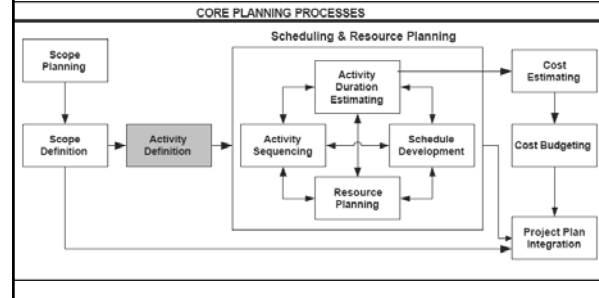## Manajemen Proyek SI
Activity Definition [*)]

Oleh :
Ir. I Gede Made Karma, MT

[*)] Graham McLeod and Derek Smith : *Managing Information Technology Projects*

Activity Definition

Tasks

When we think of a project, the first thing that comes to mind : work to be done, tasks to complete.

– There are technical tasks, such as drawing up data models, writing specifications, coding programs.
– There are managerial tasks, such as supervising the team, checking quality, controlling the risk, and reporting on progress.
– There are people oriented tasks, such as selecting a team, motivating the team and counselling a team member.

Tasks (2)

To carry out the project successfully, we need to :

– Include all necessary tasks.
– Make sure the tasks are of manageable duration.
– Estimate the effort and duration for tasks as accurately as possible.
– Ensure that tasks are allocated to the correct resource and vice-versa.
– Monitor the completion the tasks as they are carried out to ensure that we are not falling behind and that the quality of delivered work is high.

Source of Tasks

• Most of the tasks will be of a technical nature. These are normally dictated by the nature of the project, and can be derived from a formal methodology where one is employed.

• There are also be management tasks – normally to control the project, liaise with management, ensure quality and so on. These are more related to the organization's philosophy of reporting and quality assurance and are likely to be unique to the organization.

Source of Tasks (2)

A system development project will have tasks such as :

– Establish feasibility
– Plan the project
– Define user requirements
– Specify technical design
– Build the system
– Test the system
– Prepare operational documentation
– Train users
– Install the system
– Post implementation review
– Manage the team
– Report progress to management

Source of Tasks (3)

These tasks will often be too large to manage as a unit, and will in turn have sub-tasks. For example "Define user requirements" may be broken down to :

- Establish scope of system, major inputs and outputs
- Analyze current system
- Interview users regarding additional requirements
- Prepare functional model for proposed system
- Prepare data model for proposed system
- Review with users
- Prototype behavior of new system
- Finalize requirements document

Work Breakdown Model

- There was a sort of hierarchy when we decomposed the "Define user requirements".
- We could have specified sub-tasks for other high-level tasks in a similar manner. For example, by decomposing the task "Prepare data model for proposed system" to :
  - Identify major entities
  - Collect attribute data
  - Identify keys for each major entity
  - Construct Entity Relationship Model

Work Breakdown Model (2)

- We need to get to a level of task that is of manageable duration, and which can be assigned to a single person, or small group, for completion.
- A useful way, therefore, to view our tasks, sub-tasks and sub-sub-tasks for a project, in relation to each other, is a hierarchical chart, known as a Work Breakdown Structure (WBS).
- In the WBS, each level is decomposed further into the next level, giving its "children". This can be done using the functional decomposition technique.
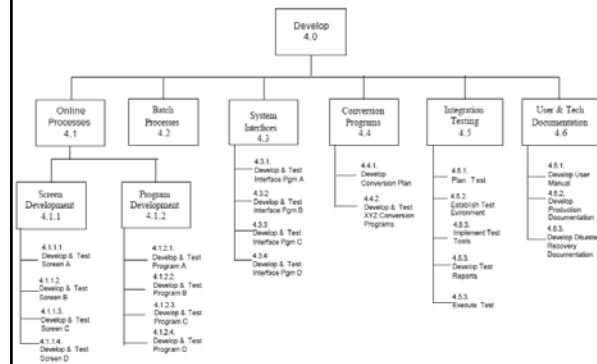
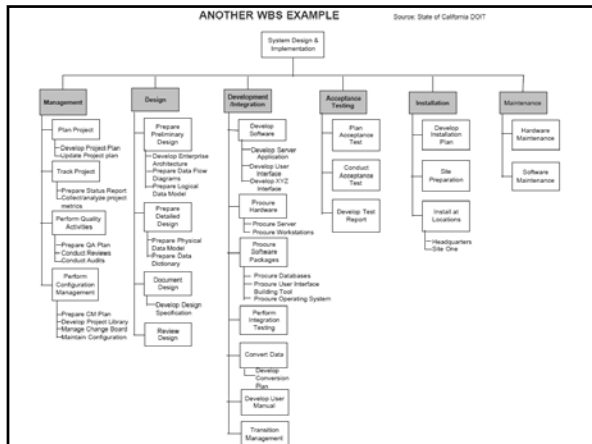## Work Breakdown Structure
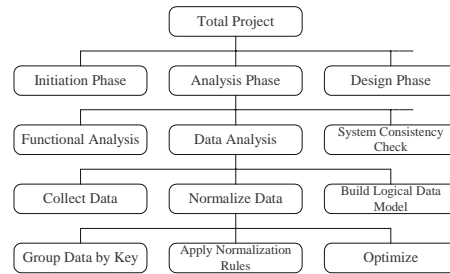
Work Breakdown Structure (2)

