

Chapter 1: Introduction to Project Management

Information Technology Project Management, Ninth Edition

Note: See the text itself for full citations

Learning Objectives (1 of 2)

- Articulate the growing need for better project management, especially for information technology (IT) projects
- Explain what a project is, provide examples of IT projects, list various attributes of projects, and describe constraints of project management
- Define project management and discuss key elements of the project management framework, including project stakeholders, the project management knowledge areas, common tools and techniques, and project success

Learning Objectives (2 of 2)

- Discuss the relationship between project, program, and portfolio management and the contributions each makes to enterprise success
- Summarize the role of project managers by describing what they do, what skills they need, the talent triangle, and career opportunities for IT project managers
- Recall key aspects of the project management profession, including important components of its history, the role of professional organizations like the Project Management Institute (PMI), the importance of certification and ethics, and the advancement of project management software

Introduction (1 of 3)

- Many people and organizations today have a new or renewed interest in project management
- Worldwide IT spending was \$3.5 trillion in 2017, a 2.4 percent increase from 2016 spending
- The Project Management Institute reported that the number of jobs reached almost 66 million in 2017. By 2027, employers will need 87.7 million individuals working in project management-oriented roles

Introduction (2 of 3)

- In 2017, the average annual salary (without bonuses) for someone in the project management profession was \$112,000 in the U.S. and \$130,866 in Switzerland
- The top skills employers look for in new college graduates are all related to project management: team-work, problem-solving, and verbal communications
- Organizations waste \$97 million for every \$1 billion spent on projects, according to PMI's Pulse of the Profession® report

Introduction (3 of 3)

- Advantages of Using Formal Project Management:
 - Better control of financial, physical, and human resources
 - Improved customer relations
 - Shorter development times
 - Lower costs and improved productivity
 - Higher quality and increased reliability
 - Higher profit margins
 - Better internal coordination
 - Positive impact on meeting strategic goals
 - Higher worker morale

What Went Wrong?

- IT Projects have a terrible track record, as described in the What Went Wrong?
- A 1995 Standish Group study (CHAOS) found that only 16.2% of IT projects were successful in meeting scope, time, and cost goals; over 31% of IT projects were canceled before completion
- A PricewaterhouseCoopers study found that over half of all projects fail and only 2.5% of corporations consistently meet their targets for scope, time, and cost goals for all types of project

What Is a Project?

- A project is “a temporary endeavor undertaken to create a unique product, service, or result” (PMBOK® Guide, Sixth Edition, 2017)
- Operations is work done to sustain the business
- Projects end when their objectives have been reached or the project has been terminated

Examples of IT Projects (1 of 2)

- A team of students creates a smartphone application and sells it online
- A company develops a driverless car
- A government group develops a system to track child immunizations
- A global bank acquires other financial institutions and needs to consolidate systems and procedures

Examples of IT Projects (2 of 2)

- Top Strategic Technologies for 2018 (Gartner)
 - Artificial Intelligence (AI) Foundation
 - Intelligent Things
 - Cloud to the Edge
 - Immersive Experience

Media Snapshot

- Gartner predicted that by 2014, there would be more than 70 billion mobile application downloads every year, but it was almost double
- Facebook is by far the most downloaded app, and the most popular category of all apps continues to be games
- As of March 2017, Android users could download 2.8 million different apps, and Apple users could download 2.2 million

Project Attributes

- A project
 - has a unique purpose
 - is temporary
 - drives change and enable value creation
 - is developed using progressive elaboration
 - requires resources, often from various areas
 - should have a primary customer or sponsor
 - The project sponsor usually provides the direction and funding for the project
 - involves uncertainty
- Project managers work with project sponsors, team, and other people involved in a project to achieve project goals

