

Islamic Azad University
Science and Research Branch


Project Management
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Session 4: Initiation and Planning

Project Management

Session 4 Outline:

- Initiation
- Planning
- Hierarchical project structures
 - Work Breakdown Structure (WBS)
 - Organizational Breakdown Structure (OBS)
 - Cost Breakdown Structure (CBS)
- Responsibility Assignment Matrix (RAM)
- Control Accounts (CA)
- Work Packages (WP)
- Project Management Plan (PEP)



Project Initiation

Significance

- Defines the boundaries of the project
 - Clarifies project objectives and scope to all stakeholders
 - Defines the baseline for scope, cost and schedule
 - Identifies the right people to involve
 - Defines what is included and what is not included in the scope
 - Defines major deliverables
 - Identifies key project risks
 - ...
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Project Initiation

Major Activities


- Usually led by the project sponsor
 - Developing a good problem statement, scope, goals and objectives
 - Developing a project description statement
 - Ensuring project stakeholders clearly understand the project scope and expected benefits
 - Developing a project charter
 - Appointing a project manager
 - Obtaining the authority to proceed
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Project Initiation


Project Objectives

Objectives need to be well-worded to be **SMART**:

- Specific,
 - Measurable,
 - Achievable,
 - Realistic and
 - Time-bound.
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Project Initiation

Project Charter

- The most important result of the project initiation phase
 - Formally communicates the existence of a project
 - Formally authorizes a project and the expenditure of resources
 - Formally appoints the project manager
 - An agreement between the project sponsor (senior management) and the project manager
 - Approval of the project charter marks the end of the project initiation and the beginning of the project planning phase
 - The basis for project planning
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Project Initiation

Project Charter Content

- General information
 - Project purpose and business objectives
 - Project scope
 - Major assumptions and constraints
 - Important risks (and opportunities)
 - Major milestones and deliverables
 - Project authority
 - Project organization
 - Resources required
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Project Initiation

Appointing a Project Manager

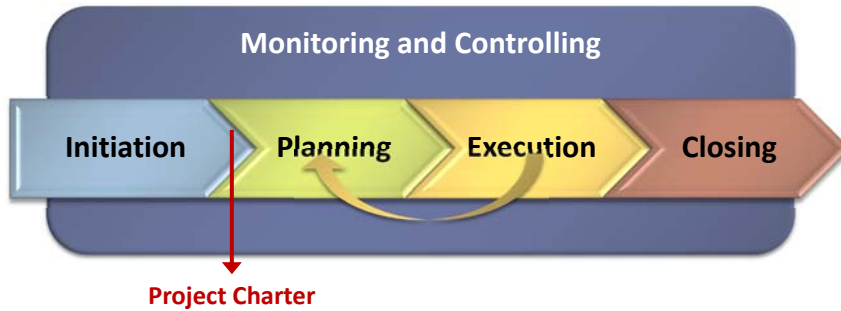
- Experience in managing projects
 - Knowledge of project management methodology and tools
 - Demonstrated interpersonal and leadership skills
 - Knowledge of basic business and management skills
 - Experience within the project's technical field
 - Respect and recognition among peers within the organization
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Project Initiation

The Next Step

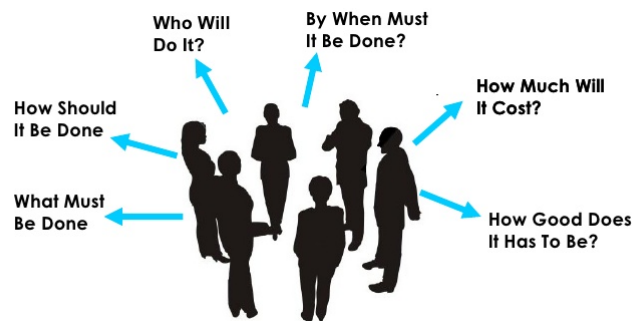
Now that the project charter is completed and signed and the project manager and her/his team are on board, the project is ready to enter the next phase: **Planning**



Planning

Definition

- Project planning is the process of stating how to complete a project within a certain timeframe, usually with defined stages, and with designated resources. What, how, who, when, how much, etc. are questions to be answered during planning.



