5, p. 15)

ANS: The **Project Manager** is the person assigned by the performing organization to lead the team that is responsible for achieving the project objectives. The project manager is directly accountable for the project results, schedule, and budget.

The **Functional Manager** (*sometimes called a resource manager*) is the department or division head—the ongoing functional managers of the organization.

11. Contrast project managers and functional managers. (Objective #6, Understanding, p. 7)

ANS: The project manager is normally directly accountable for the project results, schedule, and budget. This is the person who is the main communicator, who is responsible for the planning and execution of the project, and who has to be working on the project from start to finish. The project manager often must get things done through the power of influence since their formal power may be limited

Functional managers are the department heads—the ongoing managers of the organization. They will normally determine how the work of the project gets accomplished, often directly supervising that work, and they are likely to negotiate with the project manager regarding which workers are assigned to the project.

12. List as many project roles as you can and identify what each one is responsible for in terms of the project. (Objective #1-5, pp. 15–16)

ANS: Core team members are ideally assigned to the project for its entire duration. They work with the project manager to make decisions, perform hands-on work, and sometimes supervise the work of subject matter experts.

Subject matter experts are brought onto the project when needed to perform specific activities. They are not normally involved in making project-wide decisions or in supervising the work of others.

A steering or leadership team for an organization is often the top leader (CEO or other) and their direct reports. The chief projects officer is the keeper, facilitator, and improver of the project management system. The sponsor has a financial stake in the project, charters the project, reviews project progress, is often part of the steering team, and often mentors the project manager.

The four project managerial level roles are the project manager, functional manager, facilitator, and senior customer representative. The project manager is directly accountable for the project results, schedule, and budget; is the main communicator; and often must get things done through the power of influence since their formal power may be limited. The functional managers are department heads who determine how the work of the project gets accomplished; often

supervise that work; and often negotiate with the project manager regarding which workers are assigned to the project. A facilitator is sometimes assigned to complex or controversial projects to assist the project manager with the process of running meetings and making decisions. The senior customer representative ensures that the needs and wants of the various constituents in the customer's organization are identified and prioritized and that project progress and decisions continually support the customer's desires.

[\[return to top\]](#)

PMP Exam Study Questions

The purpose of these questions is to help visualize the type of questions on PMP and CAPM exams. The correct answer is shown, and the page references from this book are shown below each question. Remember, this text is designed to help teach students *how to plan and manage projects*, and it complements the *PMBOK® Guide*, which is designed to define the “what” of project management. Therefore, some of the questions have rather full answers in the text, others have rather full answers in the *PMBOK Guide*, and some have rather full answers in both. Each source has something useful for the student to understand about each question, but by design, they are not identical.

- 1) Which project role provides resources or support for the project, promotes and protects the project at higher levels of management, and takes an active role in the project from the chartering stage through project closure?
 - a) Functional manager
 - b) Project manager
 - c) Project team member
 - d) Project sponsor

Answer: d

CPM, p. 18

- 2) Which *PMBOK Guide* Principle pertains to people affected by either the work of the project or the project outcome?
 - a) Tailoring
 - b) Stakeholders
 - c) Leadership
 - d) Stewardship

Answer: b

CPM, p. 18

- 3) To be successful, the project team must be able to assess the needs of stakeholders and manage their expectations through effective communications. At the same time, they must balance competing demands among project scope, schedule, budget, risk, quality, and resources, which are also known as project _____?
- a) plan elements
 - b) deliverables
 - c) constraints
 - d) targets

Answer: c

CPM, pp. 14–15

- 4) Projects pass through a series of phases as they move from initiation to project closure. The names and number of these phases can vary significantly depending on the organization and the type of application, industry, or technology employed. These phases create the framework for the project and are referred to collectively as the _____.
- a) project life cycle
 - b) project management information system (PMIS)
 - c) product life cycle
 - d) Talent Triangle

Answer: a

CPM, p. 8

- 5) Based on PMI's definition, which of these is a good example of a project?
- a) Manufacturing a standard commodity
 - b) Following policies and procedures for procuring an item
 - c) Designing and launching a new website
 - d) Using a checklist to perform quality control

