CHAPTER **1**

INTRODUCTION TO PROJECT MANAGEMENT

LEARNING OBJECTIVES

After reading this chapter, you will be able to:

- Understand 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

- Describe 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

- Understand the role of project managers by describing what they do, what skills they need, and career opportunities for IT project managers

- Describe the project management profession, including 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

Chapter Summary

Many people and organizations have a new or renewed interest in project management as the number of projects continues to grow and their complexity continues to increase. The success rate of IT projects has more than doubled since 1995, but still only about one-third are successful in meeting scope, time, and cost goals. Using a more disciplined approach to managing projects can help projects and organizations succeed.

A project is a temporary endeavor undertaken to create a unique product, service, or result. An IT project involves the use of hardware, software, and networks. Projects are unique, temporary, and developed incrementally; they require resources, have a sponsor, and involve uncertainty. The triple constraint of project management refers to managing the scope, time, and cost dimensions of a project. It is important to address these dimensions as well as other constraints (such as quality, resources, and risks) and to satisfy the project sponsor.

Project management is the application of knowledge, skills, tools, and techniques to project activities to meet project requirements. Stakeholders are the people involved in or affected by project activities. A framework for project management includes the project stakeholders, project management knowledge areas, and project management tools and techniques. The 10 knowledge areas are project integration management, scope, time, cost, quality, human resource, communications, risk, procurement, and stakeholder management. There are many tools and techniques in each knowledge area. There are different ways to define project success, and project managers must understand the criteria that define success for their unique projects.

A program is a group of related projects, subprograms, and program activities managed in a coordinated way to obtain benefits and control that are not available from managing the projects individually. Project portfolio management involves organizing and managing projects and programs as a portfolio of investments that contribute to the entire enterprise's success. Portfolio management emphasizes meeting strategic goals, while project management focuses on tactical goals. Studies show that user involvement is crucial to project success, as are other factors like executive support and clear business objectives.

Project managers play a key role in helping projects and organizations succeed. They must perform various job duties, possess many skills, and continue to develop skills in project management, general management, and their application area, such as IT. Soft skills, especially leadership, are particularly important for project managers.

The profession of project management continues to grow and mature. In the United States, the military took the lead in project management and developed many tools such as Gantt charts and network diagrams, but today people use project management in virtually every industry around the globe. The Project Management Institute (PMI) is an international professional society that provides certification as a Project Management Professional (PMP) and upholds a code of ethics. Today, hundreds of project management software products are available to assist people in managing projects.

Quick Quiz

1. The _____ field includes the top skills employers look for in new college graduates.
   a. communications
   b. project management
   c. financial management
   d. customer service

2. Which of the following is not a potential advantage of using good project management?
   a. shorter development times
   b. higher worker morale
   c. lower cost of capital
   d. higher profit margins

3. A _____ is a temporary endeavor undertaken to create a unique product, service, or result.
   a. program
   b. process
   c. project
   d. portfolio

4. Which of the following is not an attribute of a project?
   a. Projects are unique.
   b. Projects are developed using progressive elaboration.
   c. Projects have a primary customer or sponsor.
   d. Projects involve little uncertainty.

5. Which of the following is not part of the triple constraint of project management?
   a. meeting scope goals
   b. meeting time goals
   c. meeting communications goals
   d. meeting cost goals

6. _____ is the application of knowledge, skills, tools, and techniques to project activities to meet project requirements.
   a. Project management
   b. Program management
   c. Project portfolio management
   d. Requirements management

7. Project portfolio management addresses _____ goals of an organization, while project management addresses _____ goals.
   a. strategic, tactical
   b. tactical, strategic
   c. internal, external
   d. external, internal

8. Several application development projects done for the same functional group might best be managed as part of a _____.
   a. portfolio
   b. program
   c. investment
   d. collaborative

9. Which of the following is not true?

    a. Most American companies have a project management office.

    b. You can earn an advanced degree in project management from hundreds of colleges and universities.

    c. Employers are looking for project management skills in new graduates.

    (d.) Project management certification does not affect pay.

10. What is the name of one of the popular certifications provided by the Project Management Institute?

    a. Certified Project Manager (CPM)

    (b.) Project Management Professional (PMP)

    c. Project Management Expert (PME)

    d. Project Management Mentor (PMM)

Quick Quiz Answers

1. b; 2. c; 3. c; 4. d; 5. c; 6. a; 7. a; 8. b; 9. d; 10. b

Discussion Questions

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

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?

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

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

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?

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

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?

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?

