Module Title	**121905000-KM-03, Project scope management**
NQF Level	**L05**
Notional hours	**80**
Credit(s)	**Cr8**
PRIMARY OR DELEGATED QUALITY ASSURANCE FUNCTIONARY	**QCTO - Quality Council for Trades and Occupations**
ORIGINATOR	**Services Seta**
QUALIFICATION TYPE	**Occupational Certificate**

Learnership Registration Number: 32Q320065282405

Learnership Title: Occupational Certificate: Project Manager

KNOWLEDGE MODULE 3: Project Scope Management

LEARNER GUIDE

Name	
Contact Address	
Telephone (H)	
Telephone (W)	
Facsimile	
Cellular	
E-mail	

Photo by Nataliya Vaitkevich from Pexels

Contents

Welcome and introduction

Welcome to this learning programme.

The guide leads you through the content to be covered. You will also complete a number of class activities that will form part of your formative assessment. This gives you the opportunity to practise and explore your new skills in a safe environment. You should take the opportunity to gather as much information as you can to use during your workplace learning and self-study.
In some cases, you may be required to do research and complete the tasks in your own time.

Take notes and share information with your colleagues. Important and relevant information and skills are transferred by sharing!

Purpose of the Knowledge Module

The main focus of the learning in this knowledge module is to build an understanding of Project scope management practices and processes

The learning will enable learners to demonstrate an understanding of:

- KM-03-KT01: Project scope management planning (15%)
- KM-03-KT02: Scope management requirements and needs (15%)
- KM-03-KT03: Define scope (15%)
- KM-03-KT04: Work breakdown structures (20%)
- KM-03-KT05: Validate scope (15%)
- KM-03-KT06: Control scope (20%)

Outcome 1

Guidelines for Topics

KM-03-KT01: Project scope management planning

Topic elements to be covered include:

- KT0101 Scope management planning concepts and flow of data
- KT0102 The importance and benefits of scope management planning
- KT0103 Scope management planning source documents (Project Management Plan, Project Charter, Enterprise Environmental Factors, Organisation Process Assets)
- KT0104 Scope management planning tools and techniques (Expert judgement, Meetings)
- KT0105 Outputs of project scope management planning (The scope management plan, Requirements management plan)

Internal Assessment Criteria and Weight

- IAC0101 Project scope management planning concepts can be explained
- IAC0102 An understanding of the flow of data/information as well as interrelationships between the concepts are demonstrated
- IAC0103 The importance and benefits of project scope management planning can be explained
- IAC0104 Scope management planning source documents can be listed and their application explained
- IAC0105 Tools and techniques to perform project scope management planning can be selected for a specific purpose and motivated
- AC0106 Project scope management documents can be can be identified, the application explained, evaluated for completeness, gaps identified and corrective measures motivated

Weight: 15%

KM-03-KT01:

Project scope management planning

Topic elements to be covered include:

1.1 Scope management planning concepts and flow of data (KT0101)

1.2 The importance and benefits of scope management planning (KT0102)

1.3 Scope management planning source documents (Project Management Plan, Project Charter, Enterprise Environmental Factors, Organisation Process Assets) (KT0103)

1.4 Scope management planning tools and techniques (Expert judgement, Meetings) (KT0104)

1.5 Outputs of project scope management planning (The scope management plan, Requirements management plan) (KT0105)

1.1 Scope management planning concepts and flow of data (KT0101) (IAC0101)

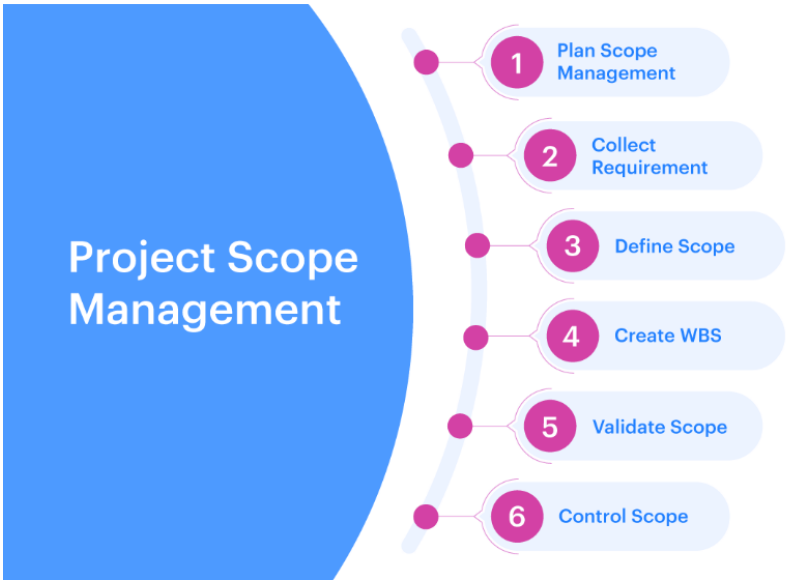
In the ideal world a project will run smoothly, from initiation to completion, without delays or any impact on budgets and the timeline. The probability is always high that there will be a change in scope of the project during its lifecycle. Unfortunately scope creep affect 52% of project and is therefore a concern for project managers. [1]

Project scope management is defined as "a process that helps in determining and documenting the list of all the project goals, tasks, deliverables, deadlines, and budgets as a part of the planning process."[1]

To make the required changes and manage it, it is important to define the scope of the project at the beginning of the project.

There are six processes involved in identifying the project scope management, which is also known as the Project scope management process, namely:

- Process 1: Plan Scope Management
- Process 2: Collect Requirement
- Process 3: Define Scope
- Process 4: Create Work-Breakdown-Structure (WBS)
- Process 5: Validate Scope
- Process 6: Control Scope



Resource: https://kissflow.com/project/project-scope-management/

[1] https://kissflow.com/project/project-scope-management/

Process 1: Planning Scope Management

As part of this process a scope management plan is created and will be used in later stages of the project. The document helps in doing the following for the project's scope:

- Defining
- Managing
- Validating
- Controlling

The document includes:

- Detailed project scope document
- Breakdown of all the project requirements
- Expected project deliverables
- Project change control process

Process 2: Collecting requirements

This process involves gathering stakeholder requirements and expectations. As part of this process the following will have to be documented:

- Project requirements
- Expectations
- Budgets
- Deliverables

The above will be gathers by means of interviews, surveys and focus groups.

At the end of the collection stage the following information should be defined:

- Functional as well as non-functional requirements
- Stakeholder requirements
- Business requirements
- Support and training requirements
- Project requirements

Process 3: Defining the scope

At this stage a well-detailed description of the service or product is documented. This will then be known as the project scope statement. The project scope statement should define both what is in the project scope, as well as what is out of the project scope.

The project team will thus then focus on what is included in the scope and complete these requirements.

Process 4: Developing a project breakdown structure

Part of this process is to break the work down into tasks that will be assigned to each team member. The deliverables are thus listed with its associated delivery deadlines.

Process 5: Validating scope

This is the part of the process where the necessary approval is required from the project executives and stakeholders on the scope and deliverables that were defined. This step is before the start of the project and ensure that any causes of issues during the project life cycle can be identified.

Process 6: Controlling scope

A project should stay within the defined scope from the start of the project. Proper change controls need to be followed if any changes are required.[2]

1.1.1 Demonstrate an understanding of the flow of data/information as well as interrelationships between the concepts (IAC0102)

The project planning process documents specific goals, deliverables, features and budgets. The project scope forms part of this document and list the activities to ensure that the project is successfully completed.

The scope statement will possess the following:

- Project objectives
- Project deliverables
- Exclusions
- Project constraints, and
- Project assumptions

The scope statement is also known as the scope document or statement of work. The main purpose of the scope document is to:

- Provide the detail on the boundaries of the project, as well as establishing the responsibilities of the project team,

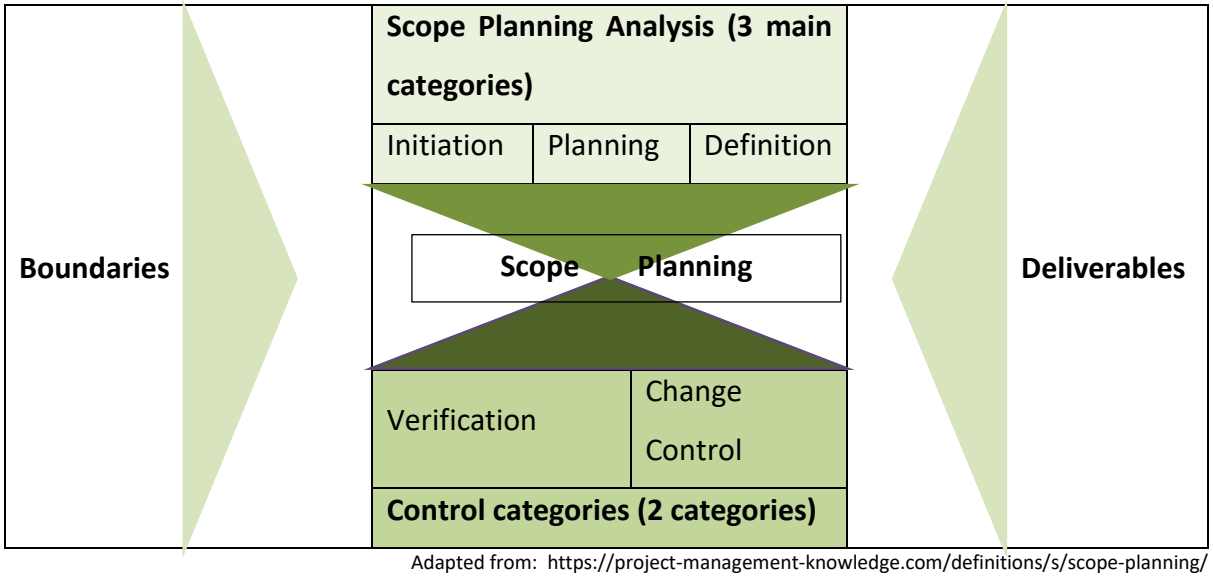
[2] https://kissflow.com/project/project-scope-management/

- Defines all the procedures required to verify and approve the final project completion,
- Provides a clear guideline for making project-related decisions.[2]

A scope management plan can be defined as "a plan that outlines the processes involved in executing your project and serves as a guideline to keep the project within specific limits." Included in the scope management plan is the processes that will be taken to complete the project, how these processes will be controlled and monitored.[3]

The basic matrix of scope planning analysis is as per below:

Scope Planning



Adapted from: https://project-management-knowledge.com/definitions/s/scope-planning/

The data inputs and data outputs in each of these categories are as follow:

Category	Inputs	Outputs	Tools and Techniques
Initiation	• Project deliverable description • Strategic planning • Project selection criteria • Historical information	• Project charter • Project manager identification and assignment • Identification of known constraints and assumptions	• Project selection methods • Expert judgement
Planning	• Descriptions on deliverables	• Project charter • Project constraints and assumptions	• Deliverable analysis • Benefit/cost analysis • Identification of alternatives
Definition	• Statement of scope • Historical information	• Work breakdown structure • Defined scope section	• Work breakdown structure templates • Decomposition

[3] https://aipm.com.au/blog/scope-management-plan/

	• Definition of assumptions and constraints • Other planning outputs		
Verification	• Work results • Deliverable documentation	• Formal acceptance	• Inspection
Change control	• Work breakdown structure • Performance reports • Change requests • Scope management plan	• Changes in scope • Corrective actions • Lessons learned entered into knowledge base	• Change control system • Performance Measurements • Additional Planning

Adapted from: https://project-management-knowledge.com/definitions/s/scope-planning/

Following are the steps to creating a scope management plan:

- Conduct stakeholder interviews to identify:
  - Record project requirements
  - Record project expectations
- Developing the scope of the project by identifying:
  - Goals
  - Objectives
- Structure a task list, including:
  - Roles of project team
  - Responsibilities of project team members
- Establish a communication process to receive project deliverable approval.
- Create a document that communicates:
  - Control of the project
  - Document change requests[4]

Formative Activity 1: Scope management planning concepts and flow of data (KT0101) (IAC0101)

Complete the following Formative Activity as per the instructions from the facilitator

[4] https://aipm.com.au/blog/scope-management-plan/

1.2 The importance and benefits of scope management planning (KT0102)

Part of scope management planning is to ensure that all the required tasks are completed, and the objectives reached within the project's schedule and budget.
Scope management planning is an important part of this process.

1.2.1 Explain the importance and benefits of project scope management planning (IAC0103)

As part of a project manager's tasks is to manage stakeholder expectations, which can be done with a defined project scope. This helps managers to track the project properly and to ensure that deadlines are adhered to.
When a scope is well-defined and properly managed, the following risks can be avoided:

- Continuous changing requirements
- Changing the project direction when the project is half-way in the project life cycle.
- When the expected outcome is not realised.
- Not adhering to the planned budget.
- Not adhering to project deadlines.

When the project scope is clearly defined and managed the following will be clear:

- Time
- Labour/Resources
- Cost involved in the project

The control factors to address elements within the project is also established by the scope in project management. The elements will also probably change during the duration of the project life cycle.[5]

Part of managing the scope is to manage the associated scope risk. Scope risk is defined as "an uncertain event or condition that, if it occurs, has a positive or negative effect on one or

[5] https://kissflow.com/project/project-scope-management/

more project objectives". Scope risks is thus uncertain events or conditions related to the project.

Although it is clearly defined in the planning of the project scope what is included and what is excluded from the scope it does happen that "out of scope" elements do creep into the project. These factors were thus not calculated into the original plan and is thus a scope risk.

Scope risk can be defined by doing the following:

- Interviews with stakeholders
- Brainstorming session
- Checklists
- Assumption Analysis
- Cause and Effect Diagrams
- Nominal Group Technique (NGT)
- Work Breakdown Structure (WBS)

Thus, good project scope management, including scope risk identification will be beneficial because:

- It clarifies what is in-scope and what is out-of-scope.
- Project deliverables are clear
- Assist with informed decision making during the project lifecycle
- Identifies risks and help to establish plans to mitigate
- Assists in setting attainable expectations to the stakeholders
- Assists with the planning of:
    - Time
    - Budget
    - Human Resources
    - Material Resources
- Manage scope related stress for the project manager
- Prioritisation of tasks to keep the project on track
- Reduces unplanned work to save on time and expenses
- Effective communication with all the project stakeholders
- Support successful project delivery

The project scope is the most critical aspect of a project and sight of it should not be lost by either the project manager, project team or stakeholders.[6]

Formative Activity 2: The importance and benefits of scope management planning (KT0102)

Complete the following Formative Activity as per the instructions from the facilitator

[6] https://www.icertglobal.com/project-scope-management-and-its-benefits/detail

1.3 Scope management planning source documents (KT0103) (IAC0104)

Project source documentation is the documents that are created throughout the project life cycle. These documents include:

- Project management plan
- Project Charter
- Project schedule
- Project budget
- Define activities/tasks
- Procedures
- Guidelines that the project team should follow.

The purposes of these source documents are for:

- Project planning
- Cost management
- Risk management
- Setting the stage for the next phase in the project life cycle, for example the project management plan for project execution phase.[7]

The project source document for each of the phases of the project life cycle is as follows:

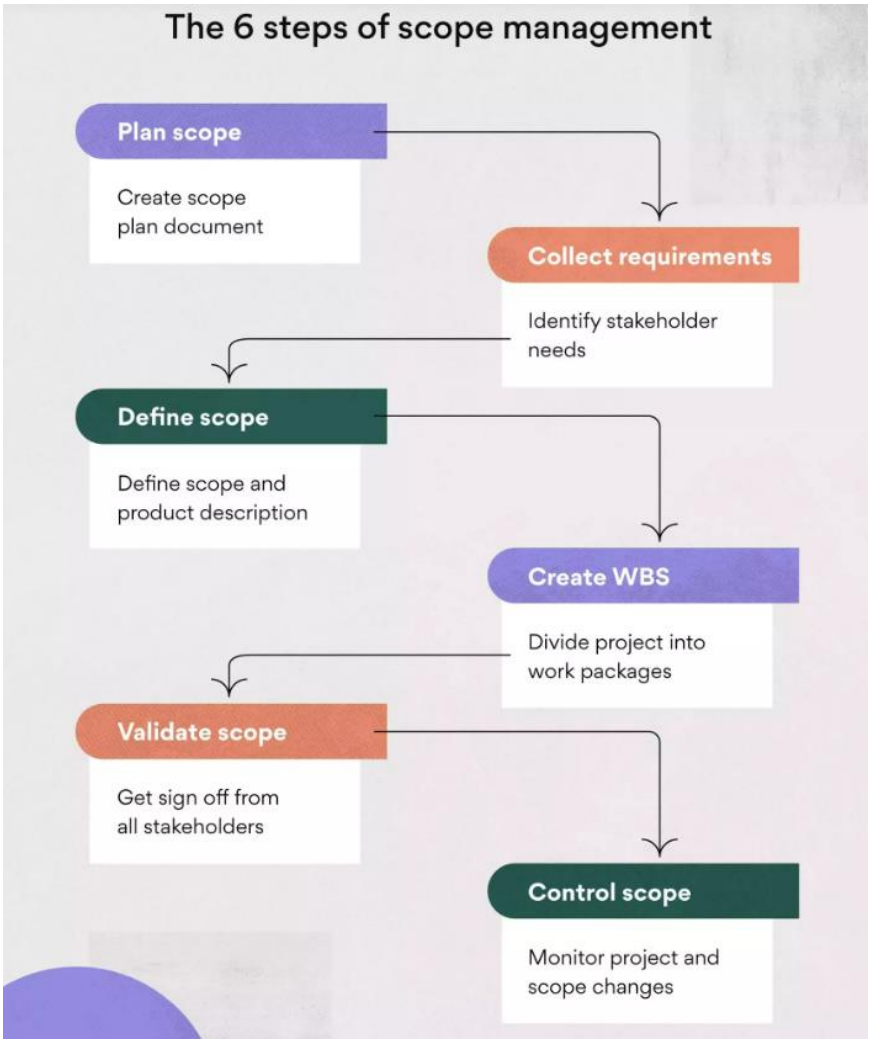
Project Phase	Source Documents
Project Initiation	• Project charter • Business Case • Project Kick-off meeting agenda
Project Planning	• Project management plan • Work breakdown structure • Project budget • Project schedule • Change management plan • Scope management plan • Risk management plan