Answer: c

CPM, p. 6

- 6) When would a plan-driven project life cycle be the preferred approach?
- a) When the high-level vision has been developed, but the product scope is not well defined
 - b) When the environment is changing rapidly
 - c) When the product to be delivered is well understood
 - d) When the product will be created through a series of repeated cycles

Answer: c

CPM, p. 9

- 7) To be effective, a project manager needs to possess all of the following competencies EXCEPT _____.
- a) personal effectiveness—attitudes, core personality traits, leadership
 - b) authority—power or right granted by the organization
 - c) performance—what project managers can accomplish while applying their project management knowledge
 - d) knowledge of project management—understanding of project management tools and techniques

Answer: b

CPM, p. 7

- 8) In adaptive life cycles (change-driven or Agile methods), _____.
- a) the overall scope of the project is fixed, and the time and cost are developed incrementally
 - b) the overall cost is fixed, and the project scope and schedule are developed iteratively
 - c) the time and cost are fixed, but the scope is developed iteratively
 - d) change control is very important

Answer: c

CPM p. 20

- 9) The two plan-driven project management associate-level roles are different in each of the following ways EXCEPT _____.
- a) duration of time spent on project
 - b) ability to work within project constraints
 - c) degree of input contributed to project planning
 - d) skill set

Answer: a

CPM p. 15

- 10) A freelance project manager is brought in by Company X to lead a large, expensive project. This project manager has excellent leadership skills and a strong technical understanding of the project. For her to optimize every component of the Talent Triangle, what might be a good activity for the project manager at the start of her time with Company X?
- a) Familiarize herself with the long-term objectives of Company X
 - b) Host an icebreaker for all team members
 - c) Attend a seminar on advanced leadership techniques
 - d) Send an email including her résumé to all SMEs to ensure they are aware of her technical background

Answer: a

CPM, p. 11

[\[return to top\]](#)

Integrated Example Projects

We will use two example projects throughout all fifteen chapters of this book. One will be a construction project suited to mostly plan-driven project planning and management. The other will be a development project suited more toward Agile project planning and management. In this chapter, we will introduce both of them. In subsequent chapters, we will choose one to demonstrate techniques and concepts from the chapter and ask leading questions of the other one. We will alternate chapters so professors can choose to use the questions as assignments if they wish.

Suburban Homes Construction Project

Purchasing a new home is the single largest investment most of us will make in our lifetime. You can either purchase the home from a reputed real estate building company or manage the construction of your home using project management principles that you have mastered. The latter approach can save significant amounts of money over the life of a typical 30-year mortgage. Additionally, it is likely to provide you with one of the most satisfying experiences in your life because you will get an opportunity to see the results of the choices you made in building your home. However, on the downside, if you manage the project poorly, it also has the potential on many levels to be a disaster.

The experience of managing the construction of a single-family home provides a coherent account of costs, benefits, other considerations related to construction, risks, hazards, and critical decisions. The experience also has the potential for joy if the project is a successful endeavor.

Suburban Homes is a medium-sized, fast-growing construction company in the Midwest region of the United States. Due to its significant growth and good reputation for building quality single-family homes and townhomes, the company decided to expand its business to several Southern states in the United States. However, Suburban Homes recognized the scope for managing resources effectively and efficiently to increase profits. It has decided to formalize project management practices by developing and implementing standard and promising processes, tools, and techniques. For this purpose, the company was looking for a competent project manager to manage its projects. They hired Adam Smith as their new project manager.

Adam Smith had worked for several years in the construction industry and supplemented his experience with project management education. Consequently, he gained considerable experience and developed expertise in managing construction projects. Adam believes in managing projects by adhering to various project management processes, tools, and

techniques. In his new position as the project manager, Adam's primary task is to improve the performance of project management and increase the project success rate.

Student Questions

1. What advice would you offer to Adam Smith?

Implement project governance, by creating and communicating standards, policies, and procedures that reflect project management practices appropriate to the methodology selected (e.g., plan driven or Agile). It is also suggested to review 'Lessons Learned' from other projects to practice continuous improvement and increase the likelihood of success.

Heritage Arboretum Development Project

Arboretum Introduction

An arboretum is a garden containing trees, shrubs, and other plants that are cultivated for visual enjoyment and educational purposes.

