What is Project Scope Management?

- **Scope** refers to all the work involved in creating the products of the project and the processes used to create them.
- A **deliverable** is a product produced as part of a project, such as hardware or software, planning documents, or meeting minutes.
- **Project scope management** includes the processes involved in defining and controlling what is or is not included in a project.

### Project Scope Management Processes

- **Scope planning**: deciding how the scope will be defined, verified, and controlled.
- **Scope definition**: reviewing the project charter and preliminary scope statement and adding more information as requirements are developed and change requests are approved.
- **Creating the WBS**: subdividing the major project deliverables into smaller, more manageable components.
- **Scope verification**: formalizing acceptance of the project scope.
- **Scope control**: controlling changes to project scope.

### Project Scope Management Summary

<table>
<thead>
<tr>
<th>Planning</th>
<th>Output: Project scope management plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process: Scope planning</td>
<td>Process: Scope definition</td>
</tr>
<tr>
<td>Outputs:</td>
<td>Outputs: Accepted deliverables, requested changes, recommended corrective actions</td>
</tr>
<tr>
<td>Process:</td>
<td>Process: Scope control</td>
</tr>
<tr>
<td>Outputs:</td>
<td>Outputs: Requested changes, recommended corrective actions, updates to the project scope statement, WBS, and WBS dictionary, scope baseline, project management plan, and organizational process assets.</td>
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<tr>
<th>Monitoring and Controlling</th>
<th>Project Start</th>
<th>Project Finish</th>
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<tr>
<td>Process: Scope verification</td>
<td>Process: Scope control</td>
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Scope Planning and the Scope Management Plan

- The **scope management plan** is a document that includes descriptions of how the team will prepare the project scope statement, create the WBS, verify completion of the project deliverables, and control requests for changes to the project scope.
- Key inputs include the project charter, preliminary scope statement, and project management plan.

Sample Scope Management Plan

Sample Project Charter

Sample Scope Definition and the Project Scope Statement

- The preliminary scope statement, project charter, organizational process assets, and approved change requests provide a basis for creating the project scope statement.
- As time progresses, the scope of a project should become more clear and specific.
Creating the Work Breakdown Structure (WBS)

- A **WBS** is a deliverable-oriented grouping of the work involved in a project that defines the total scope of the project.
- WBS is a foundation document that provides the basis for planning and managing project schedules, costs, resources, and changes.
- **Decomposition** is subdividing project deliverables into smaller pieces.
- A **work package** is a task at the lowest level of the WBS.

Sample Intranet WBS Organized by Product

Sample Intranet WBS Organized by Phase

Intranet WBS in Tabular Form

1.0 Concept
   1.1 Evaluate current systems
   1.2 Define Requirements
      1.2.1 Define user requirements
      1.2.2 Define content requirements
      1.2.3 Define system requirements
      1.2.4 Define server owner requirements
   1.3 Define specific functionality
   1.4 Define risks and risk management approach
   1.5 Develop project plan
   1.6 Brief Web development team

2.0 Web Site Design
   2.1 Define design requirements
   2.2 Define content requirements
   2.3 Define system requirements
   2.4 Define server owner requirements

3.0 Web Site Development
   3.1 Develop and implement design
   3.2 Develop and implement content
   3.3 Develop and implement system
   3.4 Develop and implement server

4.0 Roll Out

5.0 Support
Intranet WBS and Gantt Chart in Microsoft Project

Intranet Gantt Chart Organized by Project Management Process Groups

Approaches to Developing WBSs

- Using guidelines: some organizations provide guidelines for preparing WBSs
- The analogy approach: review WBSs of similar projects and tailor to your project
- The top-down approach: start with the largest items of the project and break them down
- The bottom-up approach: start with the specific tasks and roll them up
- Mind-mapping approach: mind mapping is a technique that uses branches radiating out from a core idea to structure thoughts and ideas

Sample Mind-Mapping Approach for Creating a WBS
The WBS Dictionary and Scope Baseline

- Many WBS tasks are vague and must be explained more so people know what to do and can estimate how long it will take and what it will cost to do the work.
- A **WBS dictionary** is a document that describes detailed information about each WBS item.
- The approved project scope statement and its WBS and WBS dictionary form the **scope baseline**, which is used to measure performance in meeting project scope goals.

Advice for Creating a WBS and WBS Dictionary*:

- A unit of work should appear at only one place in the WBS.
- The work content of a WBS item is the sum of the WBS items below it.
- A WBS item is the responsibility of only one individual, even though many people may be working on it.
- The WBS must be consistent with the way in which work is actually going to be performed; it should serve the project team first, and other purposes only if practical.

*Cleland, David I. *Project Management: Strategic Design and Implementation*, 1994
Scope Verification

- It is very difficult to create a good scope statement and WBS for a project.
- It is even more difficult to verify project scope and minimize scope changes.
- **Scope verification** involves formal acceptance of the completed project scope by the **stakeholders**.
- **Acceptance** is often achieved by a customer inspection and then sign-off on key deliverables.

Scope Control

- **Scope control** involves controlling changes to the project scope.
- Goals of scope control are to:
  - Influence the factors that cause scope changes.
  - Assure changes are processed according to procedures developed as part of integrated change control.
  - Manage changes when they occur.
- **Variance** is the difference between planned and actual performance.

Best Practices for Avoiding Scope Problems

1. **Keep the scope realistic**: Don’t make projects so large that they can’t be completed; break large projects down into a series of smaller ones.
2. **Involve users in project scope management**: Assign key users to the project team and give them ownership of requirements definition and scope verification.
3. **Use off-the-shelf hardware and software whenever possible**: Many IT people enjoy using the latest and greatest technology, but business needs, not technology trends, must take priority.
4. **Follow good project management processes**: As described in this chapter and others, there are well-defined processes for managing project scope and other aspects of projects.

Suggestions for Improving User Input

- Develop a **good project selection process** and insist that sponsors are from the user organization.
- Have users on the project team in important roles.
- Have regular meetings with defined agendas, and have users sign-off on key deliverables presented at meetings.
- Deliver something to users and sponsors on a regular basis.
- Don’t promise to deliver when you know you can’t.
- Co-locate users with developers.
Suggestions for Reducing Incomplete and Changing Requirements

- Develop and follow a requirements management process
- Use techniques such as prototyping, use case modeling, and Joint Application Design (JAD) to get more user involvement
- Put requirements in writing and keep them current
- Create a requirements management database for documenting and controlling requirements

Using Software to Assist in Project Scope Management

- Word-processing software helps create several scope-related documents
- Spreadsheets help to perform financial calculations and weighed scoring models, and develop charts and graphs
- Communication software like e-mail and the Web help clarify and communicate scope information
- Project management software helps in creating a WBS, the basis for tasks on a Gantt chart
- Specialized software is available to assist in project scope management

Chapter Summary

- Project scope management includes the processes required to ensure that the project addresses all the work required, and only the work required, to complete the project successfully
- Main processes include:
  - Scope planning
  - Scope definition
  - Creating the WBS
  - Scope verification
  - Scope control

Suggestions for Reducing Incomplete and Changing Requirements (continued)

- Provide adequate testing and conduct testing throughout the project life cycle
- Review changes from a systems perspective
- Emphasize completion dates to help focus on what’s most important
- Allocate resources specifically for handling change requests/enhancements like NWA did with ResNet