Overview Planning Models

- Project planning determines what happens, when and how they happen.
- Since planning takes time and consumes resources, first an overview plan is developed.
  - If this overview plan shows that basic performance criteria (feasibility, cost, quality, etc.) can be met, then detailed plans are developed.
  - Complexity of the project also influences amount of detail in planning.

Overview Planning Models

- The main output of the overview modeling process is the definition of the project.
- The most important element of this definition is a structured list of fundamental activities of the project. These fundamental activities must be,
  - comprehensible
  - manageable (typically can be handled by one person or department)
- This structure of activities is called the Work Breakdown Structure.

Defining the Project

- Steps of defining the project
  1) Defining the scope
  2) Establishing project priorities
  3) Creating the work breakdown structure (WBS)
  4) Integrating WBS with the organization
  5) Coding the WBS for the information system

Defining the Scope

1) Defining the scope
- Primary purpose: define clearly the deliverable(s) for the end user and to focus project plans.
- This step is frequently overlooked.
- Poorly defined scope is the most frequently mentioned cause for project failure.
- Project scope would be published as a document and customers and project participants would measure success relative to it.

Defining the Scope

- Project scope checklist
  - project objectives:
    - must include time and cost objectives
  - deliverables
    - expected outputs over the life of the project
  - milestones
    - a significant event in the project that serves as a natural and important control point.

Defining the Scope

- technical requirements
  - of the product/service that will be developed in the project
- limits and exclusions
  - for each objective and deliverable must clarify its limits
  - set up a “what is/what is not” list.
- reviews with customer
  - with both internal and external customers, go through the project scope checklist.
Establishing Project Priorities

2) Establishing project priorities

• One of the primary jobs of a project manager is to manage trade-offs among time, cost and performance.
  - Can reduce time by increasing costs
  - Can reduce performance by reducing costs

Performance ~ Quality

Performance ~ Time

Performance ~ Cost

Performace ~ Quality

Performance ~ Time

Performance ~ Cost

Designing a Project for Flexibility


Establishing Project Priorities

• Performance ~ Quality
  - A generic definition of quality: “Meeting and exceeding the expectations of customers.”
  - Must understand customer’s expectations.
  - Must translate them to technical attributes of the project.
  - Customer’s expectations and requirements might change during the life-cycle of the project.
  - The ability of the project system to handle such changes is referred to as flexibility.
    - In many cases, flexibility is an objective defined at the outset.
    - For example: development of MS Internet Explorer

Establishing Project Priorities

• For each of these criterion there are three potential actions/reactions through the life of the project:
  - Constrain: The original parameter is fixed.
  - Enhance: Which criterion should be tried to be optimized if there is an opportunity to do so.
  - Accept: For which criterion is it tolerable not to meet the original parameter.

The Work Breakdown Structure

3) Creating the work breakdown structure (WBS)

• Once the scope and deliverables have been defined, one can subdivide the project work in a hierarchical process.
• Having WBS ensures that project managers have identified all products and work-elements of the project.
• Without WBS it would be impossible to plan, schedule and budget the project.
The Work Breakdown Structure

- Hierarchical breakdown of WBS

<table>
<thead>
<tr>
<th>Level</th>
<th>Hierarchical Breakdown</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Project</td>
<td>Complete Project</td>
</tr>
<tr>
<td>2</td>
<td>Deliverable</td>
<td>Major deliverables</td>
</tr>
<tr>
<td>3</td>
<td>Subdeliverable</td>
<td>Supporting deliverables</td>
</tr>
<tr>
<td>4</td>
<td>Lowest subdeliverable</td>
<td>Lowest management responsibility level</td>
</tr>
<tr>
<td>5</td>
<td>Cost Account</td>
<td>Grouping of work packages for monitoring progress and responsibility</td>
</tr>
<tr>
<td>6</td>
<td>Work Package</td>
<td>Identifiable work activities</td>
</tr>
</tbody>
</table>

The Work Breakdown Structure

- Work packages
  - have short duration
  - have definite start and stop points
  - consume resources
  - represent cost
  - are as independent from other work packages as possible
- For each work package a single person must be responsible.

The Work Breakdown Structure

- Practical guidelines:
  - Workpackage duration should not exceed 10 days
  - Check points should be setup every 3 days to identify progress and problems.
- Difference between the last subdeliverable and work package
  - Subdeliverable includes outcomes of more than one work package, from perhaps two or more departments.
  - Subdeliverable does not have a duration of its own, and does not consume resources or cost money directly.

The Work Breakdown Structure

- Thus, work package is the basic unit used for planning, scheduling and control.
- The higher elements are used to identify deliverables at different phases in the project and to develop status reports during the execution of the project.

The Work Breakdown Structure

- Lowest level subdeliverable is small enough to be manageable and where one person can be responsible.
- Lowest subdeliverable contains several work packages. These workpackages are grouped by type of work. These groupings are called cost accounts.
  - Budgeted and actual costs could be summed up so that performance can be measured.
The Work Breakdown Structure

- Cost accounts are the intersection of Organizational Breakdown Structure (OBS) and WBS.
- Determining a cost estimate for each work-package. These costs can then be used to calculate
  - total estimated cost for a cost account
  - total estimated cost for a subdeliverable (then for deliverables, and then for the entire project)
  - total estimated cost for organizational units.

The Work Breakdown Structure

- What are the pros and cons of having a too long work package?

The Work Breakdown Structure

- It is important to get the level of detail in WBS to match the management needs (at different levels).
- The level of detail depends on
  - complexity of the project
  - the need for control
  - the project size, cost and duration.