The Interactive Community of Arboreta (ArbNet) Arboretum Accreditation Program provides standards and guidelines for creating and developing an arboretum. The ArbNet Arboretum Accreditation Program is sponsored and supported by The Morton Arboretum, Botanic Gardens Conservation International (BGCI), and the American Public Gardens Association (APGA).

Different levels of accreditation have been established to recognize arboreta at varying degrees of development, capacity, and professionalism. All levels require planning, maintenance, and educational components. Level one requires twenty-five species of trees and woody plants, while levels three and four require five hundred species. Many other requirements become more demanding as an arboretum proceeds through various levels. This project is to create, maintain, and enhance a Level One arboretum.

Anderson Township and Green Space Introduction

One type of limited self-government in Ohio is the township. A township is an unincorporated portion of a county that has more decision-making authority than a portion of a county that is not a township, but less authority than an incorporated city. At about 45,000 residents, Anderson Township, located in the southeastern corner of Hamilton County, Ohio, is one of the most heavily populated townships in the State of Ohio. Founded in 1793, Anderson Township remained fairly undeveloped until the suburbanization that followed World War II. Anderson Township is dominated by rolling, wooded topography that creates scenic vistas of the beautiful natural environment. Anderson Township preserves these features while witnessing significant growth.

Anderson Township has taken the lead in Ohio in acquiring and protecting Greenspace through the implementation of a Greenspace levy. As Ohio's first Greenspace Township,

the community has protected nearly seven hundred acres of property that by law will remain in a natural state.

The portion of land where the Heritage Center Arboretum is taking shape is just under five acres, of which approximately half is protected green space. There is a building on site that was built around 1820 with room additions in the 1860s. The site includes a gazebo, patio, drives, and parking lots. Some of the ground is lawn, while the remainder is covered with trees.

The hope is to promote native species of trees, enhance the beauty of the area, increase the value and desirability of the Heritage Center, increase rental prices and days, and educate citizens regarding more tree species.

Related Links

<http://www.arbnet.org>

<https://www.mortonarb.org>

<https://www.bgci.org>

<https://www.publicgardens.org>.

Student Questions

1. What are several reasons why this project might best be planned and managed in an Agile fashion?
Because the project is not clearly defined at the beginning and requirements change frequently. It will also allow the client to respond to progress and adjust before the produce/service is delivered.
2. What Agile principles and values do you feel will be important for this project? Why?
To value: individuals and interactions over processes and tools; working software over comprehensive documentation; customer collaboration over contract negotiations; and responding to change over following a plan.
3. What additional information about arboreta, Anderson Township, green space law, or the specific site and vision would you like to know as you start this project?
Identify stakeholders and their perspectives on the project. Define the process for resolving conflict (e.g., if one arises between the green space law and the site/or vision).

Arboretum Grading Suggestions

In terms of teaching with this case, a few general suggestions that can apply to all chapters are here. Encourage the students to think about this in several steps just as they would an agile project. The first step for each chapter is to read the short introduction to the case (as well as the agile section in the body of the chapter) before class. The second step is to

make sure you cover the agile material in class and make sure you take a few minutes of class time to discuss the arboretum. Ask students to describe some of what is in the book on it and speculate beyond that. The third step is for students to answer the questions posed regarding the arboretum project. The fourth step is for you as the instructor to grade or at least give feedback on the student's answers.

1. The vision that is guiding this project is rather vague. It is difficult at the outset to determine how many trees to plan, where to plant them, what species to select, etc. It is also difficult at the outset to determine what educational opportunities can come from the arboretum. Since the outcomes of native species, beauty, education, and value are the driving force rather than specific outputs, agile makes sense.
2. A few agile values and principles that students may suggest and rationale are as follows:

Value working product over documentation—good plants in the ground are more important than the formal documentation.

Value customer collaboration—trying to understand benefits to students, neighbors, and taxpayers.

Value response to change—as trees are planted, some may do better than others. As more customer desires are discovered, detailed outputs may change.

Present working product frequently—stakeholders want to see progress on the ground and will assess success by what they see.

The various township stakeholders for protecting greenspace, maintaining the arboretum, and renting the facility may conflict and need to be recognized.

As with any work endeavor, a team of motivated people who feel they are trusted and supported is critical to getting work accomplished.

