

Scope Management

CS413 - Software Engineering Project Management

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Key Terms

- **Scope.** The sum of the products, services, and results to be provided as a project



Key Terms

- **Scope Baseline.** The approved version of a scope statement, work breakdown structure (WBS), and its associated WBS dictionary, that can be changed using formal change control procedures and is used as a basis for comparison to actual results



Key Terms

- **Scope Creep.** The uncontrolled expansion to product or project scope without adjustments to time, cost, and resources
- **Scope Management Plan.** A component of the project or program management plan that describes how the scope will be defined, developed, monitored, controlled, and validated



Key Concepts

- Scope can refer to
- Product scope (the features and functions that characterize a product, service, or result), or
- Project scope (the work performed to deliver a product, service, or result with the specified features and functions)



Key Concepts

- In a life cycle that uses a predictive approach, the project deliverables are defined at the beginning of the project and any changes to the scope are progressively managed



Key Concepts

- In an adaptive or agile approach, the deliverables are developed over multiple iterations where a detailed scope is defined and approved for each iteration when it begins



Key Concepts

- **Completion of the project scope is measured against the project management plan**
- **Completion of the product scope is measured against the product requirements**



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 the project scope is primarily concerned with defining and controlling what is and is not included in the project



Scope Management Processes

- **1 Plan Scope Management**
- The process of creating a scope management plan that documents how the project and product scope will be defined, validated, and controlled



Scope Management Processes

- **2 Collect Requirements**
- The process of determining, documenting, and managing stakeholder needs and requirements to meet project objectives
- **3 Define Scope**
- The process of developing a detailed description of the project and product



Scope Management Processes

- **4 Create WBS**
 - The process of subdividing project deliverables and project work into smaller, more manageable components
- **5 Validate Scope**
 - The process of formalizing acceptance of the completed project deliverables



Scope Management Processes

- **6 Control Scope**
- The process of monitoring the status of the project and product scope and managing changes to the scope baseline



Plan Scope Management

Inputs

- .1 Project charter
- .2 Project management plan
 - Quality management plan
 - Project life cycle description
 - Development approach
- .3 Enterprise environmental factors
- .4 Organizational process assets

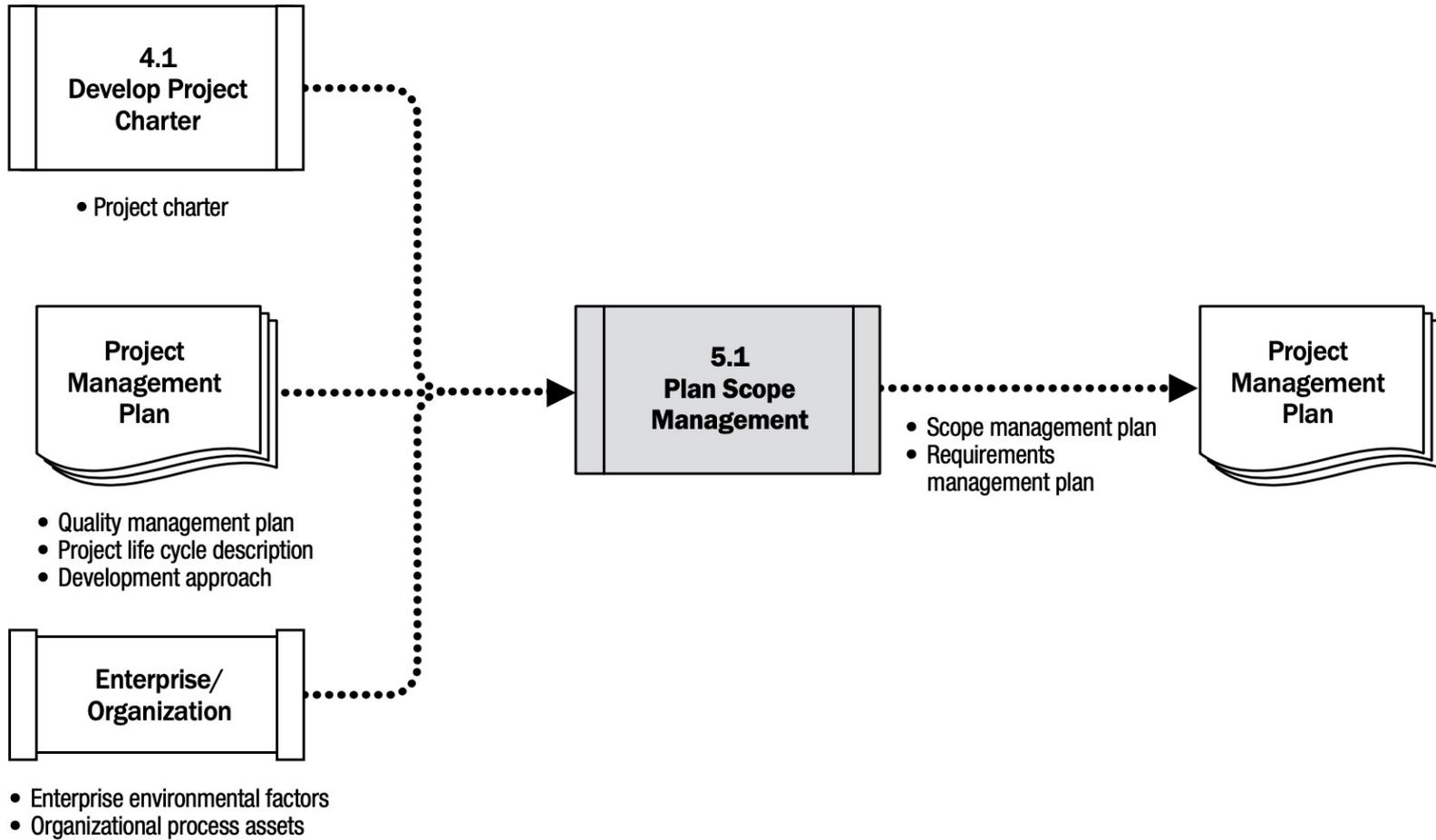
Tools & Techniques

- .1 Expert judgment
- .2 Data analysis
 - Alternatives analysis
- .3 Meetings

Outputs

- .1 Scope management plan
- .2 Requirements management plan





Collect Requirements

Inputs

- .1 Project charter
- .2 Project management plan
 - Scope management plan
 - Requirements management plan
 - Stakeholder engagement plan
- .3 Project documents
 - Assumption log
 - Lessons learned register
 - Stakeholder register
- .4 Business documents
 - Business case
- .5 Agreements
- .6 Enterprise environmental factors
- .7 Organizational process assets

