# PMI – PROJECT SCOPE MANAGEMENT

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➢ Definition

➢ Product vs project scope

➢ Scope management processes

➢ Scope management: waterfall vs Scrum

➢ Gold plating

**What is SCOPE?**

Scope refers to all the work involved in creating the **<u>deliverables</u>** of the project and **<u>processes</u>** use to create them



SCOPE OF WORK

**Project Scope Management** includes the processes required to ensure that the project includes all the work required, and only the work required to complete the project successfully.

**Managing project scope** is primary concerned with defining and controlling what is, and is not included in the project.
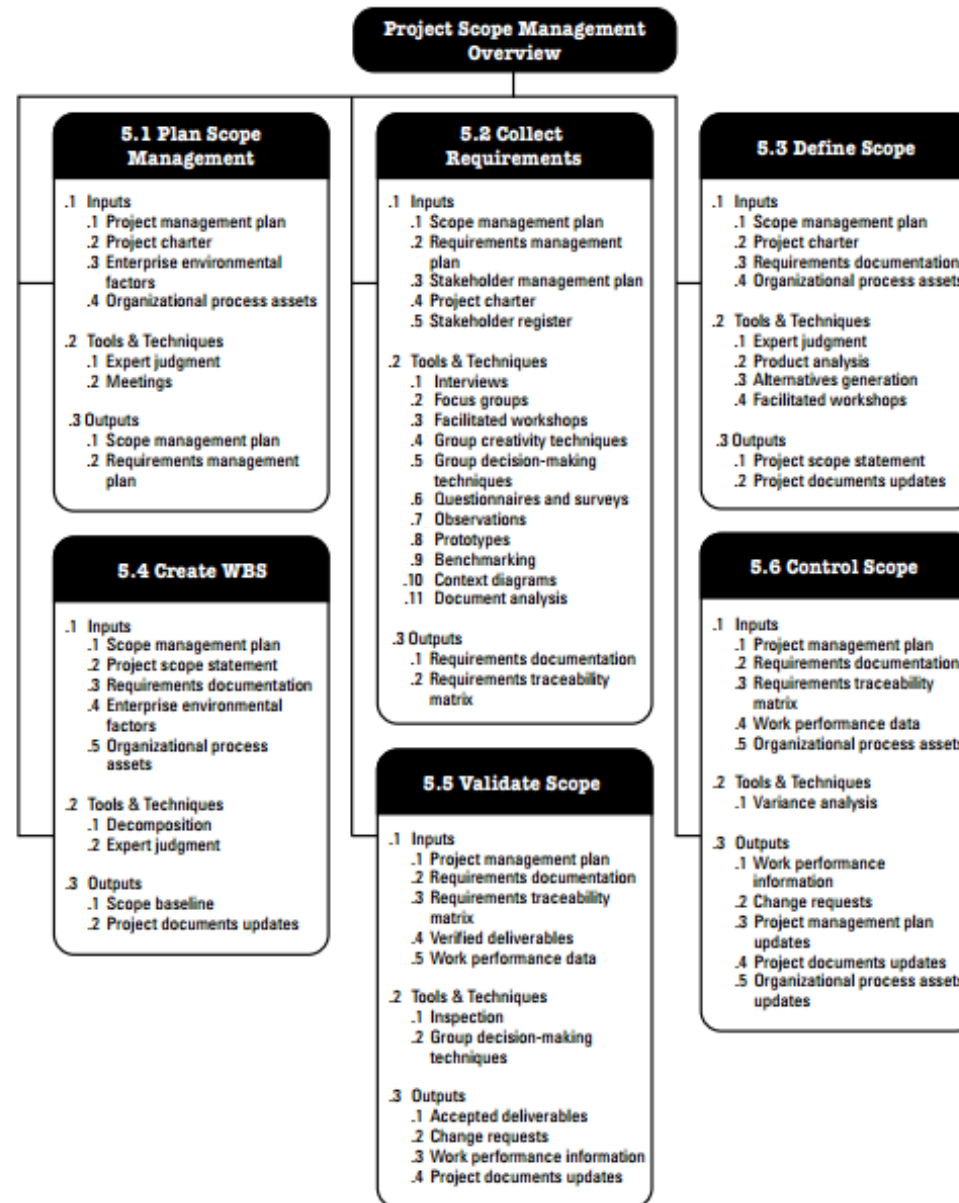
**The Scope baseline** is the approved version of project scope statement, work breakdown structure (WBS) and its associated WBS dictionary

