Tishk International University
Faculty of Applied Science
Department of Information Technology

Information Technology Project Management
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Chapter 2:
The Project Management and Information Technology Context

Learning Objectives

- Describe the systems view of project management and how it applies to information technology 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 (continued)

- Understand the concept of a project phase and the project life cycle
- Discuss the unique attributes and diverse nature of information technology projects
- Describe recent trends affecting IT project management, including globalization, outsourcing, and virtual teams

Projects Cannot Be Run in Isolation

- Projects must operate in a broad organizational environment
- Project managers need to use **systems thinking** that means 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 holistic and analytical approach to solving complex problems that includes using a systems philosophy, systems analysis, and systems management
- Systems are sets of interacting components working within an environment to fulfill some purpose.
- For example, the human body is a system composed of many subsystems the nervous system, the skeletal system, the circulatory system, the digestive system, and so on.

A Systems View of Project Management (Cont)

- A **systems approach** emerged in the 1950s to describe a holistic and analytical approach to solving complex problems that includes using a systems philosophy, systems analysis, and systems management
- Systems approach include three parts :
  - **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

The simple idea of addressing the three spheres of systems management business, organization, and technology can have a huge impact on selecting and managing projects successfully.

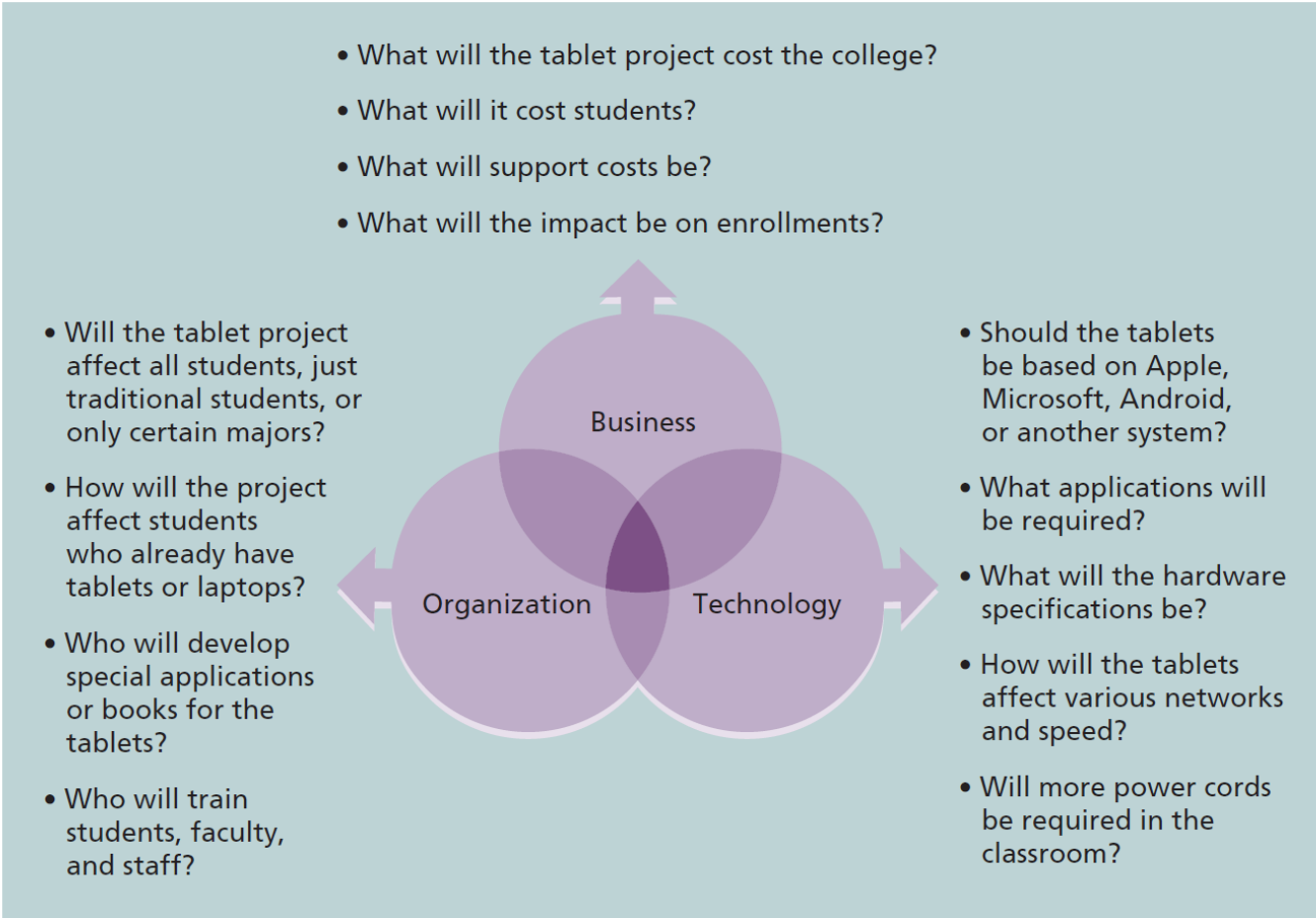


FIGURE 2-1 Three-Sphere model for systems management

The Four Frames of Organizations Model