Planning

Significance

- 6P: Proper Prior Planning Prevents Poor Performance
- Proper initiation and planning greatly enhance the likelihood of project success
- Often they are not given sufficient attention or adequate time in the project lifecycle



Planning

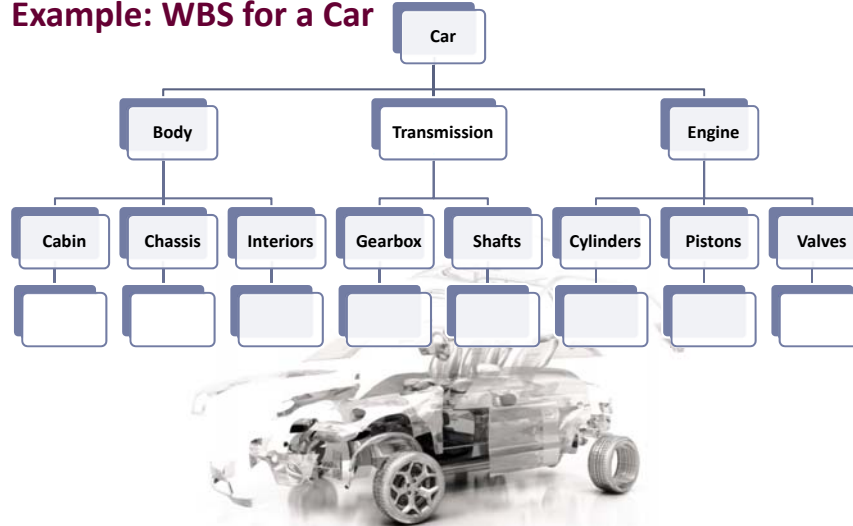
Work Breakdown Structure (WBS)

- A project scope is often complex and needs to be broken down into manageable and controllable parts
- WBS organizes and defines the total scope of the project
- Work not in the WBS is outside the project scope
- WBS is a progressive hierarchical breakdown of the project into smaller pieces
- Each descending level represents an increasingly detailed definition of the project work
- WBS is the first step towards constructing a schedule
- WBS helps assigning responsibilities to each part of the work



Organization

Example: WBS for a Car



Planning

Work Breakdown Structure (WBS)

- Types:
 - Product/deliverable oriented
 - Process/activity oriented
 - Mixed
- Formats:
 - Graphical
 - Outlined
- Building block of Earned Value Management Systems (EVMS)
- All project work is defined in WBS (no underlap)
- No work is defined more than once in WBS (no overlap)

Planning

WBS Dictionary

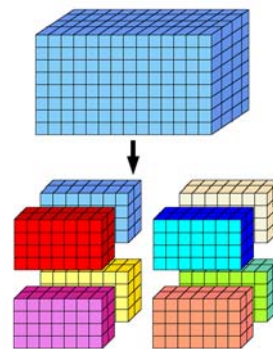
- A WBS dictionary consists of a database containing more information about every element in the WBS, such as:
 - Code: The code of every element in the WBS
 - Name: The name of every element
 - Description: A full description on every element
 - Work: What is the work that this element consists of
 - Duration: What is the duration of that element
 - Cost: How much each element costs
 - Cost details :How did we get the cost of that element
 - ...