• **The product scope** are the features and functions that characterize a product, service or result;

• **The project scope** includes all the work to deliver a product, service or result with the specific features and functions

→ *The project scope is sometime viewed as including product scope*

# PROJECT SCOPE MANAGEMENT PROCESSES

## Project Scope Management Overview

### 5.1 Plan Scope Management

.1 Inputs
  .1 Project management plan
  .2 Project charter
  .3 Enterprise environmental factors
  .4 Organizational process assets

.2 Tools & Techniques
  .1 Expert judgment
  .2 Meetings

.3 Outputs
  .1 Scope management plan
  .2 Requirements management plan

### 5.2 Collect Requirements

.1 Inputs
  .1 Scope management plan
  .2 Requirements management plan
  .3 Stakeholder management plan
  .4 Project charter
  .5 Stakeholder register

.2 Tools & Techniques
  .1 Interviews
  .2 Focus groups
  .3 Facilitated workshops
  .4 Group creativity techniques
  .5 Group decision-making techniques
  .6 Questionnaires and surveys
  .7 Observations
  .8 Prototypes
  .9 Benchmarking
  .10 Context diagrams
  .11 Document analysis

.3 Outputs
  .1 Requirements documentation
  .2 Requirements traceability matrix

### 5.3 Define Scope

.1 Inputs
  .1 Scope management plan
  .2 Project charter
  .3 Requirements documentation
  .4 Organizational process assets

.2 Tools & Techniques
  .1 Expert judgment
  .2 Product analysis
  .3 Alternatives generation
  .4 Facilitated workshops

.3 Outputs
  .1 Project scope statement
  .2 Project documents updates

### 5.4 Create WBS

.1 Inputs
  .1 Scope management plan
  .2 Project scope statement
  .3 Requirements documentation
  .4 Enterprise environmental factors
  .5 Organizational process assets

.2 Tools & Techniques
  .1 Decomposition
  .2 Expert judgment

.3 Outputs
  .1 Scope baseline
  .2 Project documents updates

### 5.6 Control Scope

.1 Inputs
  .1 Project management plan
  .2 Requirements documentation
  .3 Requirements traceability matrix
  .4 Work performance data
  .5 Organizational process assets

.2 Tools & Techniques
  .1 Variance analysis

.3 Outputs
  .1 Work performance information
  .2 Change requests
  .3 Project management plan updates
  .4 Project documents updates
  .5 Organizational process assets updates

### 5.5 Validate Scope

.1 Inputs
  .1 Project management plan
  .2 Requirements documentation
  .3 Requirements traceability matrix
  .4 Verified deliverables
  .5 Work performance data

.2 Tools & Techniques
  .1 Inspection
  .2 Group decision-making techniques

.3 Outputs
  .1 Accepted deliverables
  .2 Change requests
  .3 Work performance information
  .4 Project documents updates

- The process of creating a scope management plan that documents how the project scope will be defined, validated & controlled.

