SWINBURNE UNIVERSITY OF TECHNOLOGY

SWE30010
Development Project 2: Design, Planning and Management

Lecture 8

Traditional Project Planning

Lecture Overview

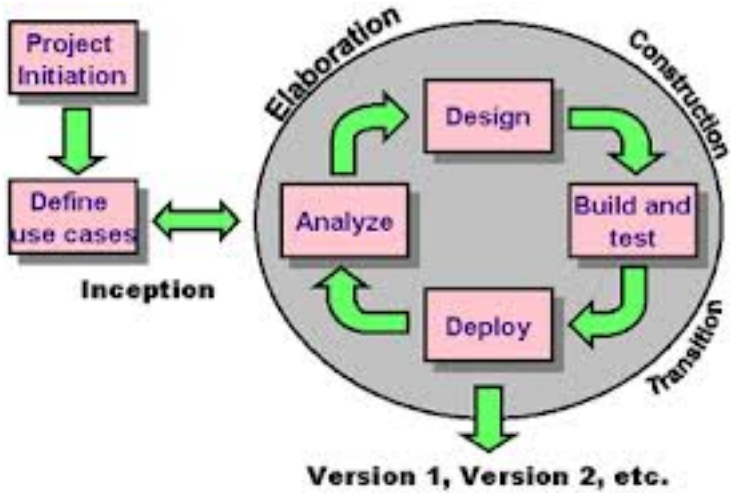
- Project Plan
- Project Planning

Roadmap

- **Project Plan**
- Project Planning

Basic 4-Step Guide to Projects

1. Project Inception
   - Understand what the problem to be solved is
   - Define objectives, scope and constraints
2. Elaboration
   - Feasibility analysis
   - Identify possible solution directions
   - Select a potential solution
3. Construction
   - Plan for solution direction
   - Execute the plan; monitor its execution; modify as necessary
4. Transition
   - Close the project off in a satisfactory manner and transition to an operational system



Unified Process

Project Management Plan

- 4 Core Functions
  - Scope
  - Time
  - Cost
  - Quality

- 4 Facilitating Functions:
  - ☐ Human Resources
  - ☐ Communications
  - ☐ Risk
  - ☐ Procurement

The main management task is to INTEGRATE

Project Management Knowledge Areas – Core Functions

- Scope Management
  - Define and manage all work required to complete the project
- Time Management
  - Estimate the time to complete the project
  - Develop the project schedule
  - Ensure timely completion of the project
- Cost Management
  - Prepare and manage the budget, including the timing of spending
- Quality Management
  - Ensure the project will satisfy the stated or implied needs

Project Management Knowledge Areas – Facilitating Functions

- Human Resource Management
  - Make effective use of people in the project
- Communications Management
  - Generate, collect, disseminate and store project information
- Risk Management
  - Identify, analyse and respond to risks related to the project
- Procurement Management
  - Acquire or procure goods and services that are needed for a project from outside the performing organization (including from within the wider organization)

Project Management Plan

Template Examples:

- www.projectmanagementdocs.com/templates/Project_Management_Plan.pdf (based on PMBOK)
- www.its.uq.edu.au/docs/Project_Plan.doc (an example from Univ of Qld)
- IEEE Standard 1058-1998 (Standard for Software Project Management Plans) (Search for 'IEEE 1058 Baylor' to find a useful reference)

