Chapter 2: The Project Management and Information Technology Context

Information Technology Project Management, Eighth Edition

Note: See the text itself for full citations.

Learning Objectives

- 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

Learning Objectives

- 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

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
  - **Systems management**: address business, technological, and organizational issues before making changes to systems

Figure 2-1. Three Sphere Model for Systems Management

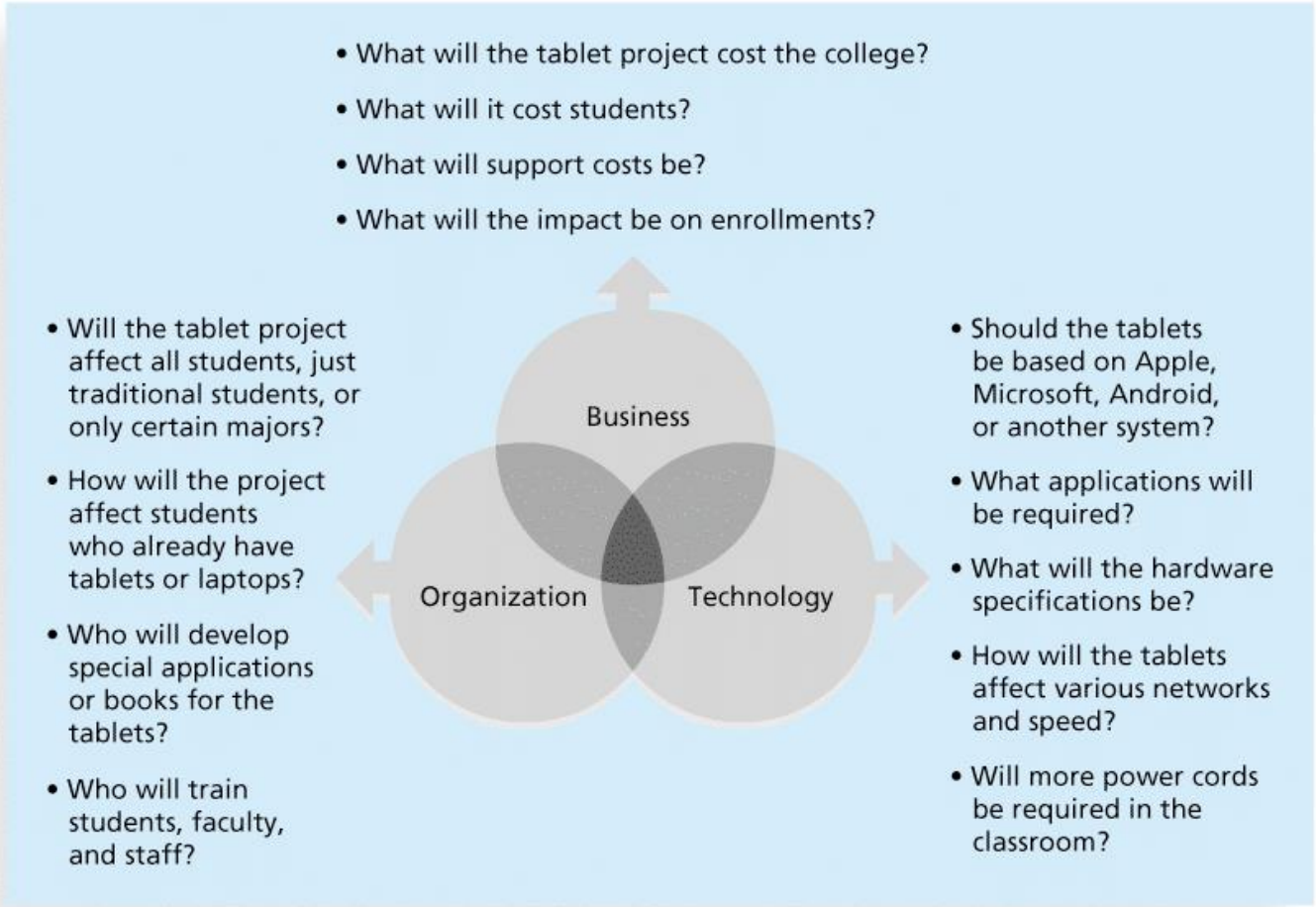