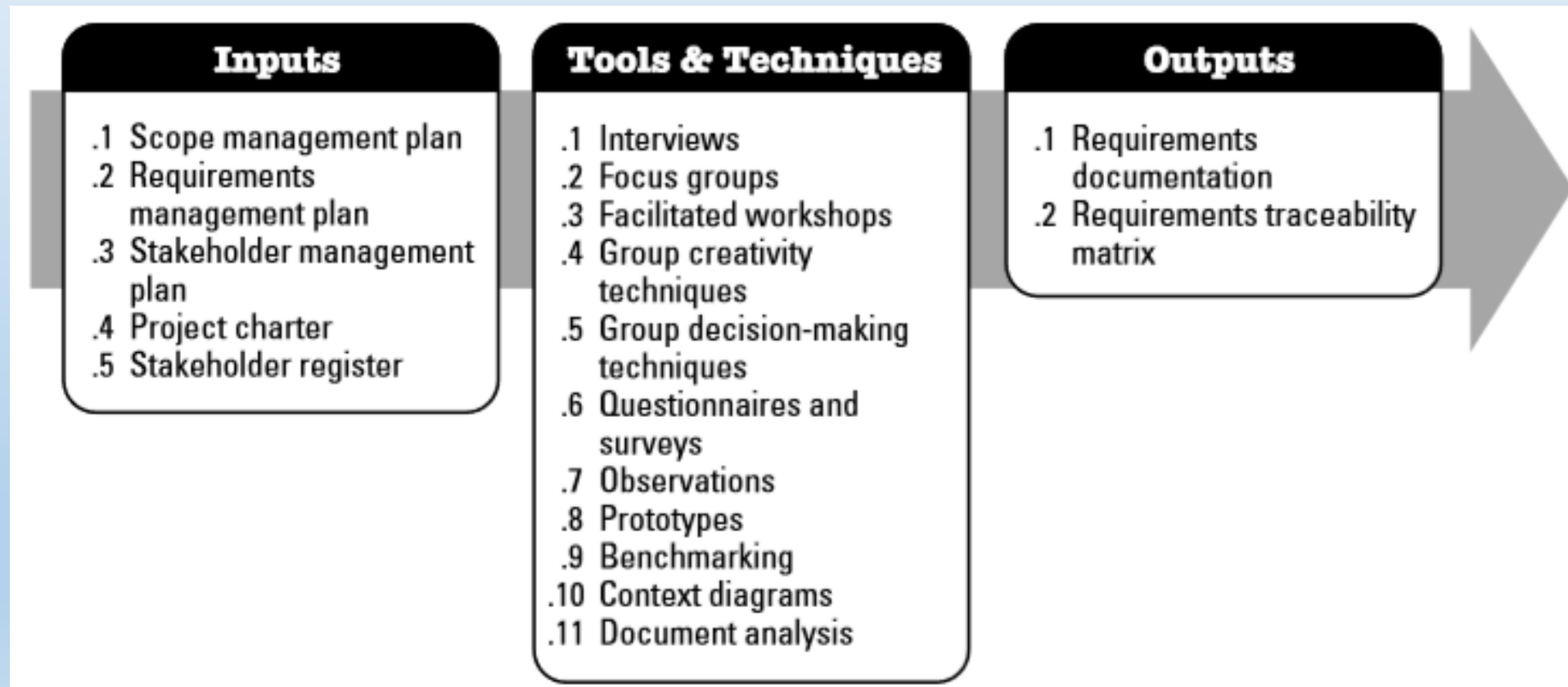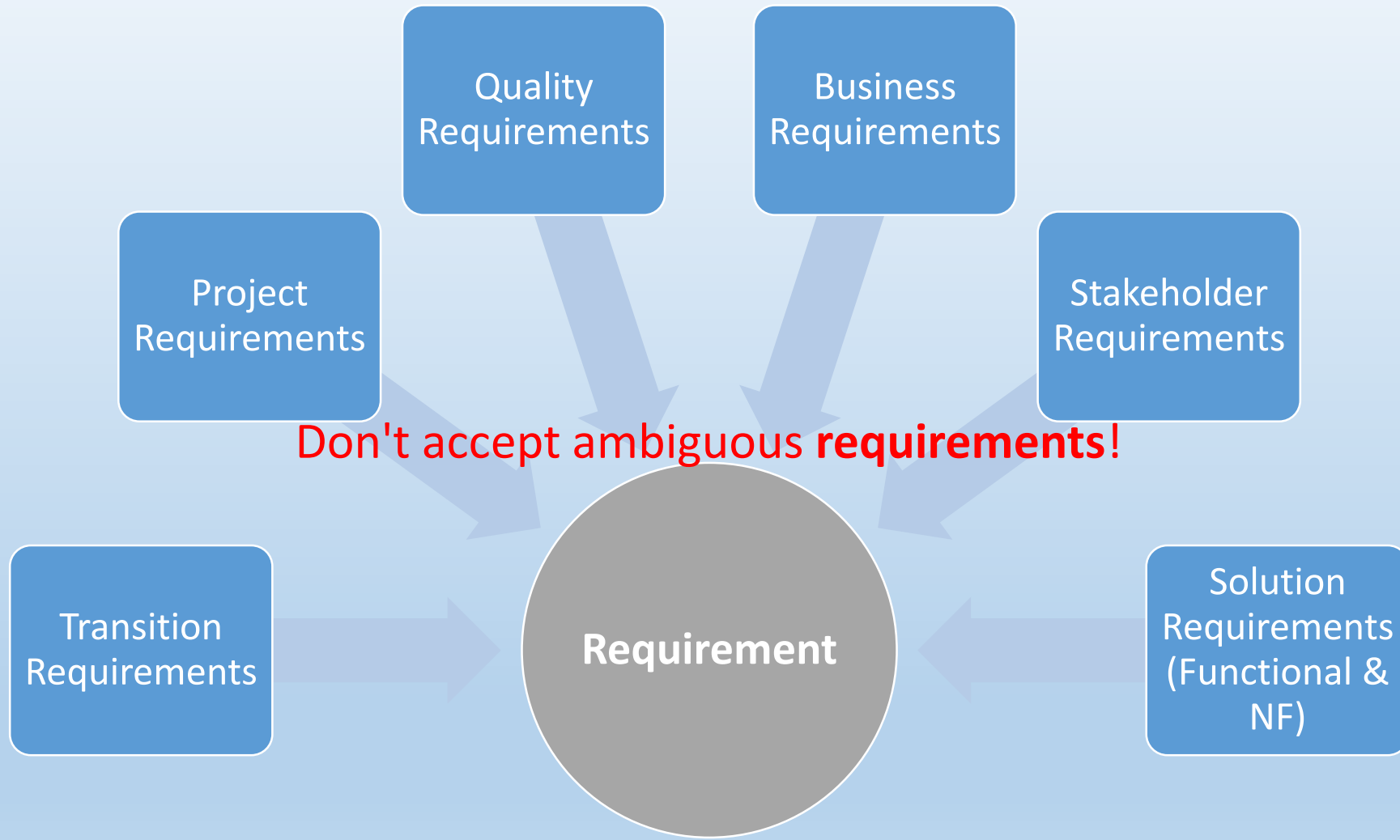- It provides guidance and direction on scope will be managed.