Organizations can be viewed as having four different frames:

1) Structural
2) Human resources
3) Political
4) Symbolic

The Four Frames of Organizations Model

(Review Questions- Q1 & Q2)

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.

Source: Bolman and Deal.

Organizational Structures
(Review Questions-Q3)

- Three general classifications of organizational structures are functional, project, and matrix.

1) By using the **Functional organization structure,** the functional managers or vice presidents report to the CEO
2) By using the **Project organization structure,** the program managers report to the CEO
3) **Matrix organization structure** is the middle ground between functional and project structures; personnel often report to two or more bosses; structure can be weak, balanced, or strong matrix

Organizational Structures

- Three general classifications of organizational structures are functional, project, and matrix.

1) **Functional organization structure**

For example, most colleges and universities have very strong functional organizations. Only faculty members in the business department teach business courses.

Organizational Structures

- Three general classifications of organizational structures are functional, project, and matrix.

2) **Project organization structure**

Their staffs have a variety of skills needed to complete the projects within their programs. An organization that uses this structure earns its revenue primarily from performing projects for other groups under contract. For example, many engineering and consulting companies use a project organizational structure. These companies often hire people specifically to work on particular projects.

Organizational Structures

- Three general classifications of organizational structures are functional, project, and matrix.

3) **Matrix organization structure** is the middle ground between functional and project structures; personnel often report to two or more bosses; structure can be weak, balanced, or strong matrix.

(Review Questions-Q4)