Exercises

1. Read at least two of the first five references cited in this chapter with statistics about the importance of IT and project management. Write a summary of the reports, key conclusions, and your opinion of them.

2. Find someone who works as a project manager or someone who works on projects involving IT, such as a worker in your school's IT department or a project manager active in a professional group, like PMI. Prepare several interview questions to learn more about projects and project management, and then ask your questions in person, through e-mail, over the phone, or using other technology. Write a summary of your findings.

3. Write a paper summarizing key information available on the Project Management Institute's website (*www.pmi.org*). Also read and summarize two recent reports from PMI, including "Pulse of the Profession®: The High Cost of Low Performance" (2014). Note: Instructors can break this into two exercises by specifying the second report.

4. Find any example of a real project with a real project manager. Feel free to use projects in the media (such as the Olympics, television shows, or movies) or a project from your work, if applicable. Write a paper describing the project in terms of its scope, time, and cost goals. Also describe other impacts on a project, such as quality, resources, and risks. Discuss what went right and wrong on the project and the role of the project manager and sponsor. Also describe whether the project was a success, and why. Include at least one reference and cite it on the last page.

5. Watch a free online video on the history of project management created by Mark Kozak-Holland. Summarize how the project management knowledge areas can be applied to building the Giza Pyramid Project.

6. Research articles and tools on project portfolio management. Summarize the advantages of performing project portfolio management as well as challenges.

7. Skim through Appendix A on Microsoft Project 2013. Review information about Project 2013 from the Microsoft website (*www.microsoft.com*). Research three other project management software tools, including at least one smartphone or tablet app. Write a paper answering the following questions:

   a. What functions does project management software provide that you cannot do easily using other tools such as a spreadsheet or database?

   b. How do the different tools you reviewed compare with Project 2013, based on cost of the tool, key features, and other relevant criteria?

   c. How can organizations justify investing in enterprise or portfolio project management software?

8. Research information about PMP and CAPM certifications. Find at least two articles on this topic. What are benefits of certification in general? Do you think it is worthwhile for most project managers to get certified? Is it something you would consider? Write a paper summarizing your findings and opinions.

9. Review PMI's Code of Ethics and Professional Conduct. Find and summarize two articles related to ethics in project management.

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THE PROJECT MANAGEMENT AND INFORMATION TECHNOLOGY CONTEXT

LEARNING OBJECTIVES

After reading this chapter, you will be able to:

- Describe the systems view of project management and how it applies to information technology (IT) projects
- Understand organizations, including the four frames, organizational structures, and organizational culture
- Explain why stakeholder management and top management commitment are critical for a project's success
- Understand the concept of a project phase and the project life cycle, and distinguish between project development and product development
- Discuss the unique attributes and diverse nature of IT projects
- Describe recent trends affecting IT project management, including globalization, outsourcing, virtual teams, and agile project management

Chapter Summary

Projects operate in an environment broader than the project itself. Project managers need to take a systems approach in order to successfully manage projects; they need to consider projects within the greater organizational context. To ensure project success, IT project managers need to integrate business and organizational issues as well as technology into project planning.

Organizations have four different frames: structural, human resources, political, and symbolic. Project managers need to understand all of these aspects of organizations to be successful. The structural frame focuses on different groups' roles and responsibilities to meet the goals and policies set by top management. The human resources frame focuses on producing harmony between the needs of the organization and the needs of people. The political frame addresses organizational and personal politics. The symbolic frame focuses on symbols and meanings.

The structure of an organization has strong implications for project managers, especially regarding the amount of authority they have. The three basic organizational structures are functional, matrix, and project. Project managers have the most authority in a pure project organization, an intermediate amount of authority in a matrix organization, and the least amount of authority in a pure functional organization.

Organizational culture also affects project management. Projects are more likely to succeed in a culture where employees have a strong identity 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 balance among the dimensions of people focus, control, and means orientation.

Project stakeholders are individuals and organizations who are actively involved in the project or whose interests may be positively or negatively affected by the project's execution or successful completion. Project managers must identify and understand the different needs of all stakeholders involved with their projects.

Top management commitment is crucial for project success. Because projects often affect many areas in an organization, top management must assist project managers if they are to do a good job of project integration. Organizational commitment to IT is also important to the success of IT projects. Development standards and guidelines assist most organizations in managing projects.

A project life cycle is a collection of phases. Traditional project phases include concept, development, implementation, and close-out. Projects often develop products, which follow product life cycles. Examples of product life cycles for software development include the waterfall, spiral, incremental build, prototyping, RAD, and adaptive software development models. Project managers must understand the specific life cycles of their products as well as the general project life cycle model.

