Crosswind Success Series:
PMP® Exam Bootcamp Manual

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10.1.2. Requirements Management Plan

The requirements management plan helps the project manager and team analyze, document, and manage the project requirements.

The plan may include:

- The methods that will be used to manage requirements
- The methods that will be used to create requirements
- The methods that will be used to plan, track, and report requirement activities
- The methods that will be used to perform configuration management activities (notably how to initiate changes to the product, service, or result, how to analyze the impact of the changes, and how to change approval authorization)
- The methods that will be used to prioritize requirements
- The methods that will be used to determine product metrics and usage rationale
- The traceability structure that will be used to show what requirement attributes will be included in the requirement traceability matrix
- The methods that will be used to create the traceability matrix, specifically the requirement attributes that will be included in the matrix and the other project documents to which the requirements will be traced

The source for the above text is the Project Management Institute, *A Guide to the Project Management Body of Knowledge*, (*PMBOK® Guide*) – Sixth Edition, Project Management Institute Inc., 2017, Pages 134-137
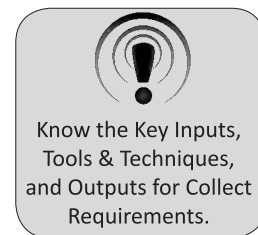
10.2. Collect Requirements (Planning Process Group)

During Collect Requirements, project requirements are created based on an analysis of project stakeholder needs. The focus should be on appropriately defining the measurable needs of the sponsor, customer, and applicable stakeholders. Those needs, in the form of requirements, feed the WBS and ultimately the quality, schedule, and cost estimates for the project.

Know the Key Inputs, Tools & Techniques, and Outputs for Collect Requirements.

The process begins with an analysis of the project charter and stakeholder register. The business case, regulatory documents, use cases, and lessons learned register might also be referenced.

The main documents created during this process include the **requirements documentation and the requirements traceability matrix.**

The project requirements, at this point, serve as a basis for all planning as they define what the customer needs, and expects, the project result(s) to do.
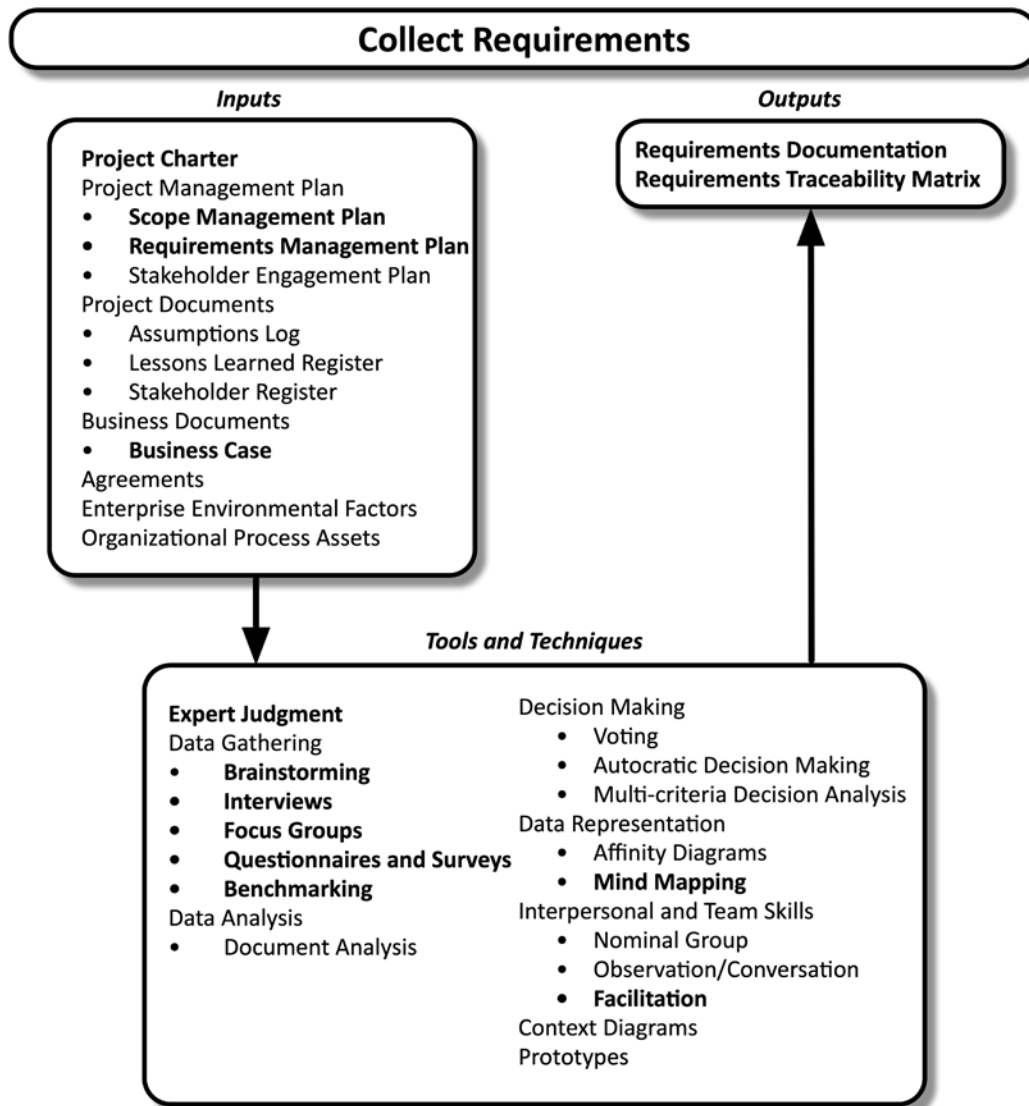
Collect Requirements