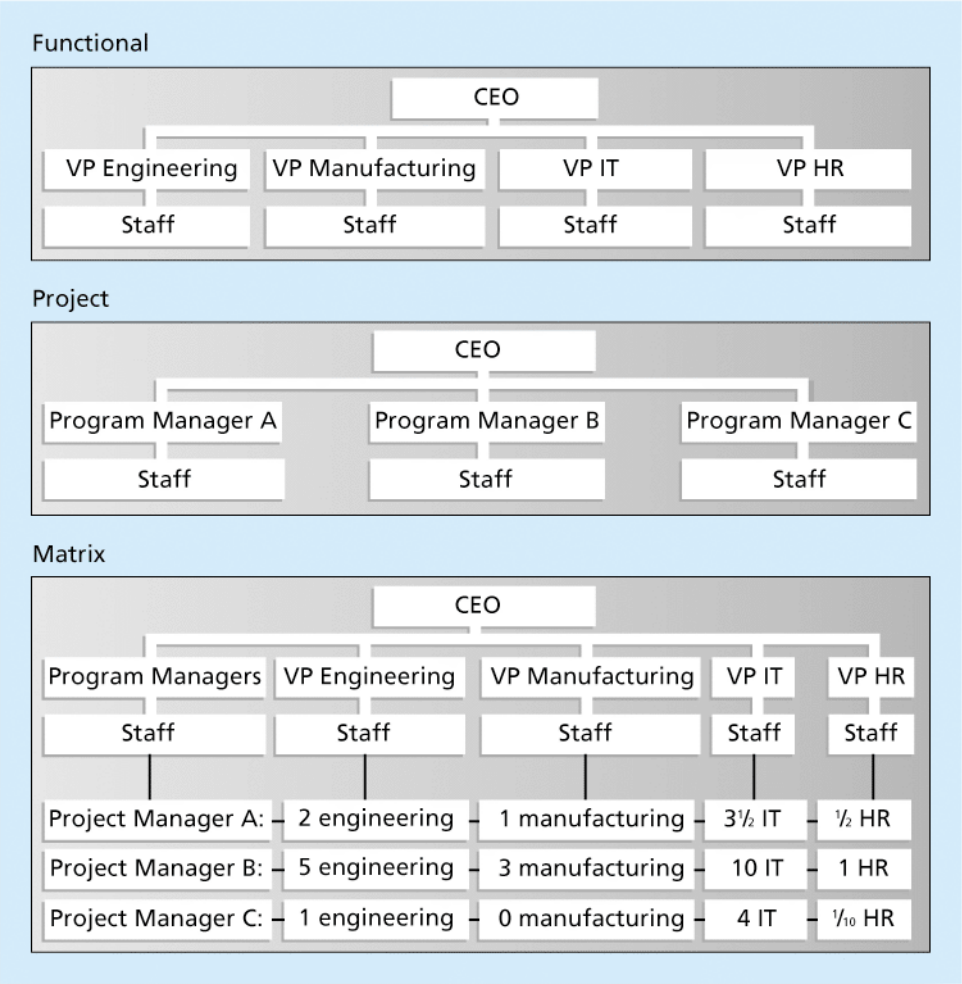
Figure 2-2. Perspectives on Organizations

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

Figure 2-3. Functional, Project, and Matrix Organizational Structures



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

- Member identity*
- Group emphasis*
- People focus
- Unit integration*
- Control
- Risk tolerance*
- Reward criteria*
- Conflict tolerance*
- Means-ends orientation
- Open-systems focus*

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

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
- See Chapter 13, Project Stakeholder Management, for more information