Tools & Techniques

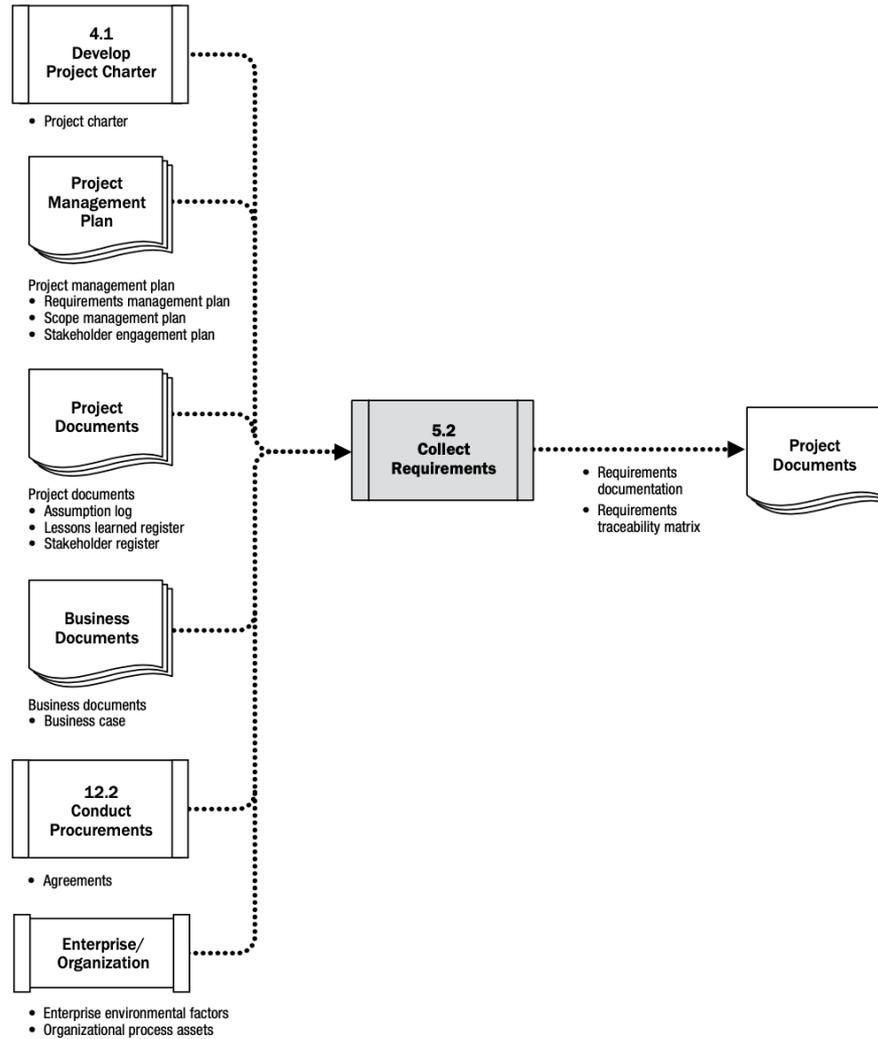
- .1 Expert judgment
- .2 Data gathering
 - Brainstorming
 - Interviews
 - Focus groups
 - Questionnaires and surveys
 - Benchmarking
- .3 Data analysis
 - Document analysis
- .4 Decision making
 - Voting
 - Multicriteria decision analysis
- .5 Data representation
 - Affinity diagrams
 - Mind mapping
- .6 Interpersonal and team skills
 - Nominal group technique
 - Observation/conversation
 - Facilitation
- .7 Context diagram
- .8 Prototypes

Outputs

- .1 Requirements documentation
- .2 Requirements traceability matrix



Scope Management



Requirements Traceability Matrix								
Project Name:								
Cost Center:								
Project Description:								
ID	Associate ID	Requirements Description	Business Needs, Opportunities, Goals, Objectives	Project Objectives	WBS Deliverables	Product Design	Product Development	Test Cases
001	1.0							
	1.1							
	1.2							
	1.2.1							
002	2.0							
	2.1							
	2.1.1							
003	3.0							
	3.1							
	3.2							
004	4.0							
005	5.0							



Define Scope

Inputs

- .1 Project charter
- .2 Project management plan
 - Scope management plan
- .3 Project documents
 - Assumption log
 - Requirements documentation
 - Risk register
- .4 Enterprise environmental factors
- .5 Organizational process assets