A project should successfully pass through each project phase in order to continue to the next phase. A management review should occur at the end of each project phase, and more frequent management inputs are often needed. These management reviews and inputs are important for keeping projects on track and determining if projects should be continued, redirected, or terminated.

Project managers need to consider several factors affected by the unique context of IT projects. The diverse nature of these projects and the wide range of business areas and technologies involved make IT projects especially challenging to manage. Leading project team members with a variety of specialized skills and understanding rapidly changing technologies are also important considerations.

Several recent trends have affected IT project management. Increased globalization, outsourcing, virtual teams, and agile project management have changed the way many IT projects are staffed and managed. Project managers must stay abreast of these and other trends and discover ways to use them effectively.

Quick Quiz

1. Which of the following is not part of the three-sphere model for systems management?
   a. business
   b. information
   c. technology
   d. organization

2. Which of the four frames of organizations addresses how meetings are run, employee dress codes, and expected work hours?
   a. structural
   b. human resources
   c. political
   d. symbolic

3. Personnel in a _____ organizational structure often report to two or more bosses.
   a. functional
   b. project
   c. matrix
   d. hybrid

4. Project work is most successful in an organizational culture where all of the following characteristics are important except _____.
   a. member identity
   b. group emphasis
   c. risk tolerance
   d. control

5. A _____ is a product or service, such as a technical report, a training session, or hardware, produced or provided as part of a project.
   a. deliverable
   b. product
   c. work package
   d. tangible goal

6. Which of the following statements is false?
   a. An analysis project life cycle is a collection of project phases.
   b. A product life cycle is the same as a project life cycle.
   c. The waterfall approach is an example of a predictive life cycle model.
   d. Agile is an example of an adaptive life cycle model.

7. Which of the following terms describes a ==framework== of the phases involved in developing information systems?
   - (a.) systems development life cycle
   - b. rapid application development
   - c. predictive life cycle
   - d. extreme programming

8. The nature of IT projects is different from the nature of projects in many other industries because they are very _____.
   - a. expensive
   - b. technical
   - (c.) diverse
   - d. challenging

9. What term describes an organization's acquisition of goods and services from an outside source in ==another country?==
   - a. globalization
   - (b.) offshoring
   - c. exporting
   - d. global sourcing

10. _____ is the leading agile development method.
    - a. Extreme programming
    - b. Sprint
    - c. Kanban
    - (d.) Scrum

Quick Quiz Answers

1. b; 2. d; 3. c; 4. d; 5. a; 6. b; 7. a; 8. c; 9. b; 10. d

Discussion Questions

1. What does it mean to take a systems view of a project? How does taking this view apply to project management?
2. Explain the four frames of organizations. How can they help project managers understand the organizational context for their projects?
3. Briefly explain the differences between functional, matrix, and project organizations. Describe how each structure affects the management of a project.
4. Describe how organizational culture is related to project management. What type of culture promotes a strong project environment?
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.

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?

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

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

Exercises

1. Summarize the three-sphere model for systems management in your own words. Then use your own project experience or interview someone who recently completed an IT project, and list several business, technology, and organizational issues addressed during the project. Which issues were most important to the project, and why? Summarize your answers in a short paper or presentation.

2. Apply the four frames of organizations to a possible project that involves the development of a new technology like mobile banking, online retail, or social media. Work with two other class members in a virtual environment on this exercise. Write a short paper or presentation that summarizes your analysis and opinions of how working virtually helped or hindered your results.

3. Search the Internet for two interesting articles about software development life cycles, including agile development. Review the website *www.agilealliance.org*. What do these sources say about project management? Write a summary of your findings and opinions on this topic, and cite your references.

4. Search the Internet and scan IT industry magazines or websites to find an example of an IT project that had problems due to organizational issues. Write a short paper summarizing the key stakeholders for the project and how they influenced the outcome.

5. Write a short summary of an article that discusses the importance of top management support for successful IT projects. Your summary should include your opinion on this topic.

6. Research the trend of using virtual teams. Review the information on team role theory from *www.belbin.com* and other related sources. Write a summary of your findings, and cite at least three references. Also include any personal experience and your opinion on the topic. For example, what role(s) would you prefer to play on a team? Do you like working on virtual teams? If you have not yet worked on one, how do you think it would be different from working on a face-to-face team?