[7] https://www.projectmanager.com/blog/great-project-documentation

Project Execution	• Project status report • Lessons learned template • Timesheets • Change requests • Change orders
Project Monitoring and Control	• Project status report • Lessons learned template • Timesheets
Project Closure	• Project closure template • Punch list

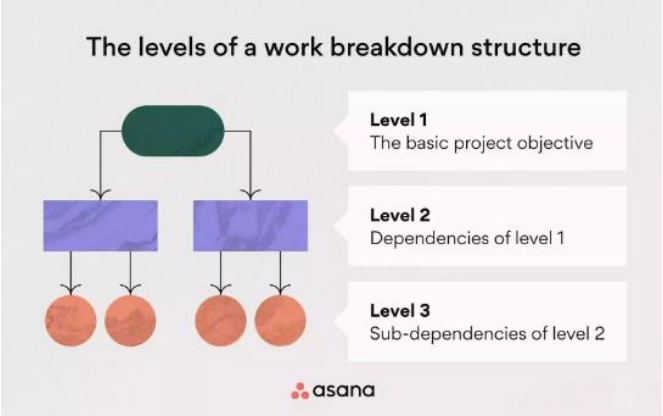
Adapted from: https://www.projectmanager.com/blog/great-project-documentation

There are six steps to the scope management plan, which includes the source documents as depicted as follows:



Resource: https://asana.com/resources/scope-management-plan

Depicted in the table that follows are the step in the plan with its associated source documents:

Step in the Scope Management Plan	Source Documents Identified
Create the scope plan	• Scope statement (Project Charter) • Breakdown of project requirements (Project Charter) • Expected deliverables for the project (Project Charter) • Change control process sheet • Requirements gathering sheet
Collect project requirements	• Project Charter • Stakeholder requirements • Project objectives/deliverables
Define scope	• Scope statement • Product description (product analysis)
Create a work breakdown structure	
Validate scope	• Scope statement • Project deliverables (Project charter)
Control scope	• Change sheet (Changes to scope)

Adapted from: https://asana.com/resources/scope-management-plan

The vital source documents for Scope Management Planning are:

- Requirements Gathering Document
- Work Breakdown Structure
- Risk Register
- Project Charter

- Statement of Scope
- Project Deliverables
- Assumptions and Constraints
- Benefit/Cost Analysis

Following are the 15 most critical project source documents to include in the project documentation:

- **Project Plan -** The project plan consists of all the documents that are created during the project planning phase. It is the most comprehensive document of all the project management documents.
- **Project Charter (Source document of the Scope Management Plan) -** The project charter is compiled during the project initiation phase. This document is the main source document that is part of the scope management planning documentation. Included in the project charter is all the source documents required for Scope Management Planning as described previously. The purpose of a charter is to provide an overview of the project stakeholders, sponsors and clients.

  Following is an example of a project charter.

Document Control

Document Information

	Information
Document Id	*[Document Management System #]*
Document Owner	*[Owner Name]*
Issue Date	*[Date]*
Last Saved Date	*[Date]*
File Name	*[Name]*

Document History

Version	Issue Date	Changes
[1.0]	*[Date]*	*[Section, Page(s) and Text Revised]*

Document Approvals

Role	Name	Signature	Date
Project Sponsor			
Project Review Group			
Project Manager			
Quality Manager *(if applicable)*			
Procurement Manager *(if applicable)*			
Communications Manager *(if applicable)*			
Project Office Manager *(if applicable)*			

Template Guide

What is a Project Charter?

A Project Charter is a document which outlines the purpose of the project, the way the project will be structured and how it will be successfully implemented. It describes the project:

- Vision, objectives, scope and deliverables (i.e., what we have to achieve)
- Stakeholders, roles and responsibilities (i.e., who will take part in it)
- Resource, financial and quality plans (i.e., how it will be undertaken).

The Project Charter may also be referred to as a "Terms of Reference (TOR)" or "Project Definition Report (PDR)".

When do I use a Project Charter?

The Project Charter is usually presented by Senior Management within the business to an identified Business Sponsor. It is completed after the Business Case and Feasibility Study have been approved but before the Project Team is formally appointed.

Furthermore:

- *The Project Charter defines the boundaries for the project. It describes in detail the scope of the project, within which all deliverables must be produced. Activities should be*

undertaken outside the defined scope of the project only if a valid 'change request form' has been approved by the Project Sponsor

- *The next stage following approval of the Project Charter is the formal appointment of the project team.*

How to use this template

This document provides a guide on the topics usually included in a Project Charter. Sections may be added, removed or redefined at your leisure to meet your particular business circumstance. Example tables, diagrams and charts have been added (where suitable) to provide further guidance on how to complete each relevant section.

1 Executive Summary

Sum up each of the sections in this document concisely by outlining the project:

- Definition
- Organisation and plan
- Risks and issues
- Assumptions and constraints.

2 Project Definition

This section describes what the project sets out to achieve. It outlines the vision for the project, the key objectives to be met, the scope of work to be undertaken and the deliverables to be produced.

2.1 Vision

Describe the overall vision of the project. The vision statement should be short, concise and achievable. Examples of vision statements include:

- To deliver a robust, scalable financial management system to the business
- To procure new work premises with adequate capacity and functional surrounds
- To successfully introduce new customer service processes to the marketplace.

2.2 Objectives

List the key objectives of the project. Objectives are statements which describe in more detail what it is that the project is going to achieve. All objectives listed should be Specific, Measurable, Achievable, Realistic and Time-bound (SMART).

<u>Business Objectives</u>

List the business-specific objectives to be achieved. For example:

- To deliver new accounts payable and receivable and payroll processes, thereby reducing financial processing timescales by at least 30%
- To build brand new work premises with 50% more space, 30 more cark parks and 20% fewer operational costs than the existing premises
- To provide a new customer complaints service to enable customers to issue complaints on-line and receive a direct response from the company within 24hrs.

<u>Technology Objectives</u>

List the technology-specific objectives to be achieved. For example:

- To install new accounts payable and receivable and payroll system modules within the existing accounting system, thereby achieving 99.5% system up-time
- To relocate existing technology infrastructure at the new building premises within 2 days elapsed time and with no impact on customer service delivery
- To build a new website which allows customers to enter and track complaints through to resolution.

2.3 Scope

Define the scope of the project in terms of the business:

- Processes which will change
- Organisational areas which will be affected
- Locations which will be impacted on
- Data which will be altered
- Applications which will be installed and/or altered
- Technologies which will be deployed and/or decommissioned

Where relevant, identify the related business areas which will not be affected as a result of this project.

2.4 Deliverables

Highlight the key project deliverables in the following table (includes examples):

Item	Components	Description
New physical premises	• New physical building • Interior fit-out • Telecommunications	• 1200 sq m premises near city centre with outdoor facilities, parking and signage • Open plan environment with 5 offices, 3 meeting rooms and a staff games room • Voice / data telecoms infrastructure and video conference facilities
New financial system	• Accounts payable module • Accounts receivable module • Payroll module	• A new system module which enables staff to quickly enter accounts payable transactions • A new system module which enables staff to quickly enter accounts receivable transactions • A new system module which enables staff to quickly enter payroll information
New customer complaints process	• Complaints website • Complaints resolution process • Complaints measurement process	• New website with customer complaints forms, a complaint tracking page and company contact information • New full-time staff complaints role and process for resolving complaints made • New process for assessing complaint characteristics (such as numbers, business areas and resolution timescales)

3 Project Organisation

3.1 Customers

Describe the customers who will use the deliverables produced from the project. Customers may be individuals or groups within or outside of the company. The success of the project will be primarily based on whether or not the deliverables produced match the requirements of the customers identified in this table.

Customer	Representative
Customer Group	*Customer Name*

3.2 Stakeholders

List the key stakeholders for this project. A 'stakeholder' is simply a person or entity outside of the project who has a key interest in the project. For instance, a company financial controller will have an interest in the cost implications of the project, a CEO will have an interest in whether the project is conducted in accordance with the vision of the company. Examples of stakeholders include:

- Company Executives
- Legislative bodies
- Regulatory bodies.

Complete the following table (includes examples):

Stakeholder	Interested in
CEO	Alignment with company vision and strategy
Financial Controller	Alignment with company budget
Health and Safety Office	Alignment with health and safety standards
Government body	Compliance with legislation
Industry body	Compliance with codes of practice

3.3 Roles

Identify the roles required to undertake the project. Examples of typical roles include project:

- Sponsor
- Review Group
- Manager
- Team Member

For each role identified, list the resource likely to fill each role and his/her assignment details by completing the following table:

Role	Organisation	Resource Name	Assignment Status	Assignment Date
Role	*Organisation*	*Person*	*Unassigned / Assigned*	*xx/yy/zz*

For larger projects with more than 10 resources, list only the key roles in the above table. Include a detailed listing and description of all roles within a separate Resource Plan document if required.

3.4 Responsibilities

List the generic responsibilities for each role identified. A full list of the responsibilities, performance criteria and skills required should be documented within a separate Job Description for each project role.

Project Sponsor

The Project Sponsor is the principal 'owner' of the project. Key responsibilities include:

- Defining the vision and high-level objectives for the project
- Approving the requirements, timetable, resources and budget
- Authorising the provision of funds / resources (internal or external)
- Approving the project plan and quality plan
- Ensuring that major business risks are identified and managed
- Approving any major changes in scope
- Receiving Project Review Group minutes and taking action accordingly
- Resolving issues escalated by the Project Manager / Project Review Group
- Ensuring business / operational support arrangements are put in place
- Ensuring the participation of a business resource (if required)
- Providing final acceptance of the solution upon project completion.

Project Review Group

The Project Review Group may include both business and 3rd party representatives and is put in place to ensure that the project is progressing according to plan.

Key responsibilities include:

- Assisting the Project Sponsor with the definition of the project vision and objectives
- Undertaking Quality Reviews prior to the completion of each project milestone
- Ensuring that all business risks are identified and managed accordingly
- Ensuring conformance to the standards and processes identified in the Quality Plan
- Ensuring that all appropriate client/vendor contractual documentation is in place prior to the initiation of the project.

Project Manager

The Project Manager ensures that the daily activities undertaken on the project are in accordance with the approved project plans. The Project Manager is responsible for ensuring that the project produces the required deliverables on time, within budgeted cost and at the level of quality outlined within the Quality Plan.

Key responsibilities include:

- Documenting the detailed Project Plan and Quality Plan
- Ensuring that all required resources are assigned to the project and clearly tasked

- Managing assigned resources according to the defined scope of the project
- Implementing the following project processes: time / cost / quality / change / risk / issue / procurement / communication / acceptance management
- Monitoring and reporting on project performance (re: schedule, cost, quality and risk)
- Ensuring compliance with the processes and standards outlined in the Quality Plan
- Reporting and escalating project risks and issues
- Managing project interdependencies
- Making adjustments to the detailed plan as necessary to provide a complete picture of the progress of the project at any time.

Project Team Member

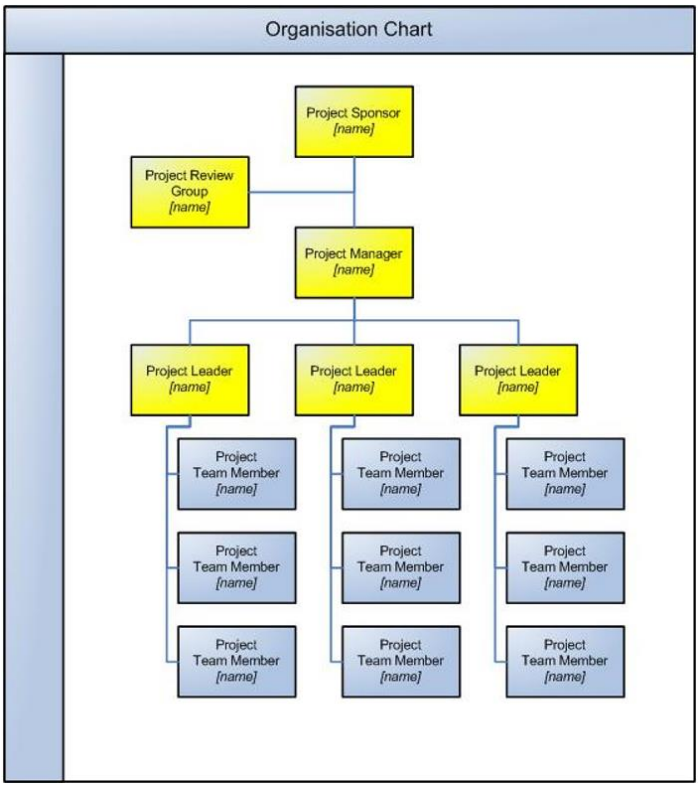
A Project Team member undertakes all tasks necessary to design, build and implement the final solution.

Key responsibilities include:

- Undertaking all tasks allocated by the Project Manager (as per the Project Plan)
- Reporting progress of the execution of tasks to the Project Manager on a frequent basis
- Maintaining all documentation relating to the execution of allocated tasks
- Escalating risks and issues to be resolved by the Project Manager.

3.5 Structure

Depict the reporting lines between each of the key roles described above within a Project Organisation Chart. An example follows:



4 Project Plan

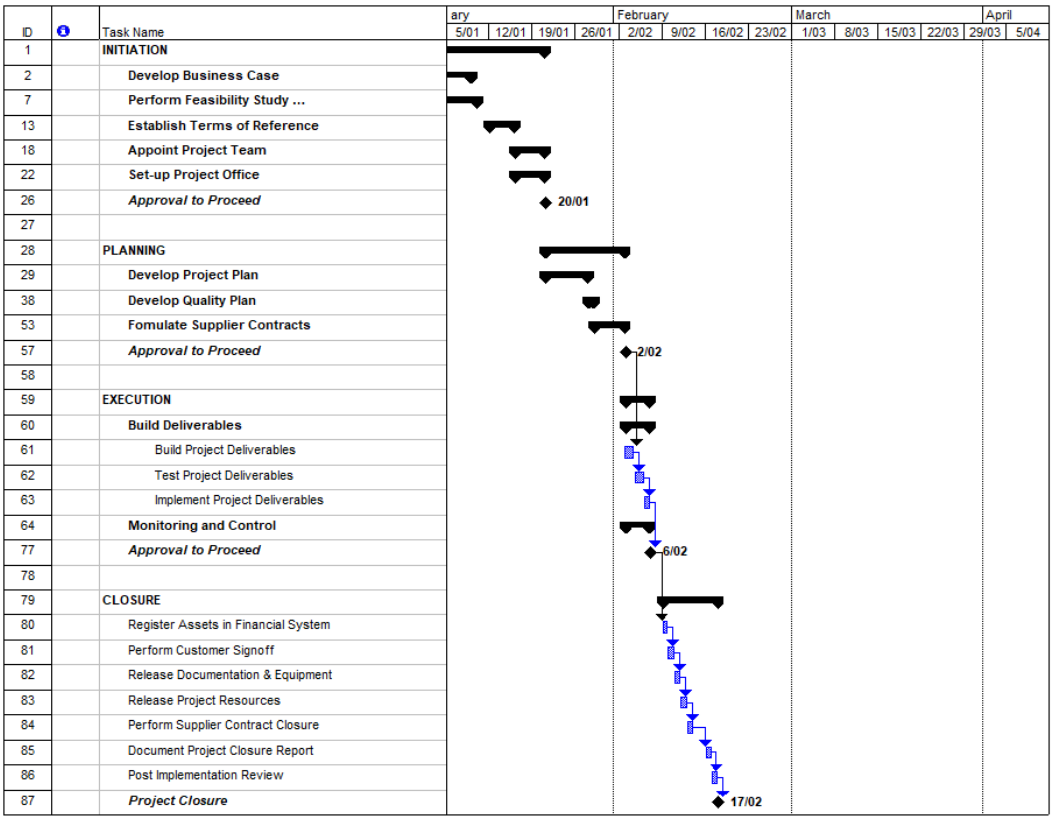
4.1 Approach

Describe the approach to be taken to implement each of the phases within the project.

Phase	Approach
Initiation	Outline the method by which the project will be further defined, the project team appointed and the Project Office established.
Planning	Define the overall planning process to ensure that the phases, activities and tasks are undertaken in a co-ordinated fashion.
Execution	Describe the generic phases and activities required to build, test and implement the deliverables of the project.
Closure	Describe the steps required to release the deliverables to the business, close the project office, reallocate staff and perform a Post Implementation Review of the project.

4.2 Overall Plan

Provide a summarized plan outlining the sequence of each of the phases listed above.



A more detailed Project Plan will be drawn up during the "Planning" phase of the project.

Milestones

List the major project milestones and the required delivery dates. A 'milestone' is a significant event or stage to be completed. Explain why each milestone is critical to the project, as follows:

Milestone	Date	Description
Milestone Title	*xx/yy/zz*	*Explain why milestone date is critical to business*

Dependencies

List any project activities which:

- Will impact on another activity external to the project
- Will be impacted on by the non/delivery of another activity external to the project

Project Activity	Impacts on	Impacted on by	Criticality	Date
Planned Activity	*External Activity*	*External Activity*	*Low/Medium/High*	*xx/yy/zz*

4.3 Resource Plan

Summarize the duration and effort required for each project team member, as follows:

Role	Start Date	End Date	% Effort
Project Role	*xx/yy/zzzz*	*xx/yy/zzzz*	*xx/yy/zzzz*

A detailed Resource Plan will be drawn up during the "Planning" phase of this project.

