Chapter 2
The Project Management and Information Technology Context

Dr. Feng-Jen Yang
Topics

- 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
Topics cont.

- 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
- Describe *recent trends* affecting IT project management, including globalization, outsourcing, and virtual teams
Projects Cannot Be Run in Isolation

- Understanding theories and concepts of project management is *not difficult*
- What *is difficult* is implementing them in various environments
  - Every project has its unique *environment*
Projects Cannot Be Run in Isolation cont.

- Projects must operate in a *broad* organizational *environment*
- Project managers need to use *systems thinking*
  - A *holistic view* of carrying out projects within the *context* of the organization
  - To *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
Using a systems approach

- Is *critical* to successful project management

Top management and project managers *must*

- Follow a *systems philosophy* to understand *how* projects relate to the whole organization
- Use *systems analysis* to address *needs* with a *problem-solving* approach
- Use *systems management* to *identify* key business, technological and organizational *issues* related to each project
Three Sphere of Systems Management

- Many students can understand the systems philosophy and perform a systems analysis
  - But often gloss over the topic of systems management
- IT professionals tend to be captivated with the technology and day-to-day problem solving
  - But frustrated with many of the people problems or politics involved in most organization
Three Sphere of Systems Management cont.

- The three *sphere* of systems management
  - Business
    - The *cost* and the *support* of cost
    - The impact on *market*
  - Organization
    - The *affect* on users
    - The administration and *support* of training
  - Technology
    - The software and hardware
    - The *impact* on other systems
Understanding Organizations

- Organizational issues are often the *most difficult parts* for working on and managing projects
  - Most projects fail *because of* company politics
  - Project managers often do *not* spend *enough time* on
    - Identifying *stakeholders* involved in projects
    - Considering the *political context* of a project or the *culture* of an organization
The Four Frames of 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
The Four Frames of Organizations cont.

- Political frame
  - Organizations are *coalitions* composed of varied individuals and interest groups
    - Competition for *scarce resources*
  - *Conflict* and *power* are key issues

- Symbolic frame
  - Focuses on *symbols and meanings* related to events
    - What is most important is *not what actually happened, but what it means*
  - *Culture* is important
Organizational Structures

- Three general classifications
  - *Functional* structure
    - The *hierarchy* that most people think of while *picturing* an organizational chart
    - Functional managers or vice presidents in specialties *report to* the CEO
  - *Project* structure
    - Also a *hierarchical* structure
    - Program managers *report to* the CEO
      - Staffs have *a variety of skills* needed to complete the project
Matrix structure

- Middle ground *between* functional *and* project structures
- Personnel often *report to* two or more bosses
  - IT personnel often *split* their time between two or more projects
  - Project manager have *staffs from various function areas* working on their projects
- The structure can be a weak, balanced, or strong matrix
  - Based on the *amount of control* exerted by the project managers
Organizational Structures cont.
Organizational Structure Influence on Projects

- In a *pure project* organizational *structure*
  - Project managers have the *most authority*
  - Often *inefficient* for the company *as a whole*
    - Assign staff full-time to a project often creates *underutilization* and/or *misallocation* of staff resources
    - Example
      - A technical writer is assigned full-time to a project, but there is *nothing to write* on a particular day
Organizational Structure Influence on Projects cont.

- **In a pure functional organizational structure**
  - Project managers have the *least* amount of *authority*
    - To *lead* a project that requires strong *support* from several functional areas
    - Ask for top manager to *ensure* that they *cooperate* on the project and *qualified people are available* to work as needed
    - Also ask for *a separate budget* to pay for project-related activities
Organizational Culture

- A set of shared assumptions, values, and behaviors that characterize the functioning of an organization
- Could be a very powerful influence on projects
  - The underlying causes of many companies’ problems
    - Not the structure or staff, but the culture
- Some organization may have different subcultures
  - IT department may have a different subculture than the finance department
Ten Characteristics of Organizational Culture

- **Member identity**
  - The *degree* to which employees *identify* the organization as a whole *rather than* their type of job or profession
  - A culture where employee identify *more* with the whole organization are *more* conducive to a good project culture
Ten Characteristics of Organizational Culture cont.

- Group emphasis
  - The *degree* to which work activities are *organized around* groups or teams *rather than* individuals
  - A culture that emphasis group work is *best* for managing projects
Ten Characteristics of Organizational Culture cont.

- People focus
  - The *degree* to which management’s decisions take into account the *effect* of outcomes *on people* within the organization
  - Good project managers often *balance* the needs of individual and the organization
Ten Characteristics of Organizational Culture cont.