7. Research the agile movement as it applies to software development and other types of projects. See how many books and websites are available on the topic. Is there evidence to show that agile projects are more successful than others? What agile principles can be applied to all types of projects? Write a short paper that summarizes your findings, and cite at least three references. Also include any personal experience and your opinion on the topic.

8. Watch videos about Scrum and Kanban by Axosoft or other organizations. Summarize what you learned and any questions you have in a short paper. Try to find answers to your questions and cite your sources.

Key Terms

adaptive software development (ASD)   p. 61

agile   p. 69

agile software development   p. 62

champion   p. 54

deliverable   p. 57

executive steering committee   p. 63

functional organizational structure   p. 49

human resources (HR) frame   p. 47

IT governance   p. 55

kanban   p. 71

kill point   p. 62

matrix organizational structure   p. 50

offshoring   p. 66

organizational culture   p. 51

outsourcing   p. 66

phase exit   p. 62

political frame   p. 48

politics   p. 48

predictive life cycle   p. 60

project acquisition   p. 57

project feasibility   p. 57

project life cycle   p. 57

project organizational structure   p. 50

scrum   p. 70

structural frame   p. 47

symbolic frame   p. 48

systems analysis   p. 45

systems approach   p. 45

systems development life cycle (SDLC)   p. 60

systems management   p. 45

systems philosophy   p. 45

systems thinking   p. 45

virtual team   p. 67

End Notes

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THE PROJECT MANAGEMENT PROCESS GROUPS: A CASE STUDY

LEARNING OBJECTIVES

After reading this chapter, you will be able to:

- Describe the five project management process groups, the typical level of activity for each, and the interactions among them

- Understand how the project management process groups relate to the project management knowledge areas

- Discuss how organizations develop information technology (IT) project management methodologies to meet their needs

- Review a case study of an organization applying the project management process groups to manage an IT project, describe outputs of each process group, and understand the contribution that effective initiating, planning, executing, monitoring and controlling, and closing make to project success

- Review a case study of the same project managed with an agile focus and compare the key differences between an agile approach and a predictive approach

- Describe several templates for creating documents for each process group

Chapter Summary

Project management involves a number of interlinked processes. The five project management process groups are initiating, planning, executing, monitoring and controlling, and closing. These processes occur at varying levels of intensity throughout each phase of a project, and specific outcomes are produced as a result of each process. Normally the executing processes require the most resources and time, followed by the planning processes.

Mapping the main activities of each project management process group into the 10 project management knowledge areas provides a big picture of what activities are involved in project management.

It is important to tailor project management methodologies to meet an organization's particular needs. Some organizations develop their own IT project management methodologies, often using the standards in the *PMBOK® Guide* as a foundation. Popular methods like PRINCE2, Agile, RUP, and Six Sigma include project management processes.

The JWD Consulting case study demonstrates how one organization managed an IT project from start to finish. The case study provides samples of outputs produced for initiating, planning, executing, monitoring and controlling, and closing:

- Business case
- Stakeholder register
- Stakeholder management strategy
- Project charter
- Kick-off meeting agenda
- Team contract
- Work breakdown structure
- Gantt chart
- List of prioritized risks
- Milestone report
- Progress report
- Lessons-learned report
- Final project report

The second version of the same case study illustrates how to use Scrum, the leading agile method, to manage the project. Instead of releasing the new intranet software just once near the end of the project, the team could release three iterations of the software. This version of the case study introduced some new tools, including a product backlog, sprint backlog, and burndown chart. Later chapters provide detailed information for creating these and other project management documents and using several of the tools and techniques described in both versions of this case study.

Quick Quiz

1. A _____ is a series of actions directed toward a particular result.
   a. goal
   b. process
   c. plan
   d. project

2. _____ processes include coordinating people and other resources to carry out project plans and create the products, services, or results of the project or phase.

    a. Initiating
    b. Planning
    c. Executing
    d. Monitoring and controlling
    e. Closing

3. Which process group normally requires the most resources and time?

    a. Initiating
    b. Planning
    c. Executing
    d. Monitoring and controlling
    e. Closing

4. What methodology was developed in the United Kingdom, defines 45 separate subprocesses, and organizes them into eight process groups?

    a. Six Sigma
    b. RUP
    c. *PMBOK® Guide*
    d. PRINCE2

5. Which of the following outputs is often completed before initiating a project?

    a. stakeholder register
    b. business case
    c. project charter
    d. kick-off meeting

6. A work breakdown structure, project schedule, and cost estimates are outputs of the _____ process.

    a. initiating
    b. planning
    c. executing
    d. monitoring and controlling
    e. closing

7. Initiating involves developing a project charter, which is part of the project _____ management knowledge area.

    a. integration
    b. scope
    c. communications
    d. risk

8. _____ involves measuring progress toward project objectives and taking corrective actions.

   a. Initiating

   b. Planning

   c. Executing

   (d.) Monitoring and controlling

   e. Closing

9. Which of the following is not a typical reason that project teams would use a predictive approach versus an agile approach to managing a project?

