

CZ3002 - Advanced Software Engineering

Software Project Management - Project Planning

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Introduction



Watch the animation in NTULearn – “Project Management – Project Planning folder”

Lesson Objectives

At the end of the lesson, you should be able to:

- ▶ Explain the purpose of project planning
- ▶ Explain software project management lifecycle and how lifecycles are determined
- ▶ Define the software development process



Project Planning

Probably the **most** time-consuming project management activity.



Continuous activity from initial concept to system delivery. Plans must be **regularly** revised as new information becomes available.

Various **different** types of plan may be developed to support the main software project plan that is concerned with schedule and budget.

Project Plan Structure

- ▶ Introduction
- ▶ Project organisation
- ▶ Hardware and software resource requirements
- ▶ Life cycle and Process definition
- ▶ Work breakdown
- ▶ Project estimation and schedule
- ▶ Monitoring and reporting mechanisms
- ▶ Risk analysis

A Lifecycle

- ▶ Defines the main activities or steps to accomplish something [e.g., wash dishes, build a boat, produce a software product/ system, etc.]
- ▶ Provides a **framework** for:
 - ❖ Adopting process, methods, tools etc
 - ❖ Analysing and estimating resources
 - ❖ Studying effectiveness and quality

Selection of Lifecycles

- ▶ We know basic strengths and weaknesses

Studies on experiences and Effectiveness of various models

- Waterfall
- Rapid Prototyping
- Incremental Release
- Iterative
- Spiral
- Agile