Project Constraints

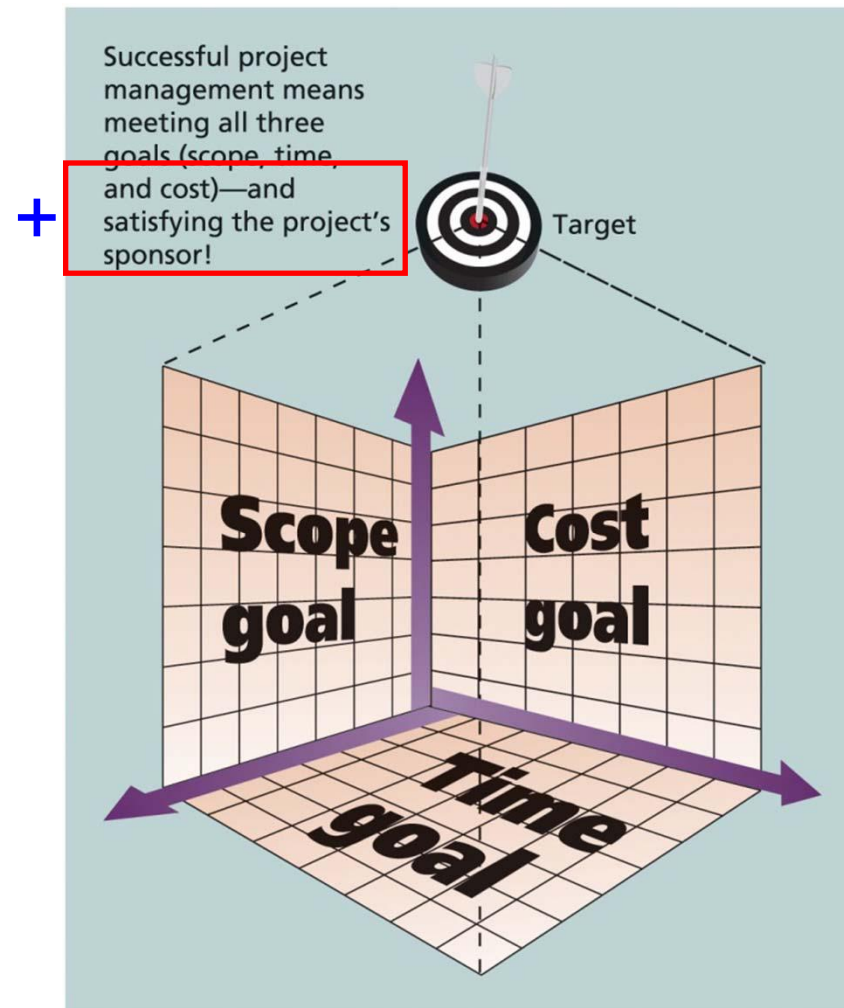


FIGURE 1-1 Project constraints

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What is Project Management? (1 of 2)

- Project management is “the application of knowledge, skills, tools and techniques to project activities to meet project requirements” (PMBOK® Guide, Sixth Edition, 2017)
- Project managers strive to meet the triple constraint (project scope, time, and cost goals) and also facilitate the entire process to meet the needs and expectations of project stakeholders

What is Project Management? (2 of 2)

