

MODULE
4

Process—
Primary Constraints

CHAPTER

2

Scope

Distinction Between Project and Product Scope



**Product
scope**

Set of “features and functions”
that characterize a product,
service, or result”

*Measured against product
requirements*

**Project
scope**

“The work performed to deliver a
product, service, or result with the
specified features and functions”

*Measured against project
management plan or release
criteria/backlog deemed in scope*

Scope

- All the work to be completed before a project can be closed—what is **in scope** and what is **out of scope**
- Goal against which project success can be measured
- Objective reference for acceptance of deliverables

Predictive: Project Scope Management

KNOWLEDGE AREAS	PROCESS GROUPS				
	Initiating	Planning	Executing	Monitoring and Controlling	Closing
Project Scope Management		<ul style="list-style-type: none"> • Plan Scope Management • Collect Requirements • Define Scope • Create WBS 		<ul style="list-style-type: none"> • Validate Scope • Control Scope 	

Source: Adapted from Project Management Institute, *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)—Sixth Edition*, Project Management Institute, Inc., 2017, Table 1-4, Page 25. Material from this publication has been reproduced with the permission of PMI.

- Threshold to analyze the impact of changes
- Basis for all other Planning processes

Agile Project Scope Management

- Scope needs continued refinement.
- Stakeholders highly engaged:
 - Feedback on working deliverables.
 - Ensure that backlog priority reflects actual customer needs.
- Plans will change, but planning is indispensable.
- Strategic: Tee-shirt sizing, roadmap.
- Tactical: Backlog grooming.

Each iteration:

- Collect requirements: Discuss/clarify stories.
- Define scope: Pick tasks in backlog for iteration.
- Validate scope: Backlog preparation and grooming.
- Control scope: Agile ceremonies.

Predictive: Plan Scope Management



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- Yields **two** planning documents for how scope will be defined and controlled:
 - Scope management plan
 - Requirements management plan

Output: Scope Management Plan

How to:

- Prepare a scope statement.
- Format the work breakdown structure.
- Validate deliverables.
- Document customer acceptance of deliverables.
- Ensure that the plan is current.

Output: Requirements Management Plan

- How stakeholder requirements will be collected, analyzed, documented, and managed
- How fulfillment will be measured
- Requirements traceability matrix structure
- Continuity in phased projects
- Configuration management

Types of Requirements

Project managers must consider all types of requirements during this project process.

Business

Stakeholder

Solution

Transition

Project

Quality

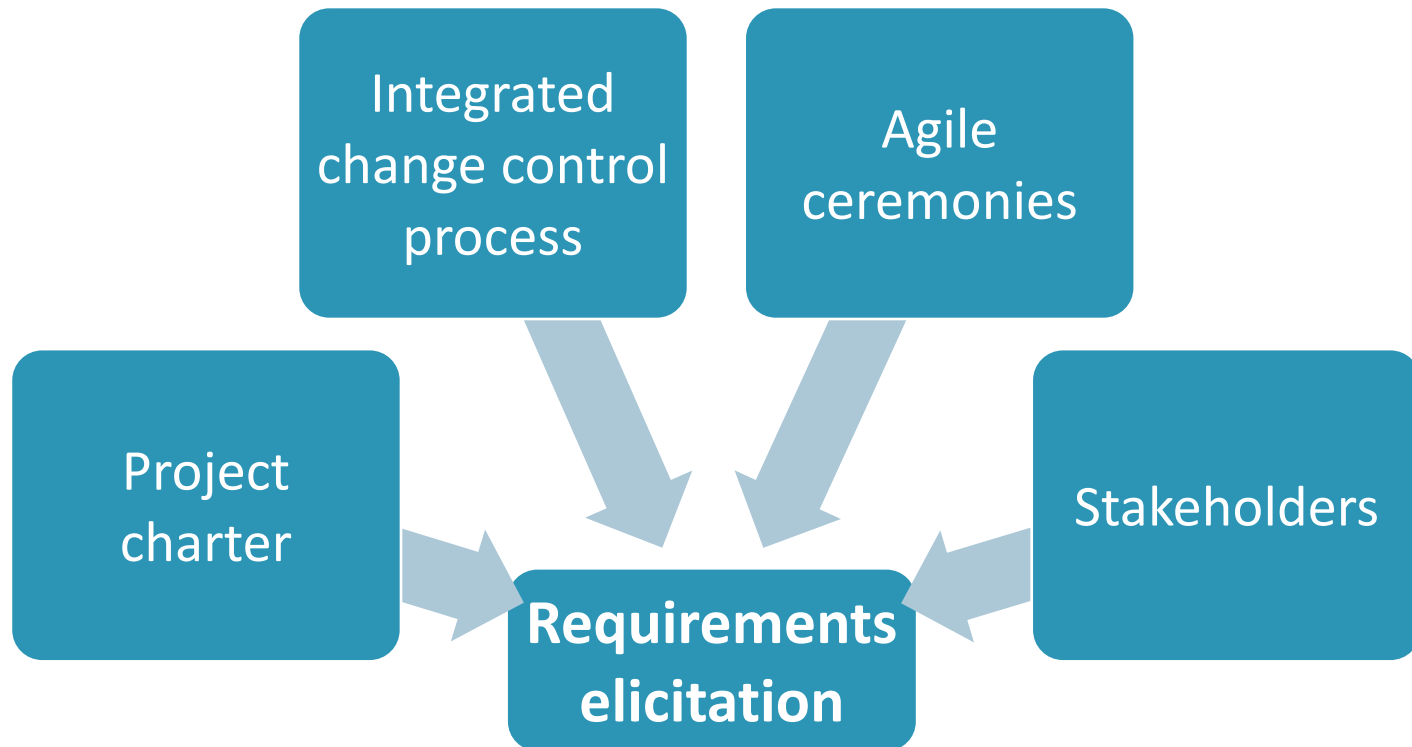


Discussion Question


What type of requirement is “Project team must coordinate with affected function heads”?