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

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

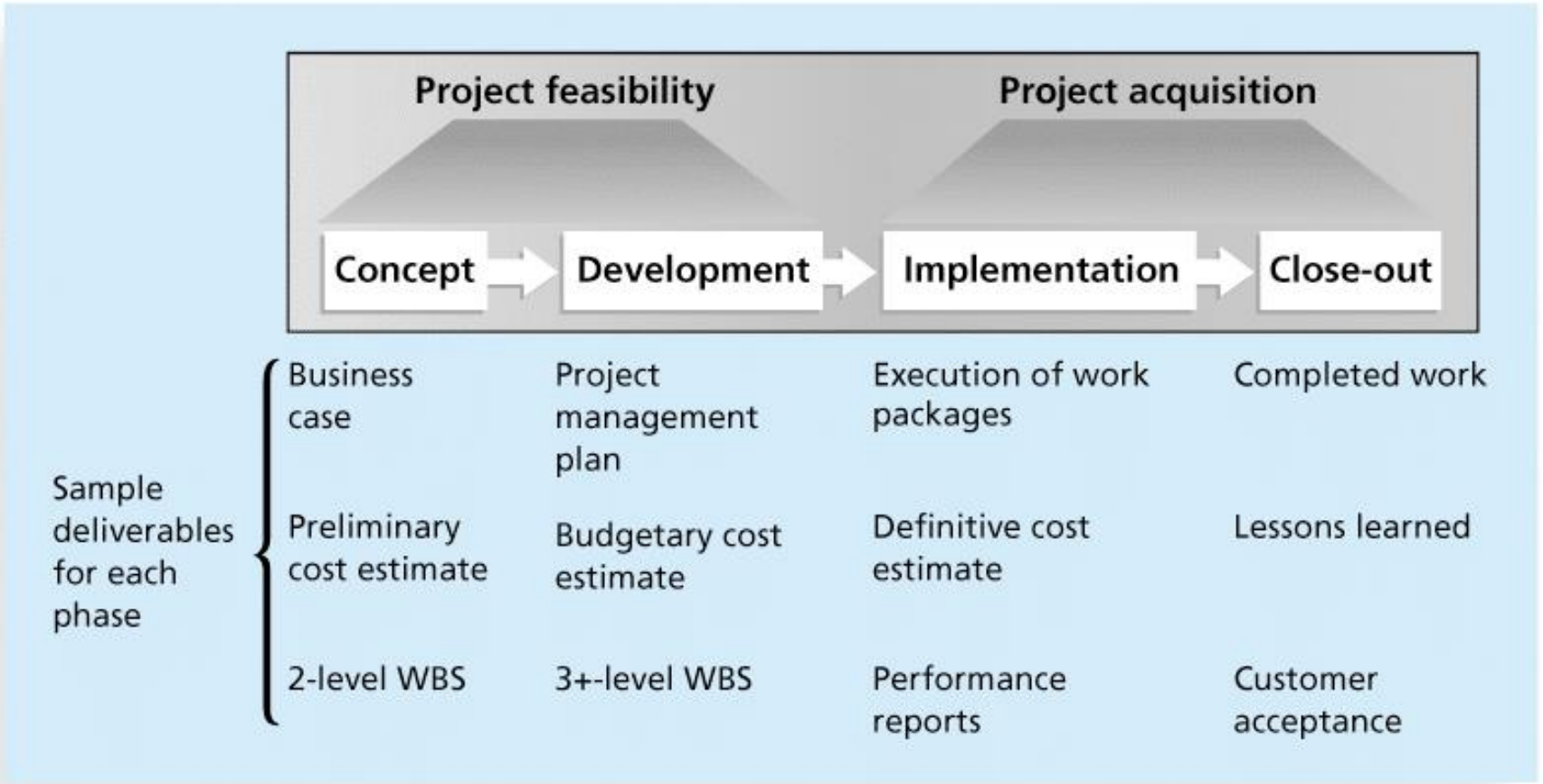
Project Phases and the Project Life Cycle