4.4 Financial Plan

Summarize the project budget approved (within the Business Case) as follows:

Category	• Cost	Value
People	• Salaries of project staff • Contractors and outsourced parties • Training courses	*R x* *R x* *R x*
Physical	• Building premises for project team • Equipment and materials • Tools (computers, cabling, phones…)	*R x* *R x* *R x*
Marketing	• Advertising / branding • Promotional materials • PR and communications	*R x* *R x* *R x*
Organisational	• Operational downtime • Short-term loss in productivity • Cultural change	*R x* *R x* *Describe*

A detailed Financial Plan will be drawn up during the "Planning" phase of this project.

4.5 Quality Plan

Briefly describe the various processes to be undertaken to ensure the success of the project.

Process	Description
Quality Management	*Summary of how the process will be undertaken*
Change Management	

Risk Management	
Issue Management	
Configuration Management	
Document Management	
Acceptance Management	
Procurement Management	
Financial Management	
Timesheet Management	
Project Reporting	
Project Communications	

A detailed Quality Plan will be drawn up during the "Planning" phase of this project.

5 Project Considerations

5.1 Risks

Summarize the most apparent risks associated with the project. Risks are defined as "any event which may adversely affect the ability of the solution to produce the required deliverables". Risks may be Strategic, Environmental, Financial, Operational, Technical, Industrial, Competitive or Customer related. Complete the following table:

Description	Likelihood	Impact	Mitigating Actions
Inability to recruit skilled resource	Low	Very High	Outsource project to a company with proven industry experience and appropriately skilled staff
Technology solution is unable to deliver required results	Medium	High	Complete a pilot project to prove the full technology solution
Additional capital expenditure may be required in addition to that approved	Medium	Medium	Maintain strict capital expenditure processes during the project

To complete this section thoroughly, it may be necessary to undertake a formal Risk Assessment (by documenting a Risk Management Plan). To reduce the likelihood and impact of each risk's eventuating, clear 'mitigating actions' should be defined.

5.2 Issues

Summarize the highest priority issues associated with the project. Issues are defined as "any event which currently adversely affects the ability of the solution to produce the required deliverables". Complete the following table:

Description	Priority	Resolution Actions
Required capital expenditure funds have not been budgeted	High	Request funding approval as part of this proposal

Required computer software is only at 'beta' phase and has not yet been released live	Medium	Design solution based on current software version and adapt changes to solution once the final version of the software has been released
Council approval must be sought to implement the final solution	Low	Initiate the council approval process early so that it does not delay the final roll-out process.

5.3 Assumptions

List the major assumptions identified with the project to date. Examples include:

- There will be no legislative, business strategy or policy changes during this project
- Prices of raw materials will not increase during the course of the project
- Additional human resources will be available from the business to support the project.

5.4 Constraints

List the major constraints identified with the project to date. Examples include:

- The financial budget allocated is fixed and does not allow for over-spending
- There are limited technical resource available for the project
- The technical solution must be implemented after-hours to minimize the operational impact on the business.

6 Appendix

6.1 Supporting Documentation

Attach any documentation you believe is relevant to the Project Charter, including:

- Curricula Vitae (CVs) for key project staff
- Approved Business Case
- Approved Feasibility Study
- Research Materials
- External quotes or tenders
- Detailed financial planning spreadsheets
- Other relevant information or correspondence.

Resource: https://www.projectmanager.com/blog/great-project-documentation

- **Business Case -** This document is created during the initiation phase. Its purpose is to convince project stakeholders of the project's value. Listed in the business case are the potential benefits the project can have for an organisation.
- **Project Communication Plan -** All the guidelines for communication are set in the communication plan. This is for the communication that takes place among team members and project stakeholders.

The purpose of the communication plan is:

- To define the communication channels to be used
- Communication schedule
- Roles and responsibilities
- Streamlining of the communication process

- **Risk Register (Source document of the Scope Management Plan) -** All potential risks are registered in this document. The register includes a brief description of the risks' potential impact and likelihood.

  The risk register is an important project document and provides:

  - Information for the risk management plan contains:
    - Risk management documents
    - Risk management strategies
    - Risk management guidelines

An example of a risk register, as follows:

Risk Tracking Template

Date of last review:

ID	Description of Risk	Impact	Risk Response	Risk Level	Risk owner	Notes
1	Supplier delay	Pushes launch	Confirm delivery dates by Phase 2	High	Clarissa	SAMPLE
2	Factory availability	Cost overruns	Stakeholder trip to China	High	Dave, Rajesh & Nina	SAMPLE
3	Steering committee unavailable	Delay launch marketing	Define marketing plans in March	Low	Tyrell	SAMPLE
4						
5						
6						

Resource: https://www.projectmanager.com/blog/great-project-documentation

- **Scope Statement (Source document of the Scope Management Plan) -** The activities that will be completed in the project is defined in the scope statement. This is to inform stakeholders:

  - What will be done
  - What won't be done

  This document is part of the scope management plan and explains procedures and guidelines related to the project scope.

Following is an example of a Project Scope.

Project Scope

Project	Project Manager	Date
[Name of project]	[Name of project manager]	[Date completed or revised]
Justification		
[Brief explanation of a need and how the project will fulfil that need.]		
Scope Description		
In Scope	Must (M), Should (S), Could (C), Won't (W)	
[Make a list of functionalities that is within the scope of the project.]	[Use MoSCoW prioritization to determine if the functionality is essential to business values (M), important but can be deferred to next version (S), useful but can be deferred to next version (C) or limited business value and can be indefinitely deferred (W)]	
Out of Scope	Must (M), Should (S), Could (C), Won't (W)	
[Make a list of functionalities that is outside the scope of the project.]	[Use MoSCoW prioritization to determine if the functionality is essential to business values (M), important but can be deferred to next version (S), useful but can be deferred to next version (C) or limited business value and can be indefinitely deferred (W)]	
Business Objectives		
[Define targets you want to achieve with the project, such as launch dates, better customer satisfaction, greater conversion rates, etc.]		
Project Deliverables		
[Make a list of deliverables that will be produced during the project to meet your business objective.]		
Project Exclusions		
[List what is outside the boundaries of the project, such as updates for a later project.]		
Constraints		
[List all potential project constraints, such as time, cost, scope, risk, resources, etc.]		
Assumptions		
[List project assumptions, like the above constraints, to help stakeholders know what resources are going to be required to fulfil the project.]		
Cost Estimate		

Item	Estimated Cost	Actual Cost	Cost Until Completion	Variance
[Name of resource]	[Rand figure for line item cost]	[Actual cost of line item]	[Estimated cost of line item for remaining project]	[Discrepancy between estimated and actual}

Resource: https://www.projectmanager.com/blog/great-project-documentation

- **Project Budget -** This is a critical project management document. The following are requirements to compile the project budget:
    - Estimate project costs
        - Labour
        - Materials
        - Equipment
    - Any other costs required to execute the project

- **Project Schedule -** The project schedule reflects the project tasks and its associated timeline. It can also include:
    - Resources required for tasks
    - Responsible person
    - Float/slack of the project
    - Critical path

  The tool being used most by project managers for the project schedule is the Gannt Chart. Following is an example of a Gannt Chart Template:

Task Name	Start (Date)	End (Date)	Duration (Days)
Gather Data	6/1/2023	6/7/2023	6
Create Charts	6/2/2023	6/8/2023	6
Create Budget	6/3/2023	6/6/2023	3
Write Proposal	6/6/2023	6/8/2023	2
Meet Stakeholders	6/6/2023	6/14/2023	8
Create Plan	6/8/2023	6/13/2023	5
Schedule Work	6/9/2023	6/17/2023	8
Rent Trucks	6/10/2023	6/11/2023	1
Hire Workers	6/13/2023	6/14/2023	1
Tear Down Old Gym	6/14/2023	6/20/2023	6
Clean Up Site	6/15/2023	6/16/2023	1
Inspect Foundation	6/16/2023	6/21/2023	5
Pour Concrete	6/17/2023	6/20/2023	3
Begin Frame	6/20/2023	6/21/2023	1
Build Roof	6/21/2023	6/26/2023	5

Resource: https://www.projectmanager.com/blog/great-project-documentation

- **Project Status report -** A project status report is a key tool to use as part of the project life cycle. The purpose of this report is to:
    - Check the health of the project at any point within the project life cycle
    - Share data with stakeholders

  Included in the status report is the most relevant information and is usually a one-pager. Following is an example of a Project Status Report:

Status Report Template

Project Information	
Project Name	
Reporting Period	
Report Date	
Project Manager	
Project Sponsor	

Project Status Summary				
Key Accomplishments				
Progress Report				
Completed Work				
Action Item	Date	RAG	Owner	Comments
Upcoming Work				
Action Item	Date	RAG	Owner	Comments
Project Deliverables				
Deliverable Description	Date	RAG	Owner	Comments
Project Milestones				
Milestone Description	Date	RAG	Owner	Comments

Project Health			
Project Budget Overview			
Budget Spent	% Spent	Notes	RAG
Project Schedule Overview			
Action Item	RAG	Notes	
Project Scope Overview			
RAG		Notes	
Quality Control & Assurance Overview			
RAG		Notes	

Risk Management Overview			
Risk/Issue	Severity	Risk Response Action	Risk Owner
Conclusions & Recommendations			

Resource: https://www.projectmanager.com/templates/status-report-template

- **Project Closure Template -** A project closure report should be drafted at the end of the project life cycle to ensure all objectives have been met. Included in the project closure report is:
    - Ending/closing of contracts
    - Lessons learned document
    - Formal approval from stakeholders
- **Project Proposal Template -** The project proposal document provides and overview of the project. Its main purpose is to:
    - Convince stakeholders of the value of the project

  As a persuasive document the project proposal should highlight:

    - Benefits
    - Goals
    - Requirements
- **Project Brief Template**

  The project brief is a summarised version of the project plan. This document provides information to:

    - Cross-functional project teams
    - Stakeholders

  Highlighted in the project brief is:

- Project goals
- Budget
- Roles and responsibilities

- **Requirements Gathering Template (Source document of the Scope Management Plan)**

  Listed in the Requirements Gathering template are the goals and objectives as stated by the stakeholders. These are the basic deliverables that should be met to ensure stakeholder satisfaction.

  Following is an example of a Requirements Gathering Template:

Requirements Gathering Template (Version 1.0)

- **PROJECT NAME: [name]**
- **PHASE: [phase]**
- **DATE: [mm/dd/year]**
- **PREPARED BY [name]**

VERSION HISTORY

VERSION #	IMPLEMENTED BY	REVISION DATE	APPROVED BY	APPROVAL DATE	REASONS
[number]	[name]	[mm/dd/year]	[name]	[mm/dd/year]	[why]

1. Project Plan

1.1 DESCRIPTION/PURPOSE OF PROJECT:

- **[]**
- **[]**
- **[]**

1.2 SCOPE OF PROJECT:

- **[]**
- **[]**
- **[]**

1.3 TIMELINE AND METHODOLOGY

DATE	MILESTONES	GOAL	DEPENDENCES	RESOURCES	OUTCOME
mm/dd/year	[note ms]	[note goal]	[dependent on]	[teams, software, materials, etc.]	[note outcome]

MILESTONE	RESPONSIBLE	ISSUES	NEW DATE
[note ms]	[team member]	[note issue]	mm/dd/year

1. Project Description

1.1 PROJECT STAKEHOLDER SCENARIOS

[NOTE GOALS AND OBJECTIVES]

1.2 CONSTRAINTS & RESTRICTIONS

CONSTRAINT	ISSUE/SOLUTION
[note restriction]	[what is the issue and its resolution]

1.4 ASSUMPTIONS & DEPENDENCIES

- **[note assumption]**
- **[]**
- **[]**
- **[note dependencies]**
- **[]**
- **[]**

2. Project Requirements

2.1 USER REQUIREMENTS

- [list all user requirements]
- []
- []

2.2 FUNCTIONAL REQUIREMENTS

- [list functional requirements]
- []
- []

2.3 SYSTEM REQUIREMENTS & SOFTWARE INTERFACES

- [list system requirements]
- []
- []
- [list software interfaces]
- []
- []

2.4 USER INTERFACE REQUIREMENTS

- [list interface requirements with mockups and examples as needed]
- []
- []

2.5 WORKFLOW AND ACTIVITIES

- [describe workflow and activities]
- []
- []

2.6 CHANGE MANAGEMENT

- [describe change management plan]
- []
- []

2.7 RISK MANAGEMENT

- [describe risk management plan]
- []
- []

3. High-Level Tech Architecture

- [list the high-level tech used in project]
- []
- []

4. Maintenance & Support

- [list what maintenance and support will be needed]
- []
- []

5. User Testing & Evaluation

- **TEST #1**
  - **Objective: []**
  - **Artifacts: []**

- **Users: []**
- **Tasks: []**

- **TEST #2**
  - **Objective: []**
  - **Artifacts: []**
  - **Users: []**
  - **Tasks: []**

- **TEST #3**
  - **Objective: []**
  - **Artifacts: []**
  - **Users: []**
  - **Tasks: []**

6. Sign-Offs

Signature: _____ Date: _____
Print Name: _____
Title: _____
Role: _____

Signature: _____ Date: _____
Print Name: _____
Title: _____
Role: _____

Signature: _____ Date: _____
Print Name: _____
Title: _____
Role: _____

7. Appendixes

REFERENCES

DOC NAME/VERSION	DESCRIPTION	LOCATION
[name/version of doc]	[describe doc]	[where is it? URL, physical local]

KEY TERMS

TERM	DEFINITION
[term]	[definition]

Resource: https://www.projectmanager.com/blog/great-project-documentation

- **Project Overview Template -** This is a one-pager that outlines the following aspects of a project:
  - Timeline

- Milestones
- Budget
- Status
- Team members' roles and responsibilities

- **Team Charter Template -** The purpose of the team charter is to reflect:
  - Roles
  - Responsibilities
  - Deliverables
  - Resources

Following is an example of at Team Charter:

Project Charter: [Name of Project]	Date

Background [Why is the project being undertaken? Describe an opportunity or problem that the project is to address.] **Goals**

- [specific & measurable goal 1]
- [specific & measurable goal 2]
- [specific & measurable goal 3]

Scope [What will be the end result of the project? Describe what phases of work will be undertaken. It's also important to mention what activities will not be included in this project.] **Key Stakeholders**

Client	[name]
Sponsor	[name]
Project manager	[name]
Project team members	[name], [name], [name], [name].

Project Milestones [Identify the significant project milestones: start date, end date and invoicing dates to the client.] **Project Budget** [Describe the main project expenses: non-recurring & monthly recurring.] **Constraints, Assumptions, Risks and Dependencies**

Constraints	[Describe here potential factors that will impact the delivery of the project]
Assumptions	[Describe here conditions or situations that you are relying on in order to achieve project goals]
Risks and Dependencies	[What are the most significant risks? What things must happen before the project is delivered?]

Approval Signatures

[Name], Project Client		[Name], Project Sponsor		[Name], Project Manager

Resource: https://www.projectmanager.com/blog/great-project-documentation

It is vital to document all aspects of a project. Throughout the project life cycle the following will be documented to ensure that the project is successfully rolled out:

- Multiple reports
- Charts
- Graphs
- Documents
- Change requests
- Status updates[8]

The project scope is the total of the following that will be delivered and provided as part of the project:

- Services
- Activities
- Results
- Products

The management of the project scope is to make certain that the project is completed within the agreed scope, as defined with the stakeholders.

The output in terms of Scope Management will be the Scope Management Plan that will be discussed in full later.

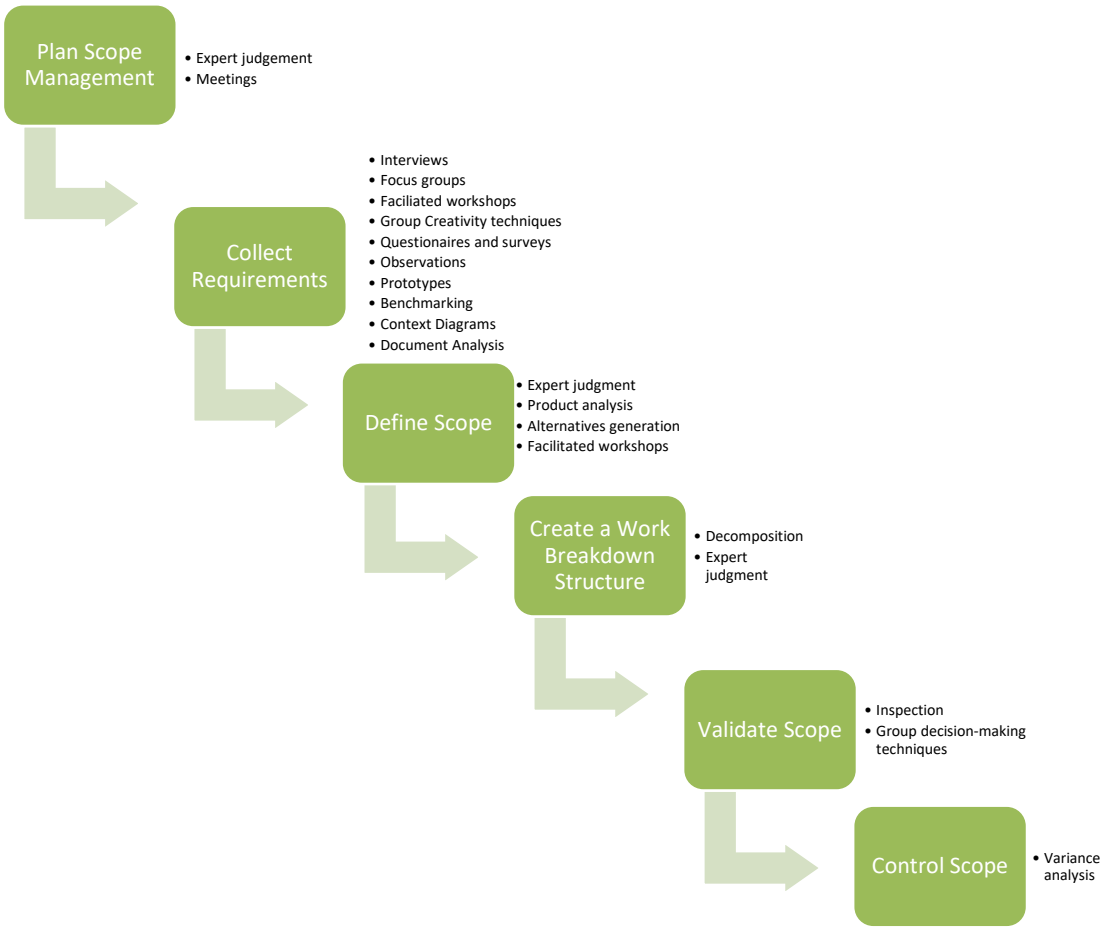
Formative Activity 3: Scope management planning source documents (KT0103) (IAC0104)

Complete the following Formative Activity as per the instructions from the facilitator

[8] https://www.projectmanager.com/blog/great-project-documentation

1.4 Scope management planning tools and techniques (Expert judgement, Meetings) (KT0104) (IAC0105)

Several tools and techniques are being used as part of the scope management planning. Following is a diagram that sets out the different tools and techniques for each category in the scope management process.