| Inputs | Tools & Techniques | Outputs |
|---|---|---|
| .1 Project management plan<br>.2 Project charter<br>.3 Enterprise environmental factors<br>.4 Organizational process assets | .1 Expert judgment<br>.2 Meetings | .1 Scope management plan<br>.2 Requirements management plan |

## How to define a Scope Management Plan?

| | Requirements | Scope |
|---|---|---|
| **Processes** | How will the requirements be identified, recorded and updated? | How will the scope derived from the project charter (project scope statement) and requirements be decomposed, detailed, updated and verified? |
| **Configuration** | How will changes in requirements be analyzed and incorporated into the official list of requirements? Will the project team manage version 1.0 of the requirements and then follow updates with minor and major releases? | How will the scope baseline be updated? (The Work Breakdown Structure, or WBS, together with the WBS dictionary, constitute the scope baseline.) Will there be a configuration or release management for this scope baseline? |
| **Authority** | Who will be authorized to accept requirements? Who can approve changes in requirements according to the impact of the updated requirement? | Who will evaluate the weight of change requests? According to this weight, the level of authority required to approve it may change. Who will participate to the change control board, in charge of approving or rejecting the most important change requests? |
| **Templates** | What template is available and will be used? Will the team use a requirement traceability matrix? Which one? | What example of WBS is available or proposed as a model? What content will be described in the WBS dictionary? |
| **Measures** | How will the requirements be compared with each other in order to prioritize them or evaluate their value for the sponsor? | How will the scope be measured in order to evaluate its acceptability during scope control? |

# COLLECT REQUIREMENT

The process of defining and documenting all **stakeholders' needs** to meet the project's objectives. This process is critical to the project's success.

| Inputs | Tools & Techniques | Outputs |
|---|---|---|
| .1 Scope management plan<br>.2 Requirements management plan<br>.3 Stakeholder management plan<br>.4 Project charter<br>.5 Stakeholder register | .1 Interviews<br>.2 Focus groups<br>.3 Facilitated workshops<br>.4 Group creativity techniques<br>.5 Group decision-making techniques<br>.6 Questionnaires and surveys<br>.7 Observations<br>.8 Prototypes<br>.9 Benchmarking<br>.10 Context diagrams<br>.11 Document analysis | .1 Requirements documentation<br>.2 Requirements traceability matrix |