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

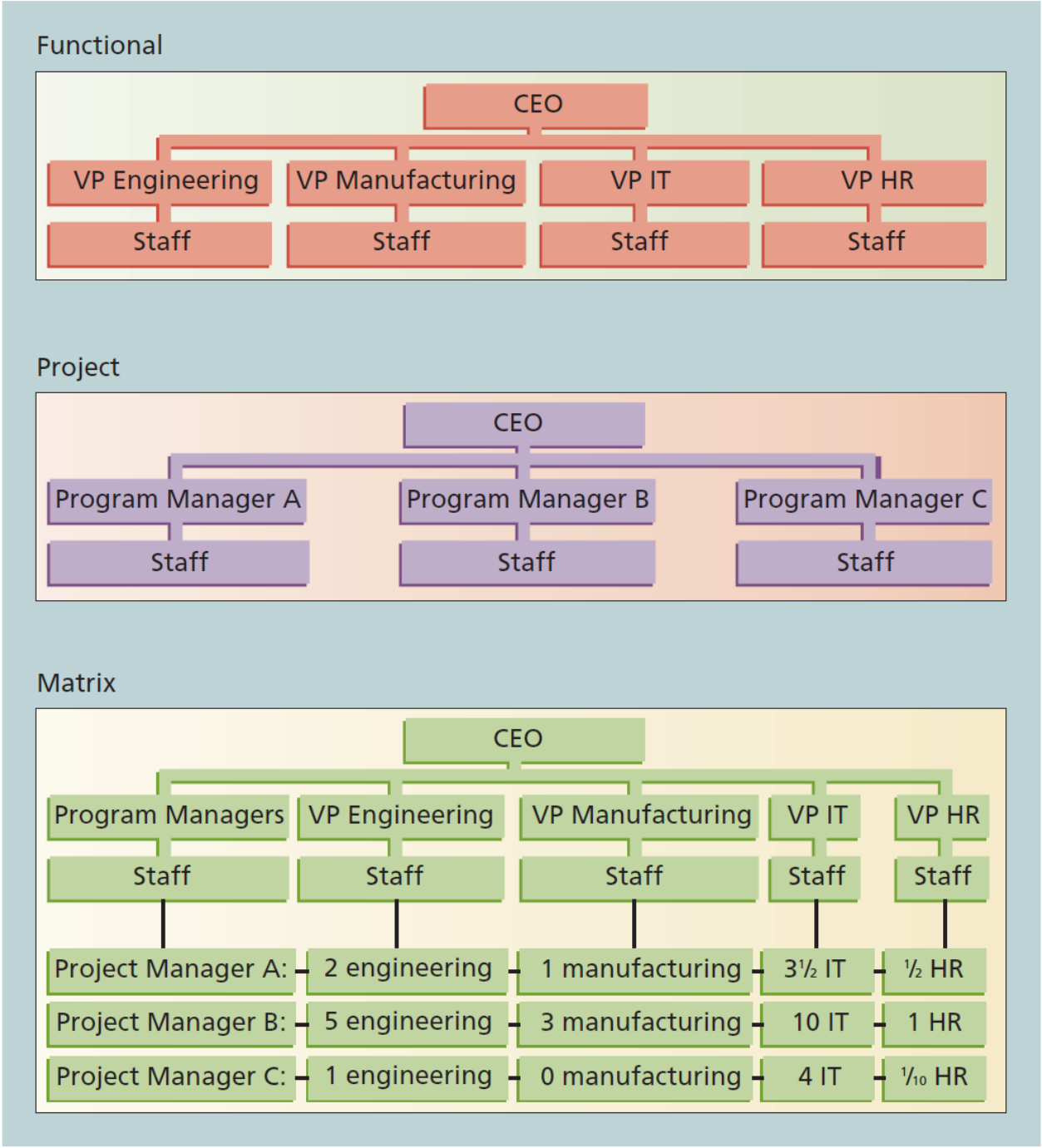


FIGURE 2-3 Functional, project, and matrix organizational structures

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

Characteristics of Organizational Culture

- Member identity*
- Group emphasis*
- Risk tolerance*
- Reward criteria*
- Conflict tolerance*

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

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 (Review Questions-Q5)

1. Providing adequate resources
2. Approving unique project needs in a timely manner
3. Getting cooperation from other parts of the organization
4. 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 encourages 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
  - Senior management can encourage the development and use of guidelines for writing project plans or providing status information
  - Senior management can encourage the creation of a project management office or center of excellence

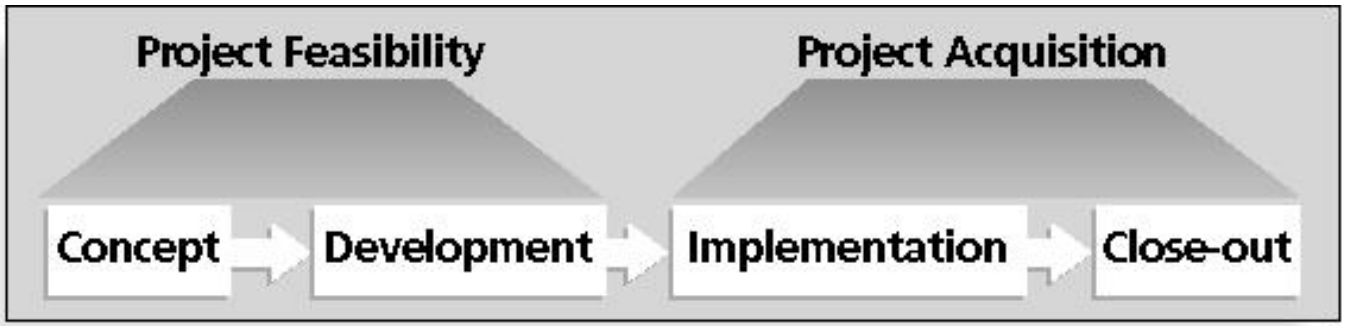
Project Phases and the Project Life Cycle

