CSE 495: IT Project Management and Entrepreneurship

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What Is Organizational Context?

- **Organizational context** is the **environment within which a project operates**, including the organization's **structure, culture, governance, and strategy**, all of which influence how a project is managed and how successful it can be.
  - Know the environment before managing the project
  - Strongly impacts **project authority, communication, and success**

Why Organizational Context Matters ?

- Organizational context shapes project success
- PM must adapt management style to the environment
- Understanding structure & culture is critical for real projects
  - Affects **resource availability**
  - Influences **decision-making**
  - Impacts **conflict resolution**

Organizational Structures

- Organizations are structured in different ways:
  - Functional
  - Matrix
  - Project-Oriented
- **Functional Organization**
  - Work grouped by departments (IT, HR, Finance)
  - Project manager has **little or no authority**
  - Functional manager **controls** resources
  - Team members report to functional manager
  - Projects are difficult to prioritize

Functional Organization

Advantages	Disadvantages
Easier management of specialists	People place more emphasis on their functional specialty to the detriment of the project
Team members report to only one supervisor	Limited career path in project management
Similar resources are centralized, as the company is grouped by specialties	The project manager has little or no authority
Clearly defined career paths in areas of work specialization	

Project-Oriented Organization

- Projects are the main focus
- Project manager has **high authority**
- Team members are dedicated
- Faster decision-making
- When project ends, team is released

Advantages	Disadvantages
Efficient project organization	No "home" for team members when project is completed
Team loyalty to the project	Lack of specialization in disciplines
More efficient communications than functional	Duplication of facilities and job functions
Project manager has more power to make decisions	May result in less efficient use of resources

Matrix Organization

- Combination of **Functional** and **Project-Oriented** structures
- Team members report to **two managers**: Functional Manager and Project Manager
- **Why Organizations Use Matrix Structure**
  - Efficient use of limited resources
  - Better focus on projects
  - Improved communication across departments
  - Allows multiple projects to run simultaneously

Advantages	Disadvantages
Highly visible project objectives	Extra administration is required
Improved project manager control over resources (as compared to functional)	Project team members have more than one manager
More support from functional areas	More complex to monitor and control
Maximum utilization of scarce resources	Resource allocation is more complex
Better coordination	Extensive policies and procedures are needed
Better horizontal and vertical dissemination of information	Functional managers may have different priorities than project managers
Team members maintain a "home"	Higher potential for conflict

Types of Matrix Organization

- **Weak Matrix**
  - Very similar to **Functional** structure
  - Project Manager acts as **Project Coordinator not a real decision maker**
  - PM has **low authority**
  - Functional Manager controls budget and resources
- **Balanced Matrix**
  - Power is **shared** between PM and Functional Manager
  - PM manages project schedule
  - Functional Manager manages resources
  - Decision-making is collaborative
  - Most common in real organizations
- **Strong Matrix**
  - Closer to **Project-Oriented** structure
  - Project Manager has **high authority**
  - PM controls budget and resources
  - Functional Manager acts as **consultant and supports expertise, training**

Organizational Culture

- **Organizational culture** means the **shared values, beliefs, behaviors, and norms** inside an organization that influence how people **work, make decisions, and interact** with each other every day.
- Culture can **help or hurt** your project

Organizational Governance

- Framework for control and decision-making
- Includes
  - Policies & procedures
  - Approval processes
  - Change control systems
- Ensures alignment with strategy

Inputs and Outputs

- Inputs are what you need to finish a process and outputs or outcomes are what you have when you finished the project.

What does a project manager need to initiate a project?

- 1. **Project Charter *(MOST IMPORTANT)***
  - Formally **authorizes the project**
  - Gives the **PM authority** to use organizational resources
  - Issued by the **project sponsor**
- **2. Business Case**
  - Explains **why** the project exists
  - Justifies investment
  - Shows expected benefits and value
- **3. Agreement / Contract (if external project)**
  - Defines legal responsibilities
  - Required when working with customers or vendors
- **4. Enterprise Environmental Factors (EEFs)**
  - Organizational structure (functional / matrix / project-oriented)
  - Culture and politics
  - Government or industry regulations

What does a project manager need to initiate a project?

- **5. Organizational Process Assets (OPAs)**
  - Templates for charter and plans
  - Historical information
  - Lessons learned from past projects
- **6. Identified Project Sponsor**
  - Provides funding
  - Removes obstacles
  - Approves major decisions
- **7. Initial Stakeholder Information**
  - Who is affected by the project
  - Their influence and expectations

What Are Organizational Process Assets?

- **Organizational Process Assets (OPAs)** are the **internal plans, processes, policies, procedures, and knowledge bases** used by an organization to manage projects.
- OPAs are **inputs to almost every project management process**. Used for:
  - Planning the project, creating schedules and budgets, identifying risks, managing changes, closing the project.
- OPAs are also **outputs** of many processes. Updated with:
  - New lessons learned
  - Improved templates
  - Updated procedures
  - Project documents archived

Categories of OPAs

- **1. Processes, Policies, and Procedures (**These guide how projects are done and they are updated by PMO or management)
  - Project management methodology
  - Change control procedures
  - Risk management procedures
  - Quality policies
  - Communication guidelines
  - Financial controls
  - HR policies
- **2.Organizational Knowledge Base**
  - This stores **historical information**.
  - Lessons learned
  - Historical project data
  - Past schedules & budgets
  - Risk registers from previous projects
  - Issue logs
  - Performance measurement data

What Are Enterprise Environmental Factors?

