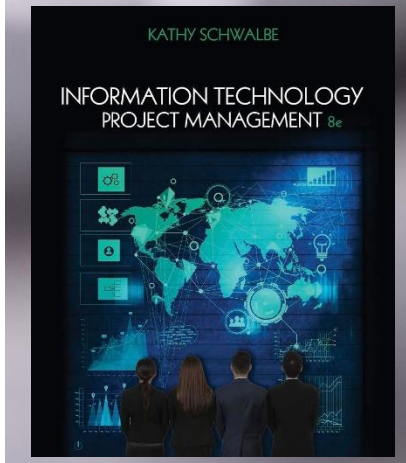
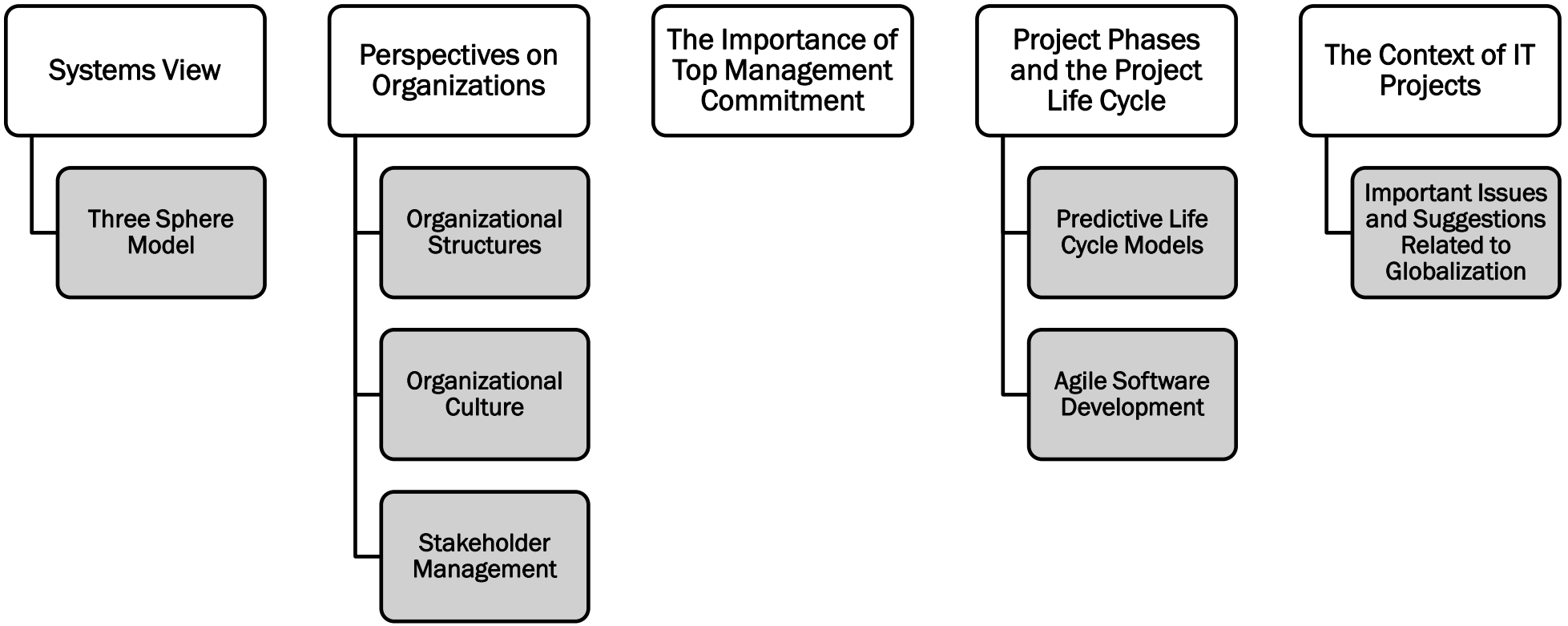
IT PROJECT MANAGEMENT

WEEK 2 : PROJECT MANAGEMENT AND INFORMATION TECHNOLOGY CONTEXT



Note:
Adapted from slide of the textbook: Schwalbe, Kathy. Managing Information Technology Project – Eight Edition. Boston, MA: Thomson Course Technology, 2016.
See the text itself for full citations.

MIND MAP


Systems View
Three Sphere Model
Perspectives on Organizations
Organizational Structures
Organizational Culture
Stakeholder Management
The Importance of Top Management Commitment
Project Phases and the Project Life Cycle
Predictive Life Cycle Models
Agile Software Development
The Context of IT Projects
Important Issues and Suggestions Related to Globalization

LEARNING OBJECTIVES

PART 1

a) Describe the **systems view** of project management and how it applies to information technology (IT) projects

b) Understand **organizations**, including the four frames, organizational structures, and organizational culture

c) Explain why **stakeholder management** and top management commitment are critical for a project's success

PART 2 -> Available in Video Material

a) Understand the concept of a **project phase and the project life cycle**, and distinguish between project development and product development

b) Discuss the unique attributes and diverse nature of **IT projects**

c) Describe recent **trends affecting IT project** management, including globalization, outsourcing, virtual teams, and agile project management