# COLLECT REQUIREMENT

Quality Requirements

Business Requirements

Project Requirements

Stakeholder Requirements

**Don't accept ambiguous requirements!**

Transition Requirements

**Requirement**

Solution Requirements (Functional & NF)

The process of developing a detailed description of the project and product.



| Inputs | Tools & Techniques | Outputs |
|---|---|---|
| .1 Scope management plan<br>.2 Project charter<br>.3 Requirements documentation<br>.4 Organizational process assets | .1 Expert judgment<br>.2 Product analysis<br>.3 Alternatives generation<br>.4 Facilitated workshops | .1 Project scope statement<br>.2 Project documents updates |

The **project scope** defines the deliverable to be produced by the project, its characteristics and its acceptance criteria.

# DEFINE SCOPE

What are included in the Project Scope Statement?

Product scope description

Acceptance criteria's

Deliverables

Project exclusions

Constraints

Assumptions

# CREATE WBS

The process of subdividing the major project's deliverables and into smaller, more manageable components



| Inputs | Tools & Techniques | Outputs |
|---|---|---|
| .1 Scope management plan<br>.2 Project scope statement<br>.3 Requirements documentation<br>.4 Enterprise environmental factors<br>.5 Organizational process assets | .1 Decomposition<br>.2 Expert judgment | .1 Scope baseline<br>.2 Project documents updates |
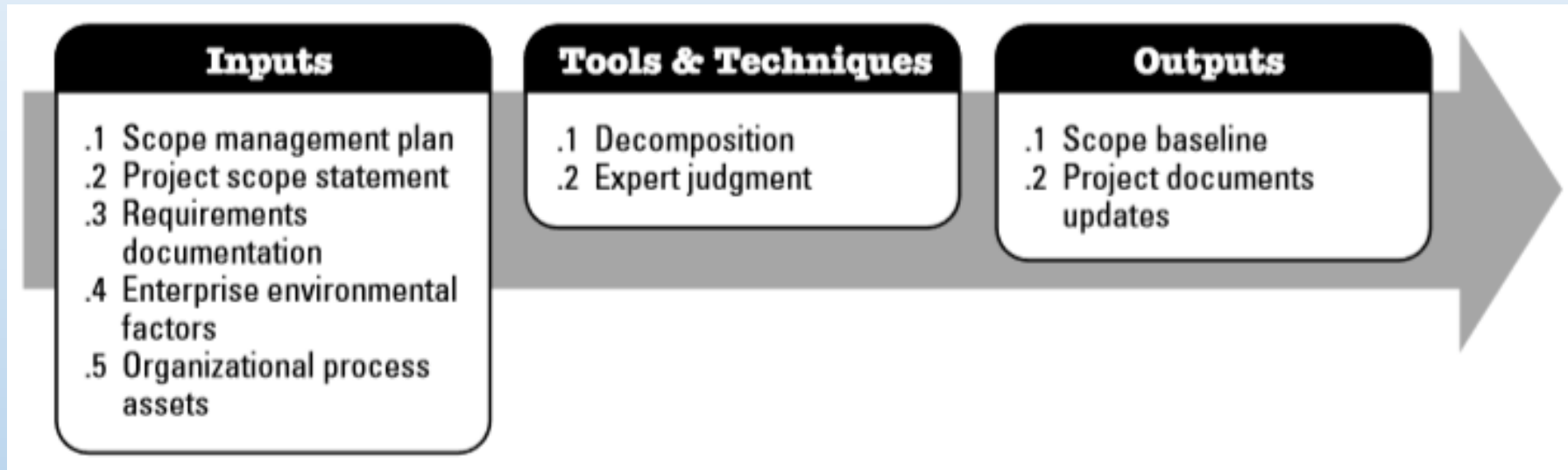
The lowest level of WBS component in the hierarchy is called as **Work Package.**

WBS can be decomposed down by: Phases, Major deliverables, Components, Organization

## How is WBS established?

**Step 1**
- Read the Project scope statement carefully
- List the most important project deliverables derived from the scope statement