Face-to-face communication is so much more effective (and has been challenging during the pandemic).

Technical excellence and good design give stakeholders confidence and allow the team more flexibility in turn.

Simplicity both in choosing not to do perform unneeded work and in convincing stakeholders that your plans are sensible goes a long way.

4. Answers regarding additional helpful information may vary considerably. Watch for students who ask for so much added information that they feel paralyzed before they start. Agile teams often start with less information and progressively plan as more information becomes available.

[\[return to top\]](#)

Semester Project Instructions

This book is designed to give your professors the option to have you practice the concepts and techniques from each chapter on a real project. Often, the project chosen will be for a nonprofit group of some kind such as a United Way agency, a church, or a school. The project could, however, be for a company or a part of the university. The semester project can often be one that several students will be assigned to work on as a team.

Each chapter provides suggested assignments to practice project management skills on the real or potential project you are using. Depending on the emphasis your professor chooses, you may need to perform some, most, or all of these assignments. At a minimum, your professor will probably assign the charter, work breakdown structure (or backlog if using Agile), and schedule.

In any case, each of the following chapters prompts you to perform various activities to plan and execute the project. At some point in the first couple of weeks, your professor will probably invite at least one representative from each organization to your class to introduce their project and to meet you. We will call these people sponsors and define their role more fully in Chapter 3. Since this first chapter is a broad introduction to project management, your task for Chapter 1 sample project may be just to familiarize yourself with your new student team, your sponsor's organization, and the overall direction of your project. If you have enough input from your sponsor, your professor may also ask you to create a customer tradeoff matrix, as shown in Exhibit 1.3, and/or a definition of success for your project, as shown in Exhibit 1.4. Your professor also may ask you to answer certain specific and/or open-ended questions concerning your newly assigned project.

Subsequent chapters give you more in-depth tools to acclimate you to your project, the organization you will be working for, and the various stakeholders who have an interest in the project. For example, in the next chapter, you learn how project selection flows from an organization's strategic planning, and you should seek to learn why this project was chosen and how it supports the strategic goals of the organization

[\[return to top\]](#)

Instructor Manual

Kloppenborg/Anantatmula/Wells, Contemporary Project Management: Plan-Driven and Agile Approaches, 2023, 978-0-357-71573-4; Chapter 1: Introduction to Project Management

Table of Contents

Purpose and Perspective of the Chapter	2
Cengage Supplements	2
Chapter Objectives	2
Key Terms Consistent with PMI Standards and Guides	3
Key Terms Consistent with Agile Practice	5
What's New in This Chapter	6
Teaching Strategies	6
Specific Suggestions for Teaching Project Management Online	9
Lecture and Workshop Outline	10

Purpose and Perspective of the Chapter

The purpose of this chapter is to introduce fundamental concepts in project management. This begins with the explanation of how the work of project management can be categorized by knowledge area and process groups, principles and domains. Further, the chapter describes how project success is determined, and how both plan-driven and adaptive approaches, such as Agile, are frequently used.

Cengage Supplements

The following product-level supplements provide additional information that may help you in preparing your course. They are available in the Instructor Resource Center.

- PowerPoint
- Test Bank
- Instructor Manual
- Solution and Answer Guide
- Transition Guide

Chapter Objectives

The following objectives are addressed in this chapter:

Core Objectives:

- Define a project and project management in your own words, using characteristics that are common to most projects.
- Describe major activities and deliverables at each project life cycle stage.
- List and define the twelve principles and the eight performance domains of the project management body of knowledge (*PMBOK*® 7e).
- Delineate measures of project success and failure, and reasons for both.
- Identify project roles and distinguish key responsibilities for project team members.

Agile Objectives:

- Define the twelve Agile principles and the four Agile values from the Agile Manifesto.
- Describe when and why Agile is sometimes a more useful approach.
- Briefly define and describe “Be Agile” and “Do Agile.”
- Describe the four Agile metrics for success (viability and value, predictability, quality, and happiness) in each phase of the project.