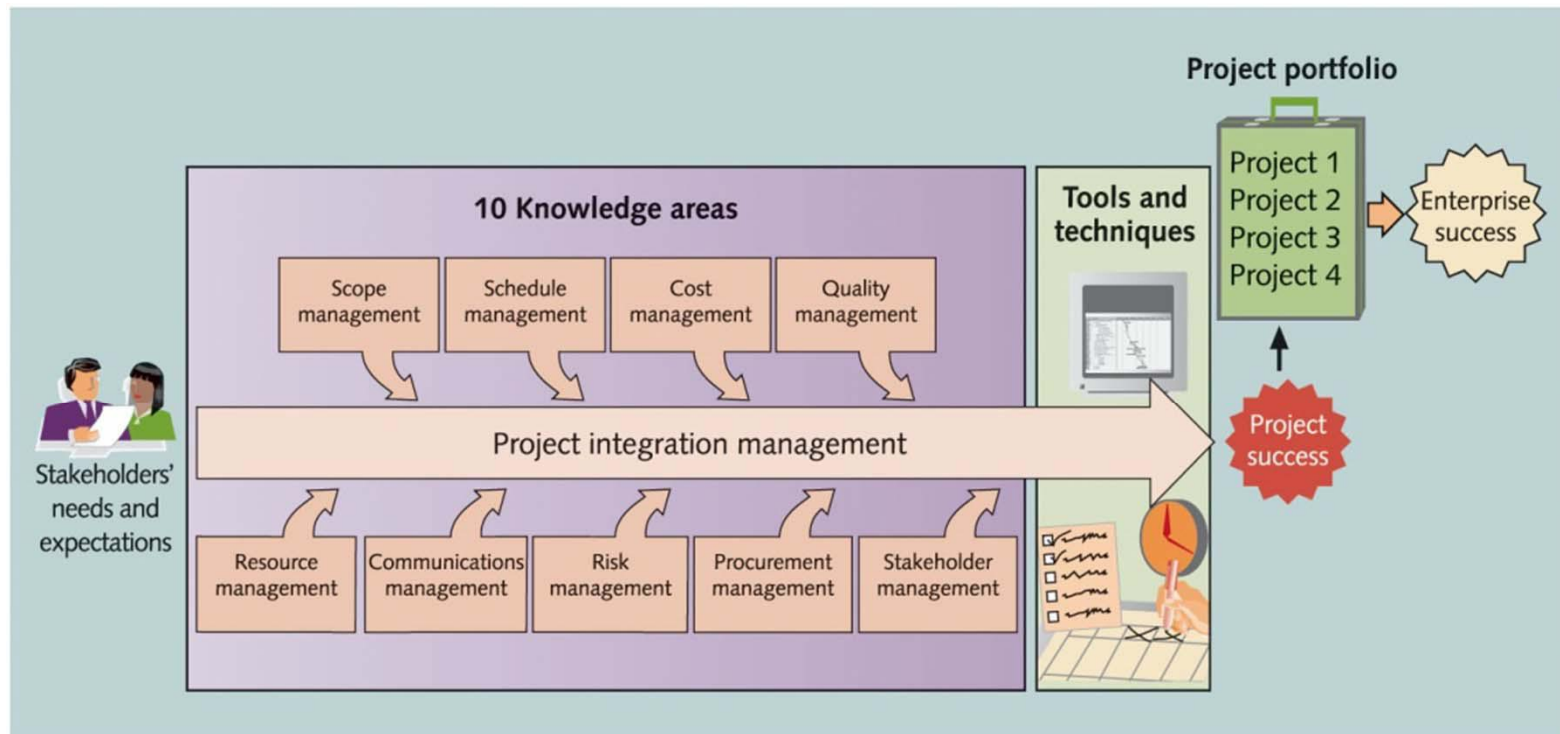


FIGURE 1-2 Project management framework

Project Stakeholders

- Stakeholders are the people involved in or affected by project activities
- Stakeholders include
 - the project sponsor
 - banks and other financial institutions
 - the project manager
 - the project team
 - support staff
 - suppliers
 - opponents to the project

Project Management Knowledge Areas

- Knowledge areas describe the key competencies that project managers must develop
- Project managers must have knowledge and skills in all 10 knowledge areas (scope, schedule, cost, quality, resource, communications, risk, procurement, stakeholder, and project integration management)
- This text includes an entire chapter on each knowledge area

Project Management Tools and Techniques (1 of 2)

- Project management tools and techniques assist project managers and their teams in various aspects of project management
- Some specific ones include
 - Project charter, scope statement, and WBS (scope)
 - Gantt charts, network diagrams, critical path analysis, critical chain scheduling (time)
 - Cost estimates and earned value management (cost)
 - See Table 1-1 for many more

Project Management Tools and Techniques (2 of 2)

- PMBOK® Guide – Sixth Edition lists tools and techniques based on their purpose:



- Data gathering
- Data analysis
- Data representation
- Decision making
- Communication
- Interpersonal and team skills
- Ungrouped

What Went Right?

- The Standish Group's CHAOS studies show improvements in the statistics for IT projects:
 - The number of successful projects was 29% in 2015
 - 62% of small projects were successful, 6% of large, 9% of medium, and 21% of moderate size
 - 39% of all agile projects were successful compared to 11% of waterfall projects

Project Success (1 of 4)

- There are several ways to define project success:
 - The project met scope, time, and cost goals
 - The project satisfied the customer/sponsor
 - The results of the project met its main objective, such as making or saving a certain amount of money, providing a good return on investment, or simply making the sponsors happy

Project Success (2 of 4)



Factors of Success	Points
Executive sponsorship	15
Emotional maturity	15
User involvement	15
Optimization	15
Skilled resources	10
Agile processes	7
Modest execution	6
Project management expertise	5
Clear business objectives	4

Source: The Standish Group, CHAOS Manifesto 2015 (2015)

Table 1-2 What Helps Projects Succeed?

Project Success (3 of 4)

- Top three reasons why federal technology projects succeed
 - Adequate funding
 - Staff expertise
 - Engagement from all stakeholders

Project Success (4 of 4)

- Research findings show that companies that excel in project delivery capability:
 - Use an integrated toolbox
 - Grow project leaders
 - Develop a **streamlined** project delivery process
 - Measure project health using metrics, like customer satisfaction or return on investment

Program and Project Portfolio Management

- About one-quarter of the world's gross domestic product is spent on projects
- Two important concepts that help projects meet enterprise goals:
 - Use of programs
 - Project portfolio management

