Software Engineering

Spring Semester 2008

Lecture 8: Project Management
History

The Soviet Union shoots Sputnik-1 into Earth orbit...

The United States Department of Defense recognizes the lack of planning on their side...

Invention of the “Program Evaluation and Review Technique” (PERT)...

Extension of PERT with a “Work Breakdown Structure” (WBS)

Invention of the “Critical Path” Method

1957

1958
What is a project?

Definition:

A project is a temporary endeavor undertaken to create a unique product or service.

Every project has a definite beginning and a definite end.

The product or service is different in some distinguishing way from all similar products and services.

- In contrast: Operations are ongoing and repetitive.
Applications are neither projects nor operations, but products
Core activities and project management

Core Activities

ultimately create the product of a project

Project Management

organizes and leads the project work to meet project requirements
PM activities fall into nine Knowledge Areas

- Project Integration Management
- Project Cost Management
- Project Communications Management
- Project Scope Management
- Project Quality Management
- Project Risk Management
- Project Time Management
- Project Human Resource Management
- Project Procurement Management
Project success

Definition:
A project is successful if the specified results are delivered in the required quality and within the predetermined time and resource limits.

Computer scientists tend to focus on scope and quality only

- The development of a technically perfect application is not a success if the cost exceeds the price clients are willing to pay
- Excellent project results often are worthless if they come too late (temporary market windows, external deadlines)
Project management life cycle

- Initiating Processes
- Planning Processes
- Executing Processes
- Controlling Processes
- Closing Processes
Example: time management

- Schedule Development
  - Schedule Updates
  - Task List for Each Team Member
- Schedule Control
  - Status Reports
- Project Plan Execution
  - Corrective Actions
Process groups

- Project groups are not discrete one-time events
- They overlap and occur at varying levels of intensity within each phase of the project
Interaction between phases

- Input and output of the processes depend on the phase in which they are carried out
- But processes are not limited to one phase (overlaps)
The triple constraint

- Project objectives are **equally important**
- Actions in one project area usually affect other areas
Tradeoffs among objectives must be managed
Priorities are set by customers and management
More competing objectives

- Scope
- Quality
- Time
- Customer Satisfaction
- Risk
- Cost
Assumptions

Definition:

Assumptions are factors that, for planning purposes, are considered to be true, real, or certain

- Assumptions affect all aspects of project planning, and are part of the progressive elaboration of the project
- Project teams frequently identify, document, and validate assumptions as part of their planning process
- Assumptions generally involve a degree of risk
Summary

- Project:
  - Temporary and goal driven
- Activities:
  - Core
  - Management
- 9 Knowledge Areas
- Resource planning
- Solving constraints:
  - Tradeoffs
- Know your assumptions