Adapted from: https://www.visual-paradigm.com/project-management/overview-of-scope-management-itto/

Following are the different tools and techniques used in Scope Management Planning:

- **Expert judgement** (Scope Planning, Scope Definition and Work Breakdown Structure)

Expert judgement can be defined as “a technique in the project planning process that refers to making a judgement based on skill, expertise, or specialised knowledge in a particular area”.[9] Expert judgment can especially be beneficial when forming strategies around potential threats and risk response.

The judgement can be based on a person’s:

- Training
- Educational background
- Career Experience
- Knowledge of the product or market[10]

The expertise can come from:

- A member of the project team
- A project stakeholder
- Consultants
- Subject matter experts
- The project manager

Framework for obtaining expert judgement:

- Frame the problem
- Plan the elicitation
- Select the experts
- Train the experts
- Elicit judgments
- Analyse/Aggregate judgment
- Document/communicate results

The output that will be given as part of expert judgement is as follows:

- Scope Management Plan
- Requirements Management Plan
- Project Scope Statement
- Project Documents Updates

[9] https://www.wrike.com/project-management-guide/faq/what-is-expert-judgment-in-project-management/

- **Meetings** (Scope Planning)

  As a mode of interactive communication meetings are crucial to business. Adherence to proper etiquette in meetings is important to establish respect among the participants.

  It is important that the meeting is properly planned with an accompanying agenda.

  In terms of scope planning meetings are held with stakeholders to identify:

  - Project objectives
  - Success Criteria
  - Key deliverables
  - High-level requirements
  - Summary milestones

  The attendees to these meetings may include:

  - Project manager
  - Project sponsor
  - Selected project team members
  - Selected stakeholders
  - Any person with responsibility for any of the scope management processes[10]

  The outputs of the meeting at scope planning level will be:

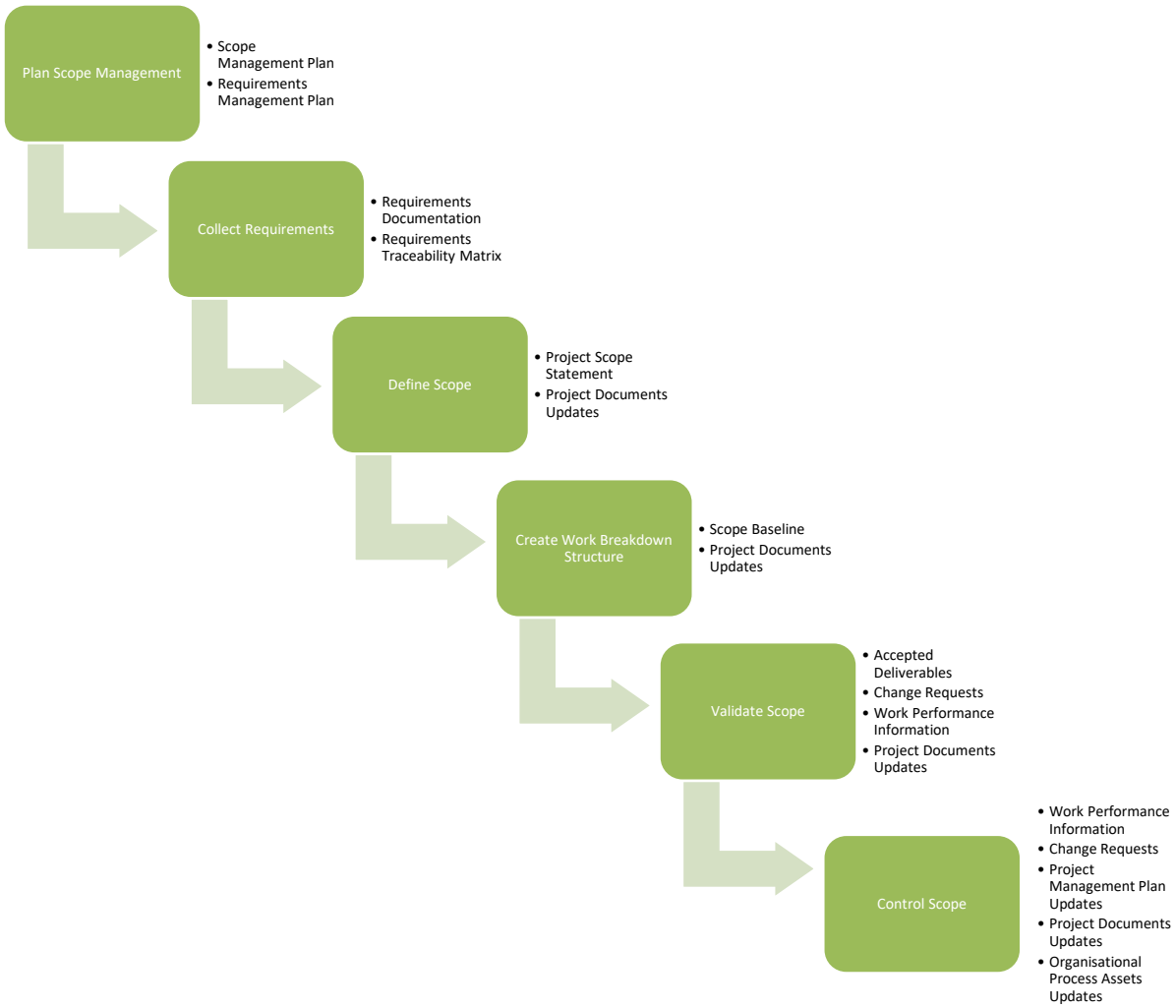
  - Scope management plan
  - Requirements management plan

Formative Activity 4: Scope management planning tools and techniques (KT0104) (IAC0105)

Complete the following Formative Activity as per the instructions from the facilitator

[10] https://proventuresindia.com/2018/06/28/meetings/

1.5 Outputs of project scope management planning (The scope management plan, Requirements management plan) (KT0105) (IAC0106)



Adapted from: https://www.visual-paradigm.com/project-management/overview-of-scope-management-itto/

Following is a list of output documents from the Scope Management Planning as depicted in the diagram:

- **Scope Management Plan**

  A scope manage plan "outlines the processes involved in executing your project and serves as a guideline to keep the project within specific limits".[11]

  The focus of a scope management plan is to create project structure and documenting the required information and resources to achieve the project objectives.

  Common problems that are avoided by using a scope management plan includes:

[11] https://asana.com/resources/scope-management-plan

- Constantly changing requirements
- Overspending
- Wasted time
- Failure to meet deadlines[12]

Project Name:

Project Number:

Prepared By: Author's Name Here

Last Revised On: (Insert Date)

Scope Management Plan

Management Approach

The term "project scope" refers to the sum of all products, services and results that will be provided as the project.

The purpose of this scope management plan is to set forth the plans and procedures for defining, developing, monitoring, controlling, changing, implementing and verifying the project scope. It's the intent of scope management to ensure the completion of all the work required, and only the work required, to complete the project successfully.

The project manager will assume overall responsibility for project scope management. The people listed below will assume the following scope management responsibilities:

Names / Roles	Responsibilities
Project Manager	
Project Sponsor	
Project Team Lead	
Project Team Members	

Scope Development

Sources

The scope of this project is defined in the Scope Definition section, below. Development of the project scope began with an examination of the following sources:

A. Project Charter
B. Applicable codes, regulations, statutes and laws
C. Stakeholders

Collect Project Requirements

[12] https://asana.com/resources/scope-management-plan

The complete requirements gathering and definition process is described in the Requirements Management Plan and all known project requirements are set forth in the Requirements Traceability Matrix. The Requirements Traceability Matrix is included in the Requirements Management Plan.

Scope Definition

The project scope baseline is comprised of the project scope statement, the work breakdown structure and the WBS dictionary, below.

Project Scope Statement

The project scope statement is included below as an attachment.

Work Breakdown Structure (WBS)

The work breakdown structure (WBS) is included as an attachment.

WBS Dictionary

The WBS dictionary is included below as an attachment.

Scope Validation

Scope validation refers to the process of verifying and formalizing acceptance of the completed project deliverables. A list of the project deliverables can be found in the project scope statement, included below in Attachment A and in the Deliverables Acceptance and Rejection Log included as Attachment F.

Scope Verification

Describe how the deliverables will be verified against the project scope. To whom will the deliverables be first presented for inspection and verification? Does the quality management plan address quality control processes? Are the control quality processes performed before scope validation or are those two processes performed in parallel?

Will anyone else be involved in verifying the deliverables? What are their roles?

When will scope verification be performed? How will the verification of deliverables be tracked?

WBS ID	WBS Name	Deliverable	Verified By	Variance	Notes

Deliverables Acceptance

Describe the manner in which project deliverables will be formally presented and accepted. Will they be presented at the end of each phase? Will they be presented at regular intervals? Who will present the project deliverables and to whom will they be presented?

Name / Role	Responsibility
	Verifies the project deliverables
	Presents the project deliverables
	Reviews the project deliverables
	Accepts or rejects the project deliverables

Accepted Deliverables

Describe the process for accepting the project deliverables. Will the project deliverables become accepted in writing? Is a deliverable acceptance document in place?
Acceptance and rejection of project deliverables can be tracked below in Attachment F, Deliverables Acceptance and Rejection Log.

Rejected Deliverables

Describe the process for rejecting the project deliverables. What happens to rejected deliverables? Acceptance and rejection of project deliverables can be tracked below in Attachment F, Deliverables Acceptance and Rejection Log.

Scope Control

Controlling project scope is the process of monitoring the status of the project scope and managing changes to the scope baseline.

Monitoring

Who is responsible for monitoring the project scope to ensure the project remains within the scope baseline? What processes will be used?

Name	Scope Monitoring Activities

Work Performance Data

What work performance data will be captured? Who will track the number of change requests received? Who will track the number of deliverables completed?

Variance Analysis

Variance analysis is a technique used for determining the cause of any difference and the degree of any difference between the scope baseline and the actual performance. Describe the processes for performing variance analysis. When is corrective or preventative action required? Does the quality management plan speak to allowable variances?

Integrated Change Control Procedures

Use the sections below to describe the change control procedures for the project.

Written Requests

All requests for change must be submitted in writing, on the Change Request Form included as an attachment.

A. Who May Submit Change Requests

The following people may initiate changes to the project scope:

1. Project sponsor
2. Project Manager
3. Project team members
4. Other project stakeholders

B. Deliver To

All written requests for changes must be submitted to the project manager who will log and track each request on the Change Request Log included as an attachment.

Sizing

The project manager and select project team members will analyse the change requests for impact to schedule, cost and quality. Once the sizing is complete, the project manager will electronically submit each change request to all members of the change control board.

Change Control Board

Members of the change control board will evaluate each change request and decide whether it becomes approved, approved with modifications, rejected or deferred. Once a decision is reached, the change request is signed and emailed to the project manager for planning revisions and implementation.

The following people are members of the change control board:

Name	Role	Email

A. Approved

When a change request is approved, the project manager will track the approval on the change request log found in Attachment E, below. The project manager will also ensure implementation of the change, as it was submitted and approved.

Where implementation affects changes to the project management plan, the project manager will revise the plan and distribute notice of the revisions in accordance with the procedures set forth in the communication management plan.

B. Approved With Modifications

When a change request is approved with modifications, the project manager will track the modified approval on the change request log found in Attachment E, below. The project manager will also ensure implementation of the change, as it is modified.

Where implementation affects changes to the project management plan, the project manager will revise the plan and distribute notice of the revisions in accordance with the procedures set forth in the communication management plan.

C. Rejected

When a change request is rejected, the project manager will track the rejection on the change request log found in Attachment E, below and provide written notice of the rejection to the party who initiated the change. No further action will be taken.

D. Deferred

When a change request is deferred, the project manager will track the deferred request on the change request log found in Attachment E, below. The project manager will also notify the party who initiated the change request.

No other action will be taken unless the change control board later approves, approves with modifications or rejects the change request.

Assumptions

While defining and managing project scope, it's inevitable that assumptions will be made. All assumptions regarding project scope will be documented here then transferred to the Risk Management Plan for further management.

Assumption	Date Transferred to Risk Management Plan

Issues

While defining and managing project scope, it's inevitable that issues will be encountered. All issues regarding project scope will be documented here then transferred to the Risk Management Plan for further management.

Issues	Date Transferred to Risk Management Plan

Risks

While defining and managing project scope, risk may be identified. All risks regarding project scope will be documented here then transferred to the Risk Management Plan for further management.

Risks	Date Transferred to Risk Management Plan

Plan Approval

By signing below, I, _____ in my capacity as Project Sponsor approve of this Scope Management Plan.

Name:

Title:

_____ _____

Signature Date

Approved

Attachments

A. Project Scope Statement

Attach project scope statement here.

Work Breakdowns Structure (WBS)

Attach the WBS here.

WBS Dictionary

Attach the WBS dictionary here.

D. Change Request Form

attach the change request form here.

E. Change Request Log

Attach the change request log here.

F. Deliverables Acceptance and Rejection Log

WBS ID	Deliverable	Reviewed By	Accepted or Rejected	Notes

Resource: https://www.mypmllc.com/project-management-resources/free-project-management-templates/scope-management-plan-template/

- **Scope Baseline**

  The scope baseline is defined as "a written agreement of the expectations and requirements of the project stakeholders. It is referred throughout the project to monitor progress and measure actual versus planned results".[13]

  Modification of the scope baseline occurs through a formal change control process. The purpose of this is to prevent any scope creep.

  The project scope baseline consists of the following three sections, namely:

  - Scope Statement

  This is a written definition of the:

    - Project scope, including
      - Goals
      - Deliverables
      - Work involved in the project
  - Work Breakdown Structure

  Project deliverables are broken down into packages of work in the work breakdown structure.

  - Work Breakdown Structure dictionary

  This dictionary is a list of specific tasks, activities, and deliverables of the work breakdown structure.

- **Project Scope Statement**

[13] https://www.wrike.com/professional-services-guide/faq/what-is-a-scope-baseline/

A scope statement is “a document that defines all the elements of the project scope as well as assumptions, project requirements and acceptance criteria”.[14] The project scope statement will be a primary tool to refer to as a guideline to measure project success.

The project scope statement include:

- Project goals and objectives
- Project requirements
- Project scope description
- Project exclusions
- Project constraints
- Project assumptions
- Project deliverables

- Requirements Management Plan

  The Requirements Manage Plan is “used to document the necessary information required to effectively manage project requirements from definition, through traceability, to delivery”.

  As follow is an example Requirements Management Plan:

Project Name

Requirements Management Plan

VERSION HISTORY

*[Provide information on how the development and distribution of the **Requirements Management Plan**, up to the final point of approval, was controlled and tracked. Use the table below to provide the version number, the author implementing the version, the date of the version, the name of the person approving the version, the date that particular version was approved, and a brief description of the reason for creating the revised version.]*

Version #	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.0	*<Author name>*	*<mm/dd/yy>*	*<name>*	*<mm/dd/yy>*	Initial Requirements Management Plan draft

[14] https://www.projectmanager.com/blog/project-scope-statement#:~:text=A%20scope%20statement%20is%20a,to%20accurately%20measure%20project%20success.

Note to the Author

[This document is a template of a Requirements Management Plan Template document for a project. The template includes instructions to the author, boilerplate text, and fields that should be replaced with the values specific to the project.

- *Blue italicized text enclosed in square brackets ([text]) provides instructions to the document author, or describes the intent, assumptions and context for content included in this document.*
- *Blue italicized text enclosed in angle brackets (<text>) indicates a field that should be replaced with information specific to a particular project.*
- *Text and tables in black are provided as boilerplate examples of wording and formats that may be used or modified as appropriate to a specific project. These are offered only as suggestions to assist in developing project documents; they are not mandatory formats.*

When using this template for your project document, it is recommended that you follow these steps:

1. *Replace all text enclosed in angle brackets (i.e., <Project Name>) with the correct field values. These angle brackets appear in both the body of the document and in headers and footers. To customize fields in Microsoft Word (which display a gray background when selected):*
    a. *Select File>Properties>Summary and fill in the Title field with the Document Name and the Subject field with the Project Name.*
    b. *Select File>Properties>Custom and fill in the Last Modified, Status, and Version fields with the appropriate information for this document.*
    c. *After you click OK to close the dialog box, update the fields throughout the document with these values by selecting Edit>Select All (or Ctrl-A) and pressing F9. Or you can update an individual field by clicking on it and pressing F9. This must be done separately for Headers and Footers.*
2. *Modify boilerplate text as appropriate to the specific project.*
3. *To add any new sections to the document, ensure that the appropriate header and body text styles are maintained. Styles used for the Section Headings are Heading 1, Heading 2 and Heading 3. Style used for boilerplate text is Body Text.*
4. *To update the Table of Contents, right-click and select "Update field" and choose the option- "Update entire table"*

5. *Before submission of the first draft of this document, delete this "Notes to the Author" page and all instructions to the author, which appear throughout the document as blue italicized text enclosed in square brackets.]*

Introduction

Purpose of The Requirements Management Plan

[Provide the purpose of the Requirements Management Plan. This document should be tailored to fit a particular project's needs.]