Programs

- A program is “a group of related projects managed in a coordinated manner to obtain benefits and control not available from managing them individually” (PMBOK® Guide — Sixth Edition, 2017)
- Examples of common programs in the IT field include infrastructure, applications development, and user support
- A program manager provides leadership and direction for the project managers heading the projects within the program

Project Portfolio Management (1 of 2)

- As part of project portfolio management, organizations group and manage projects and programs as a portfolio of investments that contribute to the entire enterprise's success
- Portfolio managers help their organizations make wise investment decisions by helping to select and analyze projects from a strategic perspective

Project Portfolio Management (2 of 2)



FIGURE 1-3 Project management compared to project portfolio management

Best Practice

- A best practice is “an optimal way recognized by industry to achieve a stated goal or objective”*
- Robert Butrick suggests that organizations need to follow basic principles of project management, including these two mentioned earlier in this chapter:
 - Make sure your projects are driven by your strategy. Be able to demonstrate how each project you undertake fits your business strategy, and screen out unwanted projects as soon as possible
 - Engage your stakeholders. Ignoring stakeholders often leads to project failure. Be sure to engage stakeholders at all stages of a project, and encourage teamwork and commitment at all times
- *Project Management Institute, Organizational Project Management Maturity Model (OPM3) Knowledge Foundation (2003), p. 13.

Organizational Project Management (1 of 2)

- Organizational project management
 - Framework in which portfolio, program, and project management are integrated with organizational **enablers** in order to achieve strategic objectives

Organizational Project Management (2 of 2)