PART 1.A: SYSTEMS VIEW OF PROJECT MANAGEMENT

PROJECTS CANNOT BE RUN IN ISOLATION

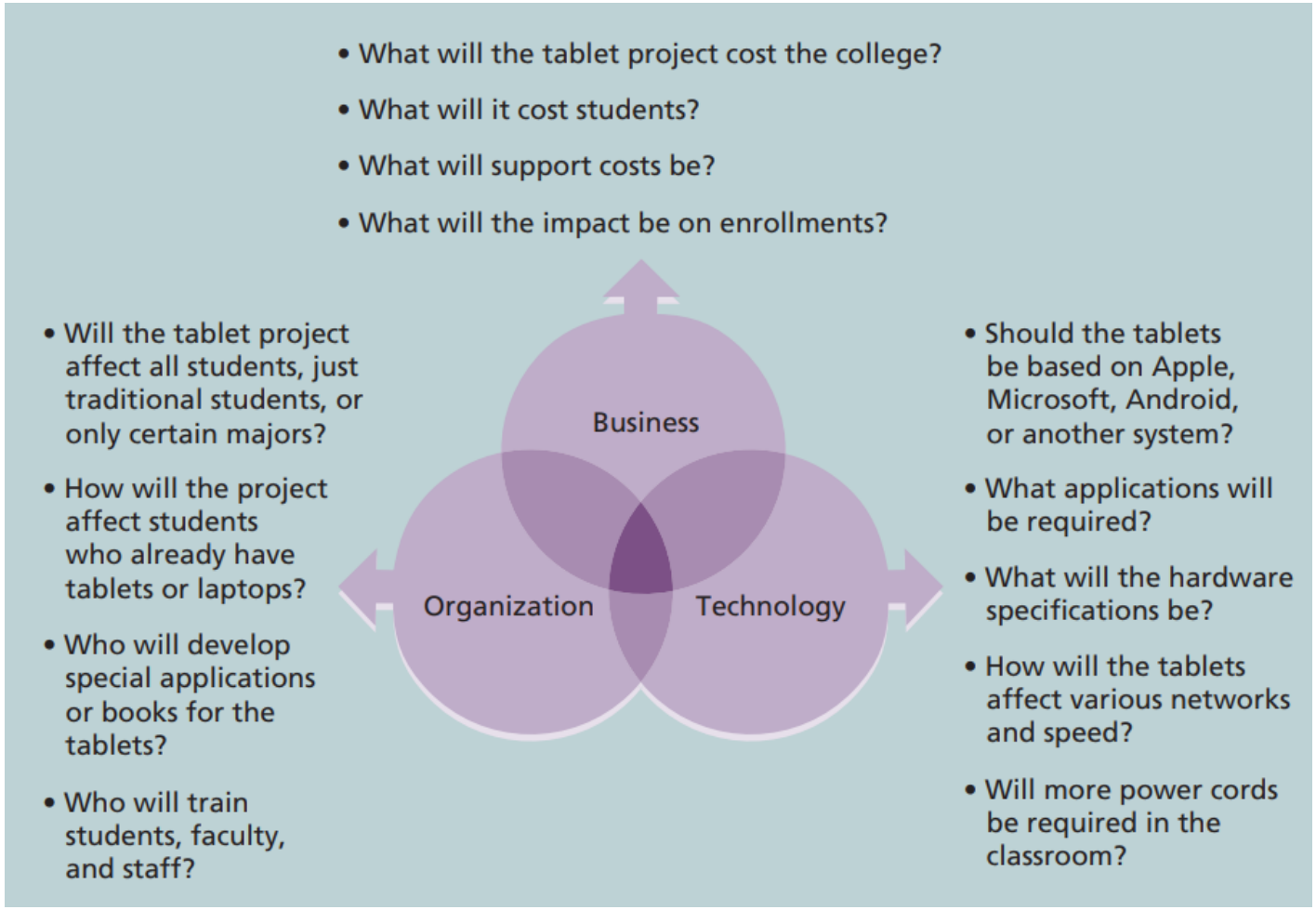
- Projects must operate in a broad organizational environment
- Project managers need to use **systems thinking:**
  - taking a holistic view of carrying out projects within the context of the organization
- Senior managers must make sure projects continue to support current business needs

A SYSTEMS VIEW OF PROJECT MANAGEMENT

- A **systems approach** emerged in the 1950s to describe a more analytical approach to management and problem solving
- Three parts include:
  - **Systems philosophy**: an overall model for thinking about things as systems
  - **Systems analysis**: problem-solving approach that requires defining the scope of the system, dividing it into components, and then identifying and evaluating its problems, opportunities, constraints, and needs
  - **Systems management**: address business, technological, and organizational issues before making changes to systems
- If top management and project managers are to understand how projects relate to the whole organization, they must follow a **systems philosophy**. They must use **systems analysis** to address needs with a problem-solving approach. They must use **systems management** to identify key issues in business, technological, and organizational spheres related to each project in order to identify and satisfy key stakeholders and do what is best for the entire organization

THREE SPHERE MODEL FOR SYSTEMS MANAGEMENT

- Projects must address issues in all three spheres of the systems management model
- Using a more holistic approach helps project managers integrate business and organizational issues into their planning. It also helps them look at projects as a series of interrelated phases



PART 1.B: UNDERSTANDING ORGANIZATIONS

UNDERSTANDING ORGANIZATIONS

- Organizational issues are often the most difficult part of working on and managing projects
- Many people believe that most projects fail because of organizational issues like company politics
- To improve the success rate of IT projects, it is important for project managers to develop a better understanding of people as well as organizations