- A. Business
- B. Stakeholder
- C. Solution
- D. Project

Where Do Requirements Come From?

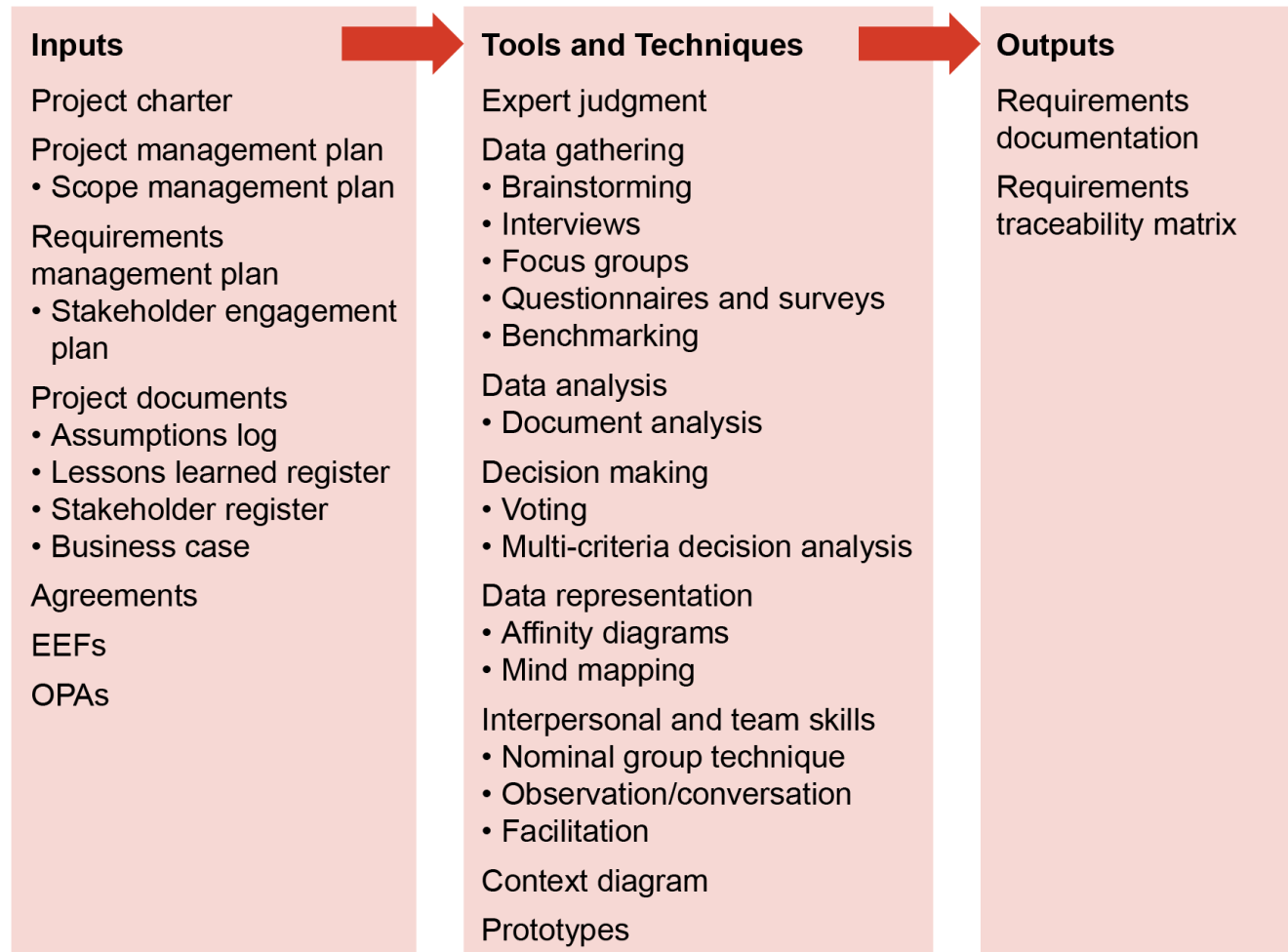


Agile/Hybrid Requirements Elicitation/Prioritization

- 
- Lightweight documentation.
 - Never ends until project ends.
 - Collaborative discussion, progressive elaboration.
 - Product owner takes lead.
 - Capture “what,” not “how,” in stories, defects, epics, and spikes.
 - “How” from team and feedback. (Be solution-agnostic.)
 - Backlog grooming is prioritization.

