Chapter 2:
The Project Management and Information Technology Context

Information Technology Project Management, Fourth Edition

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

- 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 information technology projects.

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 a project and understanding how it relates to the larger organization.
- Senior managers must make sure projects continue to support current business needs.

A Systems View of Project Management

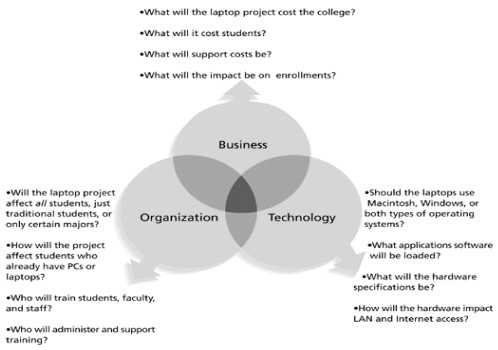
- The term **systems approach** emerged in the 1950s to describe a holistic and analytical approach to solving complex problems.
- Three parts include:
  - **Systems philosophy**: View things as systems, which are interacting components that work within an environment to fulfill some purpose.
  - **Systems analysis**: Problem-solving approach.
  - **Systems management**: Address business, technological, and organizational issues before making changes to systems.

Media Snapshot

- The Press Association Ltd., the largest news agency in the United Kingdom, hired a consulting firm to help turn things around after management noticed that its profit margins were sliding.
- The consultants suggested using a holistic view and a top-down strategy to make sure projects supported key business goals.
- They also suggested releasing short-term results to accrue benefits on an incremental basis and reviewing projects on a regular basis to ensure strategic alignment.*

*Jackson, Lynne, "Forge Ahead," *PM Network* (April 2004), p.48.

Figure 2-1. Three Sphere Model for Systems Management



Understanding Organizations

Structural frame: Focuses on roles and responsibilities, coordination, and control. Organization charts help define this frame.	**Human resources frame:** Focuses on providing harmony between needs of the organization and needs of people.
Political frame: Assumes organizations are coalitions composed of varied individuals and interest groups. Conflict and power are key issues.	**Symbolic frame:** Focuses on symbols and meanings related to events. Culture is important.

What Went Wrong?

Many enterprise resource planning (ERP) projects fail due to organizational issues, not technical issues. For example, Sobey's Canadian grocery store chain abandoned its two-year, $90 million ERP system due to organizational problems.

As Dalhousie University Associate Professor Sunny Marche states, "The problem of building an integrated system that can accommodate different people is a very serious challenge. You can't divorce technology from the sociocultural issues. They have an equal role." Sobey's ERP system shut down for five days and employees were scrambling to stock potentially empty shelves in several stores for weeks. The system failure cost Sobey's more than $90 million and caused shareholders to take an 82-cent after-tax hit per share.*

*Hoare, Eva. "Software Hardships," *The Herald*, Halifax, Nova Scotia (2001).

Many Organizations Focus on the Structural Frame

- Most people understand what organizational charts are.
- Many new managers try to change organizational structure when other changes are needed.
- Three basic organizational 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 a weak, balanced, or strong matrix.

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

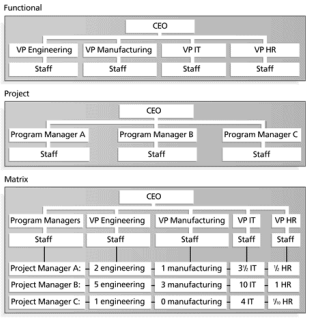


Table 2-1. Organizational Structure Influences on Projects

Project Characteristics	Organizational Structure Type				
	Functional	Matrix			Project
		Weak Matrix	*Balanced Matrix*	*Strong Matrix*	
Project manager's authority	Little or none	Limited	Low to Moderate	Moderate to high	High to almost total
Percent of performing organization's personnel assigned full-time to project work	Virtually none	0-25%	15-60%	50-95%	85-100%
Who controls the project budget	Functional manager	Functional manager	Mixed	Project manager	Project manager
Project manager's role	Part-time	Part-time	Full-time	Full-time	Full-time
Common title for project manager's role	Project Coordinator/ Project Leader	Project Coordinator/ Project Leader	Project Manager/ Project Officer	Project Manager/ Program Manager	Project Manager/ Program Manager
Project management administrative staff	Part-time	Part-time	Part-time	Full-time	Full-time

PMBOK® Guide, 2000, 19, and *PMBOK® Guide 2004*, 28.

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 characteristics are highly prevalent and where the other characteristics 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 you meet stakeholder needs and expectations.
- Senior executives and top management are very important stakeholders.

Importance of Top Management Commitment

- Several studies cite top management commitment as one of the key factors associated with project success.
- Top management can help project managers:
  - Secure adequate resources.
  - Get approval for unique project needs in a timely manner.
  - Receive cooperation from people throughout the organization.
  - Learn how to be better leaders.

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.
  - 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.

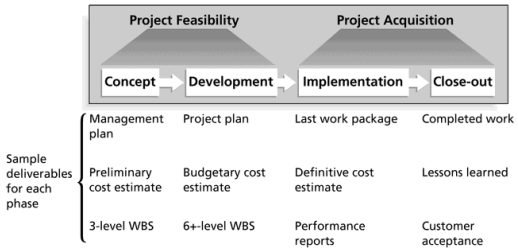
Project Phases and the Project Life Cycle

- 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.
  - 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 the 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 the middle phases of a project life cycle:
  - The certainty of completing a project increases.
  - More resources are needed.
- In the final phase of a project life cycle:
  - The focus is on ensuring that project requirements were met.
  - The sponsor approves completion of the project.

Figure 2-3. Phases of the Traditional Project Life Cycle



Product Life Cycles

- Products also have life cycles.
- A **systems development life cycle (SDLC)** is a framework for describing the phases involved in developing 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**: Projects are mission driven and component based, and use 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.

Adaptive Life Cycle Models

- **Extreme programming (XP)**: Developers program in pairs and must write the tests for their own code. XP teams include developers, managers, and users.
- **Scrum**: Iterative development in which repetitions are referred to as sprints, which normally last thirty days. Teams often meet each day for a short meeting, called a scrum, to decide what to accomplish that day. Works best for object-oriented technology projects and require strong leadership to coordinate the work.

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 Went 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.

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

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.

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.