FOUR FRAMES OF ORGANIZATIONS

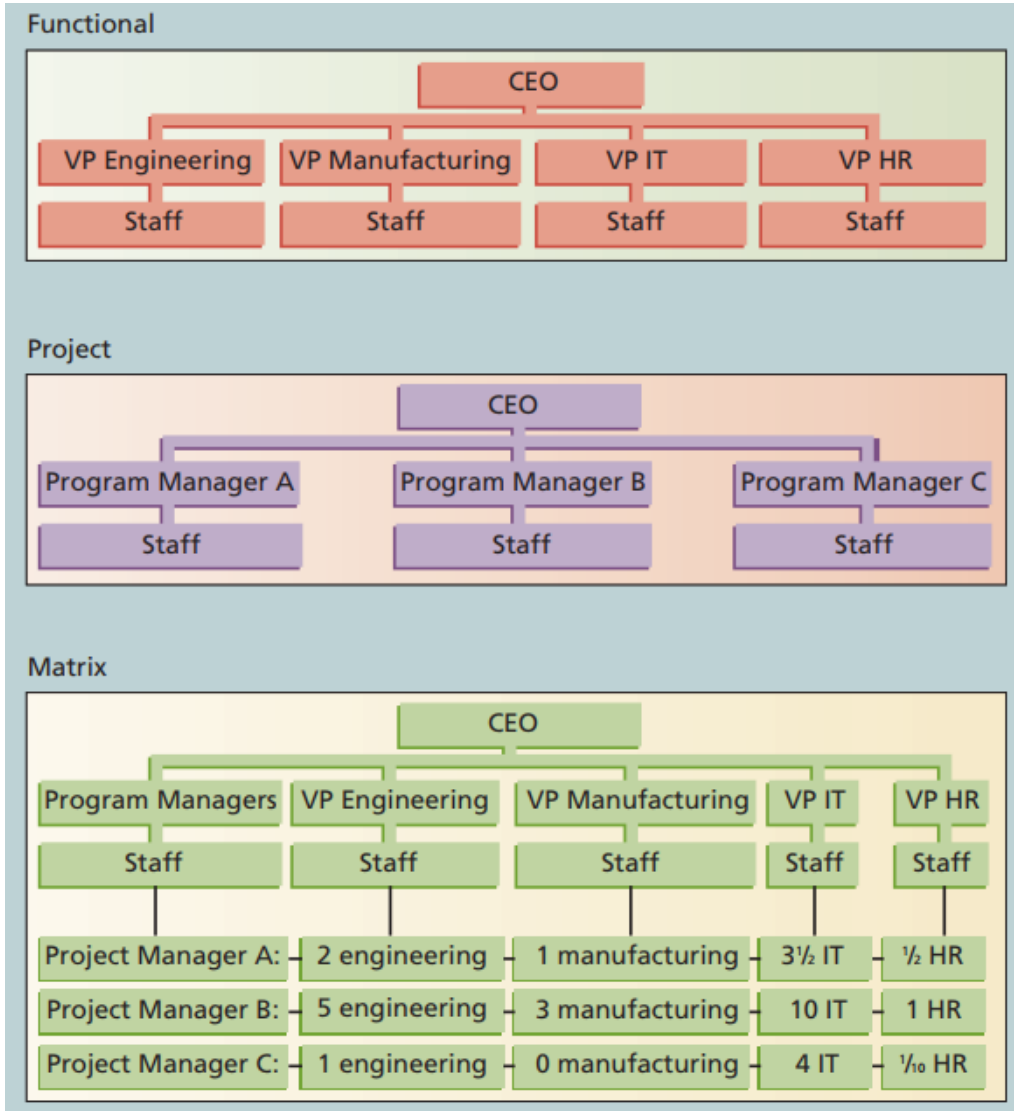
- **Structural frame** deals with how the organization is structured and focuses on different groups' roles and responsibilities to meet the goals and policies set by top management. This frame is very rational and focuses on coordination and control.
- **Human resources (HR) frame,** recognizes that mismatches can occur between the needs of the organization and those of individuals and groups, and works to resolve any potential problems
- The **political frame** addresses organizational and personal politics. It is important to know who opposes your projects as well as who supports them.
- In symbolic frame, the most important aspect of any event in an organization is not what actually happened, but what it means.

Structural frame: Roles and responsibilities, coordination, and control. Organizational charts help describe this frame.	**Human resources frame:** Providing harmony between needs of the organization and needs of people.
Political frame: Coalitions composed of varied individuals and interest groups. Conflict and power are key issues.	**Symbolic frame:** Symbols and meanings related to events. Culture, language, traditions, and image are all parts of this frame.

ORGANIZATIONAL STRUCTURES

- 3 basic organization structures
  - **Functional:** functional managers report to the CEO
  - **Project:** program managers report to the CEO
  - **Matrix:** middle ground between functional and project structures; personnel often report to two or more bosses; structure can be weak, balanced, or strong matrix

FUNCTIONAL, PROJECT, AND MATRIX ORGANIZATIONAL STRUCTURES



ORGANIZATIONAL STRUCTURE INFLUENCES ON PROJECTS

	Project Characteristics					
Organizational Structure Type	Work Groups Arranged by:	Project Manager's Authority	Project Manager's Role	Resource Availability	Who Manages the Project Budget?	Project Management Administrative Staff
Organic or Simple	Flexible; people working side-by-side	Little or none	Part-time; may or may not be a designated job role like coordinator	Little or none	Owner or operator	Little or none
Functional (centralized)	Job being done (e.g., engineering, manufacturing)	Little or none	Part-time; may or may not be a designated job role like coordinator	Little or none	Functional manager	Part-time
Multi-divisional (may replicate functions for each division with little centralization)	One of: product; production processes; portfolio; program; geographic region; customer type	Little or none	Part-time; may or may not be a designated job role like coordinator	Little or none	Functional manager	Part-time
Matrix - strong	By job function, with project manager as a function	Moderate to high	Full-time designated job role	Moderate to high	Project manager	Full-time