Predictive: Collect Requirements

- Eliciting and documenting requirements from all stakeholder groups



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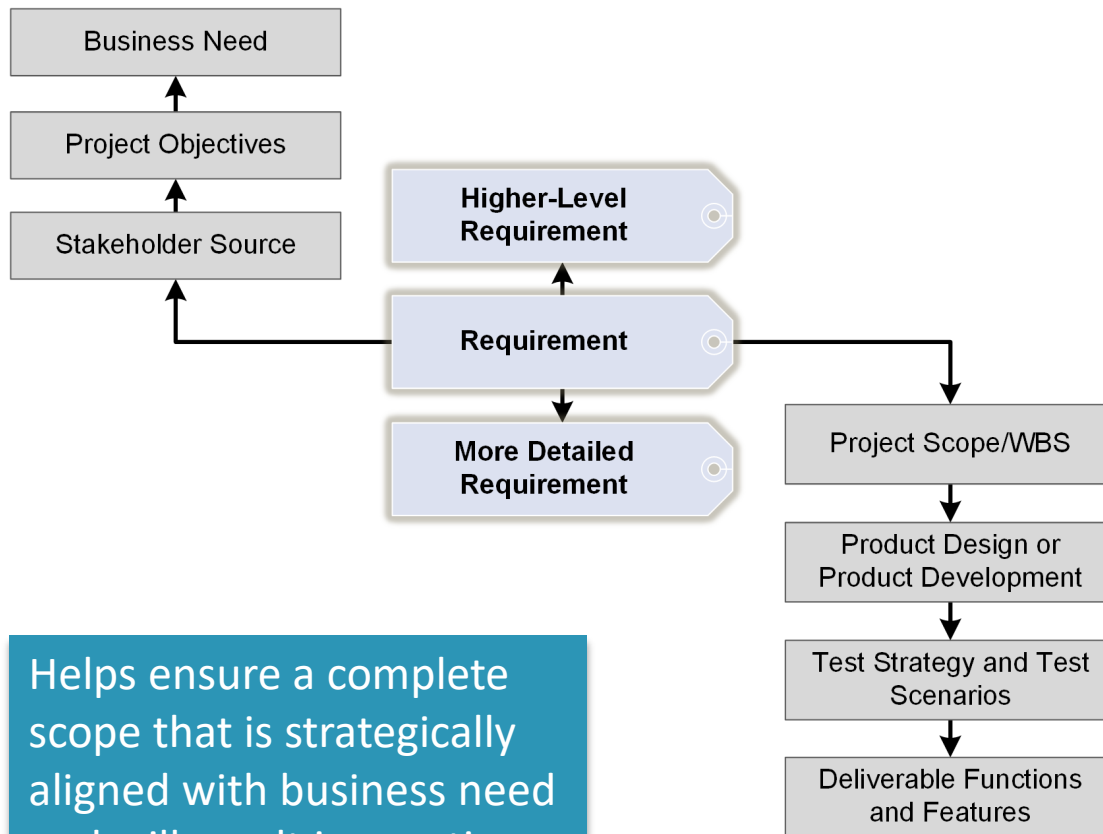
Requirements Documentation

“A record of product requirements and other product information, along with whatever is recorded to manage it.”
(PMBOK® Guide—Seventh Edition)

Requirements must be:

- Unambiguous.
- Traceable to sponsor/customer needs.
- Complete.
- Internally consistent and free of conflicts.
- Acceptable, based on agreed decision-making method.

Requirements Traceability Matrix



Helps ensure a complete scope that is strategically aligned with business need and will result in meeting customer expectations

Spreadsheet that lists for each requirement:

- A unique identifier.
- Description.
- Owner.
- Priority.
- Status.

Defining Scope in Agile/Hybrid Projects

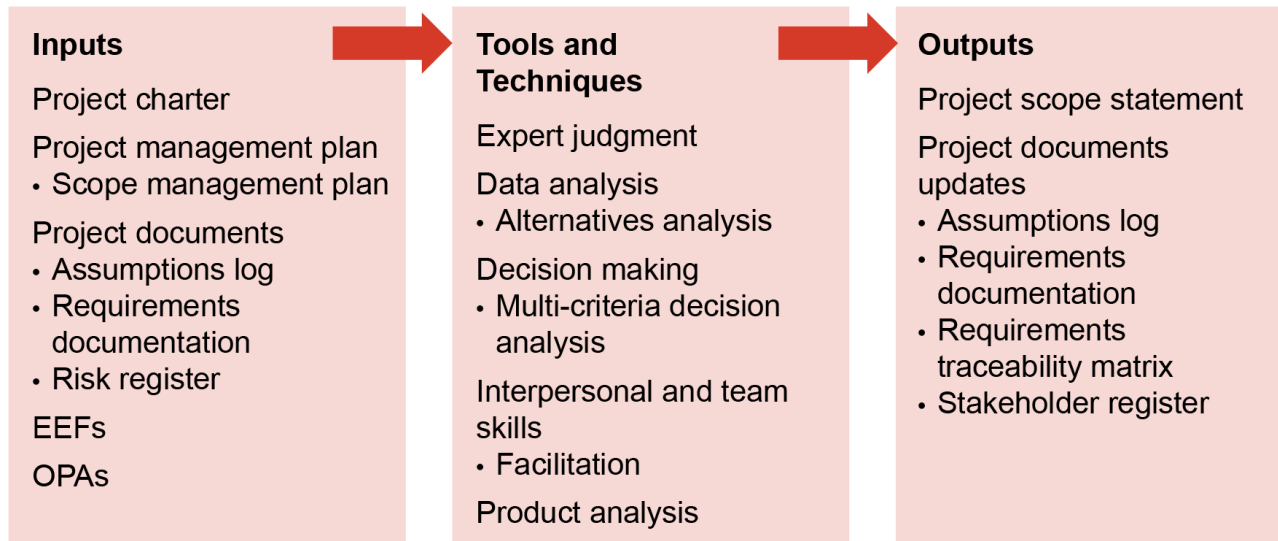
Tee-shirt sizing for overall project (example)