Planning

Decomposition

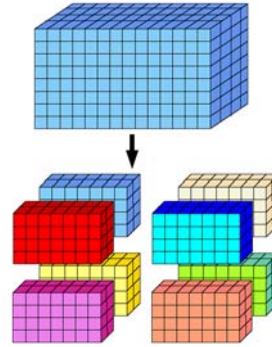
- Subdivision of project deliverables into smaller, more manageable components, i.e. work packages
- The degree of decomposition of the work should be necessary and sufficient
- WBS development techniques:
 - Top-Down
 - Bottom-Up
 - Analogy (template-based)



Planning

Work Packages

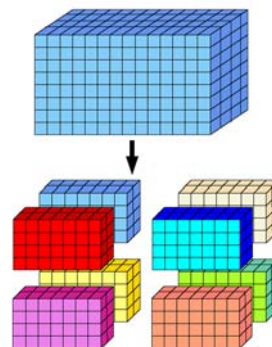
- Work packages are the lowest elements in a WBS
- Work Packages should be;
 - Manageable
 - Independent
 - Integratable
 - Measureable



Planning

Work Packages


- **Important:** To generate work packages, it is important to balance between **simplicity and practicality required for managing and control** and **complexity and detailing required for accurate progress reporting**



Planning


In-class Exercise

Generate a graphical WBS for the following project:

- Project: Constructing a 8-story hospital, with 3 levels of parking in the basement, 8000 square meter floor area, \$ 20 million budget and 4 years duration. The equipment and facilities required for day to day operations such as beds, medical equipment and hospitality facilities are not in the scope of this project.
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Planning

Organizational Breakdown Structure (OBS)

- Decomposition of necessary resources to perform the project, to identify who performs each work element
 - Identification and organization of the resources responsible with carrying out activities associated with the project
 - Used to keep track of specific work assignments and resource allocations
 - Provides the organizational basis for collecting, monitoring and forecasting human resource utilization
 - Defines and facilitates the communication and integration of the project plan
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Planning

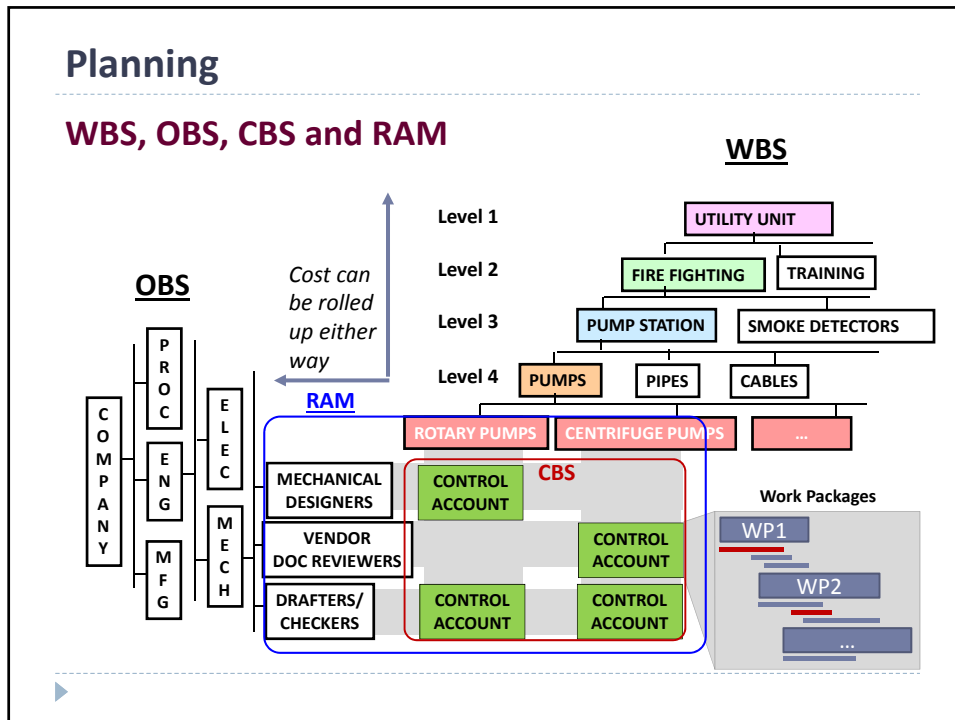
Cost Breakdown Structure (CBS)