Roadmap

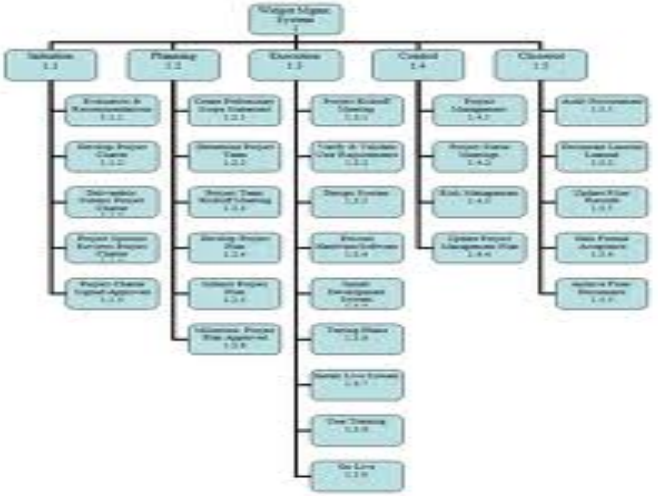
- Project Plan
- **Project Planning**

Project Planning

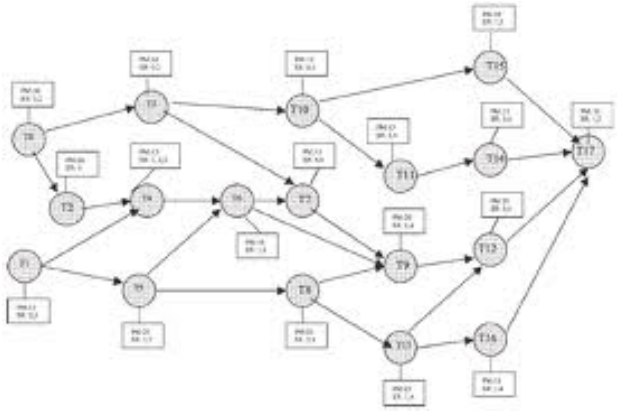
- Split project into *tasks* or *activities* using the chosen SDLC as an anchor:
  - Create a *Work-Breakdown-Structure* (WBS)
    - breaks the project down into a set of well-defined, discrete tasks
  - For each task or subtask, estimate the time for completion and assess resources required

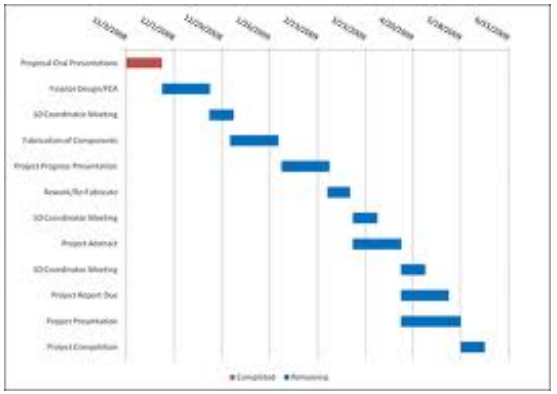
Project Scheduling

1. Develop the WBS – identify the discrete tasks that need to be done (see later)
2. Identify the dependencies between these tasks
3. Estimate the duration needed to complete the tasks
4. Schedule the tasks in order



	Task Name	Duration	Priority	Predecessors
1	Demolition	6 d	Lowest	
2	Site Preparation	6 d	Lowest	1
3	Cast-in-Place RC Pile	20 d	Lowest	2
4	Excavation & Support System	30 d	Lowest	3
5	Foundation Basespate	6 d	Lowest	4
6	RC Formwork	42 d	Lowest	5
7	Steel formwork	30 d	Lowest	6
8	Roof works	6 d	Lowest	7
9	Water supply & sewerage works	30 d	Lowest	7
10	Power supply system	30 d	Lowest	7
11	Lighting system	20 d	Lowest	7
12	Air conditioning	30 d	Lowest	7
13	Computer & communication network	30 d	Lowest	7
14	Floor finish & polishing	50 d	Lowest	8
15	Internal wall finish	30 d	Lowest	14
16	External wall finish	20 d	Lowest	8
17	Internal partition wall	30 d	Lowest	9,10,11,12,13
18	Ceiling work	40 d	Highest	15
19	Site improvements	6 d	Lowest	16
20	Landscaping work	6 d	Lowest	16





List tasks

Identify Relation-ships

Schedule the tasks

Risks

- PMBOK: *"an uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives."*
- PRINCE2: *"the chance of exposure to the adverse consequences of future events."*

☞ Key elements:

- ☐ Risks relate to the future (*"speculating about future events"*)
  - ☞ *What can go wrong in a project?*
- ☐ Risks involve cause (*"why"*) and effect (*"measurable consequence"*), and require estimation of likelihood and impact of occurrence
- ☐ We'll study risk analysis later in this unit

Risks and WBS

- For each activity in the WBS there may be particular risks that apply
- Hence one way to commence risk analysis in a project is to assess risks for each task in the WBS
- These are not the only risks, but doing this is helpful, and can help plan risk mitigation

Risk Drivers

One way to assess risks in software projects is to address principal risk drivers:

- Knowledge Gap (what we *don't know* about the problem domain, and the context of the system)
- Skill Gap (inexperience of project staff on a system of this kind, using the proposed approach)
- Technology Gap (unknown/young or unavailable technologies desirable for the implementation)

What is sometimes called *KoST analysis* attempts to determine

- knowledge and skill gaps a team/individual has, and
- whether any technology gaps exist

Can you answer these questions?

- How do you monitor the progress of a project?
  How often do you monitor the progress of a project?
- Does something like the “ideal” project management methodology exist? If so, how? If not, why not?
- For what kinds of projects is an activity-based scheduling approach suitable?

Recommended Reading Lecture 9

- Roger S. Pressman, *Software Engineering - A Practitioners Approach* (7th Edition), Addison-Wesley, 2010, Chapters 23 and 25.