Size	Required Team Size	Rough Cost (–25% to +75%)	Rough Schedule (–25% to +75%)
XS	1 person	\$10,000	1 month
S	2–5 persons	\$30,000	2 months
M	6–9 persons	\$700,000	6 months
L	2 teams of 6–9 persons	\$3,000,000	12 months
XL	3+ teams of 6–9 persons	\$7,000,000	18 months

Defining Scope in Agile/Hybrid Projects

- Agile roadmap and minimum viable product (MVP)
- Issues with defining MVP for first release
 - Unclear vision: Keep at level of themes, epics.
 - Minimum viable versus valuable? Smallest feasible may not be most valued. Don't compromise on quality.
 - Technical debt: Fast way may not be best for long term. May be a strategy, be unavoidable, or be from incompetence. Accumulates interest (e.g., time spent on workarounds).
 - Numerous dependencies.
 - Contract flexibility: Don't limit minimizing initial scope.
 - Creative work inherently difficult to estimate.

Predictive: Define Scope



Source: Adapted from Project Management Institute, *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)—Sixth Edition*, Project Management Institute, Inc., 2017, Figure 5-8, Page 150. Material from this publication has been reproduced with the permission of PMI.

- Process of sorting collected requirements to see which align with the intent of the project charter and project constraints

Moving from Requirements to Scope

Facilitated workshops

- Sort requirements.
- Identify mandatory ones.
- Establish priorities.
- Create stakeholder consensus.

Product analysis

- Industry-specific process:
 - Product breakdown
 - Systems engineering
 - Value engineering

Alternatives generation

- Different ways to achieve goal.
- Uses idea-generation techniques (e.g., brainstorming, lateral thinking).

Project Scope Statement

Project scope
description

Acceptance
criteria

Deliverables

Project
exclusion

Constraints

Assumptions

First of three pivotal scope documents

Breaking Down Scope on Agile/Hybrid Projects

Backlog preparation

- Columns used.
- Rules for moving.
- Definition of “done.”
- Backlog evolves over project.
- Like WBS, is 100% complete in regard to what can be known now.

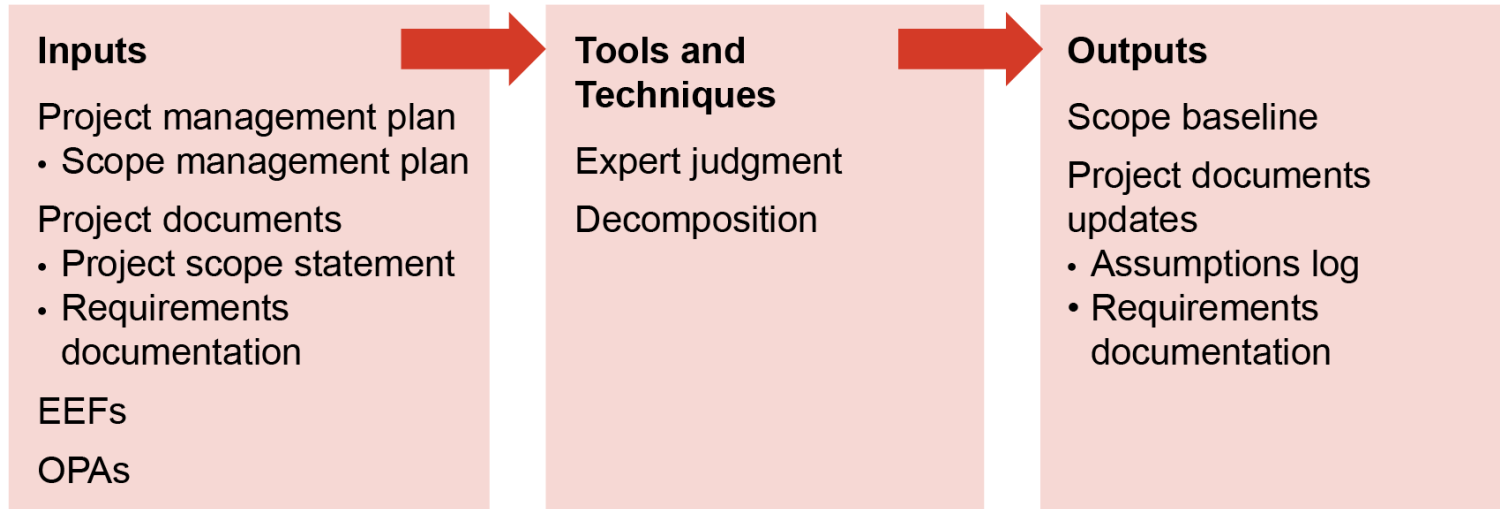
Personas: archetype user (fictional)

- Who will want it (demographics).
- Why they will want it (goals).
- How they will use it (use case).
- How they will benefit.
- Pains they want to avoid.
- How needs differ from other personas.