	Project Characteristics					
Organizational Structure Type	Work Groups Arranged by:	Project Manager's Authority	Project Manager's Role	Resource Availability	Who Manages the Project Budget?	Project Management Administrative Staff
Matrix - weak	Job function	Low	Part-time; done as part of another job and not a designated job role like coordinator	Low	Functional manager	Part-time
Matrix - balanced	Job function	Low to moderate	Part-time; embedded in the functions as a skill and may not be a designated job role like coordinator	Low to moderate	Mixed	Part-time
Project-oriented (composite, hybrid)	Project	High to almost total	Full-time designated job role	High to almost total	Project manager	Full-time
Virtual	Network structure with nodes at points of contact with other people	Low to moderate	Full-time or part-time	Low to moderate	Mixed	Could be full-time or part-time
Hybrid	Mix of other types	Mixed	Mixed	Mixed	Mixed	Mixed
*PMO**	Mix of other types	High to almost total	Full-time designated job role	High to almost total	Project manager	Full-time

ORGANIZATIONAL CULTURE

- **Organizational culture** is a set of shared assumptions, values, and behaviors that characterize the functioning of an organization
- Many experts believe the underlying causes of many companies' problems are not the structure or staff, but the culture
- Ten Characteristics of Organizational Culture :

1. Risk tolerance*
2. Reward criteria*
3. Conflict tolerance*
4. Means-ends orientation
5. Open-systems focus*
6. Member identity*
7. Group emphasis*
8. People focus
9. Unit integration*
10. Control

*Project work is most successful in an organizational culture where these items are strong/high and other items are balanced.

PART 1.C: FOCUSING ON STAKEHOLDER NEEDS

STAKEHOLDER MANAGEMENT

- Project managers must take time to identify, understand, and manage relationships with all project stakeholders
- Using the four frames of organizations can help meet stakeholder needs and expectations
- Senior executives/top management are very important stakeholders

THE IMPORTANCE OF TOP MANAGEMENT COMMITMENT

- People in top management positions are **key stakeholders** in projects
  - A very important factor in helping project managers successfully lead projects is the level of commitment and support they receive from top management. Without top management commitment, many projects will fail.
- Some projects have a senior manager called a **champion** who acts as a key proponent for a project.
- How top management can help project managers?
  - Providing adequate **resources**
  - Approving unique project **needs** in a timely manner
  - Getting **cooperation** from other parts of the organization
  - **Mentoring** and **coaching** on leadership issues

NEED FOR ORGANIZATIONAL COMMITMENT TO INFORMATION TECHNOLOGY (IT)

- If the organization has a negative attitude toward IT, it will be difficult for an IT project to succeed
- Having a Chief Information Officer (CIO) at a high level in the organization helps IT projects
- Assigning non-IT people to IT projects also encourage more commitment
- CEOs can take a strong leadership role in promoting the use of IT in their organizations and empower employees to use IT effectively

NEED FOR ORGANIZATIONAL STANDARDS

- Standards and guidelines help project managers be more effective
- Senior management can encourage
  - the use of standard forms and software for project management
  - the development and use of guidelines for writing project plans or providing status information
  - the creation of a project management office or center of excellence

PART 2.A: PROJECT AND PRODUCT LIFE CYCLE

PROJECT PHASES AND THE PROJECT LIFE CYCLE

- A **project life cycle** is a collection of project phases that defines
  - what work will be performed in each phase
  - what deliverables will be produced and when
  - who is involved in each phase, and
  - how management will control and approve work produced in each phase
- A **deliverable** is a product or service produced or provided as part of a project
- Four phase in generic life cycle:
  1. Starting the project
  2. Organizing and preparing
  3. Carrying out the work
  4. Finishing the project

What happened in each phases?

- In **early phases** of a project life cycle
  - resource needs are usually lowest
  - the level of uncertainty (risk) is highest
  - project stakeholders have the greatest opportunity to influence the project
- In **middle phases** of a project life cycle
  - the certainty of completing a project improves
  - more resources are needed
- The **final phase** of a project life cycle focuses on
  - ensuring that project requirements were met
  - the sponsor approves completion of the project