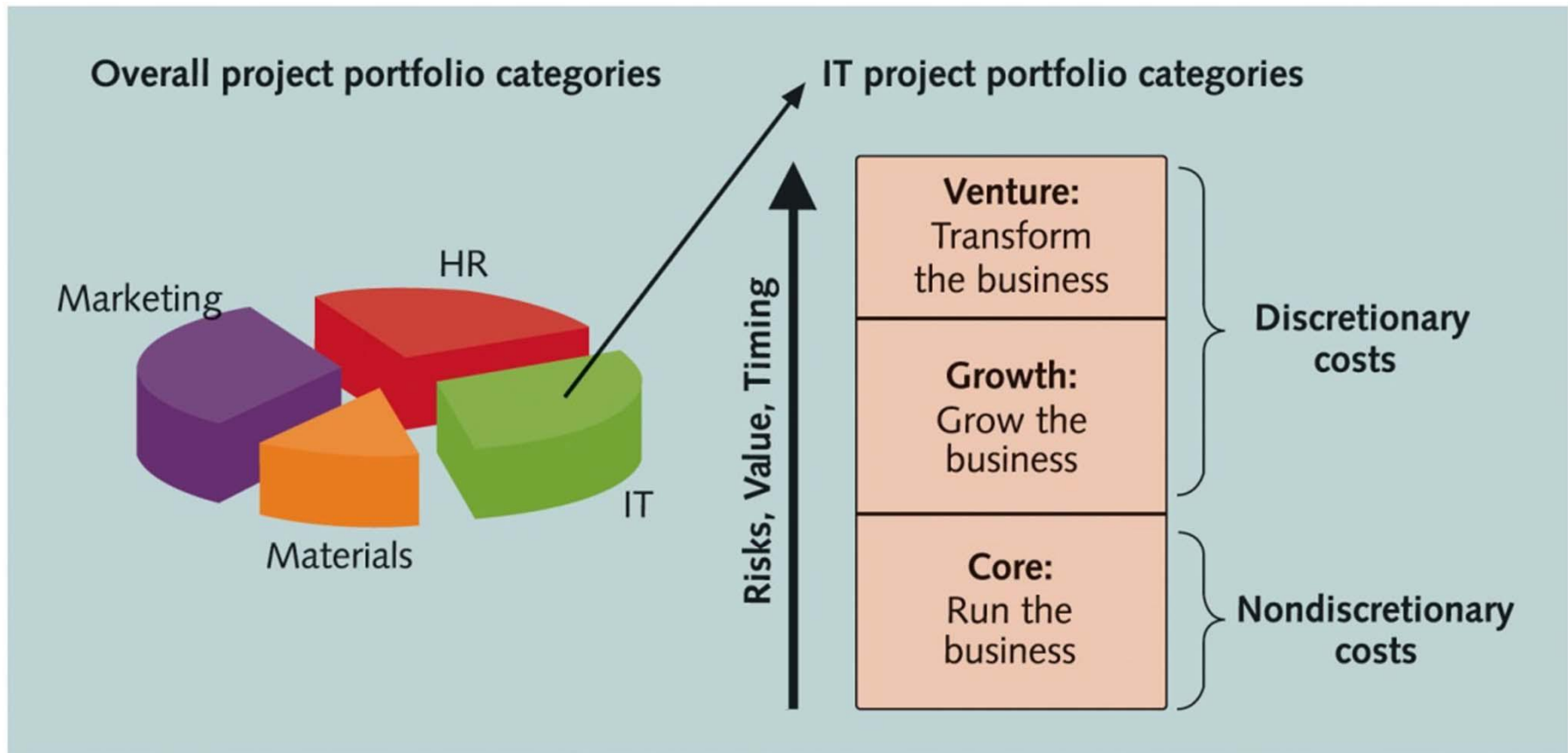


FIGURE 1-4 Sample project portfolio approach

The Role of the Project Manager

- Project managers must work closely with the other stakeholders on a project, especially the sponsor and project team
- They are also more effective if they are familiar with the 10 project management knowledge areas
 - And the various tools and techniques related to project management

Project Manager Job Description

- Job descriptions vary, but most include responsibilities like planning, scheduling, coordinating, and working with people to achieve project goals
- Project management is a skill needed in every major IT field, from database administrator to network specialist to technical writer

Advice for Young Professionals

- A few questions to ask yourself to know if you would be a good project manager
 - Do you get frustrated by bad bosses? Do you think you could do a better job?
 - Are you interested in understanding the big picture of how organizations work and how your individual work or your project fits in?
 - Have you had other leadership roles, such as being a team captain, president of a club, or entrepreneur of a small business? Did you enjoy it? Did others think you did a good job?
 - Are you good at mentoring others? Do people ask you for help in developing their skills or your advice on what to do?

Suggested Skills for Project Managers (1 of 2)

- The Project Management Body of Knowledge
- Application area knowledge, standards, and regulations
- Project environment knowledge
- General management knowledge and skills
- Soft skills or human relations skills

Suggested Skills for Project Managers (2 of 2)

- Six traits of highly effective project managers as follows:
 - Be a strategic business partner
 - Encourage and recognize valuable contributions
 - Respect and motivate stakeholders
 - Be fully vested in success
 - Stress integrity and accountability
 - Work in the gray/Be able to deal with ambiguity

PMI Talent Triangle® and the Importance of Leadership Skills*

- The talent triangle includes:
 - Technical project management skills
 - Strategic and business management skills
 - Leadership skills
- Leadership styles include:
 - Laissez-faire
 - Transactional
 - Servant leader
 - Transformational
 - Charismatic
 - Interactional

Careers for IT Project Managers (1 of 2)

- In a 2017 survey, IT executives listed the “ten hot tech skills” they planned to hire for in 2017
- Project management was second only to full-stack software development
- Even if you choose to stay in a technical role, you still need project management knowledge and skills to help your team and organization

Careers for IT Project Managers (2 of 2)

1.	Full-stack software development
2.	Project management
3.	Cyber-security
4.	Networking
5.	User experience/user interface (UX/UI) design
6.	Quality assurance (QA)/testing
7.	Cloud engineering
8.	Big data
9.	Machine learning/artificial intelligence
10.	DevOps

Source: Sharon Florentine, "10 IT skills that employers need in 2017," CIO from IDG (February 1, 2017).

Table 1-4 Ten hot tech skills for 2017

The Project Management Profession

- The profession of project management is growing at a very rapid pace
- It is helpful to understand the history of the field, the role of professional societies like the Project Management Institute, and the growth in project management software

History of Project Management (1 of 4)

- Some people argue that building the Egyptian pyramids was a project, as was building the Great Wall of China
- Most people consider the Manhattan Project to be the first project to use “modern” project management
- This three-year, \$2 billion (in 1946 dollars) project had a separate project manager and a technical manager

History of Project Management (2 of 4)