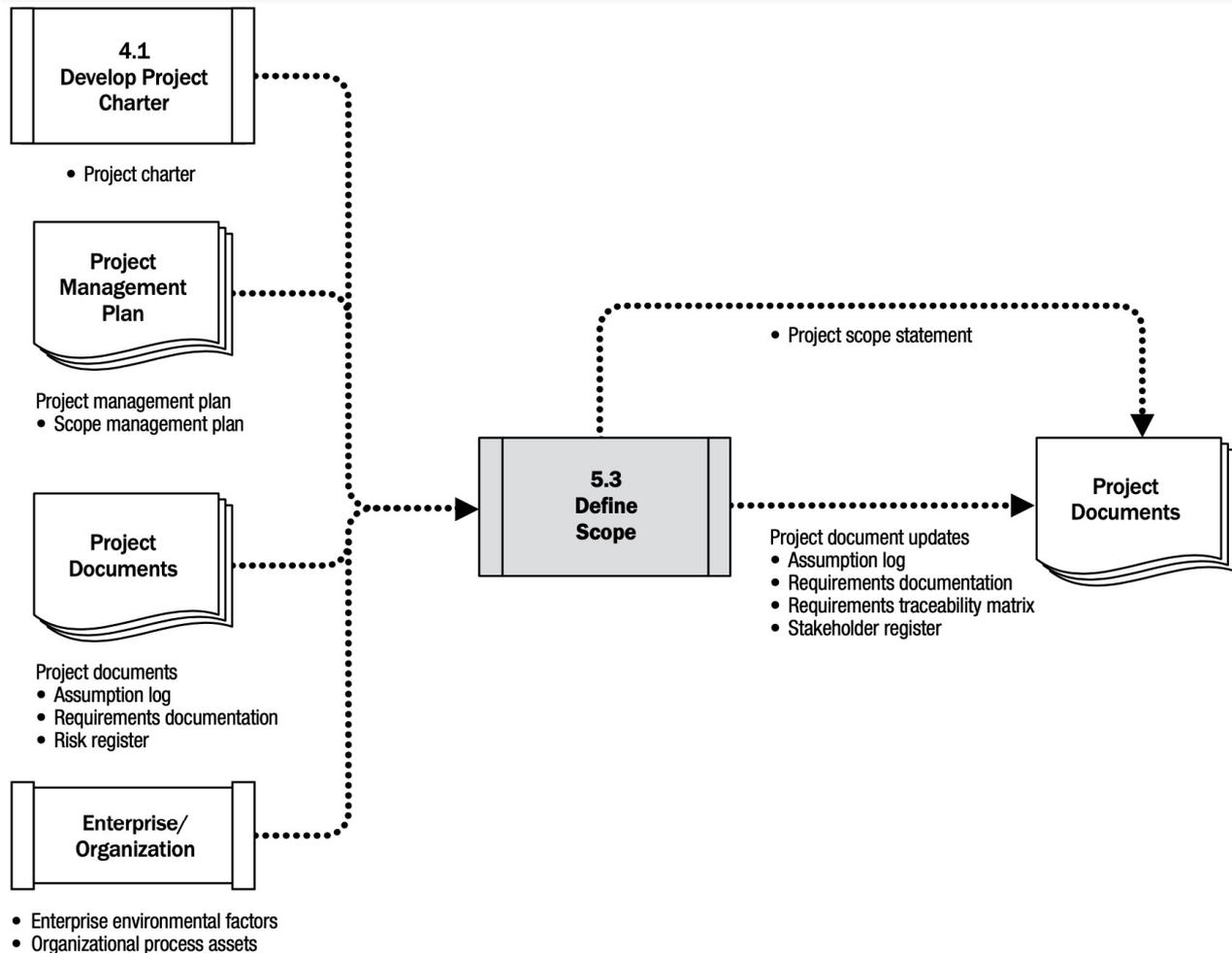
Tools & Techniques

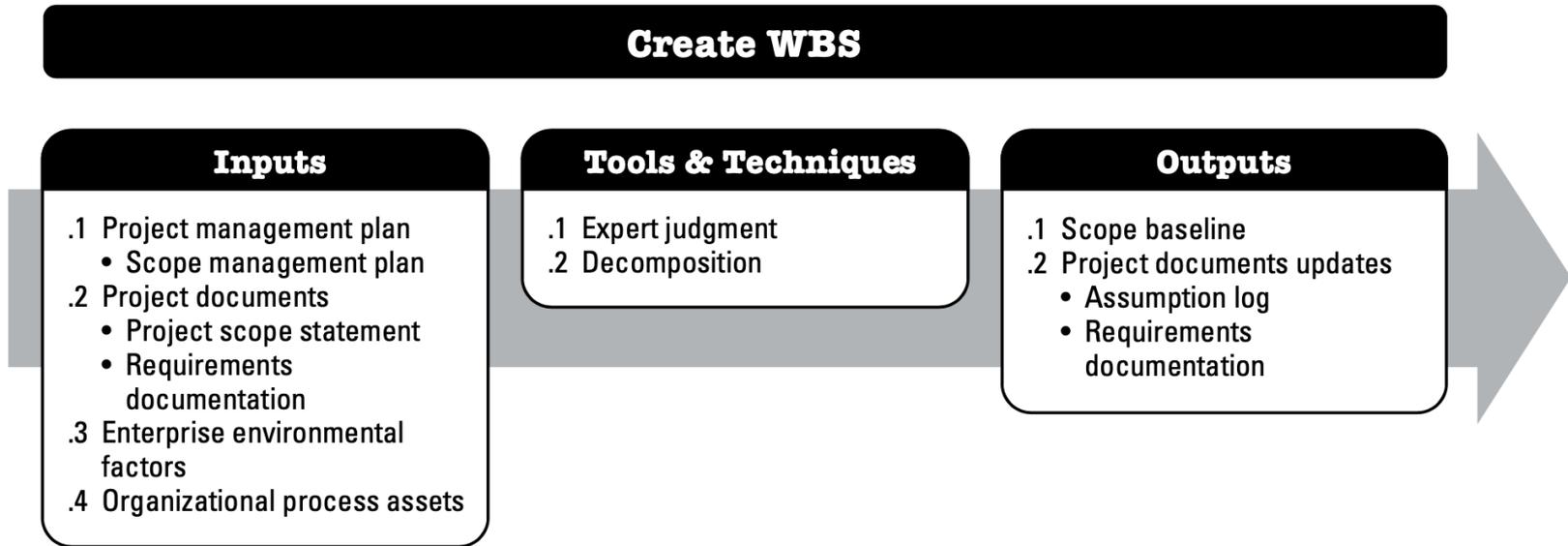
- .1 Expert judgment
- .2 Data analysis
 - Alternatives analysis
- .3 Decision making
 - Multicriteria decision analysis
- .4 Interpersonal and team skills
 - Facilitation
- .5 Product analysis