- CBS is resulted from intersecting WBS with OBS
 - The intersecting points are called Control Accounts (CA)
 - CAs depend on work packages characteristics and the resources (human, material, equipment, etc.) required for completing work packages.
 - Total budget can be traceable in both WBS and OBS
 - CBS allows tracking and forecasting of estimated costs vs. actual costs
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Planning

Responsibility Assignment Matrix (RAM)

- Integrates WBS with OBS.
 - The intersection of the lowest levels of OBS and WBS
 - Who is responsible for what → who can charge on what account
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Planning

Project Execution Plan (PEP)

- Also known as Project Management Plan (PMP) or simply Project Plan
- A descriptive document, including tables and diagrams, generated by the project manager and his/her team stating how to execute and complete the project within the project constraints
- Methods, procedures, responsible people and units, constraints, risks, project milestones, high level budget, etc. are addressed in this document


Planning

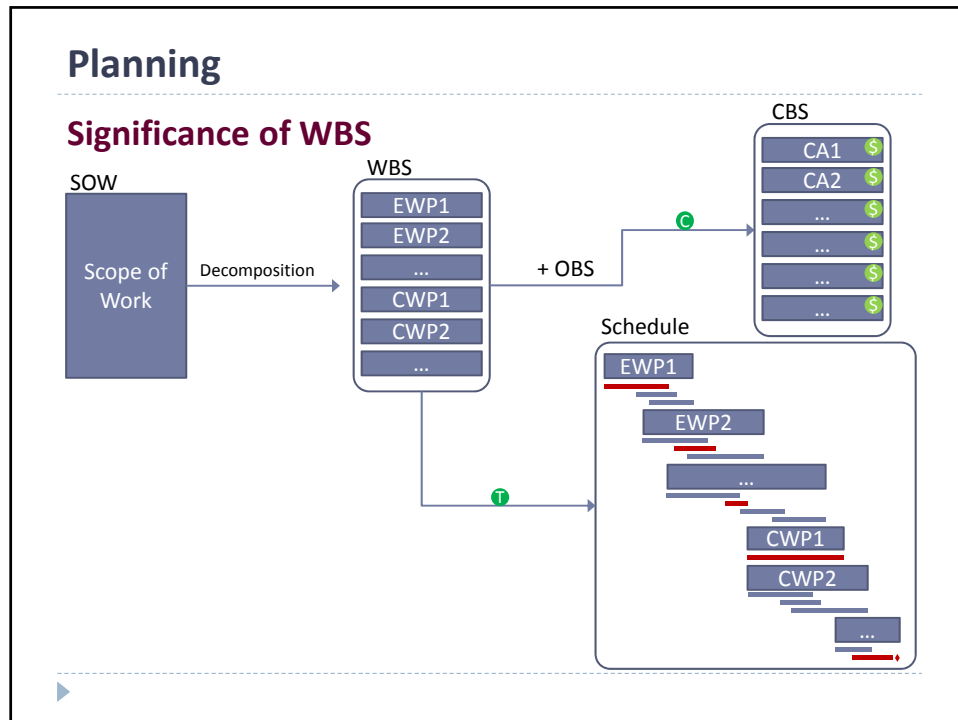
Planning Components

- What: Work Breakdown Structure
 - How: Plans and specifications
 - Who: Organization Breakdown Structure
 - How much: Cost Breakdown Structure
 - When: Schedule
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Planning

Combine and Manage

- WBS + OBS: Task assignments
 - CBS + OBS: Budget monitoring of crews, units, etc.
 - OBS + Schedule: Time-specific crew/unit assignments
 - CBS + Schedule: Cost monitoring
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Thank You

References

- Project Management Institute (PMI), 2017, A Guide to Project Management Body of Knowledge (PMBOK), 6th Edition
- AACE's Skills & Knowledge of Cost Engineering, 5th Edition
- American National Standards Institute/Electronic Industries Alliance Standard (ANSI/EIA) 748 B; July 2007, Earned Value Management Systems