- 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
  - 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 2-3. Phases of the Traditional Project Life Cycle (Review Questions-Q6)



Sample deliverables for each phase	Business case	Project management plan	Last work package	Completed work
	Preliminary cost estimate	Budgetary cost estimate	Definitive cost estimate	Lessons learned
	2-level WBS	3+-level WBS	Performance reports	Customer acceptance

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 (Review Questions- Q7 & Q8)

- Globalization: lower trade and political barriers and the digital revolution have made it possible to interact almost instantaneously with billions of other people across the planet
- 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

Outsourcing

- Organizations remain competitive by using outsourcing to their advantage, such as finding ways to reduce costs
- Project managers should become more familiar with negotiating contracts and other outsourcing issues

Virtual Teams Advantages

(Review Questions- Q9)

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

Virtual Team Disadvantages

(Review Questions- Q10)

1) Isolating team members
2) Increasing the potential for communications problems
3) Reducing the ability for team members to network and transfer information informally
4) Increasing the dependence on technology to accomplish work

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, and virtual teams

Review Questions

- Q1: List the four frames of organizations, then explain one of these four frames.
- Q2: Compare the structural frame and the human resources frame of organizations.
- Q3: There are three general classifications of organizational structures. Briefly explain the differences among functional, matrix, and project structures.
- Q4: Draw a figure that describes the differences among functional, matrix, and project structures.

Review Questions

- Q5: Briefly explain how the top management can help the project managers.
- Q6: Draw a figures that shows the phases of the traditional project life cycle.
- Q7: List the three recent trends affecting IT project management and then explain one of them in detail.
- Q8:Define globalization, outsourcing, and virtual teams.
- Q9: List three advantages of virtual teams.
- Q10: List three disadvantages of virtual teams.

Key Terms

- Champion— A senior manager who acts as a key proponent for a project
- Deliverable — A product or service, such as a technical report, a training session, a piece of hardware, or a segment of software code, produced or provided as part of a project
- Functional organizational structure — An organizational structure that groups people by functional areas such as information technology, manufacturing, engineering, and human resources

Key Terms

- **Human resources frame** — Focuses on producing harmony between the needs of the organization and the needs of people
- **Kill point** — Management review that should occur after each project phase to determine if projects should be continued, redirected, or terminated; also called a phase exit
- **Matrix organizational structure** — An organizational structure in which employees are assigned to both functional and project managers

Key Terms

- **Offshoring**— Outsourcing from another country
- **Organizational culture** — A set of shared assumptions, values, and behaviors that characterize the functioning of an organization
- **Outsourcing** — When an organization acquires goods and/or sources from an outside source
- **Phase exit**— Management review that should occur after each project phase to determine if projects should be continued, redirected, or terminated; also called a kill point

Key Terms

- **Project life cycle** — A collection of project phases, such as concept, development, implementation, and close-out
- **Structural frame** — Deals with how the organization is structured (usually depicted in an organizational chart) and focuses on different groups roles and responsibilities to meet the goals and policies set by top management
- **Symbolic frame** — Focuses on the symbols, meanings, and culture of an organization

Key Terms

- **Systems** — Sets of interacting components working within an environment to fulfill some purpose
- **Systems analysis** — A problem-solving approach that requires defining the scope of the system to be studied, and then dividing it into its component parts for identifying and evaluating its problems, opportunities, constraints, and needs
- **Systems approach** — A holistic and analytical approach to solving complex problems that includes using a systems philosophy, systems analysis, and systems management

Key Terms

- **Systems management** — Addressing the business, technological, and organizational issues associated with creating, maintaining, and making changes to a system
- **Systems philosophy** — An overall model for thinking about things as systems
- **Virtual team** — A group of individuals who work across time and space using communication technologies