Creating themes and epics

- Broadly defined user stories.
- To be decomposed, but wait until last responsible moment.
- Themes categorize.
- Rolling wave planning.
- Start with vision.

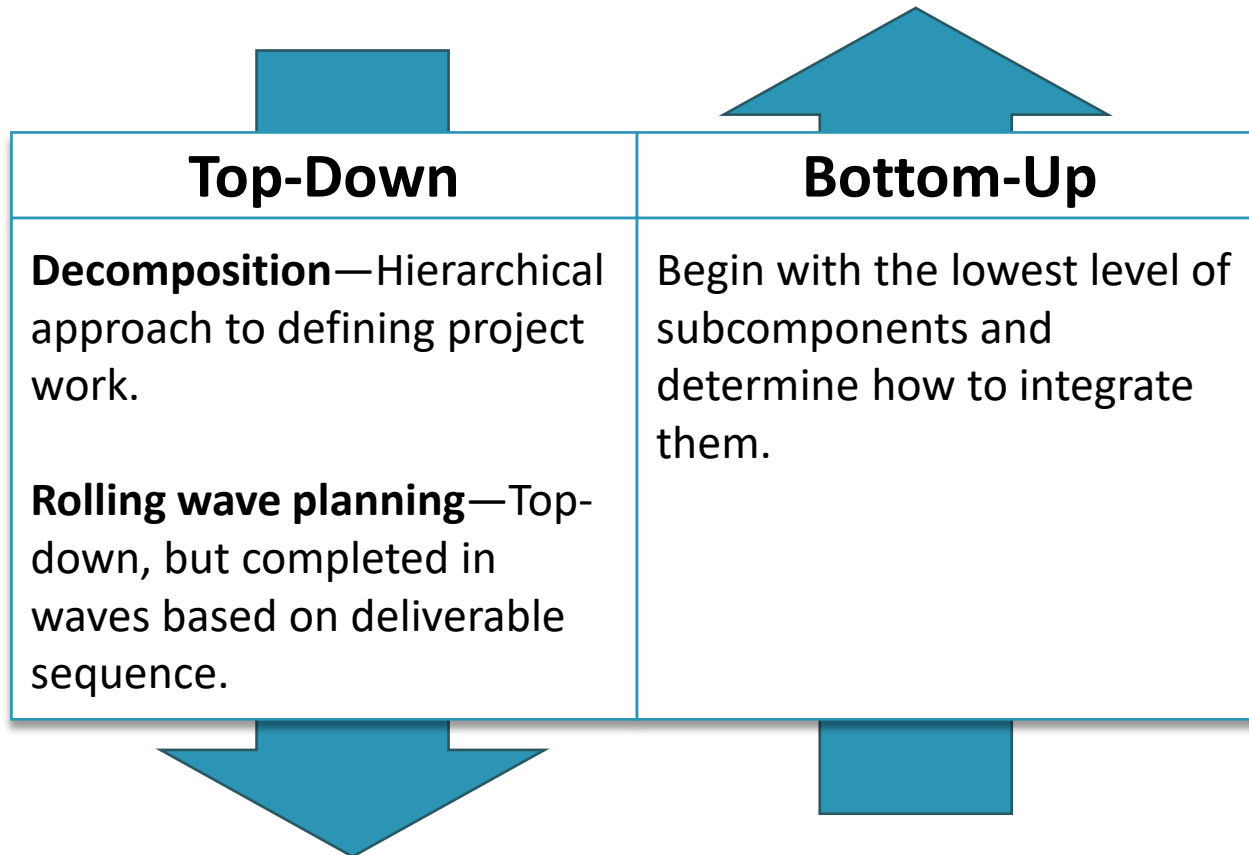
Predictive: Create Work Breakdown Structure (WBS)