   (a.) The project has unclear up-front requirements.

   b. The project team is inexperienced and dispersed.

   c. Large risks are involved.

   d. The completion date is fairly rigid.

10. Many people use _____ to have a standard format for preparing various project management documents.

   a. methodologies

   (b.) templates

   c. project management software

   d. standards

Quick Quiz Answers

1. b; 2. c; 3. c; 4. d; 5. b; 6. b; 7. a; 8. d; 9. a; 10. b

Discussion Questions

1. Briefly describe what happens in each of the five project management process groups (initiating, planning, executing, monitoring and controlling, and closing). What types of activities occur before initiating a project?

2. Approximately how much time do good project managers spend on each process group, and why?

3. Why do organizations need to tailor project management concepts, such as those found in the *PMBOK® Guide*, to create their own methodologies?

4. What are some of the key outputs of each process group?

5. What are some of the typical challenges project teams face during each of the five process groups? You can frame your discussion based on a project described in one of the feature boxes in this chapter (for example, the What Went Right? or What Went Wrong? feature). You can also frame your discussion on one of PMI's Project of the Year Award winners or on a well-known project failure like the Denver International Airport baggage handling system.

6. What are the main differences between the two versions of the JWD Consulting case study? When should you use a more prescriptive or agile approach? Do you think users of the JWD Consulting Intranet site would prefer one release of the software or several incremental ones? What are some pros and cons of each approach?

Exercises

1. Study the WBS and Gantt charts provided in Figures 3-3 and 3-4. Enter the WBS into Project 2013, indenting tasks as shown to create the WBS hierarchy. Do not enter durations or dependencies. Print the resulting Gantt chart. See the scope management section of Appendix A for help using Project 2013.

2. Research a project management method, such as PRINCE2, Agile, RUP, or Six Sigma, and how organizations use it, citing at least two references. Why do you think organizations spend time and money tailoring a methodology to their environment? Write a summary of your findings and your opinion on the topic.

3. Read the "ResNet Case Study," which is available from the companion website for this text under Chapter 3. This real case study about Northwest Airlines' reservation system illustrates another application of the project management process groups. Write a paper summarizing the main outputs produced during each project process group in this case. Also, include your opinion of whether Peeter Kivestu was an effective project manager. If you prefer, find another well-documented project and summarize it instead.

4. JWD Consulting wrote a business case before officially initiating the project management intranet site project. Review the contents of this document in Table 3-2 and find two articles that describe the need to justify investing in IT projects. In addition, describe whether you think most projects should include a business case before the project sponsors officially approve the project. Write a short paper summarizing your findings and opinions.

5. Read an article or watch a video about a recipient of PMI's Project of the Year award. Search online for information from PMI's website. Write a one-page paper summarizing a winning project, focusing on how the project manager and team used good project management practices.

6. Review the product backlog, sprint backlog, and burndown chart provided in this chapter. Read articles or watch a video about using a Scrum method that mentions these artifacts. Write a short paper that describes more details about how to create these artifacts; cite at least two references.

7. You are a project consultant for the ACME Company and are helping to develop an agile method using Scrum. The company has always used predictive project management methods for software development, but company managers have heard that Agile can have significant advantages if implemented properly. Prepare a proposal that suggests what training, documentation, executive support, and team management approaches are needed to start a pilot for Agile. Provide justification for your recommendations.

8. Review at least two surveys about the use of agile methodologies, such as the annual survey on the state of agile by VersionOne. Also find a critical analysis of these surveys as they are sponsored by companies that sell agile products or surveys. Summarize your findings in a short paper.

9. Download the template files used in this text from the companion website or from *www .kathyschwalbe.com*. Review several of the files, and look at examples of how they are used in this text. Also search the Internet for other template files. Write a short paper to summarize what you think about using templates and how you think they can help project managers and their teams. Also discuss potential problems with using templates.