Lifecycles Selection Factors

Organisation & People Factors

- Skills, maturity, experiences

Client Factors

- Requirements, expectations

Product Factors

- Size, complexity

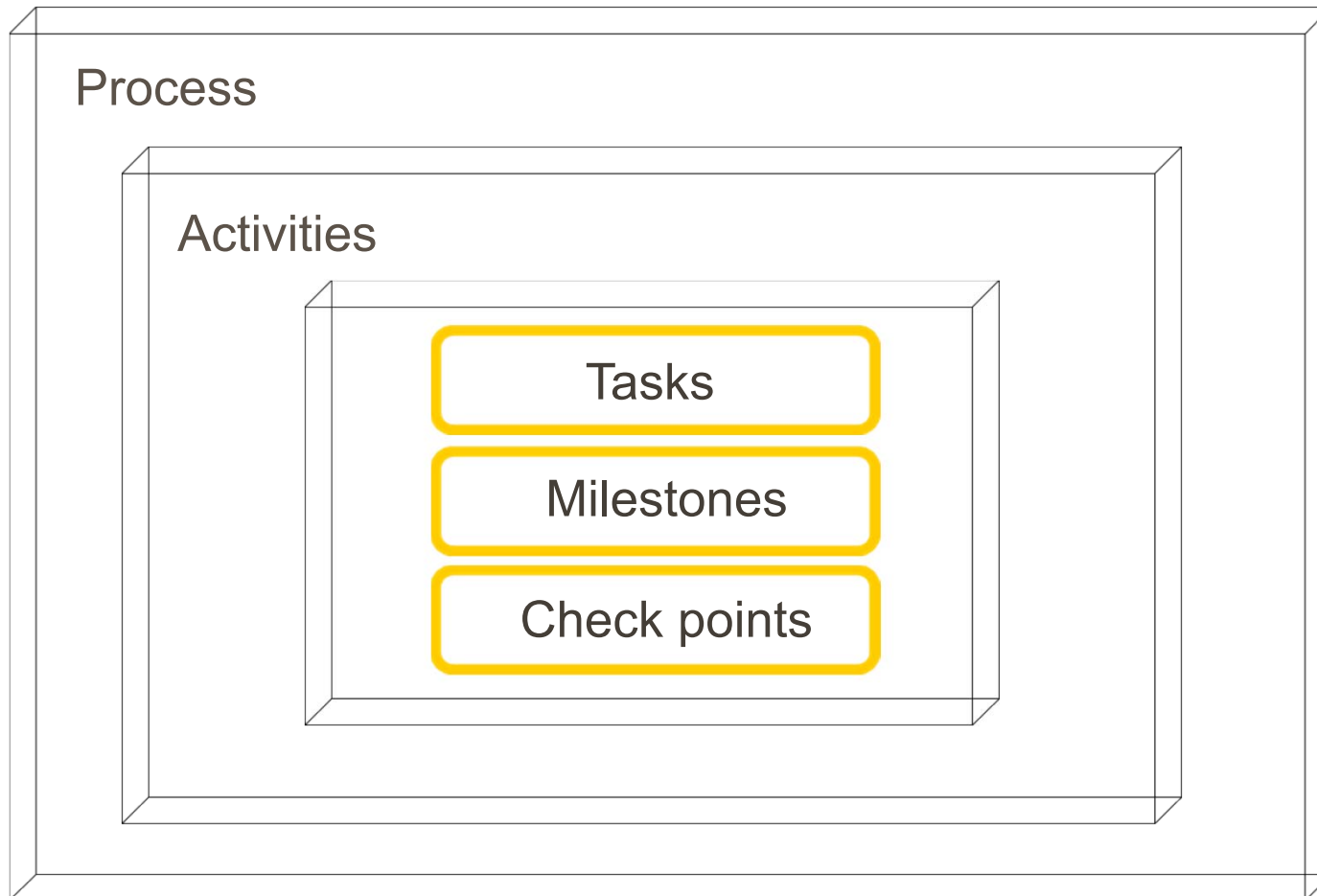
Technology Factors

- Use of technology

Defining the Software Development Process

- ▶ Process contains a set of **activities**, **methods**, and **practices** that are used in the production and evolution (maintenance & enhancement) of software.
- ▶ Process integrates **people**, **technology**, **activities**, and **products**.
- ▶ Process defines **quantitative measurement** for control.
- ▶ Process has a **hierarchical** structure.
- ▶ The project's development lifecycle is the "high-level view" of its software development process.

Process Decomposition



Workbench: A Planning Process

- ▶ Process
 - ❖ Project planning process
- ▶ Entry Criteria
 - ❖ Project description, statement of work
 - ❖ Earlier versions of project management plan
- ▶ Process Description
 - ❖ The project planning process identifies scope, select life cycle, define process, estimate cost, and allocate resource etc. for the project.
- ▶ Milestones
 - ❖ Project plan document
- ▶ Exit Criteria
 - ❖ Project plan is approved

Workbench: Work Breakdown

Begin

For each lifecycle iteration (lifecycle: Incremental) loop:

- Project scope identification
- Define process
- Estimate size, duration, effort, cost etc
- Work break down
- Sequence project tasks
- Allocate resources
- Document in Project Management Plan
- Record performance data (hours worked, milestones accomplished, or other data as specified in the project management plan)
- Compare estimation vs actual performance, take corrective action where necessary

End loop

End

Workbench of a Work Package / Task

- ▶ Project: Agent Software System
- ▶ Work Package: Project Plan
- ▶ Assigned To: A Lee, B Tan, and C Wu
- ▶ Effort: 7 PD (Person-Days)
- ▶ Start Date: Monday, 09/24/01
- ▶ Purpose: To determine a draft plan of the project, to be refined in later work packages
- ▶ Inputs: SRS
- ▶ Activities: This work package includes providing a brief overview of the project, its objectives, a set of processes and work packages, cost estimation and working schedules throughout the software development cycle
- ▶ Outputs: A written document of the Project Plan

Project Plan Structure- Review

- ▶ Introduction
- ▶ Project organisation
- ▶ Hardware and software resource requirements
- ▶ Life cycle and Process definition
- ▶ Work breakdown
- ▶ Project estimation and schedule
- ▶ Monitoring and reporting mechanisms
- ▶ Risk analysis
- ▶ A complete example from the TLA Airline Agent project is given under the lab folder of NTULearn
- ▶ You can regard it as a template to work out your own project plan. You can add/delete/modify the headings/chapters according to your own project.