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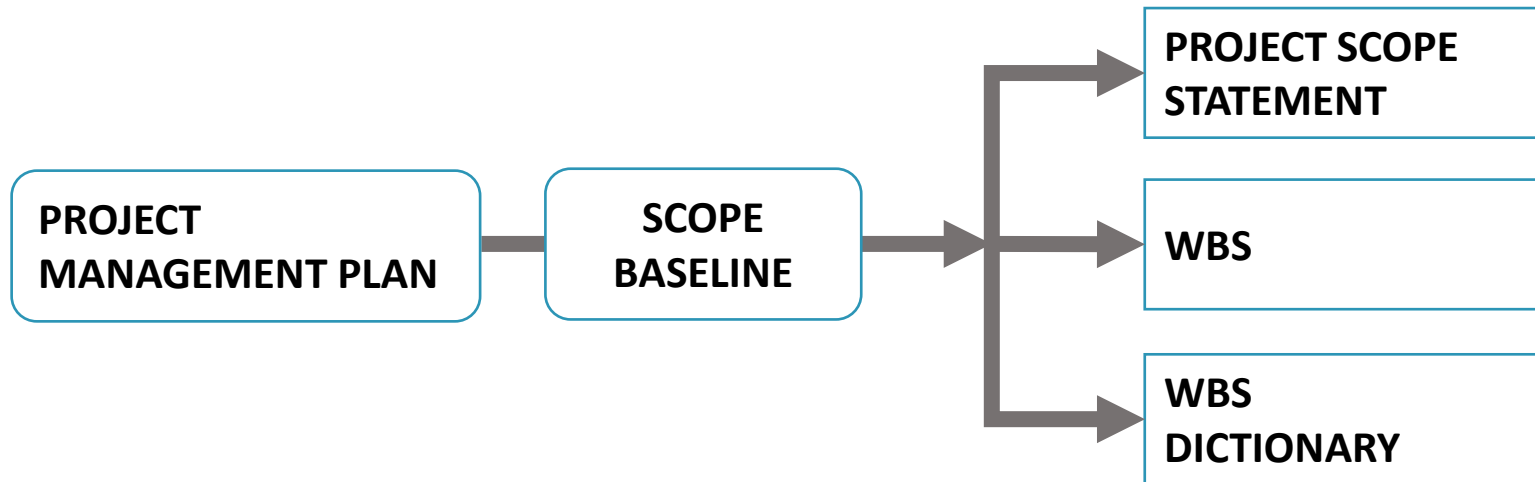
- Detailed, deliverable-oriented analysis of what work must be done—but not how—to achieve project objectives

WBS Approaches



Specific approach may be defined and supported through OPAs.

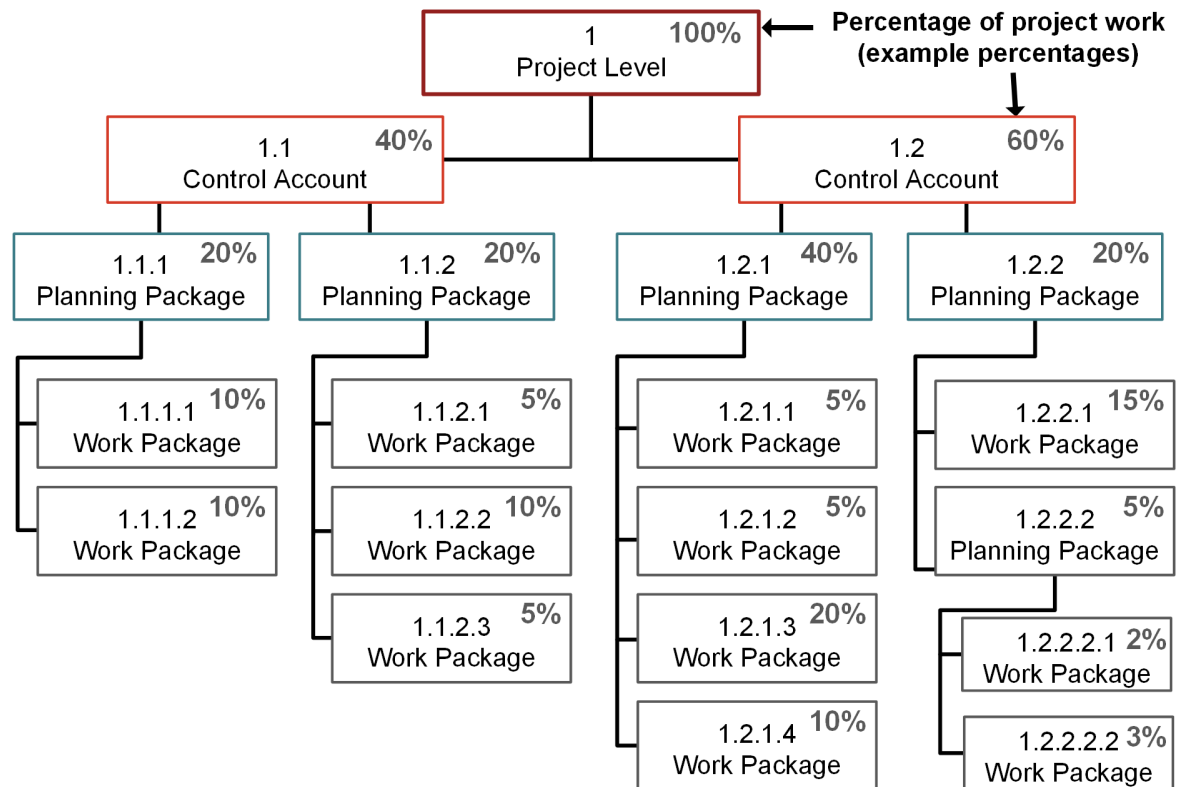
Scope Baseline



Once approved, these documents can be changed only through the integrated change control process.