The Requirements Management plan is used to document the necessary information required to effectively manage project requirements from definition, through traceability, to delivery.

The Requirements Management Plan is created during the Planning Phase of the project. Its intended audience is the project manager, project team, project sponsor and any senior leaders whose support is needed to carry out the plan.

Requirements Management Overview

Organization, Responsibilities, and Interfaces

[Describe here who is going to be responsible for performing the various activities described in the requirements workflows defined later in this document.]

Tools, Environment, and Infrastructure

[Describe the computing environment and software tools to be used in fulfilling the Requirements Management functions throughout the project or product lifecycle.

Describe the tools and procedures that will be used to control the versioning of the Requirements items generated throughout the project or product lifecycle.]

Requirements Management

Assumptions/Constraints

[Define any assumptions and/or constraints taken into account when defining requirement for this section of this document.]

Requirements Definition

[Describe the approach and tools that the project will use to define the specifications of the project requirements. Explicitly describing project requirements promotes the correct and efficient development and delivery of that requirement. Appendix C is for a Requirements Definition Log that the project team can adapt and populate for this purpose. (Use the CDC UP Requirements Definition Practices Guide as reference to complete this section.)]

Requirements Traceability

[Describe the approach and tools that the project will use to trace the project requirements throughout the systems life cycle. The approach that is followed should enable the project team to ensure that the project delivers the project requirements exactly as specified and that they fulfil the project requirements. Appendix D is for a Requirements Traceability Matrix that the project team can adapt and populate for this purpose.]

Workflows and Activities

[Describe the workflows and activities that apply to managing requirements. Describe review activities, including review objectives, responsibilities, timing, and procedures.]

Change Management

[Describe the process by which problems and changes are submitted, reviewed, and resolved. This should include the process for negotiating requirements changes with customers, and any contractual processes, activities, and constraints.

Describe the membership of the Change Control Board (CCB) and procedures for processing change requests and approvals to be followed by the CCB.]

Requirements Management Plan Approval

The undersigned acknowledge they have reviewed the *<Project Name>*

Requirements Management Plan and agree with the approach it presents. Changes to this Requirements Management Plan will be coordinated with and approved by the undersigned or their designated representatives.

[List the individuals whose signatures are required. Examples of such individuals are Project Sponsor, Business Steward, Technical Steward and Project Manager. Add additional signature lines as necessary.]

Signature: _____ Date: _____

Print Name: _____

Title: _____

Role: _____

Signature: _____ Date: _____

Print Name: _____

Title: _____

Role: _____

Signature: _____ Date: _____

Print Name: _____

Title: _____

Role: _____

Appendix A: References

[Insert the name, version number, description, and physical location of any documents referenced in this document. Add rows to the table as necessary.]

The following table summarizes the documents referenced in this document.

Document Name and Version	Description	Location
<Document Name and Version Number>	*[Provide description of the document]*	*<URL or Network path where document is located>*

Appendix B: Key Terms

[Insert terms and definitions used in this document. Add rows to the table as necessary. Follow the link below to for definitions of project management terms and acronyms used in this and other documents.

The following table provides definitions for terms relevant to this document.

Term	Definition
[Insert Term]	*[Provide definition of the term used in this document.]*
[Insert Term]	*[Provide definition of the term used in this document.]*
[Insert Term]	*[Provide definition of the term used in this document.]*

Appendix C: Requirements Definition Template

Appendix D: Requirements Traceability Template

- **Requirements Traceability Matrix**

  A requirements traceability matrix (RTM) is "a tool that helps identify and maintain the status of the project's requirements and deliverables. It does so by establishing a thread for each component. It also manages the overall project requirements".[15]

  The technical requirements are documented in a matrix for a given test scenario and what its current state is. It comes down to the testing done for a given product.

  The traceability process is used to review test cases.

  By following this step-by-step process dictated by the Requirements Traceability Matrix, not only the requirements, but also the products required will be tested successfully. Thus, it enables the project team to meet goals and manage projects successfully.[16]

Unique Req ID	Requirement description	Source /Requestor	Org /Dept	Business Justification/Need	WBS Deliverable	Test Strategy	UAT Responsibility	Status	Active/ inactive Flag	Comments
1	Change the table component on the dashboard to a graph.	Ella Allen	Sales	Better representaion of the data and improved readability	Task 1.1 Task 4.7	Use cases to be developed.	Follow the test steps as defined in use cases and report any defects.	Done	Active	Jan 5:- Testing started. Jan 8:- Defected reported. Jan 9: Defect fixed Jan 10: UAT Continued
2	Add a drop down list for the regions	Tonya Harper	Sales	Will enable Area managers to understand their market more accurately	Task 1.2	Load testing to be done.	Load runner to be used to simulate a load and the regions will be verified for accurate representation	In Progress	Active	Make sure US territories hawaii and peurto rico are included in a separate regional unit.
3	Create a new category hierarchy to sorting the result set	Sammy Butler	Pricing	Will help the pricing department by automating the selection of categorized data.	Task 1.3	Assigned business users to perform unit testing as well as UAT	Check the categories in the base tables in the EDW.	Hold	Cancelled	It was determined that Pricing requirements were out of scope for this phase
4	...	...	...	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...	...	...	...
7	...	...	...	...	...	...	...	...	...	...
8	...	...	...	...	...	...	...	...	...	...

Resources: https://project-management.com/requirements-traceability-matrix-rtm/

- **Accepted Deliverables**

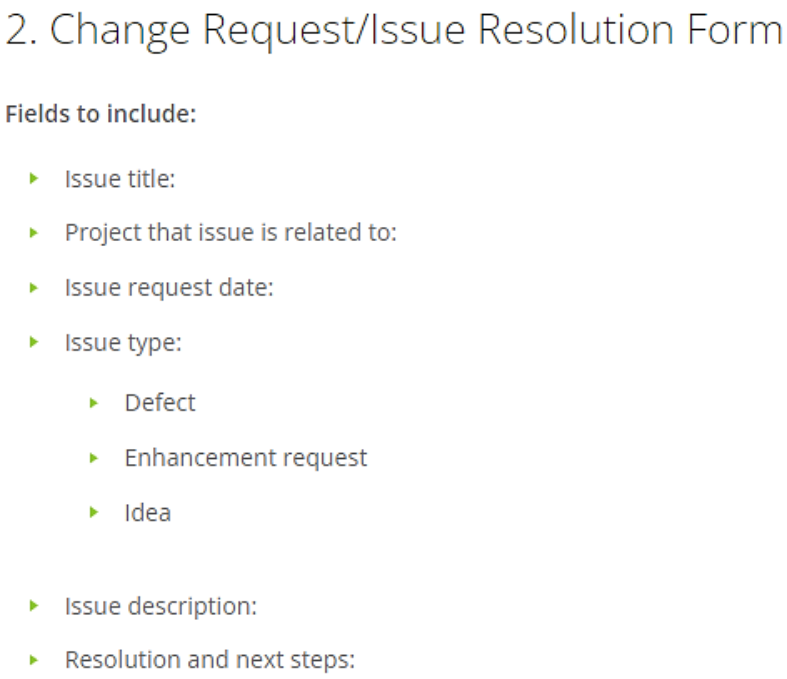
  Accepted deliverables are "those variables that meet the acceptance criteria and have been formally signed off and approved by the customer or sponsor as part of the Validate scope process".[17]

  There deliverables are only handed over to the customer when it has been reviewed and accepted by the Closing Progress Group.

- **Change Requests**

  Change requests are "when a stakeholder, either a client or an internal team or department, requests a change to the processes or deliverables that had already been decided upon in the project scope".[18]

[15] https://www.wrike.com/blog/what-is-requirements-traceability-matrix.
[16] https://www.wrike.com/blog/what-is-requirements-traceability-matrix/#:~:text.
[17] https://www.acethepmpexam.com/ppe/accepted%20deliverables.html#:~:text.
[18] https://blog.planview.com/change-requests-what-they-are-how-to-manage-them/



Resource: https://www.wrike.com/blog/10-request-form-templates-help-team-succeed/

- **Work Performance Information**

  This is the raw data of the project's status. Included in the status (current view) is:

  - The percentage of work completed
  - How much time has elapsed
  - Cost incurred[19]

  Examples of work performance information:

  - How much of the work has been completed?
  - What is the schedule's progress?
  - What cost has been incurred to date?
  - What are the quality metrics of the product?
  - What is the risk status?
  - What is the procurement performance?

- **Project Documents Updates**

  This is a general term used to describe that processes within project management will require updates, including various project documents.

- **Project Management Plan Updates**

[19] https://pmstudycircle.com/work-performance-information-wpi-vs-work-performance-measurements-wpm/#:~:text=Work%20performance%20information%20is%20the,current%20status%20of%20the%20project.

The focus of project management plan updates will be on:

- Cost
- Time
- Scope

A change in any of the above sections will influence the other two. The overall project plan should does show this impact throughout the project life cycle.[20]

- **Organisational Process Assets Updates**

  The organisational process assets will be all the documentation the organisation has that can be used while managing a project. These assets need to be updated frequently throughout the project life cycle and includes:

  - Standardised guidelines
  - Proposal evaluation criteria
  - Work breakdown structure templates
  - Project Schedule network diagram templates
  - Risk templates
  - Organisational standard processes
  - Project closure guidelines
  - Defect management processes
  - Lessons learned and historical databases
  - Change control procedures
  - Financial control procedures
  - Project files[21]

Formative Activity 5: Outputs of project scope management planning (KT0105) (IAC0106)

Complete the following Formative Activity as per the instructions from the facilitator

[20] https://www.brighthubpm.com/project-planning/123768-making-project-plan-updates-what-should-be-included/#:~:text=Project%20updates%20focus%20on%20the,changes%20on%20the%20overall%20project.

[21] https://www.simplilearn.com/enterprise-environmental-factors-organizational-process-assets-article

Outcome 2

Guidelines for Topics

KM-03-KT02: Scope management requirements and needs

Topic elements to be covered include:

- KT0201 Concepts related to the requirements for effective scope management and flow of data
- KT0202 The importance and benefits of defining requirements and needs that must be addressed by the scope of the project
- KT0203 Input documents to establish requirements and needs (Scope Management Plan, Requirements, Stakeholder Management Plan, Project Charter, Stakeholder Register)
- KT0204 Tools and techniques to collect and refine requirements and needs (Interviews, Focus Groups, Facilitated workshops, Group creativity Techniques [Brainstorming, Nominal group technique, Idea/Mind mapping, Affinity diagrams, Multi-criteria decision analysis], Group Decision-making Techniques [Unanimity, Majority, Plurality, Dictatorship], Questionnaires and surveys, Observations, Prototypes, Benchmarking, Context Diagrams, Document Analysis)
- KT0205 Documenting the requirements and needs (Business requirements, Stakeholder requirements, Solution requirements, Project requirements, Transition requirements, Requirement assumptions, dependencies and constraints)
- KT0206 Requirements traceability matrix

Internal Assessment Criteria and Weight

- IAC0201 An understanding of the concepts related to defining project requirements and needs as well as the flow of data is demonstrated
- IAC0202 The importance and benefits of defining the requirements and needs that must be met by the project can be explained and motivated
- IAC0203 Source documents that are used to define the project requirements and needs can be listed and their application explained

- IAC0204 Tools and techniques to perform project requirement and needs identification and analysis can be selected for a specific purpose and motivated
- IAC0205 Project resource and needs documents can be identified, the application explained, evaluated for completeness, gaps identified and corrective measures motivated

Weight: 15%

KM-03-KT02:

Scope management requirements and needs

Topic elements to be covered include:

2.1 Concepts related to the requirements for effective scope management and flow of data (KT0201)

2.2 The importance and benefits of defining requirements and needs that must be addressed by the scope of the project (KT0202)

2.3 Input documents to establish requirements and needs (Scope Management Plan, Requirements, Stakeholder Management Plan, Project Charter, Stakeholder Register) (KT0203)

2.4 Tools and techniques to collect and refine requirements and needs (Interviews, Focus Groups, Facilitated workshops, Group creativity Techniques [Brainstorming, Nominal group technique, Idea/Mind mapping, Affinity diagrams, Multi-criteria decision analysis], Group Decision-making Techniques [Unanimity, Majority, Plurality, Dictatorship], Questionnaires and surveys, Observations, Prototypes, Benchmarking, Context Diagrams, Document Analysis) (KT0204)

2.5 Documenting the requirements and needs (Business requirements, Stakeholder requirements, Solution requirements, Project requirements, Transition requirements, Requirement assumptions, dependencies and constraints) (KT0205)

2.6 Requirements traceability matrix (KT0206)

2.1 Concepts related to the requirements for effective scope management and flow of data (KT0201) (IAC0201)

Scope management is the primary knowledge area in PMBOK (Project Management Body of Knowledge). This include the processes required to ensure the project include the required work to ensure that the project is completed successfully.

The importance of effective project scope management is for the project manager to understand what the customer is looking for in terms of deliverables. The scope thus controls what is included and excluded from the project.[22]

The following figure is an overview of the scope management processes:

Resource: https://kissflow.com/project/project-scope-management/

The second process within project scope management is collecting requirements:

The purpose of this step is to determine the stakeholder requirements and expectations. As part of this process the following will have to be documented:

- All the project requirements,
- expectations,
- budgets, and
- deliverables through:
    - interviews,
    - surveys, and

[22] https://www.visual-paradigm.com/project-management/overview-of-scope-management-itto/

- focus groups.

Documentation of the requirements is an important step because, stakeholders can have unrealistic requirements or expectations that can lead to miscommunication or disappointment. Part of this process is the determine what is the end result required from the project.[23]

Project requirements can be defined as the "features, functions, and tasks that need to be completed for a project to be deemed successful". Requirements are a set of parameters that can be used to work toward the required goals as expected by stakeholders.

Project requirements provides order to the project and can include:

- tasks
- milestones
- resources required
- project timeline

The requirements are important as the success of the project is measured at the closing stage to determine whether the project was a success or not. Although it needs to be taken into consideration that requirements can change and evolve throughout the project life cycle.

The three key steps to the project requirements process are:

- Identifying stakeholder requirements
- Documenting stakeholder needs and expectations
- Managing requirements throughout the project

As part of requirement collection and the planning of discussing requirements with stakeholders the following needs to be kept in mind:

- Requirements already extracted from the project brief or the statement of work
- What information do you require to move forward with the project
- Will the information being collected be helpful for the team and the project
- Determine whether there are any confusion or misunderstandings in terms of the project requirements
- Project goals
- Who will be able to provide the right answers to your questions in terms of requirements

[23] https://www.teamwork.com/blog/project-requirements/

To identify stakeholder requirements, it is advised to first have a conversation with all of the stakeholders. Follow-up conversations, surveys and questionnaires will provide further detail in terms of the requirements the stakeholders may have.

It is crucial to document requirements in an accessible way to make it easy to track and manage it throughout the project lifecycle.

In most cases project managers will use shared lists or spreadsheets to document the requirements.[24]

At the end of the collection requirements stage, you should have the following:

- Functional as well as non-functional requirements
- Stakeholder requirements
- Business requirements
- Support and training requirements
- Project requirements

Formative Activity 6: Concepts related to the requirements for effective scope management and flow of data (KT0201) (IAC0201)

Complete the following Formative Activity as per the instructions from the facilitator

[24] https://www.teamwork.com/blog/project-requirements/

2.2 The importance and benefits of defining requirements and needs that must be addressed by the scope of the project (KT0202) (IAC0202)

Scope creep contributes to project failure through requirements that are:

- Missing
- Ambiguous
- Incomplete
- Conflicting
- Duplicate

It is crucial that requirements are communicated effectively to ensure project success and avoid scope creep.

The importance of requirements is that it creates a foundation for the project vision, scope, cost and schedule. By having clearly defined goals all the stakeholders will fully understand what is expected from them. These stakeholders include:

- Marketing
- Electrical Engineering
- Mechanical Engineering
- Software Engineering
- Any other department affected by the project.

As an example, when it is a new product that will be developed and requirements need to be discussed, the following stakeholders in a company should be included:

- Marketing
- Business managers
- Electrical, mechanical, and software engineers
- Quality assurance
- Manufacturing development
- Manufacturing field service
- Customer management
- Customer service personnel
- Customer end user representatives

The reason to include all these stakeholders are to ensure that all requirements are met that will prevent scope creep or project failure.

To ensure that the requirements are well structured a Work Breakdown Structure (WBS) can be used as it is efficient and practical. For each main topic there should be at least five sub-contents. By breaking each topic down, it will provide input into what the importance of each requirement is by assigning a shall, should or may command to each sub-content. All requirements that were listed as "shall" must be included, "should" commands will be included if there is time available, whilst the content with a "may" command will be considered in the future.

Projects where the requirements are well-defined tend to have:

- Fewer defects
- Clean designs
- Reduce project rework
- Mitigate technical risks
- Reduction of cost
- Speed to market will increase[25]

Formative Activity 7: The importance and benefits of defining requirements and needs that must be addressed by the scope of the project (KT0202) (IAC0202)

Complete the following Formative Activity as per the instructions from the facilitator

[25] https://www.psi-software.com/2017/12/15/importance-project-requirements/

2.3 Input documents to establish requirements and needs (Scope Management Plan, Requirements, Stakeholder Management Plan, Project Charter, Stakeholder Register) (KT0203) (IAC0203)

Input documents are documents that are used to gather information from to ensure that all the project requirements are clearly stated. It further enables the team to ensure that all the stakeholders are on the same page and agree on what is required from the project.