Outputs

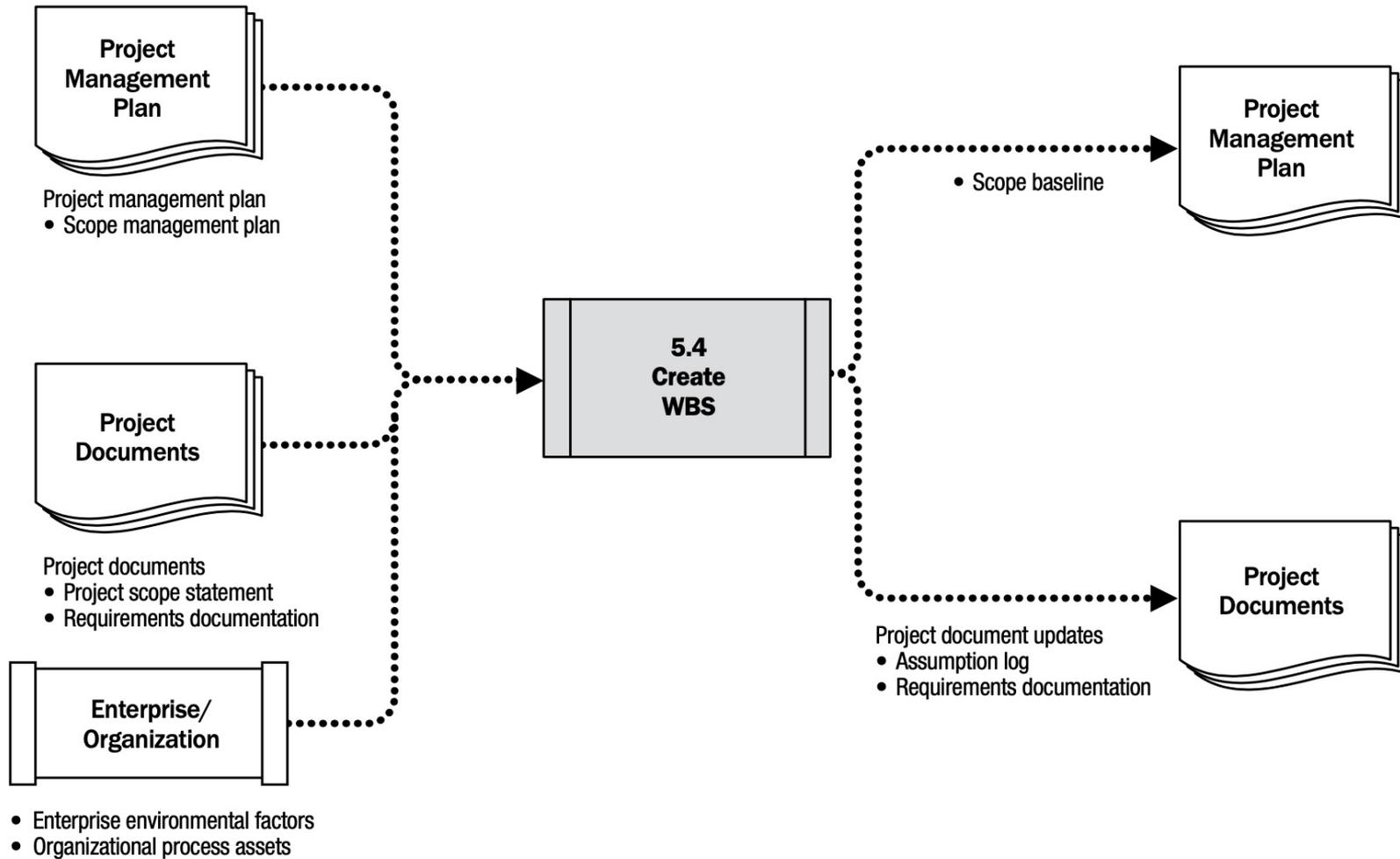
- .1 Project scope statement
- .2 Project documents updates
 - Assumption log
 - Requirements documentation
 - Requirements traceability matrix
 - Stakeholder register