Work Breakdown Structure (WBS)

- **Project level**
- **Control account**
Optional point consolidating scope, budget, and schedule to support measurement
- **Planning package**
Optional grouping of work packages
- **Work package**
Smallest practical breakdown of work for estimation and management



WBS Dictionary

Detailed information about each work package in WBS:

- Code of account identifier
- Description of work
- Assumptions and constraints
- Responsible organization
- Acceptance criteria
- Technical references

Living document using progressive elaboration:

- Schedule milestones and activities
- Required resources
- Cost estimates
- Quality requirements
- Agreement information (contracts)

Agile/Hybrid Scope Monitoring/Validation

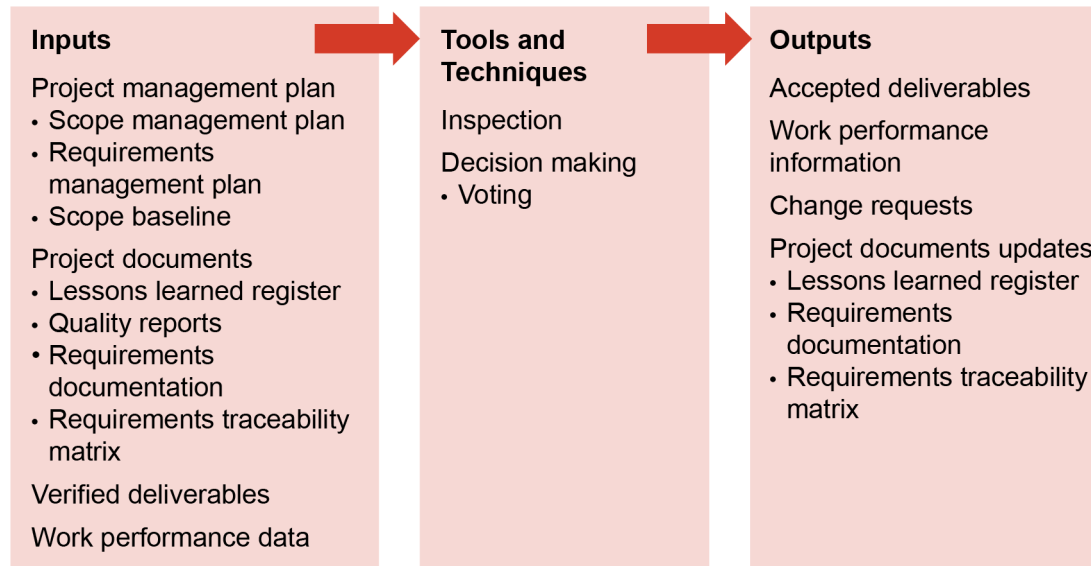
Roadmap grooming

- If arranged like backlog, groom epics.
- Grooming = add, delete, modify, reprioritize.
- If timeline, rearrange epics.
- Must reflect:
 - Feedback.
 - New requirements.

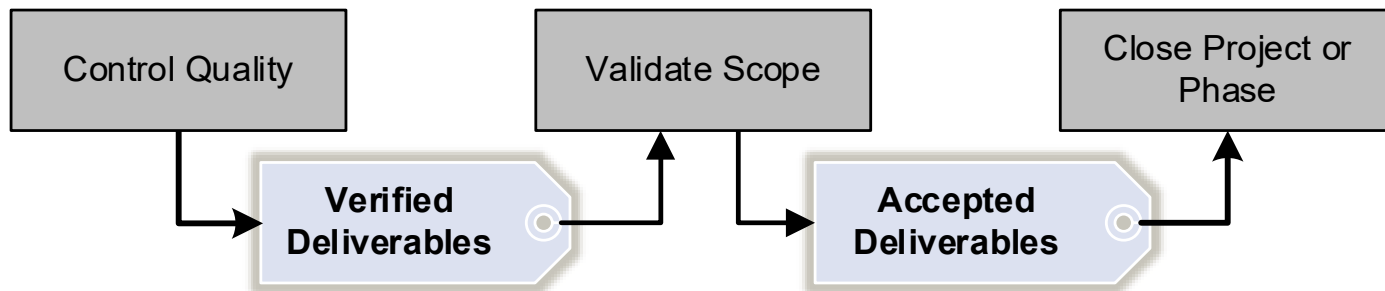
Backlog grooming

- Create stories.
- Discuss stories, groom.
- Backlog scrubbing.
- Estimate story points.
- Demonstrations validate.
- Retrospectives monitor.
- Flow-based: JIT given WIP.
- Iteration-based: per timeboxed sprint.