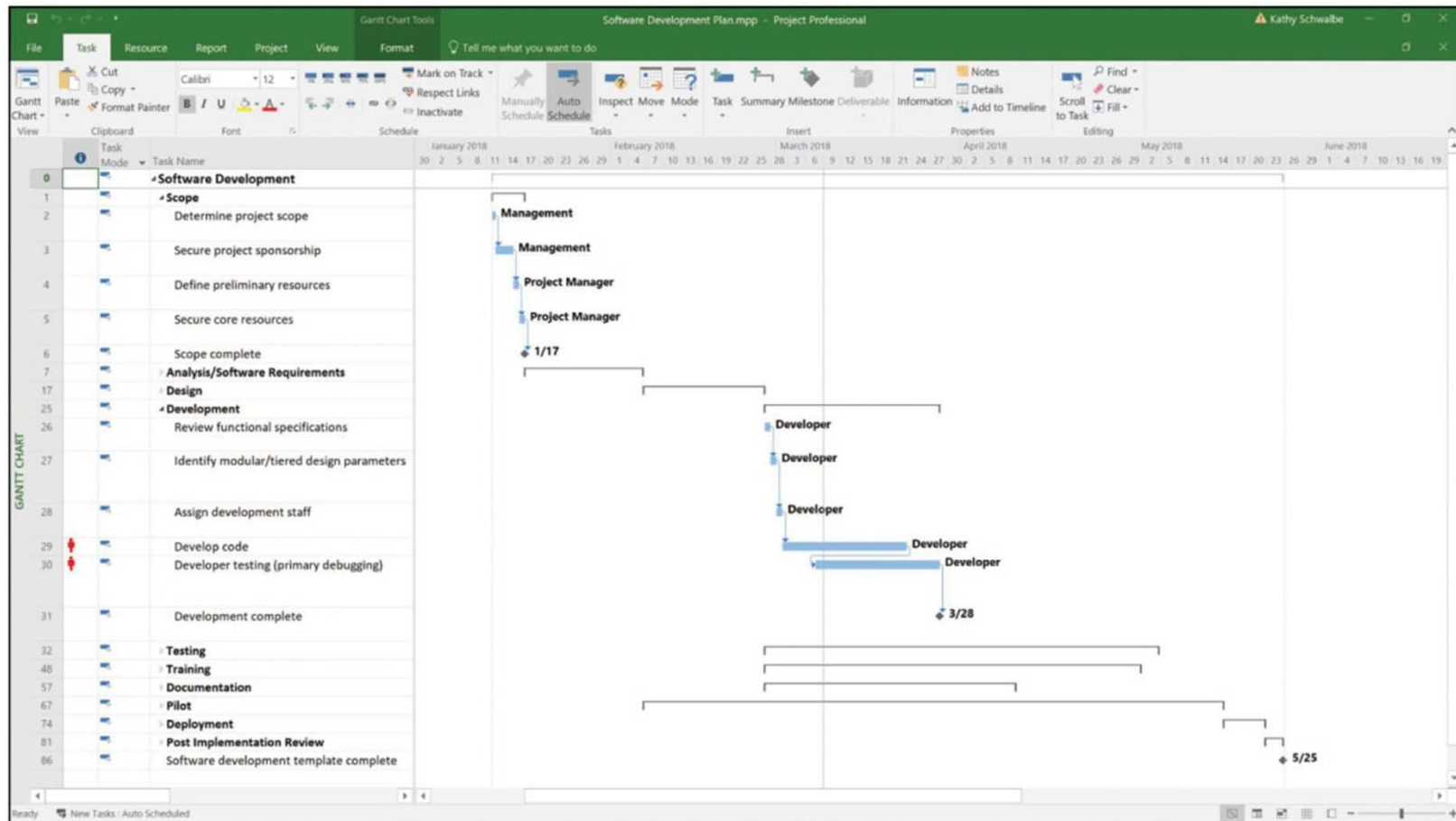


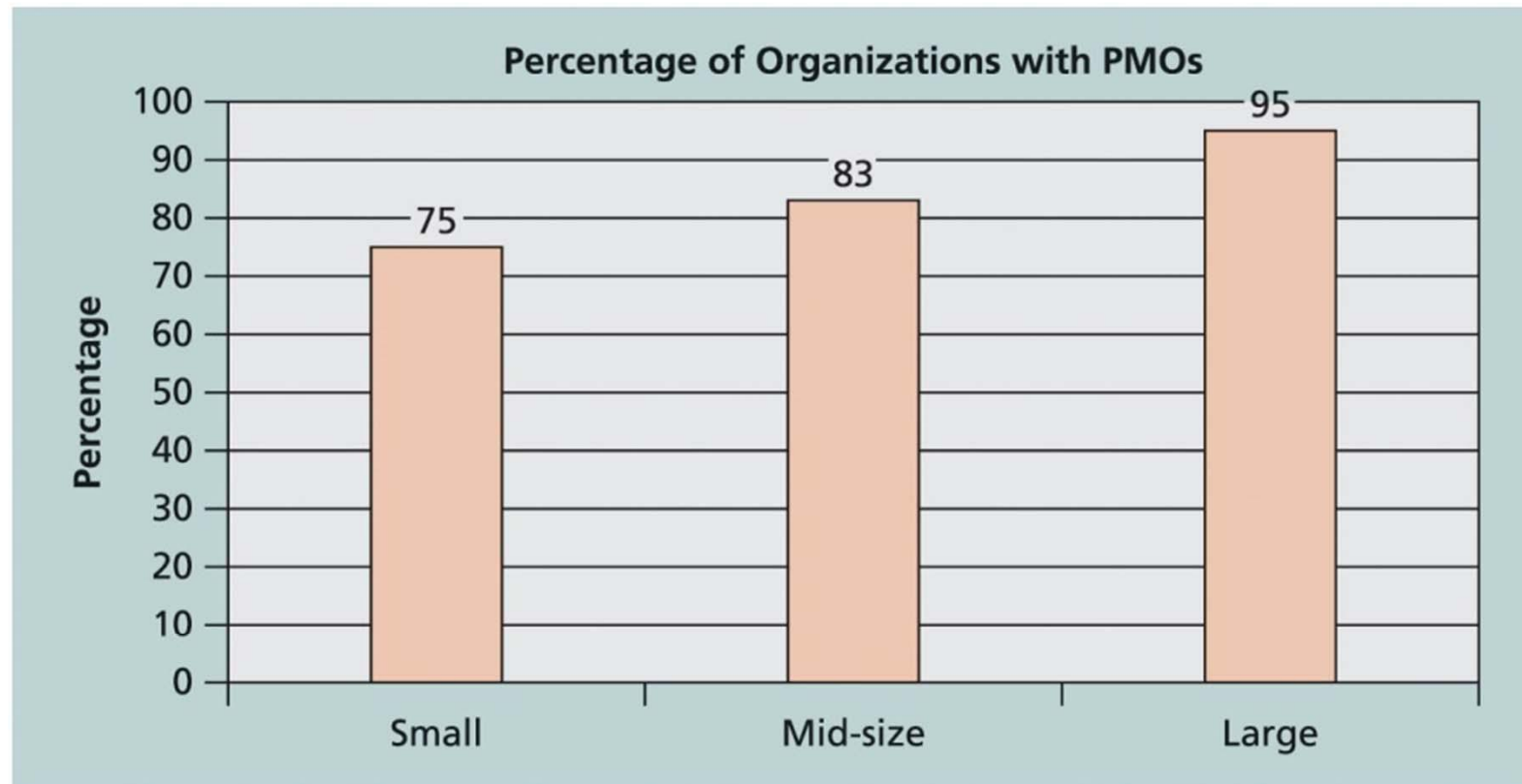
FIGURE 1-5 Sample Gantt chart from Project 2016 software development plan template

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History of Project Management (3 of 4)

- In the 1990s, many companies began creating PMOs to help them handle the increasing number and complexity of projects
- A Project Management Office (PMO) is an organizational group responsible for coordinating the project management function throughout an organization

History of Project Management (4 of 4)



Source: PM Solutions, "The State of the Project Management Office (PMO) 2016," 2016.

FIGURE 1-6 Percentage of organizations with PMOs by size

Global Issues

- Several global dynamics are forcing organizations to rethink their practices:
 - Talent development for project and program managers is a top concern
 - Basic project management techniques are core competencies
 - Organizations want to use more agile approaches to project management
 - Benefits realization of projects is a key metric

The Project Management Institute



- The Project Management Institute (PMI) is an international professional society for project managers founded in 1969
- PMI has continued to attract and retain members, reporting more than 500,000 members worldwide by late 2017
- There are communities of practices in many areas, like information systems, financial services, and health care
- Project management research and certification programs continue to grow