Inputs

Project Charter
Project Management Plan
- **Scope Management Plan**
- **Requirements Management Plan**
- Stakeholder Engagement Plan
Project Documents
- Assumptions Log
- Lessons Learned Register
- Stakeholder Register
Business Documents
- **Business Case**
Agreements
Enterprise Environmental Factors
Organizational Process Assets

Outputs

Requirements Documentation
Requirements Traceability Matrix

Tools and Techniques

Expert Judgment
Data Gathering
- **Brainstorming**
- **Interviews**
- **Focus Groups**
- **Questionnaires and Surveys**
- **Benchmarking**
Data Analysis
- Document Analysis

Decision Making
- Voting
- Autocratic Decision Making
- Multi-criteria Decision Analysis
Data Representation
- Affinity Diagrams
- **Mind Mapping**
Interpersonal and Team Skills
- Nominal Group
- Observation/Conversation
- **Facilitation**
Context Diagrams
Prototypes

Figure 10-3: Collect Requirements Data Flow Diagram
The source for the above figure is the Project Management Institute, *A Guide to the Project Management Body of Knowledge*, (*PMBOK® Guide*) – Sixth Edition, Project Management Institute Inc., 2017, Figure 5-4, Page 138

Collect Requirements (Planning)		
Key Inputs	Project Charter	The project charter is the document that provides authorization for the existence of the project and gives the project manager the power to use organizational resources to execute the project. The project charter typically lists the key deliverables, the milestones, and the preliminary roles and responsibilities of the project. Note that the project charter delineates the purpose of the project, high-level project description, requirements, assumptions, and constraints. The high-level requirements are the basis for creating detailed requirements.

Collect Requirements (Continued)		
Key Inputs (Cont.)	Scope Management Plan	The scope management plan is a component of the project management plan that details the delineation, evolution, monitoring, controlling, and validation of scope. The plan is referenced to identify project requirements.
	Requirements Management Plan	The requirements management plan is a component of the project management plan that details the methods for gathering, evaluating, and documenting project requirements.
	Business Case	The business case, which usually describes the business need and contains a cost-benefit analysis, is used to justify the creation of the project and is the basis for the project charter. The business case is referenced to ensure that the requirements align with the business needs.
Key Tools and Techniques	Expert Judgment	Expert judgment is judgment based on expertise acquired in a specific area. It is important to consider expertise related to business evaluation, requirements elicitation, requirements evaluation, requirements documentation, diagramming, facilitation, and management of disagreement.
	Brainstorming	Brainstorming is a technique used to amass a number of ideas in a brief period, specifically ideas related to the project and its requirements.
	Interviews	Interviews are direct elicitations of information and can be formal or informal. Typically, the interviewer asks questions of the interviewees and records the responses. The responses lead to the determination and delineation of the features and functions of what the project will create.
	Focus Groups	Focus groups are interactive discussions conducted by an experienced moderator with specific stakeholders and subject matter experts to determine their expectations and attitudes about what the project will create.
	Questionnaires and Surveys	Questionnaires and surveys are sets of composed questions used to obtain information from a large group of correspondents in order to determine that the elicited requirements are complete and accurate.
	Benchmarking	Benchmarking is used to compare an organization's practices to those of corresponding organizations in order to identify best practices, ideas for improvement, and performance metrics.
	Mind Mapping	Mind mapping integrates ideas into a single map that highlights similarities and differences and can be used to inspire new ideas.