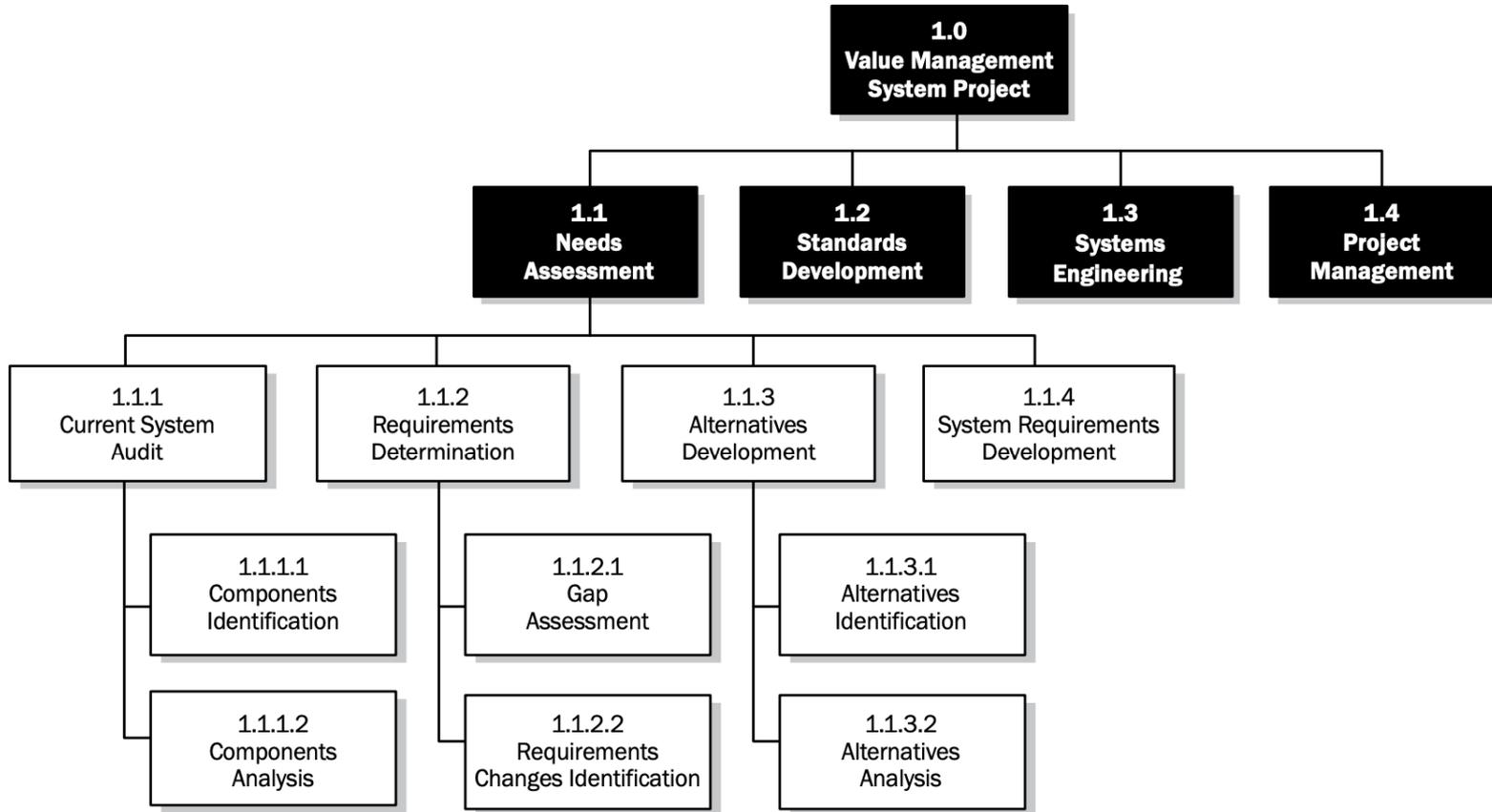




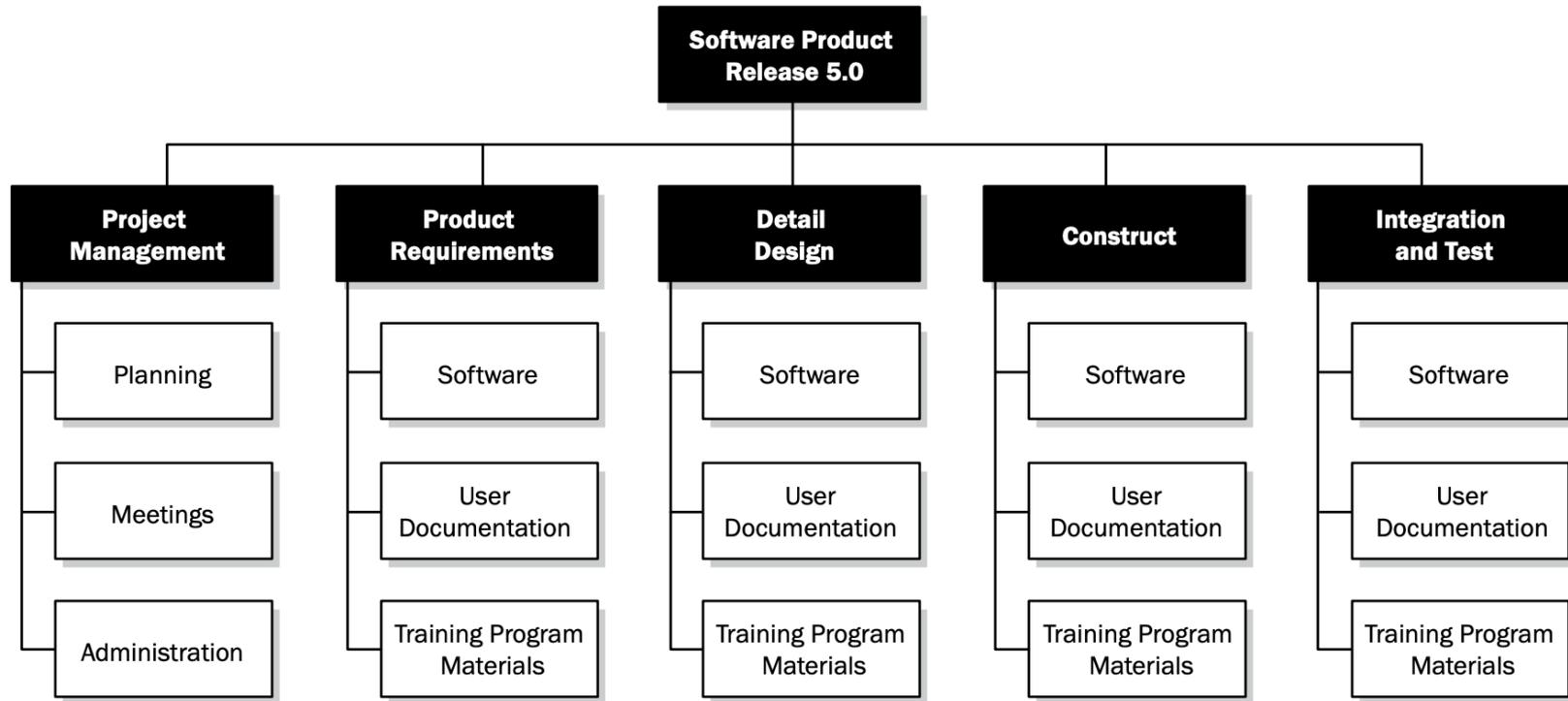


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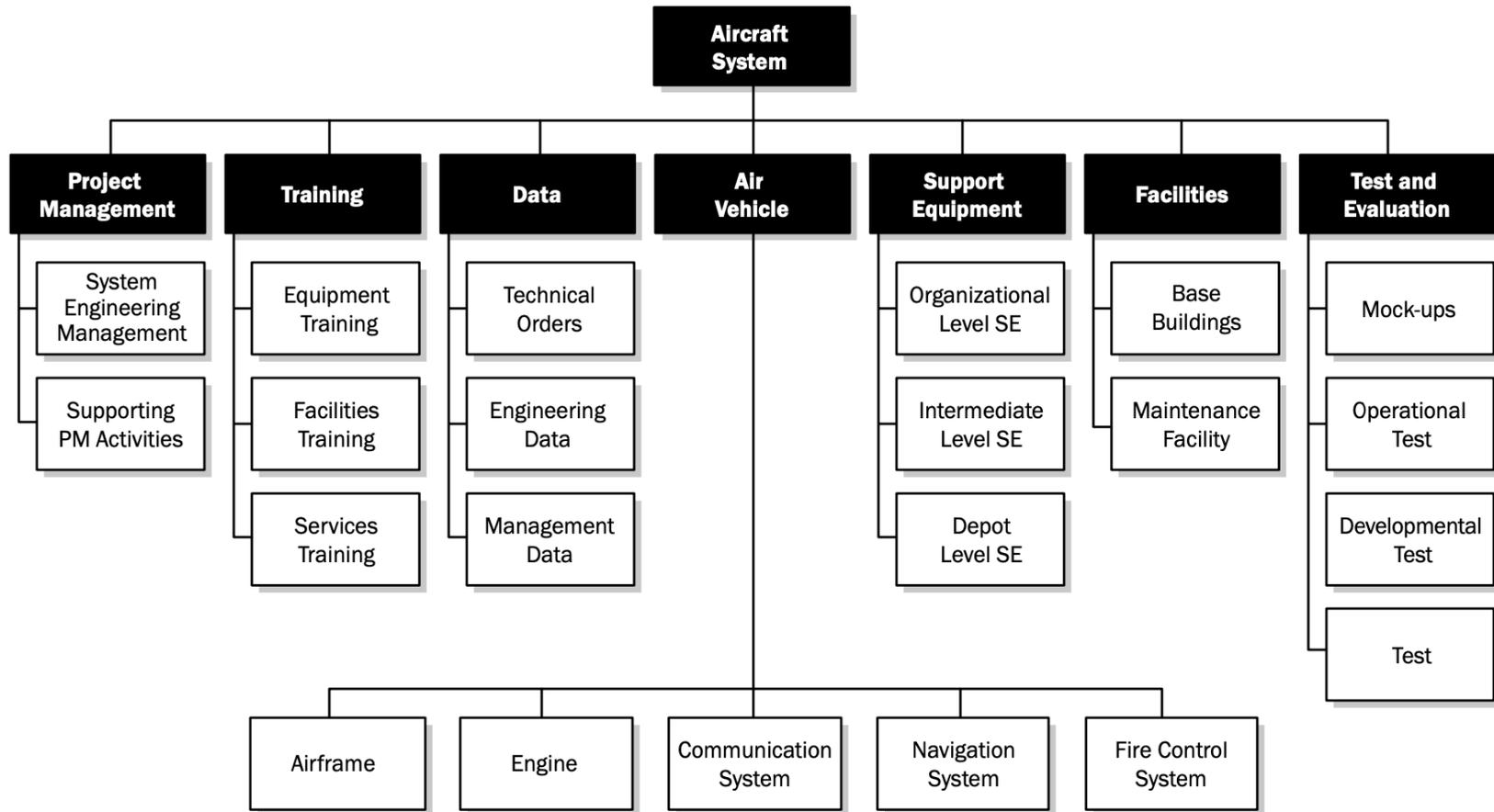


The WBS is illustrative only. It is not intended to represent the full project scope of any specific project, nor to imply that this is the only way to organize a WBS on this type of project.