Key Terms

agile methods p.87

artifact p.119

burndown chart p.199

closing processes p.81

daily Scrum p.119

executing processes p.81

initiating processes p.81

kick-off meeting p.97

methodology p.86

monitoring and controlling processes p.81

planning processes p.81

process p.81

product backlog p.119

product owner p.118

project management process groups p.81

PRojects IN Controlled Environments (PRINCE2) p.87

Rational Unified Process (RUP) framework   p.88

ScrumMaster p.118

Scrum team or development team p.118

Six Sigma methodologies p.88

sprint p.118

sprint backlog p.119

stakeholder register p.94

standard p.86

user stories p.123

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PROJECT INTEGRATION MANAGEMENT

LEARNING OBJECTIVES

After reading this chapter, you will be able to:

- Describe an overall framework for project integration management as it relates to the other project management knowledge areas and the project life cycle

- Discuss the strategic planning process and apply different project selection methods

- Explain the importance of creating a project charter to formally initiate projects

- Describe project management plan development, understand the content of these plans, and describe approaches for creating them

- Explain project execution, its relationship to project planning, the factors related to successful results, and tools and techniques to assist in directing and managing project work

- Describe the process of monitoring and controlling a project

- Understand the integrated change control process, planning for and managing changes on information technology (IT) projects, and developing and using a change control system

- Explain the importance of developing and following good procedures for closing projects

- Describe how software can assist in project integration management

Chapter Summary

Project integration management is usually the most important project management knowledge area, because it ties together all the other areas of project management. A project manager's primary focus should be on project integration management.

Before selecting projects to pursue, it is important for organizations to follow a strategic planning process. Many organizations perform a SWOT analysis to help identify potential projects based on their strengths, weaknesses, opportunities, and threats. IT projects should support the organization's overall business strategy. Common techniques for selecting projects include focusing on broad organizational needs, categorizing projects, performing financial analyses, developing weighted scoring models, and using balanced scorecards.

Project integration management includes the following processes:

- Developing the project charter, which involves working with stakeholders to create the document that formally authorizes a project. Project charters can have different formats, but they should include basic project information and signatures of key stakeholders.
- Developing the project management plan, which involves coordinating all planning efforts to create a consistent, coherent document. The main purpose of project plans is to facilitate action.
- Directing and managing project work, which involves carrying out the project plans by performing the activities included in it. Project plan execution usually requires the majority of a project's budget.
- Monitoring and controlling project work, which is necessary to meet the performance objectives of the project. The project team should continuously monitor project performance to assess the overall health of the project.
- Performing integrated change control, which involves identifying, evaluating, and managing changes throughout the project life cycle. A change control system often includes a change control board (CCB), configuration management, and a process for communicating changes.
- Closing the project or phase involves finalizing all project activities. It is important to follow good procedures to ensure that all project activities are completed and that the project sponsor accepts delivery of the final products, services, or results.

Several types of software products are available to assist in project integration management. Other tools can assist in project selection and ensure that projects align with business strategy.

Quick Quiz

1. Which of the following processes is not part of project integration management?
   - a. developing the project business case
   - b. developing the project charter
   - c. developing the project management plan
   - d. closing the project or phase
2. What is the last step in the four-stage planning process for selecting IT projects?
   - a. IT strategy planning
   - b. business area analysis
   - c. mind mapping
   - d. resource allocation

3. Which of the following is not a best practice for new product development projects?

   a. aligning projects and resources with business strategy

   (b.) selecting projects that will take less than two years to provide payback

   c. focusing on customer needs in identifying projects

   d. assigning project managers to lead projects

4. A new government law requires an organization to report data in a new way. Which of the following categories would include a new information system project to provide this data?

   a. problem

   b. opportunity

   (c.) directive

   d. regulation

5. If estimates for total discounted benefits for a project are $120,000 and total discounted costs are $100,000, what is the estimated return on investment (ROI)?

   a. $20,000

   b. $120,000

   (c.) 20 percent

   d. 120 percent

6. A _____ is a document that formally recognizes the existence of a project and provides direction on the project's objectives and management.

   (a.) project charter

   b. contract

   c. business case

   d. project management plan

7. Which of the following items is not normally included in a project charter?

   a. the name of the project manager

   b. budget information

   c. stakeholder signatures

   (d.) a Gantt chart

8. _____ ensures that the descriptions of the project's products are correct and complete.

   (a.) Configuration management

   b. Integrated change control

   c. Integration management

   d. A change control board

9. Which of the following is not a suggestion for performing integrated change control?

   a. use good configuration management

   (b.) minimize change

   c. establish a formal change control system

   d. view project management as a process of constant communication and negotiation

10. What tool and technique is used for all processes of project integration management?
    a. project management software
    b. templates
    c. expert judgment
    d. all of the above

Quick Quiz Answers

1. a; 2. d; 3. b; 4. c; 5. c; 6. a; 7. d; 8. a; 9. b; 10. c

Discussion Questions

1. Describe project integration management. How does it relate to the project life cycle, stakeholders, and the other project management knowledge areas?