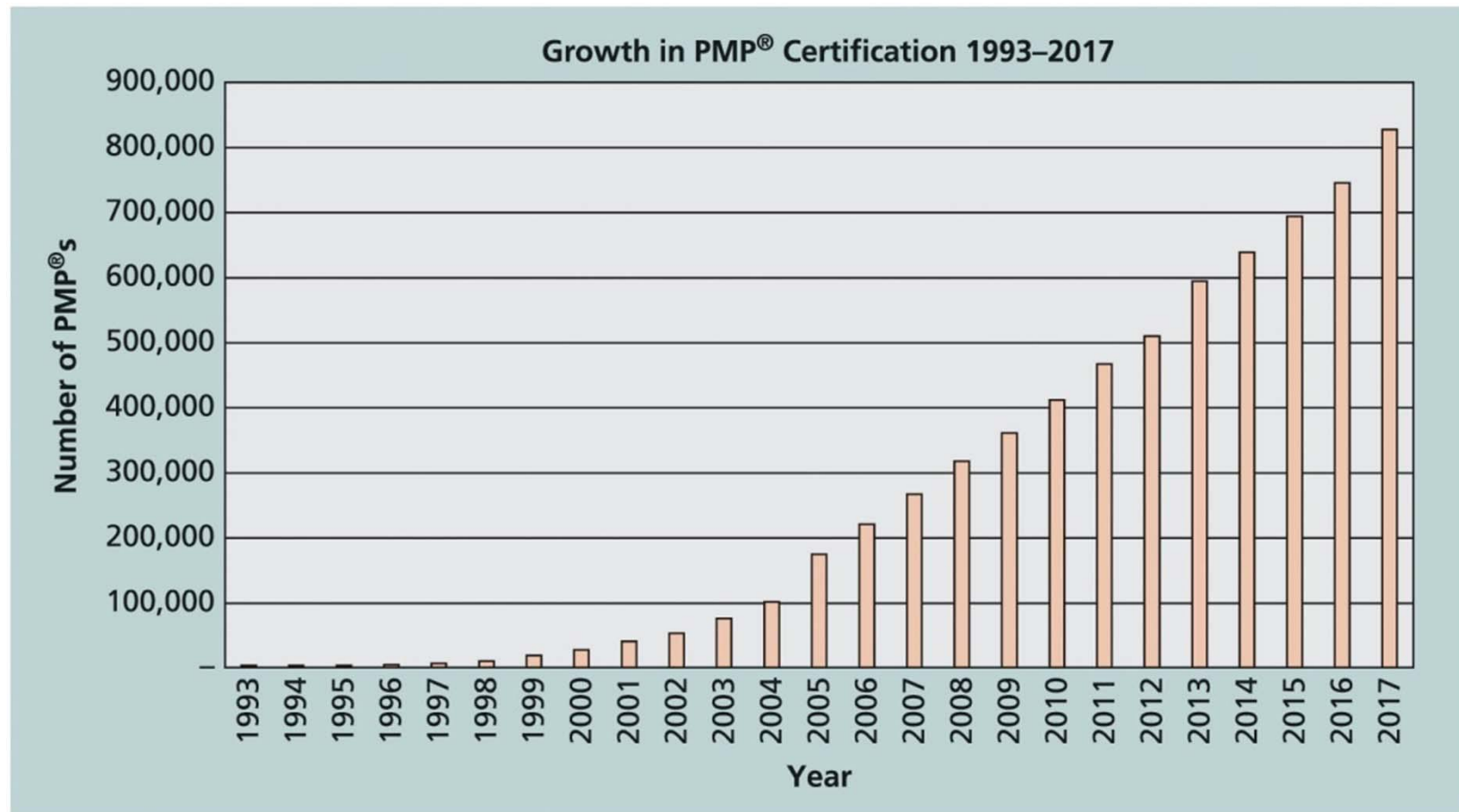
PMI Student Membership

- Students can join PMI at a reduced fee and earn the Certified Associate in Project Management (CAPM) certification(see [PMI](#) for details)

Project Management Certification (1 of 2)

- PMI provides certification as a Project Management Professional (PMP®)
- A PMP® has documented sufficient project experience, agreed to follow a code of ethics, and passed the PMP® exam
- The number of people earning PMP® certification is increasing quickly

Project Management Certification (2 of 2)



Source: Data points from Project Management Institute, PMI Today® (annual issues).

FIGURE 1-7 Growth in PMP® certification, 1993–2017

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Ethics in Project Management

- Ethics, loosely defined, is a set of principles that guide our decision making based on personal values of what is “right” and “wrong”
- Project managers often face ethical dilemmas
- In order to earn PMP® certification, applicants must agree to PMI’s Code of Ethics and Professional Conduct
- Several questions on the PMP® exam are related to professional responsibility, including ethics

Project Management Software*

- There are hundreds of different products to assist in performing project management
- Three main categories of tools:
 - Low-end tools: Handle single or smaller projects well, cost under \$200 per user
 - Midrange tools: Handle multiple projects and users, cost \$200-\$1,000 per user, Microsoft Project is still the most popular
 - High-end tools: Also called enterprise project management software, often licensed on a per-user basis
- Several free or open-source tools are also available

Chapter Summary

- A project is a temporary endeavor undertaken to create a unique product, service, or result
- Project management is the application of knowledge, skills, tools, and techniques to project activities to meet project requirements
- A program is a group of related projects managed in a coordinated way
- Project portfolio management involves organizing and managing projects and programs as a portfolio of investments
- Project managers play a key role in helping projects and organizations succeed
- The project management profession continues to grow and mature