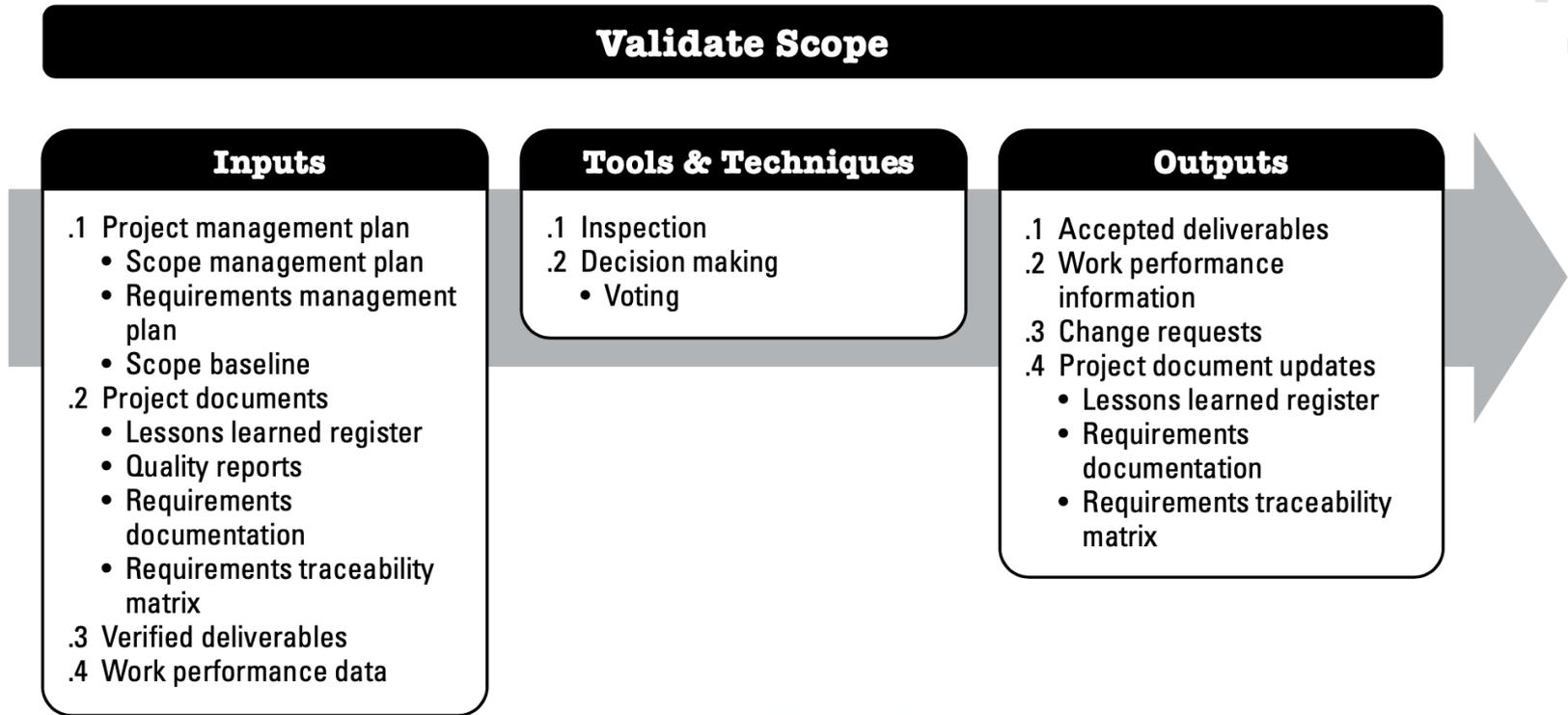
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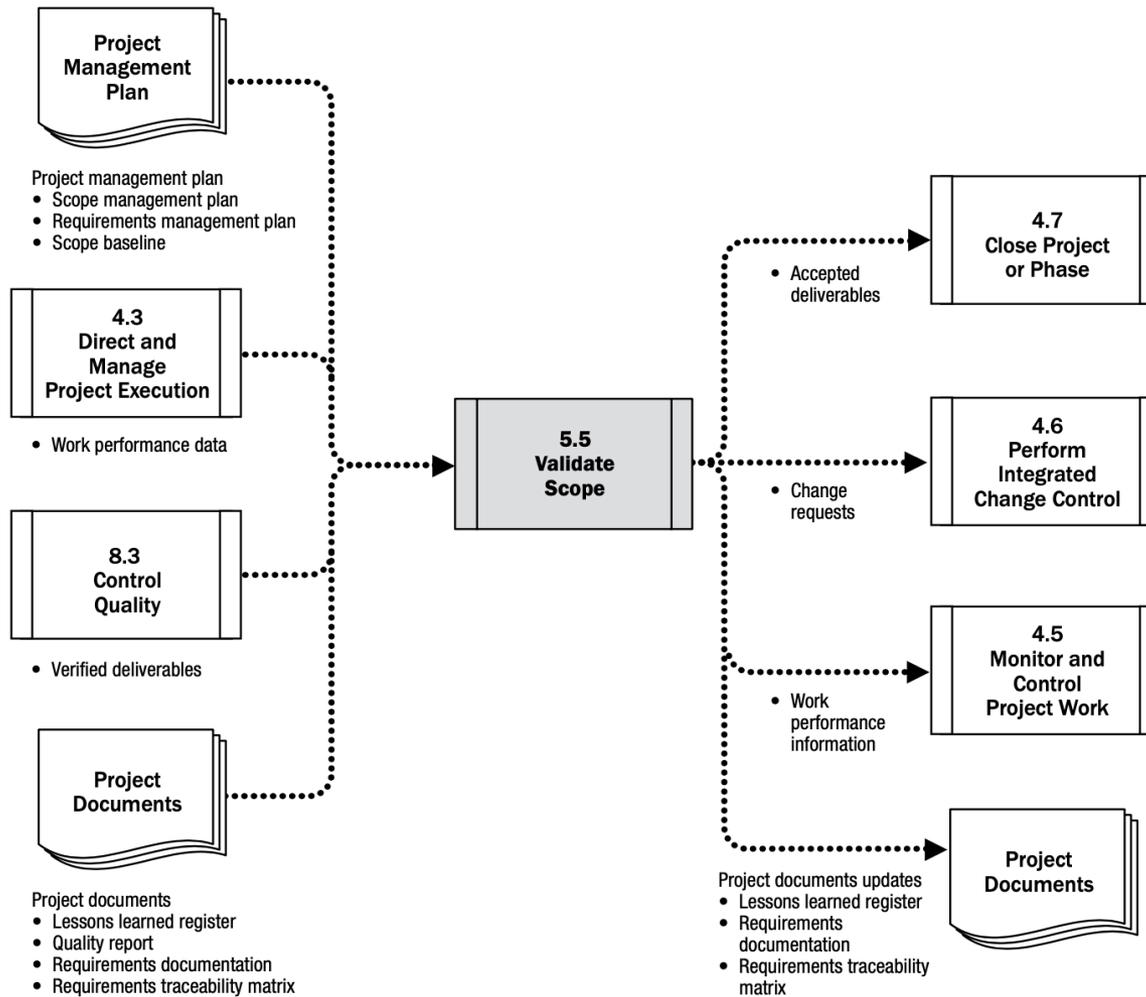