- Include technical tasks
- Include management tasks
- Show phases at second level
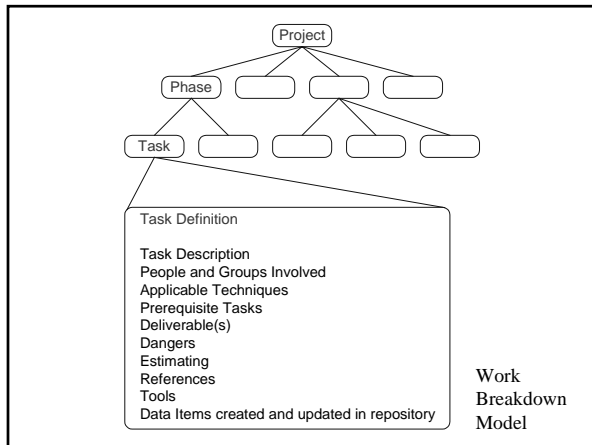- Show Q.A. tasks
- Decompose until "work packages" are obtained.

CUSTOM SYSTEM DEVELOPMENT WBS EXAMPLE

ANOTHER WBS EXAMPLE

Source: State of California DOIT

The Functional Decomposition Technique

1. For each box, ask the question : "What must I do in order to achieve this?" The answers indicate child boxes.
2. There should be between 2 and 6 child boxes per parent.
3. To check if a child box in the correct place, ask the question "Why do I do this?" The answer should be the parent box.
4. Wording in the boxes should have the form:

   [verb] {qualifying clause} {object} {qualifying clause}

Task Definition

Task Description
People and Groups Involved
Applicable Techniques
Prerequisite Tasks
Deliverable(s)
Dangers
Estimating
References
Tools
Data Items created and updated in repository

Work Breakdown Model

Task Definition

- Task *description.*
- *People and groups involved.* Who will perform the task? What sort of skills are required?
- *Applicable techniques.* How do we carry out the task? Is this specified in our methodology, or other corporate standard?
- Are there any *prerequisite tasks* which must be complete before this one can be tackled? For example, data collection must be complete before a relational data model can be constructed.

Task Definition (2)

- What *deliverables* are required as input to the task? What will the task produce? The functional analysis task, for example, may require as input the current system description, and produce as output the functional model.
- Are there any particular *dangers* associated with the task that we should look out for?
- Do we know to *estimate* how much effort the task will consume and how long it will take with the resources available?

Task Definition (3)

- Are there any sources of *reference* or *reusable components* which we use in performing the task? For example, a standards manual, programming language manual, methods description, sample library or class library.
- Is the task supported by any *tools.* For example, project management software, CASE tools, data dictionary, compiler, editor, etc.
- If using a dictionary, or repository-based CASE approach, what *data items* in the dictionary or repository are *affected* by this task?

Manageable Unit of Work

- If we include large chunks of work in our project plan, say a month long each, and one takes twice as long as expected, we will be a month behind schedule. If we plan at the level of a week, and a task takes twice as long, we will be a week behind.
- Obviously there is a trade-off since there will be an overhead in the planning, monitoring and recording of each task.
- We should choose a good MUW for our project.

Decrease the MUW if

- Your project is using new technology
- Your project is risky
- Your project is extremely critical to the organization
- Your team (or yourself) is/are inexperienced
- The project is under a lot of time pressure
- The system is very complex
- There is a high degree of integration required with other systems
- You are going to make use of several external resources
- The environment is highly political

Increase the MUW if

- The project is non-critical
- You are using proven technology
- You and the team are experienced
- The project is not very complex, nor tightly integrated
- You have control over all resources
- The environment is apolitical and stable.

MUW cont…

- In any case, the MUW should not be shorter than one day, no longer than one month.
- Once an MUW has been chosen, the WBS should be decomposed to the level where no task exceed this value.
- This will have an effect of controlling the degree of formality and control in the project – we are balancing the management overhead against the risk of slipping.