2. Describe options that organizations have for selecting projects that align with their mission or strategy, and describe how each might work differently in the selection of IT projects.

3. Summarize key work involved in each of the six processes of project integration management.

4. Either from your own experience or by searching the Internet, describe a well-planned and executed project. Describe a failed project. What elements of project integration might have contributed to the success or failure of each?

5. Discuss the importance of following a well-integrated change control process on IT projects. What consequences can result from not following these best practices? What types of change control would be appropriate for small IT projects? What types of change control would be appropriate for large ones?

Exercises

1. Write a short paper based on the chapter's opening case. Answer the following questions:
   a. What do you think the real problem was in this case?
   b. Does the case present a realistic scenario? Why or why not?
   c. Was Nick Carson a good project manager? Why or why not?
   d. What should top management have done to help Nick?
   e. What could Nick have done to be a better project manager?

2. Download a free trial of MindView mind mapping software from *www.matchware.com/itpm* and create a mind map of a SWOT analysis for your organization. Include at least two strengths, weaknesses, opportunities, and threats, and then provide ideas for at least three potential projects. Or, you can use your college or university for the SWOT analysis, focusing on what it can do to improve services for students.

3. Use spreadsheet software to create Figures 4-4 through Figure 4-7 in this text. Make sure your formulas work correctly.

4. Perform a financial analysis for a project using the format provided in Figure 4-5. Assume that the projected costs and benefits for this project are spread over four years as follows: Estimated costs are $200,000 in Year 1 and $30,000 each year in Years 2, 3, and 4. Estimated benefits are $0 in Year 1 and $100,000 each year in Years 2, 3, and 4. Use a 9 percent discount rate, and round the discount factors to two decimal places. Create a spreadsheet or use the business case financials template on the companion website to calculate and clearly display the NPV, ROI, and year in which payback occurs. In addition, write a paragraph explaining whether you would recommend investing in this project, based on your financial analysis.

5. Create a weighted scoring model to determine grades for a course. Final grades are based on three exams worth 20 percent, 15 percent, and 25 percent, respectively; homework is worth 15 percent; and a group project is worth 25 percent. Enter scores for three students. Assume that Student 1 earns 100 percent (or 100) on every item. Assume that Student 2 earns 70 percent on each of the exams, 80 percent on the homework, and 95 percent on the group project. Assume that Student 3 earns 90 percent on Exam 1, 80 percent on Exam 2, 75 percent on Exam 3, 80 percent on the homework, and 70 percent on the group project. You can use the weighted scoring model template, create your own spreadsheet, or make the matrix by hand.

6. Develop an outline (major headings and subheadings only) for a project management plan to create a mobile-friendly website for your class, and then fill in the details for the introduction or overview section. Assume that this website would include a home page with links to a syllabus for the class, lecture notes or other instructional information, links to the website for this textbook, links to other websites with project management information, and links to personal pages for each member of your class and future classes. Also, include a bulletin board and chat room feature where students and the instructor can exchange information. Assume that your instructor is the project sponsor, you are the project manager, your classmates are your project team, and you have three months to complete the project.

7. Research software mentioned in this chapter, such as software for assisting in project selection, enterprise project management software, or cloud-based applications. Find at least two references and summarize your findings in a short memo to senior management.

8. Watch videos and read articles to research how two different organizations did a good job in directing and managing project work. You can search "PMI Project of the Year award" to find examples. Find at least four references and summarize your findings in a short paper.

9. Read the report "2015 Pulse of the Profession®: Capturing the Value of Project Management" by PMI, mentioned in the What Went Right feature. Summarize key points in this study and your opinion of it. Describe some specific steps organizations can take to provide a supportive culture for project management.

Running Case

Note: Additional running cases are provided on the companion website, including the Manage Your Health, Inc. case from the seventh edition of this text. Template files are also available on the companion website. This running case starts here and continues through Chapter 13. Tasks based on this case are explained in the following Tasks section; throughout the book, these tasks will build on work done in previous chapters and scenarios.

Economic inequality is a huge issue. A recent study found that the world's 80 wealthiest individuals own as much as the entire world's poorest 3.5 billion people. The richest 1 percent of the world's population control half of the world's total wealth.[15] Many individuals, corporations, charities, and government agencies have projects and programs in place to attempt to tackle this and other important global issues such as sustainability, but there are many opportunities to do more.