[\[return to top\]](#)

Key Terms Consistent with PMI Standards and Guides

project: A time-bound effort constrained by performance specifications, resources, and budget to create a unique product or service that adds value and meets desired outcomes.

stakeholders: An individual, group, or organization that may affect, be affected by, or perceive itself to be affected by a decision, activity, or outcome of a project, program, or portfolio.

project management: The art and science of using knowledge, skills, tools, and techniques to meet stakeholder needs and expectations efficiently and effectively.

soft skills: These include the ability to work in teams and with the teams, interpersonal skills, communication, conflict resolution, negotiation, and leadership.

hard skills: These include proficiency in planning and other project management techniques, risk analysis, quality assurance, and control, scheduling, budgeting, change control, and project execution.

functional manager: Someone with management authority over an organizational unit.

project life cycle: The series of phases that a project goes through from its initiation to its closure.

project management process group: Project management phases to structure projects and lead them from beginning to end: initiating, planning, executing, monitoring and control, and closing.

initiating processes: Those processes performed to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase.

planning processes: Those processes required to establish the scope of the project, refine objectives, and define the course of action required to attain the objectives that the project was undertaken to achieve.

executing processes: Those processes performed to complete the work defined in the project management plan to satisfy the project requirements.

monitoring and controlling processes: Those processes required to track, review, and regulate the progress and performance of the project, identify any areas in which changes to the plan are required, and initiate the corresponding changes.

closing processes: Those processes performed to formally complete or close the project, phase, or contract.

integration management: Project integration management is the processes and activities needed to identify, define, combine, unify, and coordinate activities within the project management process groups.

scope management: Project scope management is the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully.

schedule management: Project schedule management is the processes required to manage the timely completion of the project.

cost management: Project cost management is the processes involved in planning, estimating, budgeting, financing, funding, managing, and controlling costs so the project can be completed within the approved budget.

quality management: Project quality management is the processes for incorporating the organization's quality policy regarding planning, managing, and controlling project and product quality requirements in order to meet stakeholders' expectations.

resources management: Project resources management is the processes to identify, acquire, and manage the resources needed for the successful completion of the project.

communications management: Project communications management is the processes required to ensure timely and appropriate planning, collection, creation, distribution, storage, retrieval, management, control, monitoring, and ultimate disposition of project information.

risk management: Project risk management is the processes of conducting risk management planning, identification, analysis, response planning, response implementation, and monitoring risk on a project.

procurement management: Project procurement management is the processes necessary to purchase or acquire products, services, or results needed from outside the project team.

stakeholder management: Project stakeholder management is the processes required to identify the people, groups, or organizations that could impact or be impacted by the project, to analyze stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution.

deliverable: Any unique and verifiable product, result, or capability to perform a service that is produced to complete a process, phase, or project.

scope: The sum of the products, services, and results to be provided as a project.

product scope: The features and functions that characterize a product, service, or result.

project scope: The work performed to deliver a product, service, or result with the specified features and functions.

quality: The degree to which a set of inherent characteristics fulfills requirements.

sponsor: An individual or a group that provides resources and support for the project, program, or portfolio, and is accountable for enabling success.

project management office (PMO): A management structure that standardizes the project-related governance processes and facilitates the sharing of resources, methodologies, tools, and techniques.

customer: A person or an organization that buys goods or services.

steering or leadership team: A team or committee that decides on the priorities or order of business of an organization and manages the general course of its operations.

project manager: The person assigned by the performing organization to lead the team that is responsible for achieving the project objectives.

project team: The members of a project team that is responsible for achieving the project objectives.

project charter: A document issued by the project initiator or sponsor that formally authorizes the existence of a project and provides the project manager with the authority to apply organizational resources to project activities.

work breakdown structure (WBS): A hierarchical decomposition of the total scope of work to be carried out by the project team to accomplish the project objectives and create the required deliverables.

project schedule: An output of a schedule model that presents linked activities with planned dates, durations, milestones, and resources.

project budget: The sum of work package cost estimates, contingency reserve, and management reserve.

monitor and control project work: To track, review, and regulate the progress and performance of the project, identify any areas in which changes to the plan are required, and initiate the corresponding changes.

close project or phase: To formally complete or close the project, phase, or contract.

[\[return to top\]](#)

Key Terms Consistent with Agile Practice

Agile: A project method using iterative and continual processes, guided by an empowered mindset described in the Agile Manifesto and elaborated by many sources.