- 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

More on Project 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

Figure 2-4. Phases of the Traditional Project Life Cycle



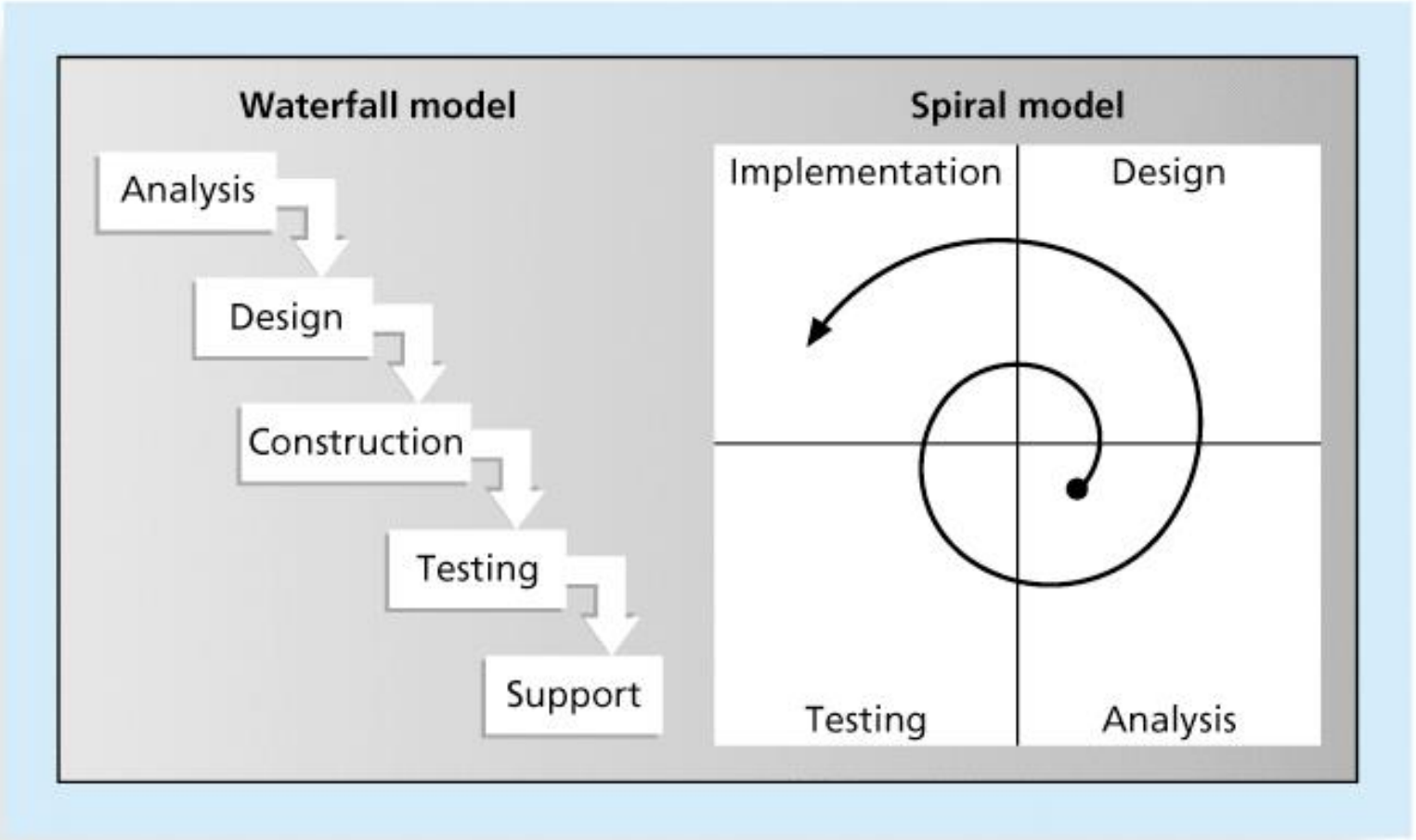
Product Life Cycles

- 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
- Systems development projects can follow
  - **Predictive life cycle**: the scope of the project can be clearly articulated and the schedule and cost can be predicted
  - **Adaptive Software Development (ASD) life cycle**: requirements cannot be clearly expressed, projects are mission driven and component based, using time-based cycles to meet target dates

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

Figure 2-5. Waterfall and Spiral Life Cycle Models



Agile Software Development

- Agile software development has become popular to describe new approaches that focus on close collaboration between programming teams and business experts
- See the last section of this chapter and Chapter 3 for more information on agile

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

The Context 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

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 team** is a group of individuals who work across time and space using communication technologies
- Agile project management

Important Issues and Suggestions Related to Globalization

- Issues
  - Communications
  - Trust
  - Common work practices
  - Tools
- Suggestions
  - Employ greater project discipline
  - Think global but act local
  - 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

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.

Virtual Team 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
- See text for a list of factors that help virtual teams succeed, including team processes, trust/relationships, leadership style, and team member selection

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 defined earlier in this chapter. 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.
- See the Resources tab from www.pmtexts.com for more info

Agile Makes Sense for Some Projects, But Not All

- Many seasoned experts in project management warn people not to fall for the hype associated with Agile.
- For example, J. Leroy Ward, Executive Vice President at ESI International, said that "Agile will be seen for what it is … and isn't….Project management organizations embracing Agile software and product development approaches will continue to grow while being faced with the challenge of demonstrating ROI through Agile adoption."*

*J. Leroy Ward, "The Top Ten Project Management Trends for 2011," projecttimes.com (January 24, 2011).