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Scope Management



Control Scope

Inputs

- .1 Project management plan
 - Scope management plan
 - Requirements management plan
 - Change management plan
 - Configuration management plan
 - Scope baseline
 - Performance measurement baseline
- .2 Project documents
 - Lessons learned register
 - Requirements documentation
 - Requirements traceability matrix
- .3 Work performance data
- .4 Organizational process assets

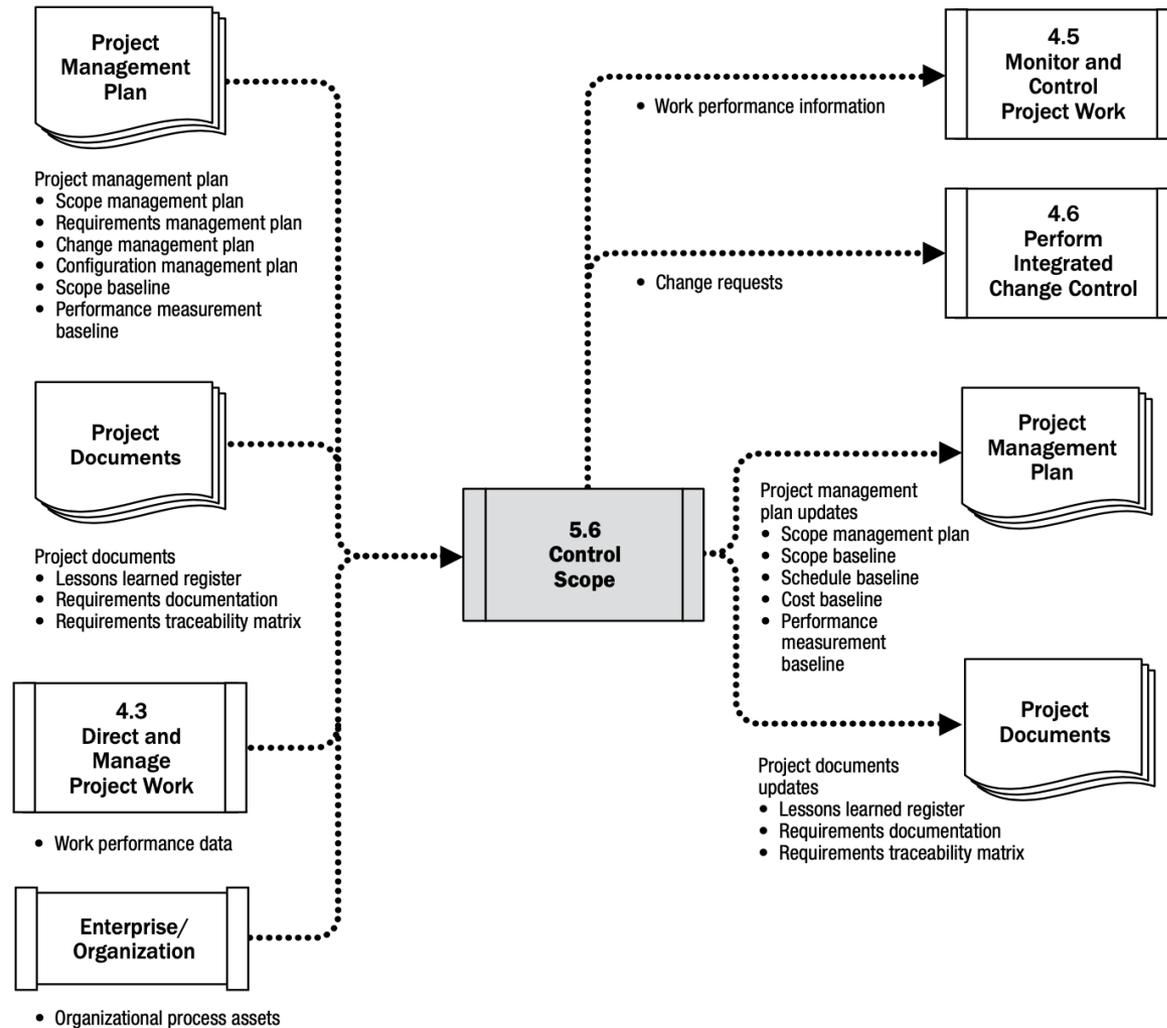
Tools & Techniques

- .1 Data analysis
 - Variance analysis
 - Trend analysis

Outputs

- .1 Work performance information
- .2 Change requests
- .3 Project management plan updates
 - Scope management plan
 - Scope baseline
 - Schedule baseline
 - Cost baseline
 - Performance measurement baseline
- .4 Project documents updates
 - Lessons learned register
 - Requirements documentation
 - Requirements traceability matrix





Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	



Tailoring Considerations

- **Knowledge and requirements management**
- Does the organization have formal or informal knowledge and requirements management systems?
- What guidelines should the project manager establish for requirements to be reused in the future?



Tailoring Considerations

- **Validation and control**
- Does the organization have existing formal or informal validation and control-related policies, procedures, and guidelines?



Tailoring Considerations

- **Use of agile approach**
- Does the organization use agile approaches in managing projects?
- Is the development approach iterative or incremental?
- Is a predictive approach used?
- Will a hybrid approach be productive?



Tailoring Considerations

- **Governance**
- Does the organization have formal or informal audit and governance policies, procedures, and guidelines?



References

- A guide to the project management body of knowledge (PMBOK guide), Sixth Edition, 2017 / Project Management Institute.



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