PRODUCT LIFE CYCLES

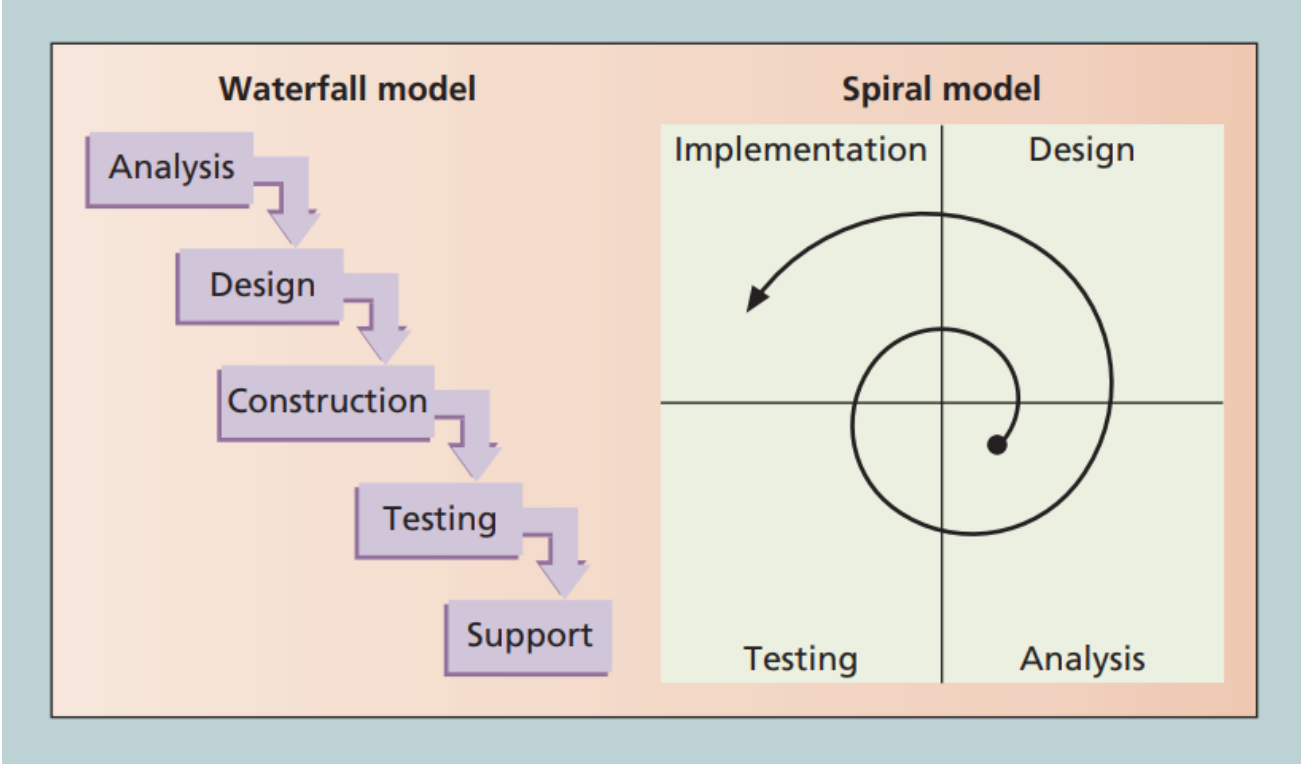
- Products also have life cycles
- The **Systems Development Life Cycle (SDLC)** is a framework for describing the phases involved in developing and maintaining information systems.
- Two factors are important in deciding which life cycle to use: the **degree of change in requirements** and **the frequency of delivery** of useful results

FIVE PRODUCT OR DEVELOPMENT LIFE CYCLES (THE PMBOK® GUIDE – SIXTH EDITION)

- **Predictive life cycle**: The **scope, schedule, and cost** are determined early, and **changes** to scope are carefully managed. PMI also refers to predictive life cycles as waterfall.
- **Iterative life cycle**: The **scope is determined early**, but time and cost estimates are **modified** as the understanding of the product increases. Iterations are used to develop the product through a series of repeated cycles to add to the functionality of the product. This approach works best when there is a high degree of change and a low frequency of delivery.
- **Incremental life cycle**: Deliverables are produced through a series of iterations that add functionality within a set time frame. The deliverable is not complete until after the final iteration. This approach works best when there is a **low degree of change** and a **high frequency of delivery**.
- **Adaptive life cycle**: Stakeholders define and approve the detailed scope **before the start of an iteration**, producing a useable product at the end of each iteration. PMI also refers to adaptive life cycles as **agile** or **change driven**. This approach works best when there is a **high degree of change and a high frequency of delivery**.
- **Hybrid life cycle**: A **combination** of approaches is used based on the nature of the work. For example, some deliverables might have a low degree of change and low frequency of delivery such as weekly progress reports, a high degree of change and a high frequency of delivery such as certain software features, and so on.

PREDICTIVE LIFE CYCLE MODELS

- **Waterfall model:** has well-defined, linear stages of systems development and support
- **Spiral model:** shows that software is developed using an iterative or spiral approach rather than a linear approach
- **Incremental build model:** provides for progressive development of operational software
- **Prototyping model:** used for developing prototypes to clarify user requirements
- **Rapid Application Development (RAD) model:** used to produce systems quickly without sacrificing quality



THE IMPORTANCE OF PROJECT PHASES AND MANAGEMENT REVIEWS

- A project should successfully pass through each of the project phases in order to continue on to the next
- Management reviews, also called **phase exits** or **kill points**, should occur after each phase to evaluate the **project's progress**, **likely success**, and **continued compatibility with organizational goals**

WHAT WHEN RIGHT??