**Next steps**
- Divided these deliverables to sub-deliverables
- These sub-deliverables should then be subdivided

**Final step**
- The subdivision process can stop as soon as the Work Package can be: Estimated, not too long, be allocated to a person or group of people or supplier, easy to write and clear for everybody
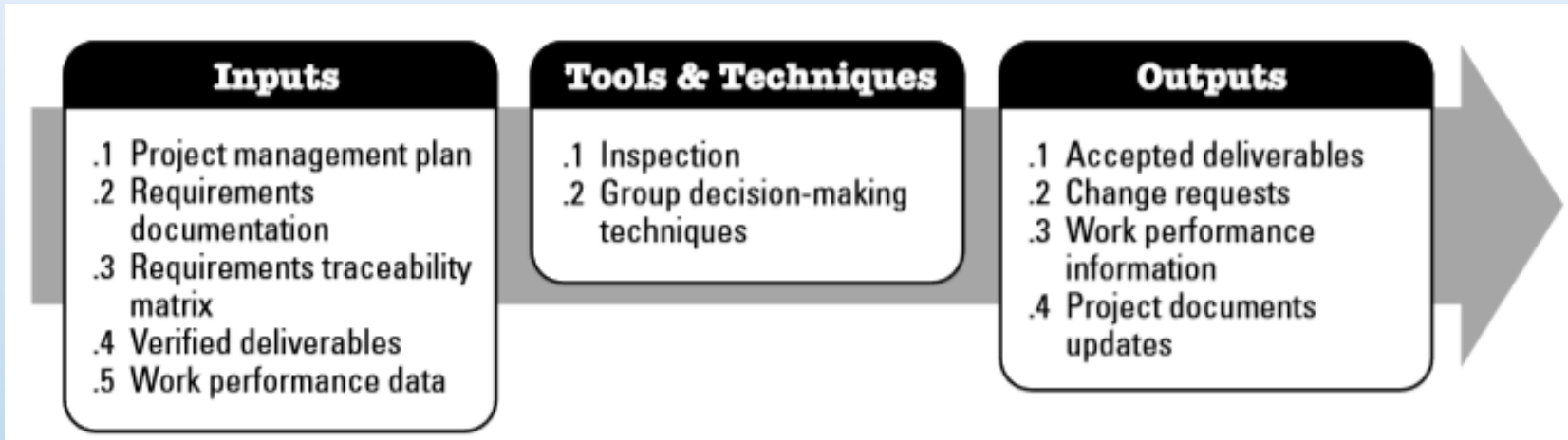
# SAMPLE WBS



**Software Product Release 5.0**

| Project Management | Product Requirements | Detail Design | Construct | Integration and Test |
|---|---|---|---|---|
| Planning | Software | Software | Software | Software |
| Meetings | User Documentation | User Documentation | User Documentation | User Documentation |
| Administration | Training Program Materials | Training Program Materials | Training Program Materials | Training Program Materials |