Agile lifecycle: Iteration-based production of solutions including inception, construction, and transition phases.

iterative process: A method to plan the entire project at only a high level at the start and plan portions to be done soon in detail, updating plans as more becomes known.

product owner: The person who represents the client or customer and other stakeholders, prioritizing work and making timely decisions, enabling an Agile project team.

scrum master: The person who facilitates and guides the team to improve performance and remove roadblocks so that the members can focus on their work.

team member: A person who works on a project in cooperation with others to develop the solution for the stakeholder.

emergent design: Emergent design is a design that is constructed as it evolves as opposed to the usual upfront process of design. With emergent design, a development organization starts delivering functionality and lets the design emerge.

[\[return to top\]](#)

What's New in This Chapter

The following elements are the improvements in this chapter from the previous edition:

- *The new PMBOK 7 and associated project management principles are introduced.*
- *Agile concepts are described and integrated into the content to foster understanding of adaptive methods.*

[\[return to top\]](#)

Teaching Strategies

- Each chapter starts with learning objectives stated in measurable form as shown above. All chapters will have core objectives, which we believe any student of project management, should master. Chapters also include Agile and/or technical objectives, which you can also use depending on what you wish to emphasize. If you start with slides that list the objectives, you can emphasize that the students need to be able to accomplish each. We find it helpful to paraphrase a few of them and pick one to ask the students why they think it is included.
- Many students will not have read the first chapter before the first class. Mike's introductory essay on how he successfully climbed Mount Aconcagua (the second highest of the Seven Summits after Mount Everest) whereas others died in the attempt is a great attention getter.
- We believe in active learning, so we include at least one breakout session every hour. These are often preceded by an introduction of the material and we pose at least one question or framework for the students to follow. We find a few simple rules are fun for the students and encourage participation. Ask one person to record what the group discussed/decided. Ask a different person to be the group's

spokesperson—that way at least two people stay alert. Ask the spokesperson to state what they learned from the exercise and “ditto” does not count. That means they cannot take the easy way out and say another group took their idea. This encourages volunteers to report first and forces teams to think beyond the obvious lesson and think creatively. If there are points we especially want to emphasize, we will summarize by repeating the points (and crediting the groups who made them) or introducing them if no group mentioned them. The first example breakout session follows.

- Once we briefly cover what a project is (students in discussion will provide examples) and why project management is important, we ask the students to work in groups of four or five with large paper or sections of a chalk or white board. We ask them to describe project success and reasons for each for about 10 minutes. Alternatively, you can ask the students to describe project failure and the causes of it. Either way, you set the expectation that students will actively participate in every class. It also serves as the introduction to the need to develop both soft and hard skills.
- Since some students enjoy software, we mention MS Project early. An easy way to do this is to have the students look at the inside front cover on the left to see what MS Project is used for and where it is covered in the book.
- We like to cover the concept of project life cycles. It is easy to use a house-building project as an example since the walk-through to inspect the project result helps students envision the idea of an approval to pass from one stage to the next.
- The increasing popularity of the Agile (adaptive or change-driven) approach to projects creates another opportunity for discussion. You can introduce the extremes of totally plan-driven versus totally adaptive project schedules and ask what type of projects might lend themselves to each and what are some of the advantages and disadvantages of each. This discussion can culminate with the idea that contemporary project management can use parts of both and that we will explore differences throughout the course. An Agile icon appears in the margin in many places in the text where either different methods and/or different terminology is used in agile versus plan-driven approaches. The corresponding text is in alternate color to call attention to it. There is also an agile appendix that lists all of the ways agile is emphasized differently than traditional project management and the chapter in which each point is covered in the text.
- An introduction to PMI® is useful. It sets the stage for discussing accreditation, process groups, knowledge areas, and glossary terms. We take this opportunity to encourage students to become student members at a greatly reduced cost.
- Several features of this text help a student to understand *The Guide to the Project management Body of Knowledge*, 7th ed. (PMBOK® Guide). This most current version of the guide is what students will need to completely understand if the wish to

challenge a Project Management Professional (PMP) or Certified Associate in Project Management (CAPM) certification exam.