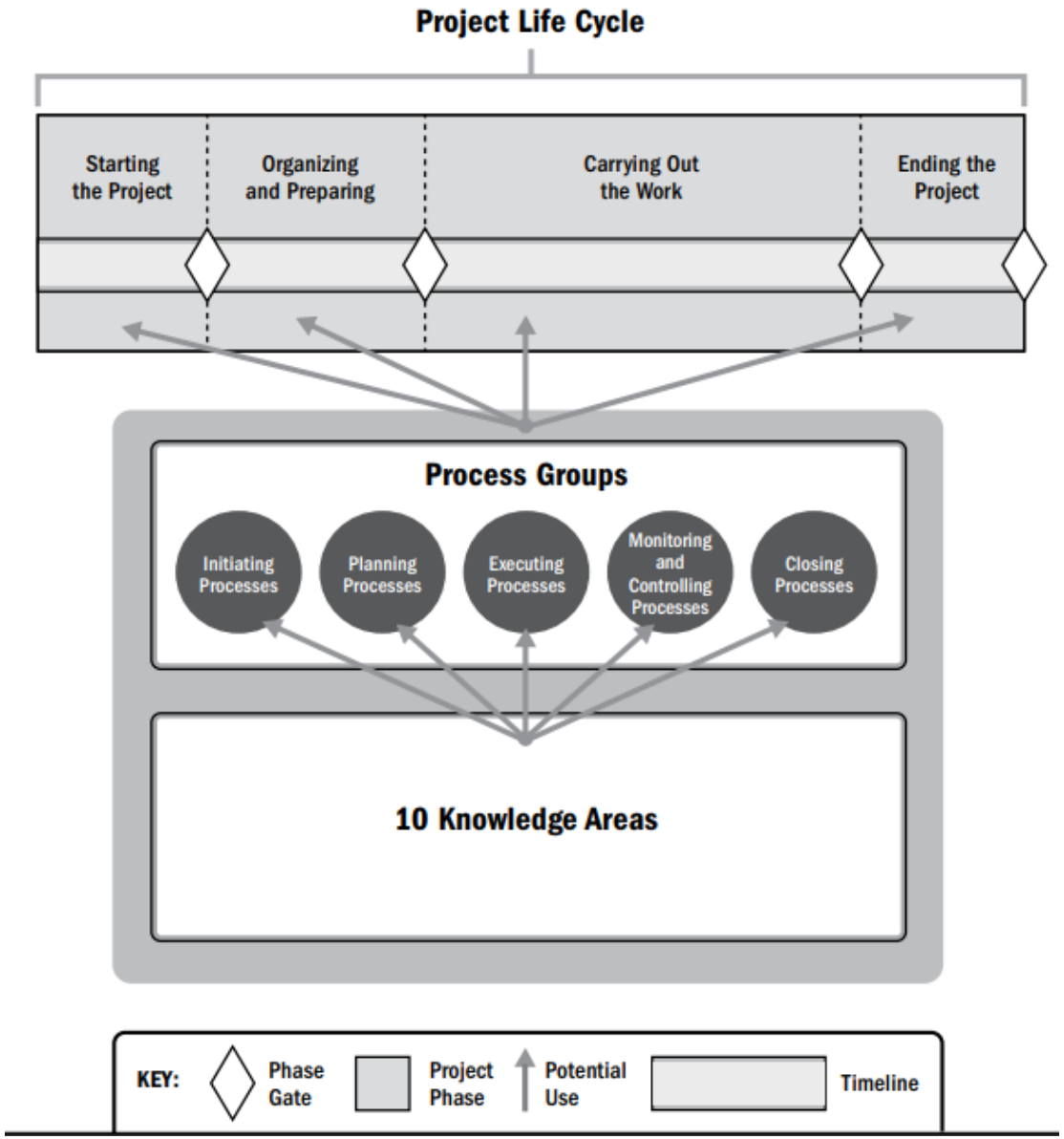
"The real improvement that I saw was in our ability to—in the words of Thomas Edison—know when to stop beating a dead horse....Edison's key to success was that he failed fairly often; but as he said, he could recognize a dead horse before it started to smell...In information technology we ride dead horses—failing projects—a long time before we give up. But what we are seeing now is that we are able to get off them; able to reduce cost overrun and time overrun. That's where the major impact came on the success rate."*

Many organizations, like Huntington Bancshares, Inc., use an **executive steering committee** to help keep projects on track.

Some projects still go on a long time before being killed, like Blizzard's Titan game project.

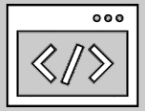
*Cabanis, Jeannette, "'A Major Impact': The Standish Group's Jim Johnson On Project Management and IT Project Success," PM Network, PMI, Sep.1998, p. 7

INTERRELATIONSHIP OF *PMBOK® GUIDE* KEY COMPONENTS IN PROJECTS



PART 2.B: THE CONTEXT OF INFORMATION TECHNOLOGY PROJECTS

THE NATURE OF IT PROJECTS



IT projects can be very diverse in terms of size, complexity, products produced, application area, and resource requirements

IT project team members often have diverse backgrounds and skill sets

IT projects use diverse technologies that change rapidly. Even within one technology area, people must be highly specialized

PART 2.C: RECENT TRENDS AFFECTING INFORMATION TECHNOLOGY PROJECT MANAGEMENT

RECENT TRENDS AFFECTING IT PROJECT MANAGEMENT

- Globalization
- Outsourcing: **Outsourcing** is when an organization acquires goods and/or sources from an outside source. **Offshoring** is sometimes used to describe outsourcing from another country
- Virtual teams: A **virtual te**am is a group of individuals who work across time and space using communication technologies
- Agile project management

GLOBALIZATION

- Issues
  - Communications
  - Trust
  - Common work practices
  - Tools
- Suggestions
  - Employ greater project discipline
  - Think global but act local
  - Consider collaboration over standardization
  - Keep project momentum going
  - Use newer tools and technology

OUTSOURCING

- Organizations remain competitive by using outsourcing to their advantage, such as finding ways to **reduce costs**
- Their next challenge is to make strategic IT investments with outsourcing by improving their enterprise architecture to ensure that IT infrastructure and business processes are **integrated** and **standardized** (See Suggested Readings)
- Project managers should become more familiar with **negotiating contracts** and other outsourcing issues
- Outsourcing also has **disadvantages**.
  - For example, Apple benefits from manufacturing products in China, but it had big problems there after its iPhone 4S launch in January 2012 caused fighting between migrant workers who were hired by scalpers to stand in line to buy the phones. When Apple said it would not open its store in Beijing, riots resulted and people attacked security guards. The Beijing Apple Store has had problems before. In May 2011, four people were injured when a crowd waiting to buy the iPad 2 turned ugly.