The WBS is illustrative only. It is not intended to represent the full project scope of any specific project, nor to imply that this is the only way to organize a WBS on this type of project.
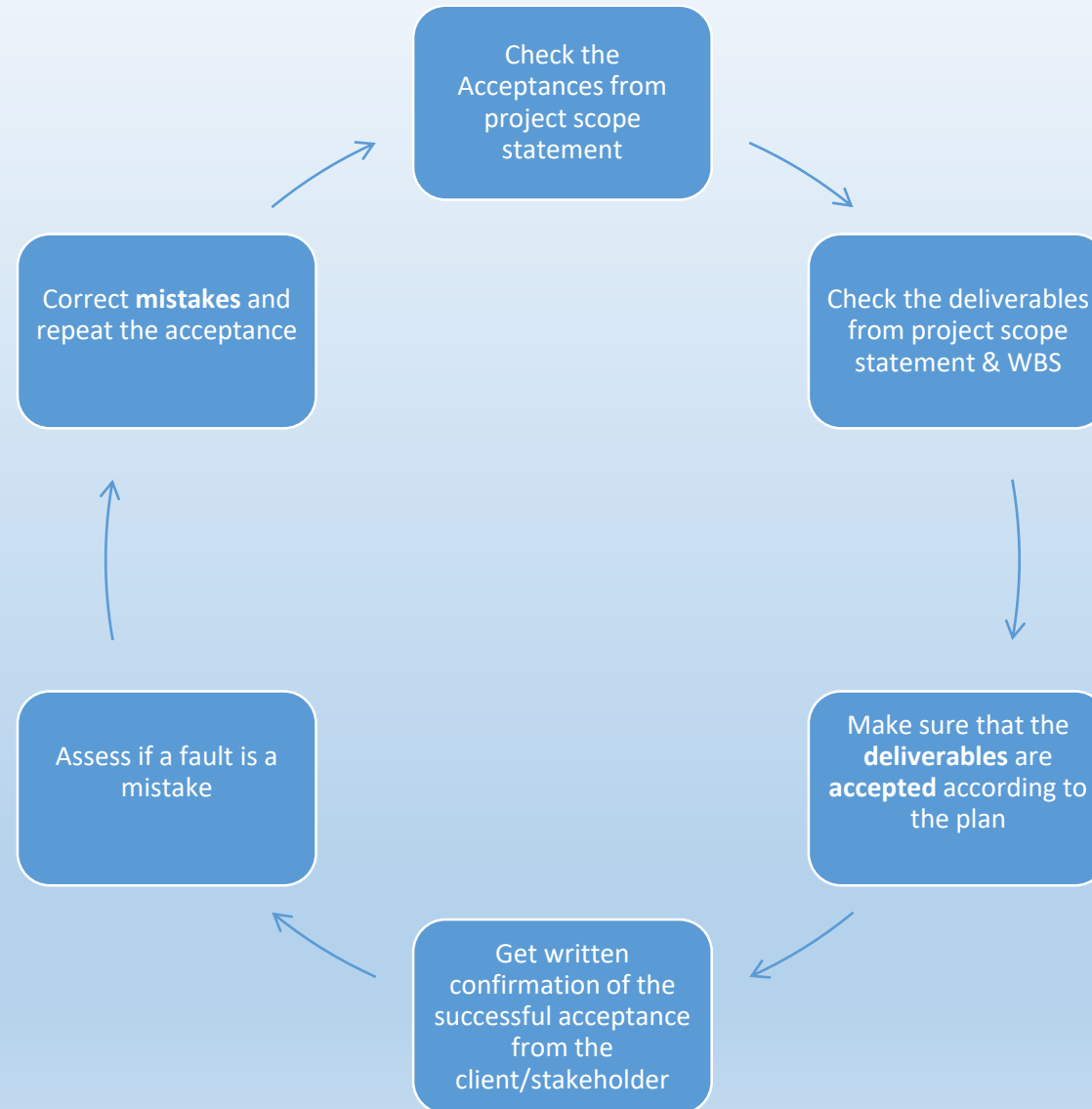
## Scope baseline:

- **Project scope statement**: description of project scope, major deliverables, assumptions and constraints
- **WBS**
- **WBS dictionary**
  - Description of work
  - Assumptions & Constraints
  - Responsible Org
  - Schedule milestones
  - Associated schedule activities
  - Resource required
  - Cost estimate
  - Acceptance Criteria
  - Quality requirement
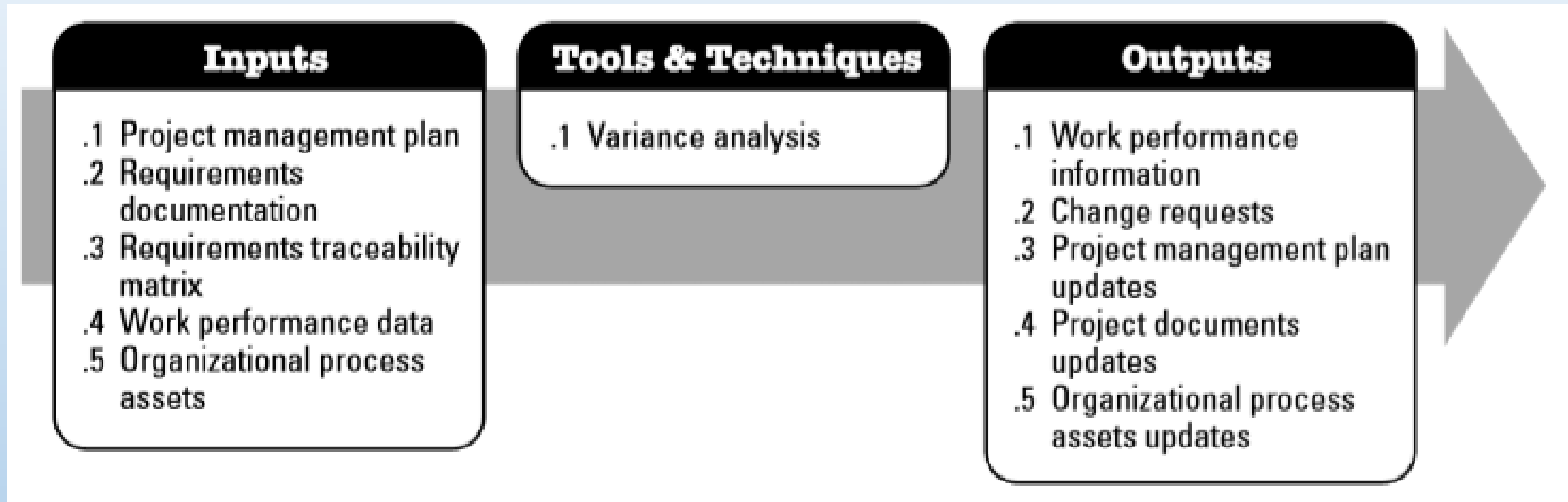  - Technical references
  - Agreement information