- Unit integration
  - The *degree* to which units or departments are *encouraged* to *coordinate* with each other
  - A culture with strong unit integration *make* project managers’ *job easier*
Ten Characteristics of Organizational Culture cont.

Control

- The degree to which rules, policies, and direct supervision are used to oversee and control employee behavior
- It is often best to balance the degree of control to get good project results
Ten Characteristics of Organizational Culture cont.

Risk tolerance

- The *degree* to which employees are *encouraged* to be aggressive, and risk seeking
- A culture with a *higher* risk tolerance is often *best* for project management
  - Project often involve *new* technology, idea, concept and process
Ten Characteristics of Organizational Culture cont.

- Reward criteria
  - The *degree* to which rewards are *allocated* according to employee’s performance *rather than* seniority, favoritism, or other nonperformance factors
  - Project managers and their teams often *perform best* when rewards are based mostly on performance
Ten Characteristics of Organizational Culture cont.

Conflict tolerance

- The *degree* to which employees are *encouraged* to *air* their conflicts and criticism *openly*
- It is best for stakeholders to work in an organization where people feel *comfortable discussing* conflicts *openly*
Ten Characteristics of Organizational Culture cont.

- Means-ends orientation
  - The *degree* to which management focus on outcomes *rather than* techniques and processes used to achieve results
  - An organization with *balanced* approach in this area is often best for project work
Ten Characteristics of Organizational Culture cont.

- Open-systems focus
  - The *degree* to which the organization *monitors* and *response* to changes in the *external* environment
  - It is *best* to have a *strong* open-systems focus
Stakeholder Management

- The purpose of project management
  - To meet the project requirements and satisfy stakeholders
    - 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 and 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
  - The level of commitment and support they receive from top management

- Some projects have a senior manager
  - Called a champion
  - Act as a key proponent for a project
The Importance of Top Management Commitment cont.

- Top management commitment is **crucial** for the following **reasons**
  - Project managers need **adequate resources**
  - Project managers often **require approval** for unique project need in a **timely** manner
  - Project managers must **have cooperation** from people in other parts of the organization
  - Project managers often **need** someone to **mentor and coach** them on leadership issues
The Need for Organizational Commitment

- If the organization does not value IT
  - Will be difficult for a large IT project to succeed
- Companies realized that IT is integral to their businesses
  - Create a VP or CIO at a high level in the organization to help IT projects
  - Assign non-IT people to IT projects to encourage more commitment
The 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* to assist project managers in achieving project goals and maintain project governance
A project *life cycle* is a collection of project *phases* that defines

- What *work* will be performed in each phase
- What and when *deliverables* will be produced
- 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
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
Project Life Cycles

- Projects 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
Predictive Life Cycle Models cont.

- 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* each project phase 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**
  - 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**
  - An organization acquires goods and/or sources from an outside source.
  - Offshoring is used to describe outsourcing from another country.
Virtual teams

- A group of individuals who *work across time and space* using *communication* technologies
Important Issues Related to Globalization

- Communications
  - People working in different time zones, speaking different languages, having different cultures backgrounds
  - A communication management plan is vital

- Trust
  - By recognizing and respecting others’ differences and the value they add to the project
Important Issues Related to Globalization
cont.

- Common work practices
  - Align work processes to come up with an *agreed-upon modus operandi* that everyone is *comfortable* with
Important Issues Related to Globalization cont.

- **Tools**
  - Play a *vital* role in globalization
    - *Xplanner* is for project planning and project monitoring
    - *TRAC* is an enhance issue-tracking system for software development projects
    - *CruiseControl* is a framework for continuous build process
    - *WebEx* is a web-based conferencing tool
    - *Skype* allows phone calls over internet
Important Suggestions Related to Globalization

- Employ greater project disciplines for global projects
  - The weakness within the traditional project disciplines may be amplified by the geographical differences

- Think global but act local to align and integrate stakeholders at all project level

- Keep project momentum going for projects which typically have a long duration

- Use newer tools and technology
Outsourcing

- Organizations remain competitive by using outsourcing
  - To their advantage, such as reducing 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
Outsourcing cont.

- 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
Virtual Teams Advantages cont.

- *Increasing the work/life balance* for team members *by* eliminating fixed office hours and the need to travel to work
Virtual Teams Disadvantages cont.

- *Isolating* team members who *may not* adjust well to working in a virtual environment
- *Increasing* the *potential* for communications problems since team members cannot use body language
- *Reducing* the *ability* for team members to *network* and *transfer* information informally
- *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.