Following is the input documents required to establish requirements and needs.

Scope Management Plan

The following is defined by the scope management plan. How the scope will be:

- Identified
- Defined
- Developed
- Maintained
- Controlled
- Validated

The Scope Management plan forms part of the Project Management Plan and feeds into the following requirements documents:

- Scope Statement
- Work Breakdown Structure
- Work Breakdown Structure Dictionary

The Scope Management Plan aligns with the following documents:

- Development Approach
- Life cycle Description
- Change Management Plan
- Requirements Management Plan
- Release and Iteration Plan[26]

[26] https://www.stakeholdermap.com/project-templates/scope-management-plan-template.html

Below is an example of a Scope Management Plan:

<Project Name>

<Project Reference>

Scope management plan

DOCUMENT CONTROL

DOCUMENT INFORMATION

	Information
Document Id	*[Document Management System #]*
Document Owner	*[Owner Name]*
Issue Date	*[Date]*
Last Saved Date	*[Date]*
File Name	*[Name]*

DOCUMENT HISTORY

Version	**Issue Date**	**Changes**
[1.0]	*[Date]*	*[Section, Page(s) and Text Revised]*

DOCUMENT APPROVALS

Role	**Name**	**Signature**	**Date**
Project Sponsor			

Project Review Group			
Project Manager			
Quality Manager (if applicable)			
Procurement Manager (if applicable)			
Communications Manager (if applicable)			
Project Office Manager (if applicable)			

TEMPLATE GUIDE

How to use this template

This is a guide to the common sections included in a Scope Management Plan. Sections may be added, removed or amended to suit your project. Example tables, have been added (where relevant) these are just a suggestion, you may decide to format these sections differently.

Text in Blue italics is designed to assist you in completing the template. Delete this text before sharing the final document.

PREPARATION OF THE SCOPE DOCUMENT

Describe the process that will be used for preparing a detailed scope statement. For example, outputs from stakeholder workshops, a customer brief, tender documents e.g. request for proposal, pre-sales business case or use cases.

WORK BREAKDOWN STRUCTURE (WBS)

Describe how the Work Breakdown Structure will be created from the Scope Statement. For example, using top-down or bottom-up techniques and whether templates will be used. Include any standards that will be used for example for the PMI 'Practice Standard for Work Breakdown Structures'. Explain what format(s) will be used to present the WBS for example a common tree structure, a tabular view or a mind map (centralized tree structure).

WBS DICTIONARY

WBS Dictionaries holds additional detail for each component of the WBS. For example, a description or definition of each component, a cost control number, and the resource or team responsible for the WBS element.

Document the information that will be included in the WBS Dictionary in this section. This could include a link to a template or a screenshot.

An example WBS Dictionary:

Level	*WBS Code*	*Element Name*	*Definition/Description*	*Cost Control Number*	*Responsible team*
1	*1*	*Speed boat WBS*	*All components and assembly required to build a speed boat.*	*SB102*	*Custom build team*
2	*1.1*	*Hull*	*The internal network of frames that form the shape of the boat.*	*SB102.H*	*Custom build team*
3	*1.1.1*	*Hull shell*	*Fiberglass shell around the hull*	*SB102.H*	*Custom build team*

SCOPE BASELINE MAINTENANCE

The Scope Baseline is the approved version of the scope statement, WBS and the WBS dictionary. Describe how the scope baseline will be maintained. The PMBOK fifth edition states that the Scope Baseline can only be changed through formal change control so you may describe or link to the change control process here.

DELIVERABLE ACCEPTANCE

Describe how the completed deliverables will be formally accepted by the end customer. For example, completion of user acceptance testing, followed by project board review and issue of a deliverable or milestone completion certificate.

Resource: https://www.stakeholdermap.com/project-templates/scope-management-plan-template.html

Requirements

Requirements Gathering Form

Information in terms of what is required of the project is compiled in this template. Through this document it is stipulated what the stakeholders require from the project as an end-result to ensure that the project is a success.

A requirement can be defined as “a condition or capability needed by a stakeholder to solve a problem or achieve an objective; a condition or capacity that must be met or processed by

a solution or solution component to satisfy a contract, standard, specification or other formally imposed documents; a documented representation of a condition or capability".[27]

Both the stakeholders and user of this document should be clear on what the requirements are. With this document all the requirements can be gathered into one document that will again filter into the Requirements Management Plan.

You can find an example of a Requirements Gathering Form in Section 1.3

Requirements Management Plan

Defined in a Requirements Management Plan is how requirements will be:

- Managed
- Identified
- Categorised
- Analysed
- Measured
- Tracked
- Validated

The input documents used to develop the Requirements Management Plan, include:

- Project Charter
- Development Approach
- Quality Management Plan

The overall Requirements Management Plan aligns with:

- Change Management
- Scope Management
- Release and Iteration Plan
- Development Approach
- Requirements Backlog

All of the above including the Requirements Management Plan forms part of the Project Management Plan.

[27] https://www.projectmanager.com/templates/requirements-gathering-template

The completed Requirements Management Plan feeds into:

- Requirements log
- Traceability Matrix
- Risk Register
- Quality Management Plan[28]

Below is an example of a Requirements Management Plan:

<PROJECT NAME>

<PROJECT REFERENCE>

REQUIREMENTS MANAGEMENT PLAN

DOCUMENT CONTROL

DOCUMENT INFORMATION

	Information
Document Id	*[Document Management System #]*
Document Owner	*[Owner Name]*
Issue Date	*[Date]*
Last Saved Date	*[Date]*
File Name	*[Name]*

DOCUMENT HISTORY

Version	**Issue Date**	**Changes**
[1.0]	*[Date]*	*[Section, Page(s) and Text Revised]*

[28] https://www.stakeholdermap.com/project-templates/requirements-management-plan-template.html

DOCUMENT APPROVALS

Role	Name	Signature	Date
Project Sponsor			
Project Review Group			
Project Manager			
Quality Manager (if applicable)			
Procurement Manager (if applicable)			
Communications Manager (if applicable)			
Project Office Manager (if applicable)			

TEMPLATE GUIDE

How to use this template

This is a guide to the common sections included in a Requirements Management Plan. Sections may be added, removed, or amended to suit your project. Example tables, have been added (where relevant) these are just a suggestion, you may decide to format these sections differently.

Text in Blue italics is designed to assist you in completing the template. Delete this text before sharing the final document.

REQUIREMENTS COLLECTION

Set out how the requirements will be collected. This might be via user workshops, interviews, brainstorming, or review of enhancement requests or product reviews.

Hints and tips:

- *Prepare a list of questions in advance.*
- *Use whiteboards to sketch out processes or screens.*
- *For existing systems ask users to walk through everyday tasks explaining what they do and don't like.*

- *Create mockups to draw out details and clarify requirements.*
- *Keep the Business Case & Return on Investment (ROI) in mind. Requirements should help meet the reason for investment, not just be a wish list of exciting functionalities.*

REQUIREMENTS ANALYSIS

Explain how the impact and usefulness of each requirement will be analysed, so that a priority, and category can be determined.

Also analyse the predicted impact on the Business Case objectives. You can ask the following questions:

- *Does the requirement directly contribute to one of the project objective?*
- *If there is an indirect connection how many assumptions need to be true for the requirement to meet the objective?*

The second question may seem a little strange, so let's look at an example. Say we are gathering requirements for call centre software and have a key business objective to reduce average call handling time. A user-level requirement to allow service desk agents to change the user interface colour scheme will allow agents to configure their screen in a way that is pleasing to them, but we would have to make several assumptions to connect that requirement to a reduction in call handling time.

A good test is to try to map out the connection between the requirement and the objective. For example:

> *Users can change their screen colour > users feel a personal connection to the software > users use the software more? > users are more productive? > greater productivity means a reduction in call handling time?*

In comparison a requirement for a knowledge base that provides service desk agents with template responses to common questions would have a direct contribution to reducing average call handling time.

CATEGORIES

Document categories you will use for requirement grouping. A common categorization is:

- *High-level requirements*
- *User-level requirements*
- *System-level requirements*

System-level requirements are often divided into functional and non-functional.

DOCUMENTATION

Describe how the requirements will be documented including the format and fields that will be used. Often requirements are gathered using a simple Excel spreadsheet, or Word document although specialist software also exists. Some examples:

Example of an Agile method format

As a/an	*I want to….*	*So that…*

Traditional software style format

Type	*Business Function/Category*	*Requirement*	*Priority*

PRIORITISATION

Describe the way that requirements will be prioritised. Some will be mandatory to meet with regulations, security, company policy or the forecast ROI. Others will be 'nice to have', but not essential to meet the business objectives.

For example, MoSCoW could be used. In this case requirements would be grouped as:

***Must have** – mandatory requirement*

***Should have** – functionality or feature that should be available.*

***Could have** – desirable or nice to have*

***Won't or would have** – not required but might be a future release.*

You might also use a numerical scale – 1 to 10 or a simply high, medium, low.

REQUIREMENT / PRODUCT METRICS

Describe the metrics that will be used to measure requirements. For example: 99.9% availability, withstand x psi, near-real time etc. This section may also be used to document how the success of the requirements process will be measured. For example:

- *how many change requests were needed due to missed or unclear requirements?*
- *was any delay caused due to missed or unclear requirements?*
- *were any requirements re-prioritized e.g. found to be nice to have rather than mandatory?*

TRACEABILITY STRUCTURE

Show how the requirements will be traced through the product lifecycle from identification to delivery. Typically, a document called a Requirements Traceability Matrix will be used which will record the requirement ID, and corresponding:

- *Business objective/KPI*
- *Project objective*
- *WBS ID*

- *Product design and development*
- *Test cases*

PROGRESS TRACKING

Explain how progress will be tracked. For example, through requirement checkpoints or progress meetings.

REPORTING

Document what reporting is needed on the requirements, including report purpose, format, frequency and audience.

VALIDATION

Explain the methods that will be used to validate the delivery of the requirements. For example, testing, audits, inspection, demonstration, proof of concept, beta version etc.

CHANGE MANAGEMENT

Describe how you will manage requirement changes. Including, new requirements and changes to existing approved requirements. Set out the information that will be captured for each change, how the impact will the analysed and how changes will be reviewed and approved.

If your organization has a project change control process you can reference or link to it in this section.

Resource: https://www.stakeholdermap.com/project-templates/requirements-management-plan-template.html

Stakeholder Management Plan

Stakeholder management is defined as a "strategic discipline that successful project managers use to win and sustain support for their projects from others, both internal and external to their project and to the project's organisation".[29]

Deliberate stakeholder management contributes to the success of the project as their requirements are clear and can be discussed with the project manager throughout the project life cycle. Project stakeholders can be kept involved through:

- Communications tools and techniques
- Strategy and plan

Following is an example of the steps in the stakeholder management process:

[29] https://www.pmi.org/learning/library/stakeholder-management-plan-6090

Resource: https://www.pmi.org/learning/library/stakeholder-management-plan-6090

The stakeholder plan "documents the approach that will increase support and decrease negative impacts of stakeholders throughout the life of the project".

A stakeholder plan should:

- Identify the key stakeholders
- Identify the level of power a stakeholder has
- Identify the level of influence a stakeholder has
- Address the stakeholders' expected behaviour. Stakeholders are positioned as per the following:
    - Champion – This is a person that is fully invested in the project and are positive about it and its success.
    - Neutral – This person may not have a current interest or investment in the project, but they can be converted to a Champion at a later stage.
    - Antagonist – This person may place obstacles in the path of the project that can result in project failure or a longer turn-around-time. This may be due to uncertainty, unawareness of the person not being properly informed.
    - Stoic – this is a stakeholder that does not have a lot of interest in the project but has an investment in it.
    - Ignored or Invisible – these individuals are removed from the project in the first stages of the project life cycle.
- Stakeholder communication plan

  Stakeholders can be kept informed in the following ways:
    - Group meetings

- One-on-one meetings
- Written approvals
- Informal written correspondence

- Describe strategies and actions to engage with stakeholders[30]

Following is an example of a Stakeholder Management Plan:

STAKEHOLDER MANAGEMENT PLAN

(Project Name/Type)

Prepared for
Business Name
Street Address
City, Postal Code
Attn: Name, title
email address

Prepared By
Your Name
Business Name
Street Address
City, Postal Code
email address
phone number

PURPOSE

The stakeholder management plan is used for: planning the engagement of stakeholders, developing strategies to reduce or eliminate resistance and creating strategies to increase support and buy-in. Because planning for stakeholder management generates activities, this plan becomes an input to other subsidiary plans.

IDENTIFICATION APPROACH

Describe the activities that will be performed to identify the project stakeholders. Beside each activity, list the person responsible for performing the activity and the date it should be performed by.

Activity	Person Responsible	Performance Date

[30] https://www.pmi.org/learning/library/stakeholder-management-plan-6090

Should some stakeholder identification activities be performed again, at a later date? If so, which ones?

List all project stakeholders on the register, below.

STAKEHOLDER REGISTER

Stakeholder Name	Title and Project Role	Contact Information	Notes

STAKEHOLDER ANALYSIS

Provide analysis for each stakeholder identified above.

Stakeholder Analysis

Stakeholder Name	Internal or External Stakeholder	Unaware, Resistant, Neutral, Supportive or Leading?	Level of influence (1-5 with 5 being the lowest)	Ability to impact resources (1-5 with 5 being the lowest)	Total Score

What does this stakeholder need?

What expectations does this stakeholder have?

What is this stakeholder's greatest concern?

What is needed from this stakeholder?

What is the risk if this stakeholder is not engaged?

Should we monitor, keep informed, keep satisfied or manage closely?

Describe the communication strategy. Include the methods and frequency. (Include in the communications management plan.)

What information should be distributed to this stakeholder and what concerns should be addressed? How and when?

Describe the engagement strategy. (Include in the change management plan and/or scope management plan.)

What are the most important times/phases for engaging this stakeholder and how should this stakeholder be engaged?

Who is the person responsible for performing the activities described above?

Stakeholder Analysis

Stakeholder Name	Internal or External Stakeholder	Unaware, Resistant, Neutral, Supportive or Leading?	Level of influence (1-5 with 5 being the lowest)	Ability to impact resources (1-5 with 5 being the lowest)	Total Score

What does this stakeholder need?

What expectations does this stakeholder have?

What is this stakeholder's greatest concern?

What is needed from this stakeholder?

What is the risk if this stakeholder is not engaged?

Should we monitor, keep informed, keep satisfied or manage closely?

Describe the communication strategy. Include the methods and frequency. (Include in the communications management plan.)

What information should be distributed to this stakeholder and what concerns should be addressed? How and when?

Describe the engagement strategy. (Include in the change management plan and/or scope management plan.)

What are the most important times/phases for engaging this stakeholder and how should this stakeholder be engaged?

Who is the person responsible for performing the activities described above?

ADD MORE SECTIONS/PAGES FOR STAKEHOLDER ANALYSIS, IF NEEDED.

SCOPE

Ensure all activities identified in this plan are added to the activities list in the scope management plan.

TIME

Ensure the timing of activities identified in this plan is included in the time management plan.

ESTIMATED COST

Provide high-level cost information for implementing all activities identified herein.

Activity Description	Estimated Cost
TOTAL ESTIMATED COST	

HUMAN RESOURCE REQUIREMENTS

List the people from within the organization that might be assigned to any activity described herein.

Name	Department/Title	Contact Information	Immediate Supervisor

COMMUNICATIONS

Ensure all communication strategies identified herein are included in the communications management plan.

ASSUMPTIONS

List any assumptions made. Move all assumptions to the assumption log.

RISKS

From a high-level perspective, identify all known or perceived risks. Include all risks in the risk management plan.

PROCUREMENTS

List all resources, if any, which must be procured.

Description	Source	Estimated Cost

SUPPORTING DOCUMENTATION

Please supporting documents, if any, and list them here.

PLAN APPROVAL

Date: _____

By initialing each page and signing below, I _____, in my capacity as

_____, approve this stakeholder management plan.

(Insert Name of Organisation)

By: _____
Signature

_____
Printed Name and Title

Resource: https://www.mypmllc.com/project-management-resources/free-project-management-templates/stakeholder-management-plan-template/

Project Charter

As explained in section 1.3, a project charter explains the overall project plan in full. A project charter includes descriptions of the following:

- Project reasons
- Objectives and constraints
- Stakeholders
- Risk identification
- Project benefits
- Budget overview[31]

See section 1.3 for an example of a project charter.