- You can ask the students to look at the inside front cover of the book on the right side to see both how the PMBOK® Guide is structured and exactly where each process is covered in the text.
- You can also have the students turn to the back inside cover for a flowchart of the processes in the order in which they should be performed. This PMBOK® Guide flowchart emphasizes primarily the things students will need to learn to create the various planning and control documents that will help them plan and manage a project. At the start of each chapter, we include the portion of the flowchart that is covered in that chapter. One slide is available in the PowerPoint deck of the overall flowchart and several smaller sections of the flowchart are available as slides also so when you introduce topics, you might also want to remind students visually where they are in the planning flow.
- The PMBOK® Guide topics for each chapter are listed in the margins of the second chapter page.
- Key terms consistent with the PMBOK® Guide and numerous other, more detailed PMI publications are listed immediately after the project summary.
- At the end of each chapter, we include study suggestions for the CAPM and PMP exams for the topics covered in the chapter. We also include one assessment section is PMBOK® Guide questions. These questions are very similar to CAPM and PMP exam questions. Correct answers to each of these questions along with page references from both this text and the PMBOK® Guide appear in this IM.
- Finally, Appendix A starting on page 439, is a summary of study suggestions for anyone who wishes to take one of the certification exams. We have taught many exam preparation classes both for PMI and for private providers.
- The Project Customer Tradeoff Matrix gives the opportunity to discuss how a project manager can make consistently better decisions by fully understanding the customer. It also is an early opportunity to discuss the challenges of honest, open communications and ethical challenges that can arise. We like to use two different projects in the same industry that made different trade-off decisions as an example. For us it is easy since one of our universities built our on-campus arena with a strong emphasis on cost control and had to play one more season in our old facility while one of the professional teams in town placed so much emphasis on playing their entire season in their new stadium that their overrun cost more than our entire arena!
- Project roles are briefly introduced here, but described in much greater detail in Chapter 3. You may wish to tell your students that even though they are studying to be project managers, it is important for them to understand other roles that need to be accomplished. Project managers spend a large percentage of their time communicating and these roles describe many of the people with whom they will

communicate. One further point regarding project roles is that while all projects require planning and control work, when it is done, by whom, and the titles of the people involved often differ on agile vs. traditional projects and to make matters more confusing, often different departments in the same organization are more accepting of agile than others, so titles can vary dramatically.

- We like to use real projects as teaching vehicles. The end of Chapter 1 is a good place to introduce the projects. See specific ideas in example project section below. Appendix D lists many of the project planning and control documents that are in common use. You will likely want to assign a variety of these as assignments. If it is the first time you are using real projects for class, you might start with just the most basic documents, such as charter, communication plan, WBS, and schedule. As you gain more experience, you can assign quite a few of these. You can also use ones you do not assign as homework as in-class exercises so you can give the students very rapid feedback. Examples and instructions for all of these are in the text and grading suggestions appear in the appropriate chapter where each is covered.
- Appendix C has answers to selected problems. In each case, at least one other structurally similar problem is in the text with the answers here in this IM, but not in the text.

[\[return to top\]](#)

Specific Suggestions for Teaching Project Management Online

- Don't assume anything specifically, about students that they understand about the course and your instructions.
- Spell out everything even if you repeat some of the instructions. Nothing should be ambiguous. Assignment instructions should be crystal clear. Like Murphy's law, if something can be misunderstood, it will be. Online instructors should be aware of this.
- Develop clear policies and processes for course delivery. To the extent possible, appearance, features, and delivery of the learning management system, such as Blackboard should be consistent and clear. While consistency in course delivery is important for quality assurance, each instructor can be creative within the defined boundaries to break monotony and to bring unique perspectives.
- Get acknowledgement from students—confirmation that they understand course policies. Ask them to acknowledge in writing.
- Assignment instructions should be clear and unambiguous. Wherever possible, grading rubric should be shared with the students. Evaluation criteria must be spelled out.
- When assessing student submissions, provide a detailed individual feedback and wherever applicable, provide general feedback to the entire class. Feedback should be based on the assessment criteria defined for each assignment.