A grassroots group of college students has decided to work together to do their part in making the world a better place. The students are from many different countries, and several of them met at global conferences, through study abroad experiences, or on various Internet groups. Strategic goals of this group include developing skills for both college students and for needy populations, sharing information on existing products and services that promote economic growth and sustainability, and promoting entrepreneurship. Leaders of this group were reviewing some ideas for projects (all with a significant IT component) that they could do to support their strategic goals:

1. *Global Treps:* Many people are familiar with the television show called *Shark Tank* where entrepreneurs (sometimes called "treps") present their business ideas to a group of investors or sharks. Several colleges, high schools, and even elementary schools throughout the world hold unique versions of a shark tank like event. You believe that creating a non-profit organization with one central mobile-friendly website/application to assist groups in organizing these types of events would spark even more entrepreneurs throughout the world. You would plan to hold several shark tank like events during the term of the project and create a site and applications to help continue developing more global treps. This site/application would include the following capabilities:

   • Provide guidelines and templates for running a shark tank type of event

   • Accept donations from potential investors targeted toward specific schools or organizations wishing to host an event (similar to the popular *DonorsChoose.org* site where people can fund teacher's requests)

   • Accept ideas for needed new products or services

   • Provide the ability for organizations to create their own custom site to solicit local participants and sharks, accept applications, and promote the winners as well as losers

   • Research ideas for a mechanism where a certain percentage of all donations and profits earned by contestants are donated back to the Global Treps organization

   • Provide an online version of the events by showing videos of contestants and live reactions of the sharks while also getting live inputs and donations from viewers

2. *Change the Laws Campaign:* Launch a global campaign to change laws to reduce further income inequality and promote social responsibility. This project would also involve creating a mobile-friendly website/application that would include information about current and proposed laws, allow discussions of potential ideas to change laws, organize people to contact appropriate lawmakers, etc.

3. *Wealthy Unite:* Develop a system to enable the richest people in the world to provide their input on how they can make the world a better place. Provide information on what several people are currently doing (i.e., Bill Gates, Warren Buffet, famous celebrities, etc.) to promote philanthropy. Allow others to donate to suggested causes and recommend other ways to reduce economic inequality.

4. *Global Smart Shoppers:* Develop a mobile app and website that recommends products and services produced by organizations that promote social responsibility. Customize the app so it works in any country in the user's desired language. Work with large companies that do not currently sell products or services in certain countries to expand to regions in need. Allow small companies to easily add their products and services to the shopping network.

Tasks

1. Summarize each of the proposed projects using a simple table format suitable for presentation to top management. Include the name of each project, identify how each one supports business strategies, assess the potential financial benefits and other benefits of each project, and provide your initial assessment of the value of each project. Write your results in a one- to two-page memo to top management, including appropriate back-up information and calculations.

2. Evaluate the four projects by preparing a weighted scoring model using the template provided on the companion website for this text. Develop at least four criteria, assign weights to each criterion, assign scores, and then calculate the weighted scores. Print the spreadsheet and bar chart with the results. Also write a one-page paper that describes this weighted scoring model and the results.

3. Prepare a business case for the Global Treps project. Assume that the project will take six months to complete, use many volunteer hours, and cost about $120,000 for hardware, software, travel, and labor. Use the business case template provided on the companion website for this text. Be sure to research information on the television show and events held by colleges and other groups, which have been sparked by the need for more successful entrepreneurs. Also visit *DonorsChoose.org* to see how that site operates and look into steps for forming a non-profit organization.

4. Prepare a draft project charter for the Global Treps project. Assume that the project will take six months to complete and have a budget of $120,000. Use the project charter template provided in this text and the sample project charter provided in Table 4-1 as guides. You will be the project manager, and Dr. K. will be the project sponsor. Other team members will include Bobby, Ashok, Kim, and Alfreda. You plan to hold four shark tank like events plus develop the Global Treps site and application.

5. Prepare a change request for the Global Treps project, using the template provided on the companion website for this text. Assume that you have decided not to provide an online version of the show as it would be too much work for the initial project. Be creative when making up information.

Key Terms

balanced scorecard p.154

baseline p.166

capitalization rate p.148

cash flow p.148

change control board (CCB) p.169

change control system p.169

configuration management p.170

cost of capital p.148

directives p.147

discount factor p.149

discount rate p.148

integrated change control p.168

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