- **Enterprise Environmental Factors (EEFs)** are **conditions not under the direct control of the project team** that influence, constrain, or direct a project.
- Internal EEFs (These come from **within the organization**)
  - Organizational structure
    - Functional
    - Matrix (Weak / Balanced / Strong)
    - Project-Oriented
  - Organizational culture & politics
  - Resource availability
  - Existing infrastructure
  - Information systems
  - Employee capability & skill levels
  - Internal stakeholder risk tolerance

What Are Enterprise Environmental Factors?

- **External Enterprise Environmental Factors (**These come from **outside the organization**)
  - Government laws and regulations
  - Industry standards
  - Market conditions
  - Economic climate
  - Political environment
  - Social and cultural trends
  - Environmental standards

EEFs

- EEFs are **inputs to nearly all project management processes**, especially:
  - Initiating
  - Planning
  - Risk management
  - Stakeholder management
  - Communications
- **EEFs are NEVER outputs**
- They **cannot be updated** by the project team

What Is an Assumption Log?

- The **Assumption Log** is a **document used to record and track assumptions and constraints** throughout the project.
  - Created during **Initiating**
  - Updated throughout the project
  - Used to identify risks
- **Why Assumption Log Is Important**
  - Unvalidated assumptions = hidden risks
  - Helps avoid surprises later
  - Supports proactive risk management
- **What Goes into an Assumption Log?**
  - Resources will be available as planned
  - Technology will work as expected
  - Stakeholders will respond on time
  - Budget will be approved

What Is a Project Constraint?

- A **project constraint** is a **limitation or restriction** that affects how a project can be planned and executed.
- **Classic Project Constraints (Triple Constraint)**
  - **Scope**
  - **Time (Schedule)**
  - **Cost**

Expanded Project Constraints

- But **projects have many constraints**, not just three:
  - Scope
  - Schedule
  - Cost
  - Quality
  - Resources
  - Risk
  - Customer satisfaction
  - Regulations

FIGURE 2.4 *Project constraints*

Tools and Techniques

- **Data Gathering**
  - Brainstorming
  - Interviews
  - Focus Groups
  - Questionnaires & Surveys
  - Benchmarking
  - Document Analysis
  - Market Research
  - Observation

Data Analysis

- **Data analysis** is the process of **examining, evaluating, and interpreting collected data** to support **decision-making** in a project.
  - Alternatives Analysis
  - Cost–Benefit Analysis
  - Earned Value Analysis (EVA) to check a project is on time, on budget, and on track.
  - Variance Analysis
  - Trend Analysis
  - Root Cause Analysis
  - SWOT(Strengths, Weaknesses, Opportunities, Threats) Analysis
- **Where Data Analysis Is Used?**
  - Risk management
  - Schedule control
  - Cost control
  - Quality management
  - Stakeholder management

What Is Data Representation?

- **Data representation** is the technique of **presenting analyzed data in a visual or structured form** to make information **easy to understand and communicate**.
  - Charts & Graphs
  - Histograms
  - Fishbone (Cause-and-Effect) Diagram
  - Matrices and so on
- **Where Data Representation Is Used**
  - Monitoring & Controlling
  - Performance reporting
  - Quality management
  - Risk analysis
  - Stakeholder communication

Why Decision Making Is Critical for a Project Manager

- Affects cost, schedule, scope, and quality
- Impacts stakeholder satisfaction
- Determines project success or failure
- **Techniques:**
  - Autocratic Decision Making
  - Democratic (Voting)
  - Consensus Decision Making
  - Multi-Criteria Decision Analysis (MCDA)
  - Expert Judgment
  - Analytic Techniques

What Is Communication?

- **Communication** is the process of **creating, sharing, and understanding information** among project stakeholders.
- **Communication Models**: Sender–Receiver Model
- Types of Communication:
  - Formal vs Informal
  - Internal vs External
  - Push, Pull, and Interactive
- **Communication Planning**
  - Who needs information
  - What information is needed
  - When and how it will be sent
  - Who is responsible

What Are Interpersonal and Team Skills?

- **Interpersonal and team skills** are the **soft skills** a project manager uses to **lead, motivate, and work effectively with people**.
- **Why These Skills Matter?**
  - Improve team performance
  - Reduce conflict
  - Increase stakeholder satisfaction
- **Key Interpersonal & Team Skills**
  - Leadership
  - Team Building
  - Motivation
  - Conflict Management
  - Influence
  - Coaching and mentoring
  - Negotiation
  - Emotional intelligence

What Is Estimating?

- **Estimating** is the process of **predicting the time, cost, resources, and effort** required to complete project work.
- **Estimating Techniques**
  - Analogous Estimating
  - Parametric Estimating
  - Bottom-Up and Top-Down Estimating
  - Three-Point Estimating (**Program Evaluation and Review Technique**, PERT): Optimistic, Most Likely, Pessimistic
  - Reserve Analysis: planning “extra” for risks so the project can stay on track