- Student submissions reflect their understanding of the teaching material and learning modules. They help us to develop an understanding of the effectiveness of our teaching material. A critical analysis will give us ideas to improve pedagogy for future learning modules.
- Establish a friendly and conversational tone in writing lessons, feedback, and other communications with students. In communicating with students through discussion forums or by email, informal and friendly tone will help in connecting with the students. A tone of positivity will help in encouraging students to focus on the subject. Teaching material should also provide intrinsic motivation. However, we must remember that most of the distance students are committed to studies and are motivated to do well.
- Assessment criteria for each assignment must be linked to learning objectives of the course.
- Make the distinction and a fine balance between “nice to know” and “necessary to know.”
- Provide illustrations for complex and difficult concepts. Technology must be employed to illustrate these concepts (synchronous conference meetings, phone calls, videos, and one-to-one online sessions).
- Share student submissions with the entire class (after obtaining permission from the student) as a good example.
- Teams are put together that represent diversity in qualifications and experience.

[\[return to top\]](#)

Lecture and Workshop Outline

1.1 What Is a Project?

A project is a new, time-bound effort that has a definite beginning and a definite ending with several related and/or interdependent tasks to create a unique product or service.

Each project has unique stakeholders people and groups who can impact the project or might be impacted by either the work or results of the project.

Project management is the art and science of using knowledge, skills, tools, and techniques efficiently and effectively to meet stakeholder needs and expectations.

Projects create a unique product or service that adds business value and will help customers enable users of these products and services to accomplish their desired goals.

1.2 History of Project Management

All through history, projects have been conducted.

Formal discipline starting in the 1950s – scheduling and control.

Recent years – more focus on communications, leadership, teamwork, and Agile

Rapid growth and changes in the information technology and telecommunications industries fueled massive growth in the use of project management in the 1990s and early 2000s.

1.3 How Can Project Work Be Described?

Projects vs. operations

Soft skills and hard skills

Authority and responsibility

Project life cycle

Agile (adaptive) approach

Initiating, planning, executing, closing

1.4 Understanding Projects

Project Management Institute (PMI)

Project Management Body of Knowledge (PMBOK®)

Process groups

Knowledge areas

Principles

PMI Talent Triangle

Selecting and Prioritizing Projects

Project Goals and Constraints

Defining Project Success and Failure

Using Microsoft Project to Help Plan and Measure Projects

Types of Projects

Industry – PMI Special Interest Groups (SIGs)

Size

When project manager is able to clearly determine scope

Application – organizational change, quality improvement, R&D, Information

- Systems (IS), construction
- Scalability of Project Tools
- 1.5 Project Roles
 - Traditional Roles
 - Executive Roles
 - Sponsor, Customer, Steering Team, Project Management Office (PMO)
 - Managerial Roles
 - Project Manager, Functional Manager, Facilitator,
 - Associate Roles
 - Core Team Member, Subject Matter Expert (SME)
 - Agile Roles
 - Executive Roles
 - Customer (product owner), Sponsor (product manager), Portfolio Team, Project Management/Scrum Office
 - Managerial Roles
 - Customer (product owner), Scrum Master, Functional Manager, Coach
 - Associate Roles
 - Team member
- 1.6 *PMBOK 7e Guide*
 - Standard for Project Management-ANSI/PMI 99-001-2021
 - PMBOK Guide 7e
- 1.7 Agile
 - Plan-Driven versus Agile
 - Agile Manifesto Principles
 - Agile Terms Used in an Introduction to Project Management
- 1.8 Overview of Book

PART 1: ORGANIZING AND INITIATING PROJECTS

Chapter 1: Introduction to Project Management

Chapter 2: Project Selection and Prioritization

Chapter 3: Chartering Projects

PART 2: LEADING PROJECTS

Chapter 4: Organizational Capability: Structure, Culture, and Roles

Chapter 5: Leading and Managing Project Teams

Chapter 6: Stakeholder Analysis and Communication Planning

PART 3: PLANNING PROJECTS

Chapter 7: Scope Planning

Chapter 8: Scheduling Projects

Chapter 9: Resourcing Projects

Chapter 10: Budgeting Projects

Chapter 11: Project Risk Planning

Chapter 12: Project Quality Planning and Project Kick-Off

PART 4: PERFORMING PROJECTS

Chapter 13: Project Supply Chain Management

Chapter 14: Determining Project Progress and Results

Chapter 15: Finishing Projects and Realizing the Benefits

[\[return to top\]](#)