VIRTUAL TEAMS

Advantages

- Increasing **competiveness** and **responsiveness** by having a team of workers available 24/7
- **Lowering costs** because many virtual workers do not require office space or support beyond their home offices.
- Providing more **expertise** and **flexibility** by having team members from across the globe working any time of day or night
- Increasing the **work/life balance** for team members by eliminating fixed office hours and the need to travel to work.

Disadvantages

- **Isolating** team members
- Increasing the potential for **communications problems**
- **Reducing** the ability for team members to **network** and transfer information informally
- Increasing the **dependence** on **technology** to accomplish work

Factors that help virtual teams succeed, including team processes, trust/relationships, leadership style, team member selection, task-technology fit, cultural differences, computer-mediated communication, team life cycle, incentives, conflict management.

AGILE PROJECT MANAGEMENT

- Agile means being able to **move quickly and easily**, but some people feel that project management, as they have seen it used, does not allow people to work quickly or easily.
- Early software development projects often used a waterfall approach. As technology and businesses became more complex, the approach was often difficult to use because **requirements were unknown or continuously changing**.
- Agile today means using a method based on iterative and incremental development, in which requirements and solutions evolve through collaboration.

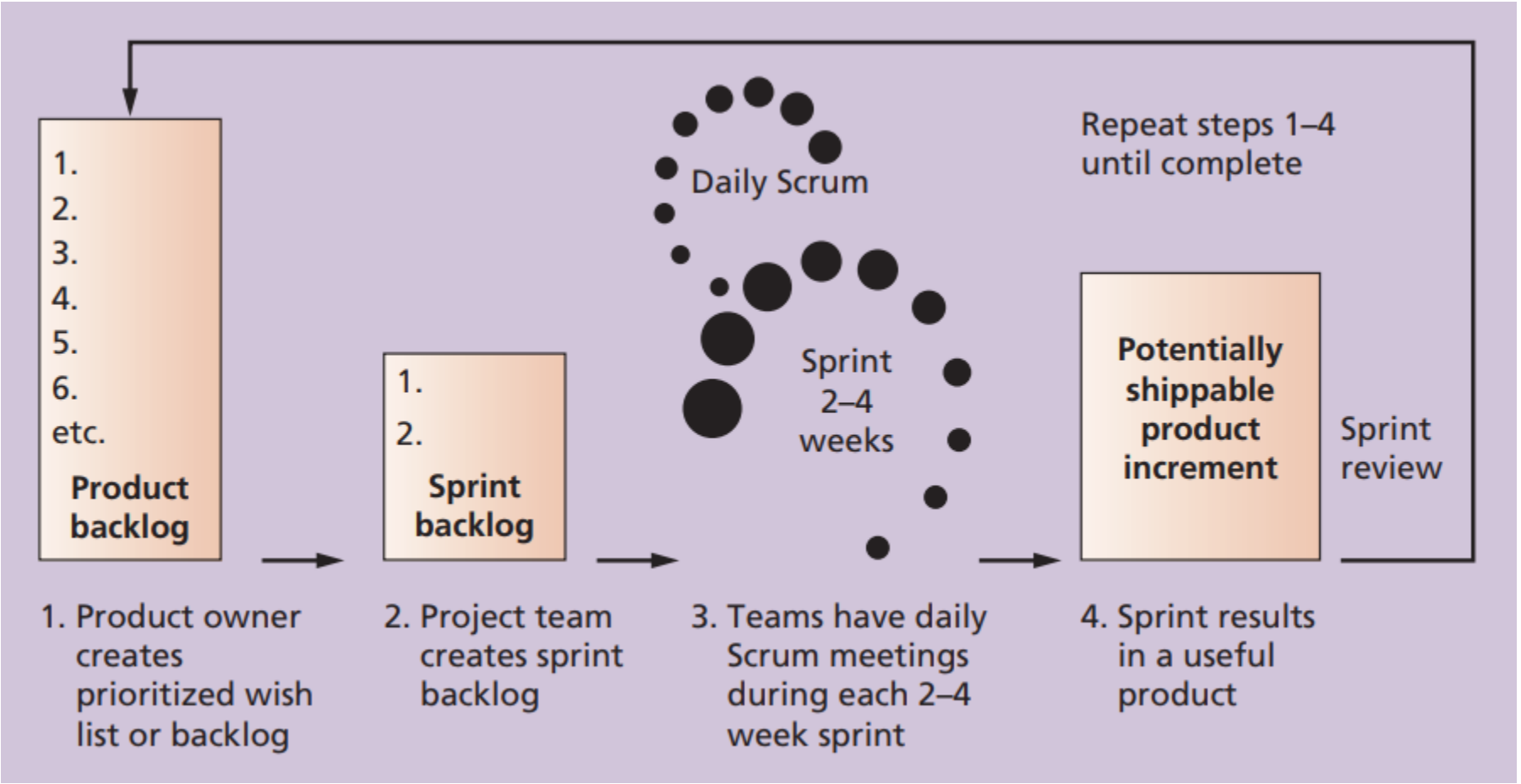
MANIFESTO FOR AGILE SOFTWARE DEVELOPMENT

- In February 2001, a group of 17 people that called itself the Agile Alliance developed and agreed on the Manifesto for Agile Software Development, as follows:
- “We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:
  - Individuals and interactions over processes and tools
  - Working software over comprehensive documentation
  - Customer collaboration over contract negotiation
  - Responding to change over following a plan”*

*Agile Manifesto, www.agilemanifesto.org.