Manifesto for Agile Software Development

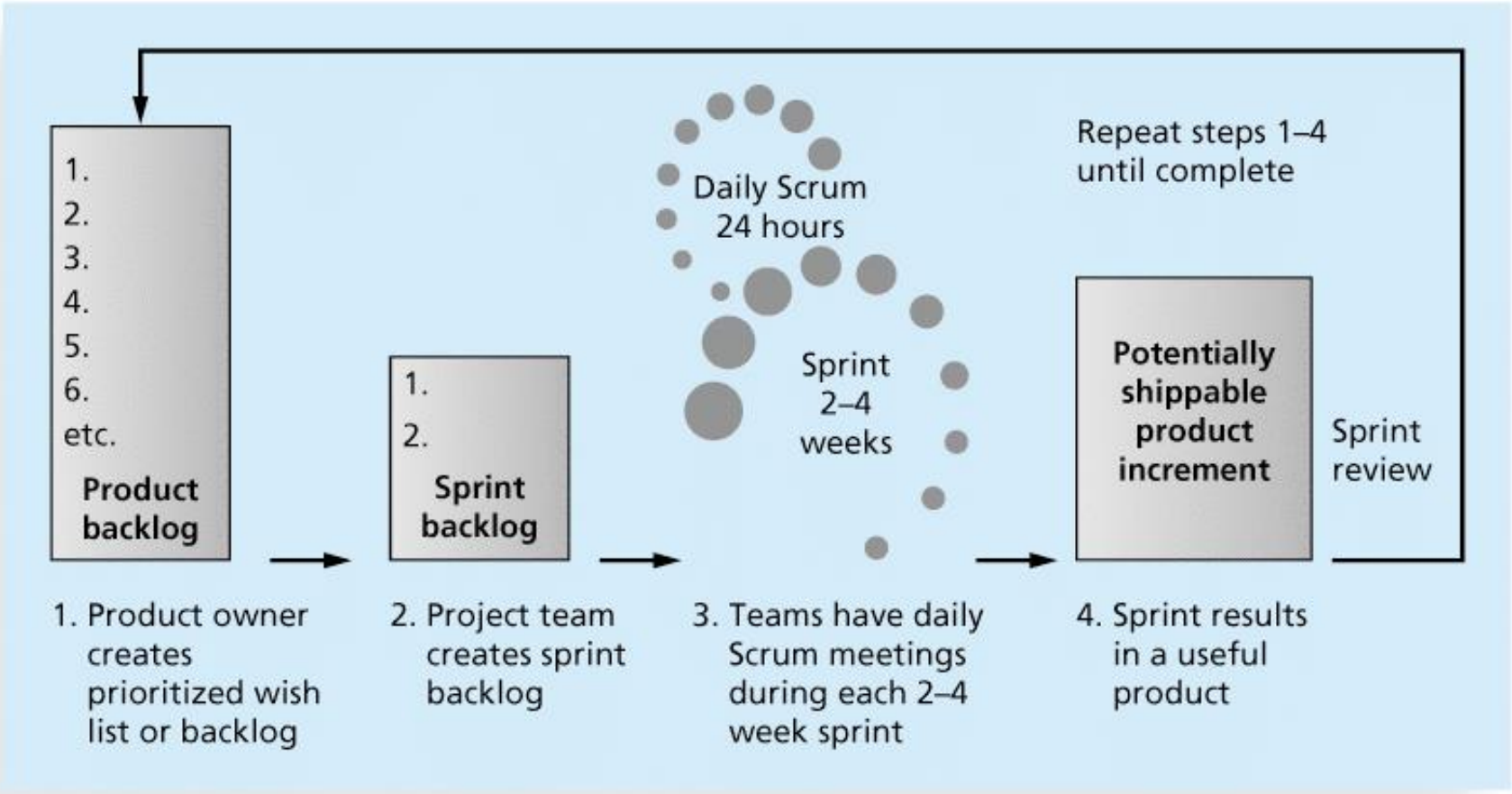
- In February 2001, a group of 17 people that called itself the Agile Alliance developed and agreed on the Manifesto for Agile Software Development, as follows:
- "We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:
- Individuals 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.

Figure 2-6. Scrum Framework



Kanban

- 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

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.

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