Collect Requirements (Continued)		
Key Tools and Techniques (Cont.)	Facilitation	Facilitation is the ability to direct a group event to achieve a successful conclusion, specifically the delineation of product requirements by stakeholders. The facilitator ensures attendee participation, consideration and mutual understanding of all contributions, appropriate action for any agreements, and acceptance of results in accordance with the agreed upon decision process.
Key Outputs	Requirements Documentation	Requirements documentation delineates how requirements fulfill the business needs of the project. Before baselining requirements, they must be **measurable, testable, traceable, complete, consistent, and acceptable** to appropriate stakeholders. Requirements may be categorized as **business** requirements, **solution** requirements (both **functional** and **non-functional**), **transition** requirements, **project** requirements, and **quality** requirements. Once categorized, requirements can be refined as they are evolved.
	Requirements Traceability Matrix	The requirements traceability matrix is a grid used to align requirements to the deliverables that satisfy them to ensure the requirement adds value. The matrix allows the requirements to be monitored throughout the project life cycle and provides a framework for managing scope changes. At a minimum, requirements can be traced to business needs, project aims, project scope and WBS deliverables, product design and development, testing, and high-level requirements. Requirements attributes can be recorded in the matrix to delineate important information about the requirement, such as a unique identifier, the version, the priority, the current status and status date, a description, the reason for inclusion, the owner, the source, and fulfillment of stakeholder satisfaction.

Situational Question and Real World Application
Failure to effectively execute the Collect Requirements process can result in incomplete or incorrect requirements. Since project requirements are the basis for all planning, there can be a failure in planning and that can result in consequences that range from budget issues to project failure.

10.2.1.   Evolution of Requirements

The evolution of requirements starts with **business requirements**, which are created in alignment with enterprise goals.

Stakeholder requirements are created next. Stakeholder requirements focus on stakeholder needs as they align with the business goals and serve as a bridge between business requirements and solution requirements.

Solution requirements are then created to ensure that the business need is met. Solution requirements can include **functional** and **non-functional** requirements.

Transition requirements are created last and focus on the activities needed to implement the new solution.

10.2.2. Requirements Traceability Matrix

The requirements traceability matrix associates requirements with their origins and traces them throughout the project life cycle.

It associates requirements with their business and project objective(s) and traces:

- Requirements to project scope/WBS deliverables, to product design and development, and to test strategy and scenarios
- High-level requirements to detailed requirements

It also traces requirement attributes. Attributes typically traced in the matrix are: description, unique identifier, owner, source, version, priority, status, completion date, acceptance criteria, and inclusion rationale.

Requirements	Subsystems				Layers					Tiers			
	Administration	Scheduling	Accounting	Printing	Presentation	User Interface	Business Logic	Services	Data Access	Client	Web	Application	Data
SR 1.1	X	X	X	X		X	X	X	X		X	X	X
SR 1.2		X	X	X	X	X	X	X	X	X	X	X	X
SR 1.3		X	X	X	X				X	X	X	X	
SR 1.4	X	X	X	X		X	X	X	X	X	X	X	X
SR 2	X	X	X	X	X	X	X	X	X		X	X	X
SR 3	X	X	X	X		X	X		X	X	X	X	X
SR 4		X	X	X	X	X	X	X	X	X	X	X	X
SR 5	X	X	X			X	X		X	X	X	X	X

Figure 10-4: Requirements Traceability Matrix
The source for the above figure is the Project Management Institute, *A Guide to the Project Management Body of Knowledge*, (*PMBOK® Guide*) – Sixth Edition, Project Management Institute Inc., 2017, Figure 5-7, Page 149

Upon project completion, the matrix is used to determine that each requirement was successfully delivered.

The source for the above text is the Project Management Institute, *A Guide to the Project Management Body of Knowledge*, (*PMBOK® Guide*) – Sixth Edition, Project Management Institute Inc., 2017, Pages 138-149