[31] https://www.wrike.com/project-management-guide/faq/what-is-a-project-charter-in-project-management/

Stakeholder Register

The project stakeholders are listed in the Stakeholder Register with information gathered from the stakeholder map and stakeholder analysis. The Stakeholder Register's main purpose is to have all the stakeholders' names and contact details to send them the required information.[32]

Following is an example of a Stakeholder Register:

[32] https://www.stakeholdermap.com/stakeholder-register.html

Stakeholder Register									
The Stakeholder Register is an important record of Stakeholder contact details, but its completion is one of the later steps in successful Stakeholder Management. Access all of the Stakeholder Management Templates that you will need to manage your Stakeholders.									
Stakeholder Name	**Category**	**Stakeholder Analysis Group**	**Organisation or Group**	**Role or Job title**	**Address**	**Phone numbers**	**Email address**	**Communications sent to date**	**Comments and notes**
Full name of the stakeholder	*Internal / External / Primary or Secondary*	*Key Player / Keep Informed / Meet their needs etc*	*The name of the organization or group the stakeholder belongs to*	*Job title or role held by the stakeholder*	*Primary contact address*	*Contact phone numbers*	*x@x.com*	*Record of letters, phone calls sent to stakeholder*	*Known contacts affiliations etc.*

Resource: https://www.stakeholdermap.com/stakeholder-register.html

Formative Activity 8: The importance and benefits of defining requirements and needs that must be addressed by the scope of the project (KT0202) (IAC0202)

Complete the following Formative Activity as per the instructions from the facilitator

2.4 Tools and techniques to collect and refine requirements and needs (KT0204) (IAC0204)

With a disconnect between what stakeholders are aware of and the alternatives that exist, refinement of requirements and needs are very important. To ensure that requirements are fully understood it is important to take several different approaches to collect information as different approaches may highlight something that is not necessarily that clear with just a conversation. Following are different tools and techniques that can be used for requirement collection and refinement:

- **Interviews** (Requirements collection)

  Any task that gathers information about user requirements is important to the success of a project, which includes interviews. To make interviewing to gather information a successful technique it is advised to do the interviews individually and therefore requires:

  - Good preparation
  - Immediate documentation of the information received
  - Feedback

  The standard objectives for interviewing stakeholders during the requirements collection phase is to:

  - Gather perceptions of important business facts
  - Improve the insight into and commitment to the project
  - Provide a common basis for further analysis[33]

  The outputs of information documented during an interview in the scope management planning process are:

  - Requirements documentation
  - Requirements traceability matrix

- **Focus groups** (Requirements collection)

  Focus groups are defined as "an interactive discussion among the people involved in the discussion".[34] In project management the project manager will be responsible for the final decision of the focus group. The aim of a focus group is to have the team members address any problems that may be experienced to ensure a successful project.

[33] https://www.projectmanagement.com/process/popup.cfm?ID=24095
[34] https://project-management-knowledge.com/definitions/f/focus-groups/

Opinions will also be gathered from the stakeholders, analysed and used to create documents as per the outputs listed.

The outputs that are documented after the focus groups have been concluded, include:

- Requirements documentation
- Requirements traceability matrix

- **Facilitated workshops** (Requirements collection and Scope Definition)

  Facilitated workshops is "a technique that uses focused sessions to bring cross-functional stakeholders together in order to define product requirements. It is an effective way of reconciling the differences of stakeholders".[35]

  The main characteristics of a facilitated workshop are:

  - Highly interactive
  - Well-facilitated
  - Fosters trust
  - Improves communication among participants
  - Discovery of underlying issues

  The result of a successful workshop will be:

  - Requirements documentation
  - Requirements traceability matrix
  - Project scope statement
  - Project documents updates

- **Group creativity techniques** (Requirements collection)

  Group creativity techniques "are used to generate ideas within a group of people or stakeholders".[36]

  There are several different creativity techniques that can be used, including:

  - *Brainstorming*

  In this group activity as many ideas/requirements are created, without prioritisation or criticism. All these ideas/requirements are documented.

  - *The Nominal Group Technique*

  This is for a small group and involves the ranking and prioritisation of listed requirements.

[35] https://project-management-knowledge.com/definitions/f/facilitated-workshops
[36] https://www.invensislearning.com/blog/group-creativity-techniques/

- *Mind Mapping*

When ideas are solicited from the individual team members and then the ideas are mapped to create a single view.

- *Affinity Diagram*

This is where ideas are grouped into similar categories, which will be later analysed or reviewed.

- *Multi-criteria Decision Analysis*

Multi-criteria decision analysis "identifies the various measures that will be used to evaluate requirements and then assigns a high level value to each criterion like risk levels, uncertainty, and valuation, to assess and rank many ideas".[37]

The outputs to group creativity techniques in scope management planning is as follows:

- Requirements documentation
- Requirements traceability matrix

- **Group decision-making techniques** (Requirements collection and Scope Validation)

In group decision-making techniques different ways are used to make a decision during a group discussion with the project team.

The most used group decision-making techniques are:

- Brainstorming
- The Delphi Method

The Delphi Method is defined as a "forecasting process framework based on the results of multiple rounds of questionnaires set to a panel of experts. After each round of questionnaires, the experts are presented with an aggregated summary of the last round, allowing each expert to adjust their answers according to the group response. This process combines the benefits of expert analysis with elements of the wisdom of crowds".[38] The aim of the Delphi Method is to reach consensus through the different responses in the different rounds.

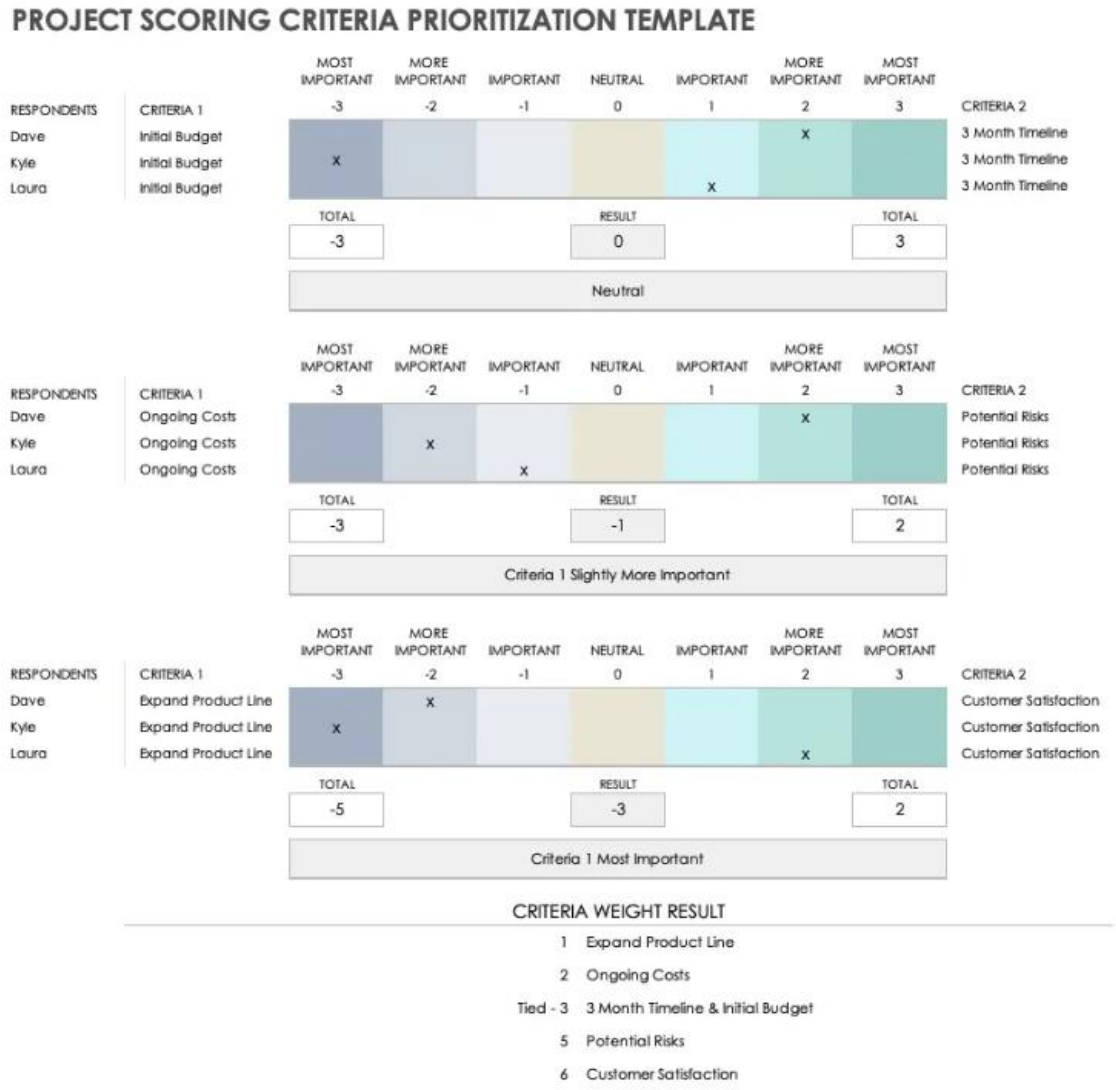
- Weighted Scoring

A weighted scoring model is defined as a model that "creates a value-weighted numerical score for potential projects that is unique to the team. By carefully selecting you criteria

[37] https://www.invensislearning.com/blog/group-creativity-techniques/
[38] https://www.investopedia.com/terms/d/delphi-method.asp#:~:text=The%20Delphi%20method%20is%20a%20process%20used%20to%20arrive%20at,the%20group%20after%20each%20round.

and weighting them by importance, you can generate a score that helps you compare projects".[39]

Following is an example of a weighted scoring model:



Resource: https://www.smartsheet.com/content/project-scoring

- **Nominal Group Technique**

  Nominal group technique (NGT) is defined as "a structure method for group brainstorming that encourages contributions from everyone and facilitates quick agreement on the relative importance of issues, problems, or solutions. Team members begin by writing down their ideas, then selecting which idea they feel is best".

[39] https://www.smartsheet.com/content/project-scoring

Following is an example of the use of the Nominal Group Technique:

User requirements	Estimated points		
	Person 1	Person 2	Person 3
Borrow books from the library system.	21	13	21
Borrow books by first reserving them online.	13	21	13
Check the due date of times from an online library application.	13	8	8
Receive email notification regarding library items that are due.	13	13	13
Receive a short text message notification regarding library items that are due.	8	8	8

Table 1: Nominal Group Technique (NGT) Example

Resource: https://asq.org/quality-resources/nominal-group-technique

- **Possibility Ranking**
  - The Stepladder Technique

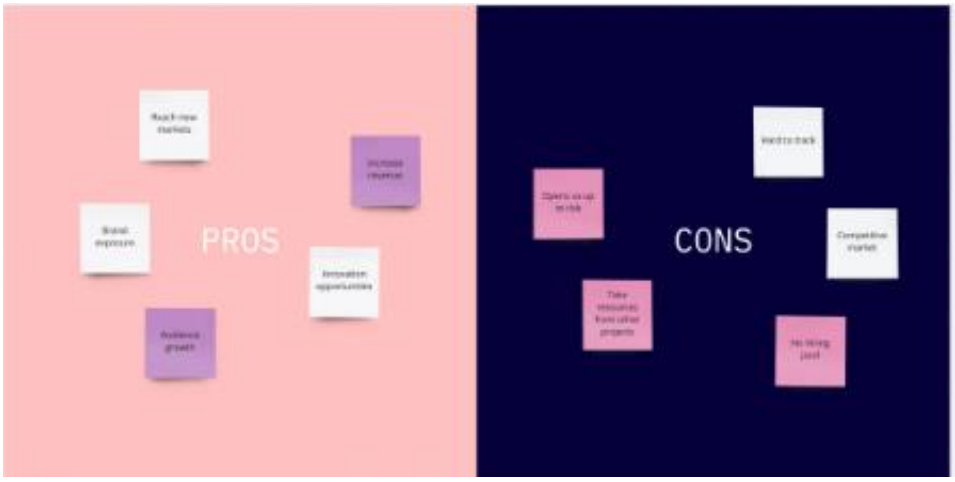
    The Stepladder Technique is defined as "a simple tool that manages how members enter the decision-making group. It encourages all members to contribute on an individual level before being influenced by anyone else. This results in a wider variety of ideas, it prevents people from hiding in the group, and it helps people avoiding being stepped-on or overpowered by stronger, louder group members".[40]

Resource: https://fellow.app/blog/productivity/group-decision-making-techniques/

[40] https://www.mindtools.com/pages/article/newTED_89.htm.

- Pros and Cons list

  The Pros and Cons list is defined as “a simple but powerful decision-making tool used to help understand both sides of an argument. Pros are listed as arguments in favour of making a particular decision or action. Cons are arguments against it”.[41]



Resource: https://miro.com/templates/pros-cons-list/

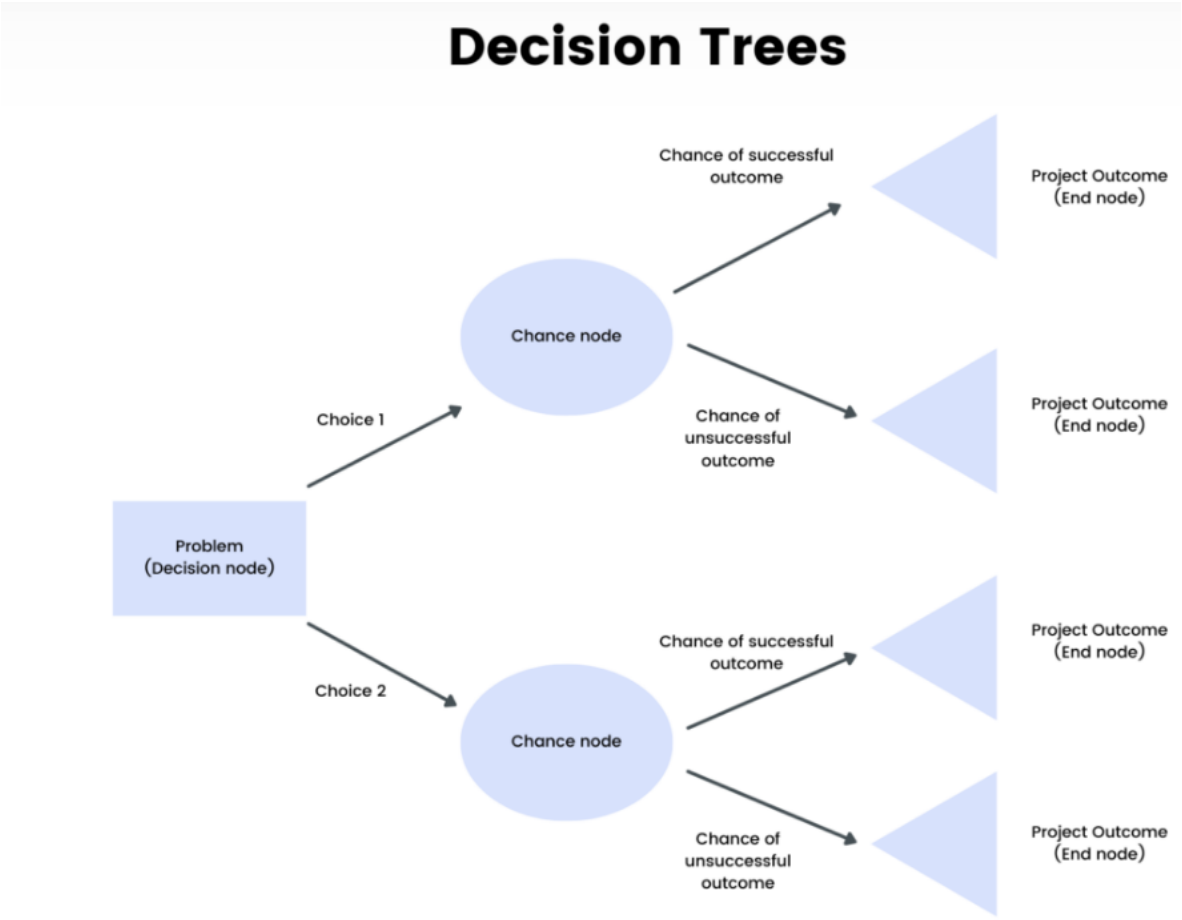
- Didactic Interaction

The didactic interaction approach is only applicable in certain situations. The problem or question should be that it can only have a yes or no answer. This will apply to high impact decisions on the business operations and will probably affect all employees.

- Decision-trees

This is a technique to be used for forecasting outcomes to different decisions. How the decision tree works is that it starts with a specific question as the root of the tree, which then branches out into the different possibilities. The branches will then be the outcomes to the question at the root.

[41] https://miro.com/templates/pros-cons-list/



Resources: https://fellow.app/blog/productivity/group-decision-making-techniques/

- **Consensus Mapping**[42]

Different ideas are developed which is then put into a decision pool together. The ideas are then further developed and narrowed down into smaller ideas. These ideas keep being broken down into smaller ideas until the group can come to a solution to the problem or situation. This technique is usually used with multi-dimensional problems, with interconnected relationships.

The outputs of these techniques used in scope management planning are:

- Requirements documentation
- Requirements traceability matrix
- Accepted deliverables
- Change requests
- Work performance information
- Project documents updates

[42] https://fellow.app/blog/productivity/group-decision-making-techniques/

- **Questionnaires and surveys** (Requirements collection)

  Questionnaires and surveys are written sets of questions used to gather information from the stakeholders and project team. The benefit of questionnaires and surveys are that it has a quick turn-around time.[43]

  The result of the questionnaires and surveys will be used to compile the:

  - Requirements documentation
  - Requirements traceability matrix

- **Observations** (Requirements collection)

  This is a technique that "provides a way of viewing individuals, usually team members, in their own environment doing their tasks as well as carrying processes that are necessary for the completing the task(s).[44]

  Observations helps in performing detailed processes. Observations are also known as job shadowing.

  The results of the observations are:

  - Requirements documentation
  - Requirements traceability matrix

- **Prototypes** (Requirements collection)

A prototype is a working model of the product. This enables stakeholders to experiment with a version of the final product before it is built. The benefit is that the requirements can be fully discussed.[45] The feedback is used to compile the following outputs:

- Requirements documentation
- Requirements traceability matrix

- **Benchmarking** (Requirements collection)

Benchmarking is the comparison of planned or actual:

- Processes
- Practices
- Operations

This comparison is done to identify best practices, with the dimensions that are measured being:

- Time

[43] https://project-management-knowledge.com/definitions/q/questionnaires-and-surveys.
[44] https://project-management-knowledge.com/definitions/o/observations/
[45] https://project-management-knowledge.com/definitions/p/8-prototypes/

- Cost
- Quality

The twelve elements of benchmarking are:

- Selection of subject
- Identification of processes
- Potential partners
- Data sources
- Collection of data
- Gap determination
- Process differences
- Target performance
- Communication
- Goal adjustments
- Implementation
- Review of the adopted process

Techniques for benchmarking include:

- Surveys
- Quantitative research
- Marketing research
- Process mapping
- Financial analysis
- Review cycles[46]

The outputs of benchmarking are as follows:

- Requirements documentation
- Requirements traceability matrix

- **Context diagrams** (Requirements collection)

The context diagram is a visual representation of the business system and how it interacts with the other systems.