The process of formalizing acceptance of completed project deliverables.



**Inputs**
- .1 Project management plan
- .2 Requirements documentation
- .3 Requirements traceability matrix
- .4 Verified deliverables
- .5 Work performance data

**Tools & Techniques**
- .1 Inspection
- .2 Group decision-making techniques

**Outputs**
- .1 Accepted deliverables
- .2 Change requests
- .3 Work performance information
- .4 Project documents updates

The verified deliverables are reviewed with customer or sponsor to ensure that they are completed satisfactorily and have received formal acceptance by customer or sponsor.

# VALIDATE SCOPE



Check the Acceptances from project scope statement

Check the deliverables from project scope statement & WBS

Make sure that the **deliverables** are **accepted** according to the plan

Get written confirmation of the successful acceptance from the client/stakeholder

Assess if a fault is a mistake

Correct **mistakes** and repeat the acceptance

The process of controlling changes to the project scope



**Inputs**
- .1 Project management plan
- .2 Requirements documentation
- .3 Requirements traceability matrix
- .4 Work performance data
- .5 Organizational process assets

**Tools & Techniques**
- .1 Variance analysis

**Outputs**
- .1 Work performance information
- .2 Change requests
- .3 Project management plan updates
- .4 Project documents updates
- .5 Organizational process assets updates

# CONTROL SCOPE

**How to control project scope?**

**Precondition**: the **scope baseline** has been defined and approved by stakeholders.

1. How do the change procedures work? See the scope management plan

2. Has all necessary work (and only the necessary work) been carried out?

3. **Try to anticipate** possible influences on the project that could result in changes to the project scope and act on them

4. If you notice **discrepancies** from the baseline (e.g. additional or missing requirements):

5. Take action to correct them, and

6. Identify changes if corrections are not possible

# SCOPE MANAGEMENT: WATERFALL & SCRUM

| Knowledge area | Waterfall | Scrum |
|---|---|---|
| Scope management | Collect requirements (URD) | Develop and prioritize **Product backlog** items |
| | Define scope (Scope statement- Deliverables, exclusion/inclusions, assumptions/Constraints) | Select **Product backlog** items for the release or sprints |
| | Create Work Breakdown Structure (WBS, WBS diagram, WBS dictionary) | Create a **Feature Breakdown Structure** for the release, showing features for each release. Further break it down into into individual features (scenariors) per sprint |
| | Verify Scope (accepted features, CRs) | Via feature acceptance (by product owner); Use product backlog and traceability tools. |
| | Control Scope (Change control) | Manage via product backlog and product owner; Protect the iteration |

Scope management is inherently built into the Scrum process. Scrum keeps Time and Costs fixed, the only negotiation item is Scope which is fixed at the beginning of the sprint; It Solves intractable TPM iron triangle of Time, Scope, Cost.

The Balancing Act of Scope Creep