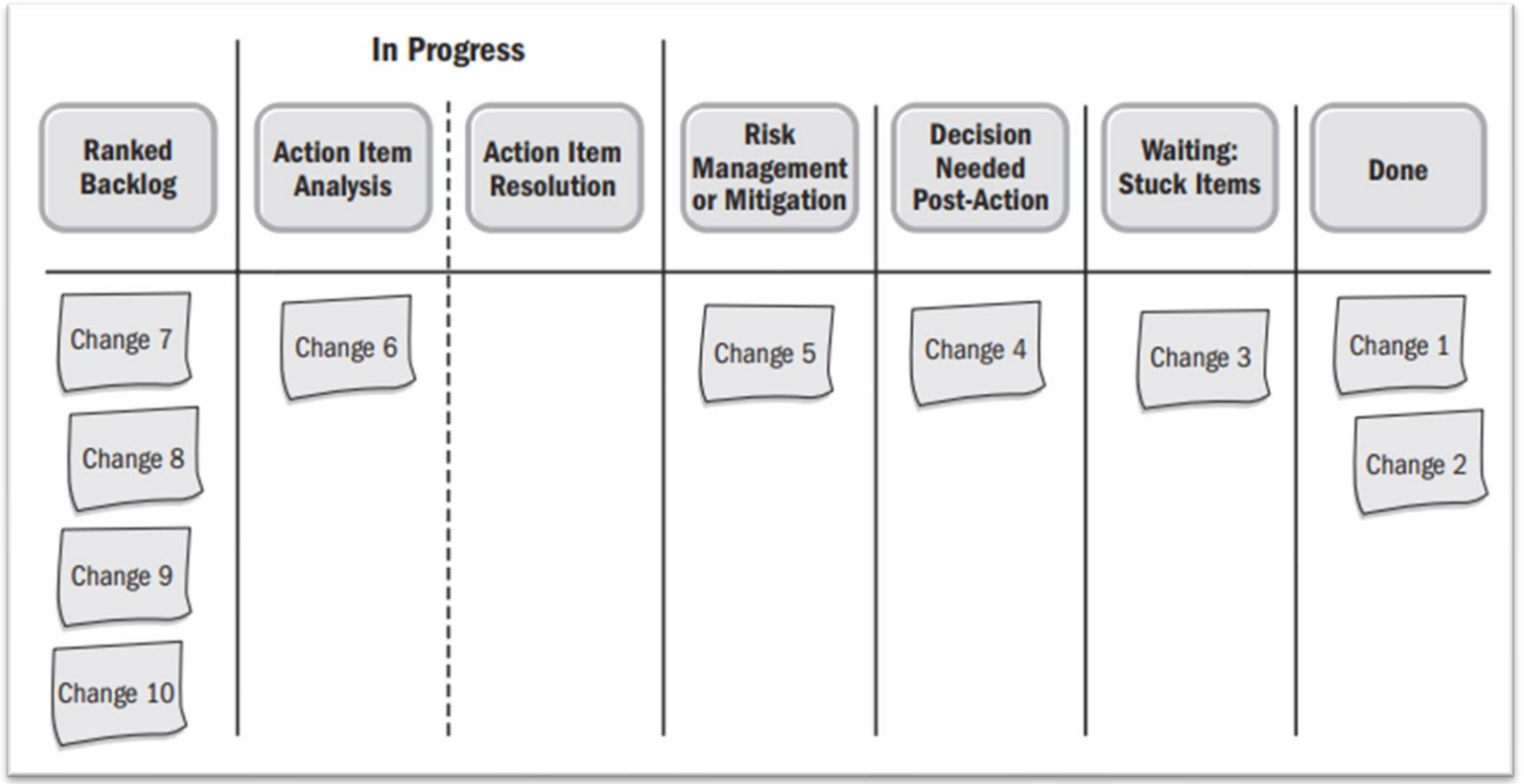
SCRUM

- According to the Scrum Alliance, Scrum is the leading agile development method for completing projects with a complex, innovative scope of work.
- The term was coined in 1986 in a Harvard Business Review study that compared high-performing, cross-functional teams to the scrum formation used by rugby teams.



KANBAN IN SCRUM

- Technique that can be used in **conjunction with scrum**
- Developed in Japan by Toyota Motor Corporation
- Uses visual cues to guide workflow
- Kanban cards show new work, work in progress, and work completed



Using Backlogs and Kanban Boards to Organize and Track Change Work
Source: PMBOK 6th edition

AGILE, THE PMBOK® GUIDE, AND A NEW CERTIFICATION

- The PMBOK® Guide describes best practices for *what* should be done to manage projects.
- Agile is a methodology that describes *how* to manage projects.
- The Project Management Institute (PMI) recognized the increased interest in Agile, and introduced a new certification in 2011 called Agile Certified Practitioner (ACP).
- Seasoned project managers understand that they have always had the option of customizing how they run projects, but that project management is not easy, even when using Agile.

TASK 1

- Work as a team of two-three students, to answer these question with your own language.
  - 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?
  - In Virtual Team, how can the managers and team members decrease the disadvantages of working in virtual team? You can tell your experiences handling the teamwork issues while studying from home.
- You can write your answers in power point presentation (as attachment) or write your answer directly in Forum Diskusi Week-2 before the scheduled zoom meeting

CHAPTER SUMMARY

- Project managers need to take a systems approach when working on projects
- Organizations have four different frames: structural, human resources, political, and symbolic
- The structure and culture of an organization have strong implications for project managers
- Projects should successfully pass through each phase of the project life cycle
- Project managers need to consider several factors due to the unique context of information technology projects
- Recent trends affecting IT project management include globalization, outsourcing, virtual teams, and Agile