Predictive: Validate Scope



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Discussion Question

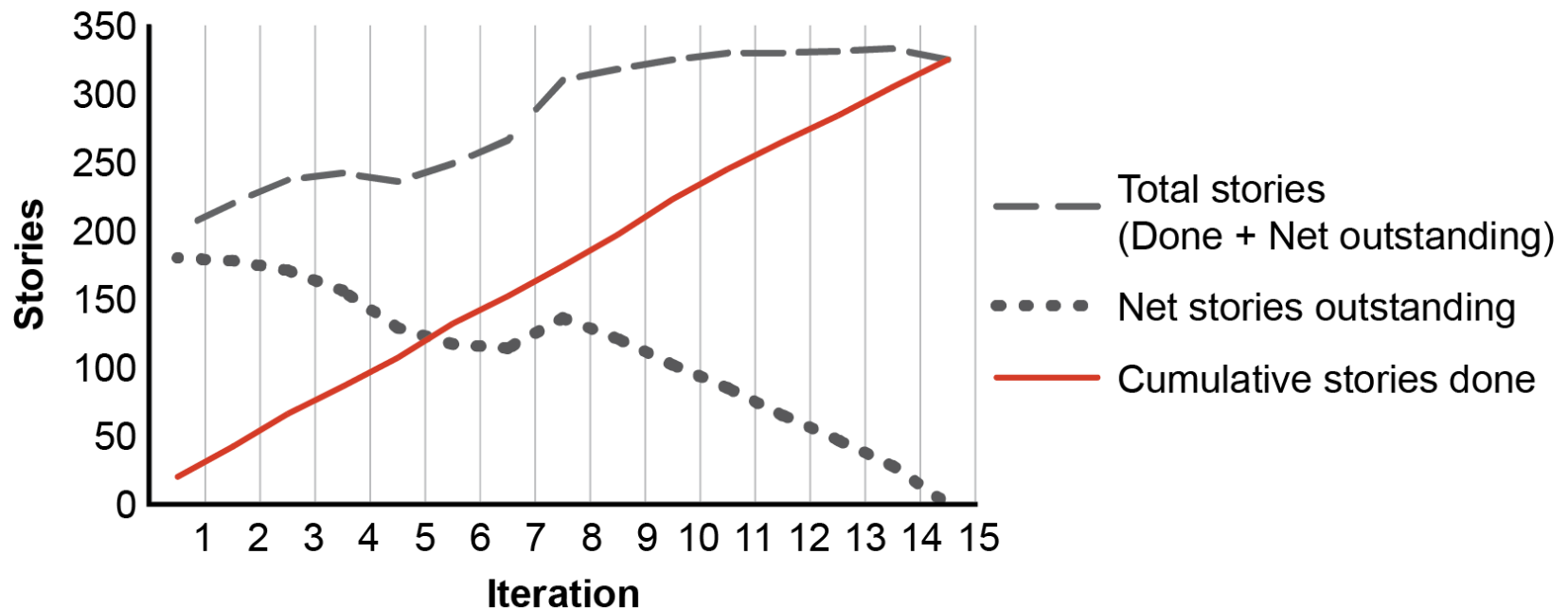
A deliverable has passed internal quality control, but the customer refuses to accept it because the quality is not at the expected level. What will happen next?

- A. The contract will be referred to the legal department.
- B. Control Quality will be repeated.
- C. Manage Quality will be repeated.
- D. The project manager will facilitate further discussions with the customer.

Controlling Scope on Agile/Hybrid Projects

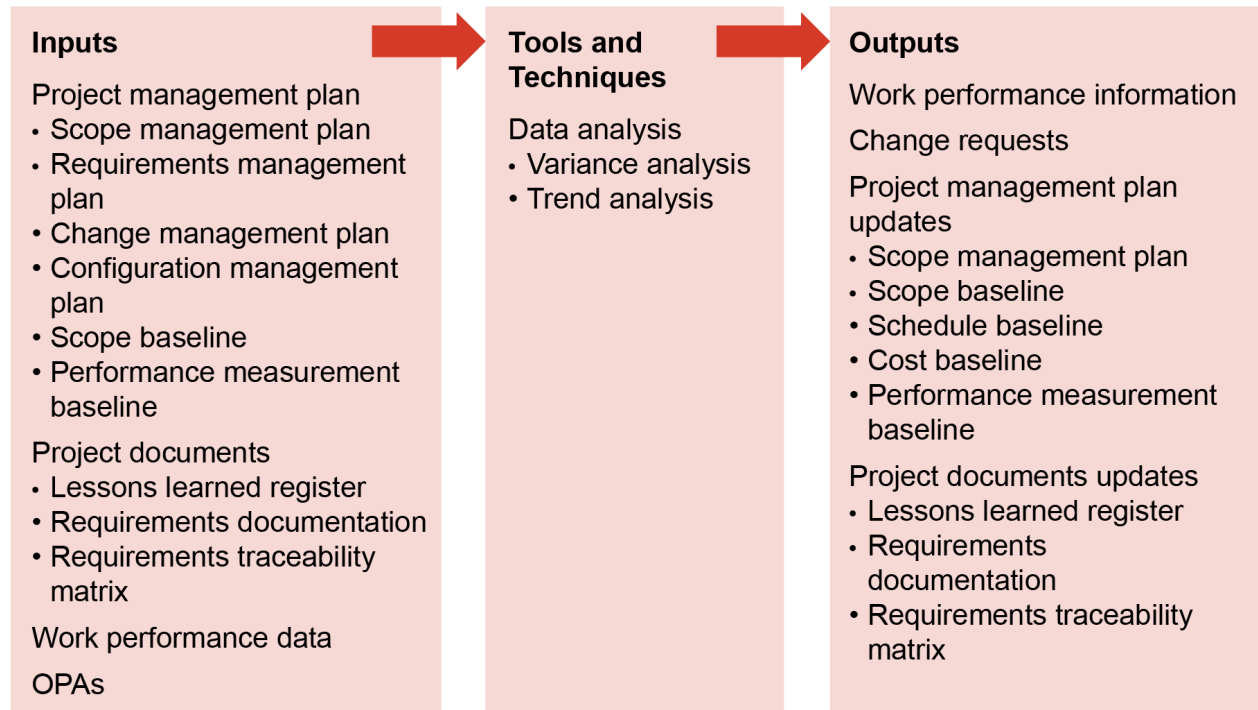
- Roadmap/backlog grooming.
- Product owner approves scope per iteration.

Story Chart (Burnup and Burndown)



Predictive: Control Scope

- Measuring against scope baseline
- Using integrated change control to maintain realistic and accurate scope baseline



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