- Outputs
- Requirements documentation
- Requirements traceability matrix

[46] https://project-management-knowledge.com/definitions/b/benchmarking/

- **Document analysis** (Requirements collection)

Document analysis is defined as "a form of qualitative research in which documents are interpreted by the Project Management team and Project team members to gather information and supporting details for an assessment topic".[47]

An example:

During risk identification process, various documents will be reviewed to look for uncertainties and unrealistic constraints and translate them in the form of risks. Other attributes like source of the risk, consequences will be further gathered to

Within Project management body of knowledge Document Analysis is used technique in the following processes

- Close Project or Phase
- Collect Requirements
- Manage Quality
- Identify Risks
- Identify Stakeholders

PROCESSES	KNOWLEDGE AREA	PROCESS GROUP
Collect Requirements	Project Scope Management	Planning
Manage Quality	Project Quality Management	Executing
Identify Risks	Project Risk Management	Planning
Identify Stakeholders	Project Stakeholders Management	Initiating
Close Project or Phase	Project Integration Management	Closing

Resource: https://proventuresindia.com/2018/06/05/document-analysis

The process of document analysis is to review and assess the relevant documented information. The purpose of the process it to elicit requirements through document analyses and identifying relevant information to the requirements. The documents to analyse include:

- Agreements
- Business Plans
- Business process or interface documentation

[47] https://proventuresindia.com/2018/06/05/document-analysis

- Business rules repositories
- Current process flows
- Marketing literature
- Problem/Issue logs
- Policies and Procedures
- Regulatory documentation such as laws, codes, or ordinances
- Request for proposal; and
- Use cases[48]

Through document analysis the following documents will be compiled:

- Requirements documentation
- Requirements traceability matrix

- **Product analysis** (Scope Definition)

Product analysis is defined as "a tool to define scope that generally means asking questions about a product and forming answers to describe the use, characteristics, and other relevant aspects of what is going to be built or manufactured".[49]

Product analysis techniques include:

- Product breakdown
- Requirement analysis
- Systems analysis
- Systems engineering
- Value analysis
- Value engineering

The outputs of product analysis in terms of the scope definition are:

- Project scope statement
- Project documents updates

- **Alternatives generation** (Scope Definition)

Alternatives generation is defined as "the sets of actions, strategies or portfolio of different individual elements that exhaust all possible approaches to a particular situation. Developing good alternatives is iterative and it must be evaluated technically at all times".[50]

[48] https://proventuresindia.com/2018/06/05/document-analysis/#:~:text=Document%20analysis%20is%20a%20form,details%20for%20an%20assessment%20topic
[49] https://proventuresindia.com/2018/07/13/productanalysis/
[50] https://projectvictor.com/knowledge-base/alternatives-generation.

Alternatives should have the following characteristics:

- Value-focused
- Clear
- High quality
- Comprehensive
- Technically sound
- Mutually exclusive
- Ability to expose trade-offs.

The outputs to alternative generations are:

- project scope statement
- Project documents updates

- **Decomposition** (Work Breakdown Structure)

Decomposition is defined as "a process of breaking a large, complex project into smaller, more manageable parts. This technique can be used to decompose a project into smaller tasks or to decompose a large product into smaller component parts".[51] Two commonly used terms in project management are deliverables and work packages. Deliverables will be the larger tasks or objectives, while work packages will be the smaller subparts.

The outputs of the decomposition technique are:

- Scope baseline
- Project documents updates

- **Inspection** (Scope Validation)

Inspection is defined as the "act in which the project management team, project management team leader, or other interested and significant parties take the effort to go review the entirety of the project in meticulous details to determine whether or not the project meets certain predetermined requirements for completion".[52]

The focus of inspection will be on all the:

- Individual components
- Activities
- Products
- Results

[51] https://monday.com/blog/project-management/decomposition-project-management.
[52] https://project-management-knowledge.com/definitions/i/inspectiond

- Services

The outputs of this technique will be:

- Accepted deliverables
- Change requests
- Work performance information
- Project documents updates

- **Variance Analysis** (Scope Control)

Variance Analysis is defined as "a comparison of the intended or budgeted amount and the actual amount spent. Variance analysis is the practice of comparing actual project results to what was planned or expected". [53]

Variance analysis is also a measurement to quantify how well a project is progressing.

The outputs of variance analysis will be:

- Work performance information
- Change requests
- Project management plan updates
- Project documents updates
- Organisation process assets updates

Formative Activity 9: Tools and techniques to collect and refine requirements and needs (KT0204) (IAC0204)

Complete the following Formative Activity as per the instructions from the facilitator

[53] https://support.microsoft.com/en-us/office/integrate-variance-tracking-into-your-project-change-management-process-

2.5 Documenting the requirements and needs (KT0205) (IAC0205)

The importance of requirements documents is that internal audit team and external regulators expect a company to have documentation available when changes to a company, its systems, products or services are made.

The purpose of the requirements documentation is to build a knowledge base that can be used with future projects. There is always a requirement for comprehensive documentation to deliver commitments and ensure requirements traceability.

Depending on the methodology being used, requirements can be finalised and sign-off as with the Waterfall methodology. Hereafter a change control process will be followed to make any changes. In terms of Agile methodology, the requirements documentation is a living document that is updated frequently throughout the project life cycle.[54]

Business Requirements

The business requirements document consists of the following:

- Business solution for a project
- User's needs
- User's expectations
- Purpose of the solution
- High-level constraints

The business requirements document is thus a guideline for the stakeholders to make decisions. These decisions include:

- Project priorities
- Design
- Structure
- Alignment with overall goals of the business.

This document is thus a contract between the customer and vendor to confirm:

- Expectations
- Deliverables
- Standards for successful project completion[55]

[54] https://reqtest.com/requirements-blog/requirements-document-template/
[55] https://www.lucidchart.com/blog/tips-for-a-perfect-business-requirements-document#:~:text=A%20business%20requirements%20document%20describes,could%20impact%20a%20successful%20deployment.

Following is a visual representation of the Business Requirements:

Resource: https://medium.com/@nhan.tran/business-requirements-vs-stakeholder-requirements-8a5127c4fb12

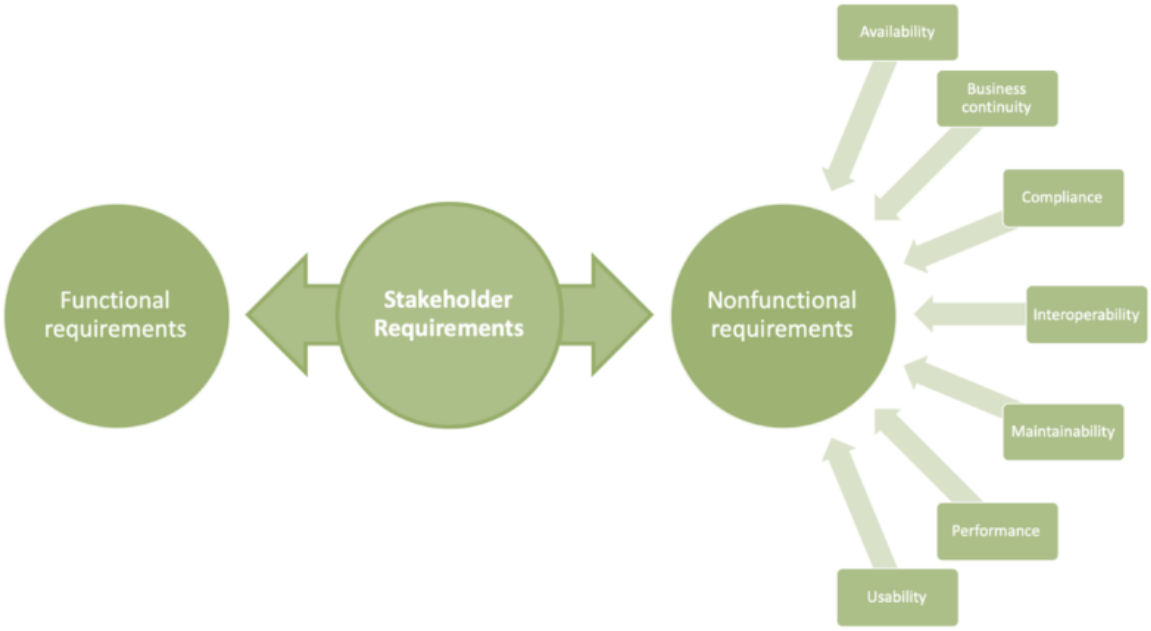
Stakeholder Requirements

Stakeholder Requirements (user needs or user requirements) are a description of how the system is used by users, thus activities that will be performed on the system.

User requirements are documented in the User Requirements Document (URD) using:

- Narrative text
- Use cases
- Scenarios
- User stories
- Event-response tables

User requirements will be signed off by the users and used as an input to create solution requirements. Note that user requirements are viewed as separate from solution requirements as there must first be a thorough, clear, completed and accurate determination what the customer requires.



Stakeholder Requirements

Resource: https://medium.com/@nhan.tran/business-requirements-vs-stakeholder-requirements-8a5127c4fb12

As per the visual representation of Stakeholder Requirements, functional requirements refer to the final product or service. Non-functional requirements specify all the other requirements not included in the functional requirements. Non-functional requirements also refer to:

- Supplemental requirements
- Quality of service requirements
- Service level requirements

The most common non-functional requirement types include:

- Availability
- Business continuity
- Compliance
- Interoperability
- Maintainability
- Performance
- Usability

Functional requirements are detailed in the solution design, while supplemental requirements are detailed in the solution architecture.[56]

Solution Requirements

The solution requirements describe the specifics around the product. These are the characteristics of the product or service required to meet stakeholder expectations. The two groups solutions requirements are divided into is:

- Functional requirements
- These requirements describe the features and functions of a product/service.
- Non-functional requirements

These are the quality attributes of a product or a service.[57]

Project Requirements

The requirements document is used as a starting point for all projects and outlines:

- The purpose of the product or service
- Who will use it
- How it will work

The document should be detailed and consists of the main components of project requirements, including:

- Executive summary
- Purpose and Scope
- Goals
- Target Market Overview
- Product/Service Overview and Uses
- Requirements (technical, environmental, functional, support requirements, etc.)
- Constraints
- Workflow
- Evaluation Plan and Performance Metrics

[56] https://medium.com/@nhan.tran/business-requirements-vs-stakeholder-requirements-8a5127c4fb12#:~:text=Stakeholder%20Requirements%2C%20often%20referred%20to,%2C%20or%20event%2Dresponse%20tables.
[57] https://www.altexsoft.com/blog/business/functional-and-non-functional-requirements-specification-and-types/

- Future Work

The purpose of the project requirements document is to ensure that all stakeholders, the project team and other parties understand what is required from stakeholders to ensure a successful project roll-out.[58]

Transition Requirements

These requirements are what is required from an organisation to move from their current state to the new state with the new product or service. These requirements are only for a short time period during which the transition takes place.[59]

Requirement Assumptions and Constraints

Assumptions are defined as "factors believed to be true, but not confirmed".[60] Constraints are defined as "business or technical in nature and defined as restrictions or limitations on possible solutions".

Examples of constraints include:

- Project budget
- Time restrictions
- Technical architecture decisions

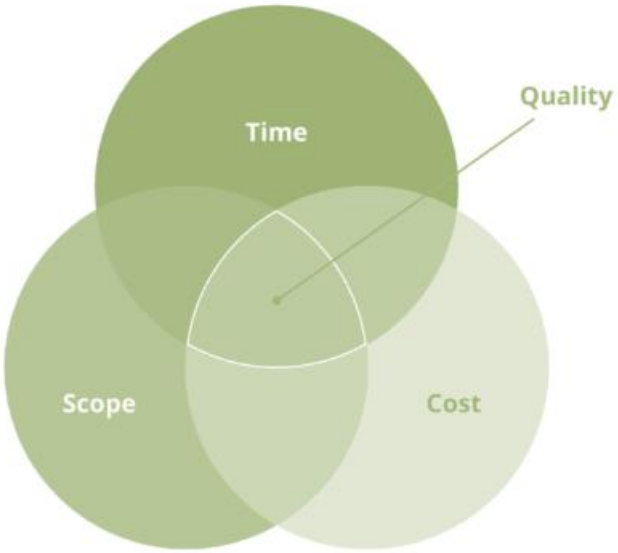
Whilst requirements are capabilities the solution must have, assumptions and constraints have an impact on the creative process.

Following are examples of constraints:

- There is a constraint of 6 week as the project should be completed within 6 weeks.
- When software should be developed according to specific brand guidelines, these guidelines will have a constraint on the teams creativity.
- When you have access to only three team leaders it will be defined as a resource constraint.

[58] https://reqtest.com/requirements-blog/requirements-document-template/
[59] https://www.altexsoft.com/blog/business/functional-and-non-functional-requirements-specification-and-types/
[60] https://www.bridging-the-gap.com/ba-stories-its-not-all-requirements-assumptions-and-constraints-matter-too

Following is a model for the four types of project constraints:



Resource: https://rebelsguidetopm.com/dependencies-and-constraints-an-introduction/

Dependencies

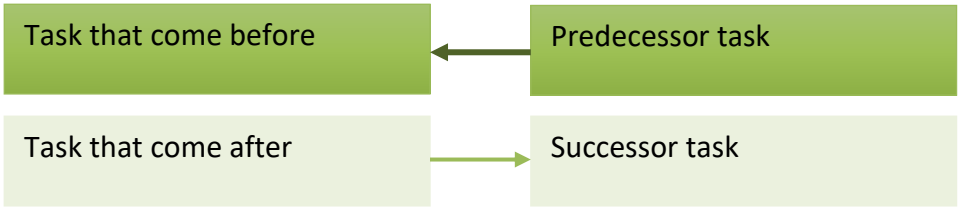
The corporate environment, as well as the wider environment outside of the company puts a constraint or dependency on a project.

A project dependency is defined as "the relationship that defines the order in which tasks are carried out. Task B is dependent on Task A if the start or finish date of Task A must be reached before Task B can be started".

It is important to understand dependencies between tasks before a project schedule is drafted. The four ways to link tasks together is as follows:

Dependency Type	Description
Finish to Start (FS)	The most common type of dependency. Task A finished, then task B can start.
Start to Start (SS)	Both tasks have to start at the same time.
Finish to Finish (FF)	Both tasks have to finish at the same time.
Start to Finish (SF)	The most uncommon type of scheduling dependency. Task B cannot finish until Task A has started.

Resource: https://rebelsguidetopm.com/dependencies-and-constraints-an-introduction/



Adapted from: https://rebelsguidetopm.com/dependencies-and-constraints-an-introduction/

There can be several predecessor task for a successor task and the other way around.

Dependencies can also be categorised as per the following table:

		Project	
		In	Out
Company	In	Sequential project tasks e.g. training users is dependent on having training material prepared	Links to other projects e.g. Project A must complete Phase 1 before Project B can begin
	Out	Tasks to be complete by third party suppliers e.g. provision of software, building work	Health and safety standards e.g. building plans must be signed off by external agency before project can continue

Resource: https://rebelsguidetopm.com/dependencies-and-constraints-an-introduction/

In-Company, In-Project Dependency

These are sequential project tasks. These tasks will be within the project and within the said company.

In-Company, Out-of-Project Dependency

The dependencies affect the company, but not the project. These types of dependencies will most likely be defined within a Program as certain projects will rely on other projects for some of the elements.

Out-of-Company, In-Project Dependency

This is when resources out of the company are carrying out tasks, for example work done by a contractor or supplier.

Out-of-Company, Out-of-Project Dependency

Although these are not commonly mentioned dependencies as it is out of scope it just result in a fully completed dependency matrix.

Upstream and Downstream Dependencies

The terms upstream and downstream are used when referring to other projects.

Upstream dependency

This is when a task needs to be completed before another task starts.

Example: There is an upstream dependency on Person A's project as the first need to complete the infrastructure before Project B can use it.

Downstream Dependencies

In this case the project you are busy with must first complete a task before another project can start.[61]

Formative Activity 10: Documenting the requirements and needs (KT0205) (IAC0205)

Complete the following Formative Activity as per the instructions from the facilitator

[61] https://rebelsguidetopm.com/dependencies-and-constraints-an-introduction/

2.6 Requirements traceability matrix (KT0206)

To ensure that the project scope, requirements and deliverables remain "as is" when it is compared to the project baseline, the Requirements Traceability Matrix is used.

The requirement traceability matrix includes the following in the project management phases:

- Tracking of all the requirements
- Confirm that all requirements are met by the current process and design
- Assists in the creation of:
    - Request For Proposal
    - Project Plan Tasks
    - Deliverable Documents
    - Test Scripts
- To ensure that all system requirements have been met during the verification process

The Requirements Traceability Matrix is compiled at the beginning of the project as it is part of the foundation of the project's scope. The Matrix also include specific requirements and deliverables.

The Matrix is bi-directional, as illustrated below:

Requirements <-> RFP <-> Design/Task <-> Deliverables <-> Verification

Being bi-directional means that the requirements are tracked to ensure that the required deliverables are delivered, but it is also traced backward to consider the business requirement that was specified at the beginning of the project.

The Requirements Traceability Matrix (RTM) is also used to confirm that all requirements are met, and to identify changes to the scope. The scope management process is enhanced by using the RTM and this tool can also be used to document the connection and relationships between the initial requirements and the final product or service provided.[62]

[62] https://project-management.com/requirements-traceability-matrix-rtm/

Creation of a Requirements Traceability Matrix (RTM)

The requirements must be clearly defined and referenced throughout the project life cycle. The Matrix will track each requirement throughout the process and create a relationship between each of the process, as per the following example:

Unique Req ID	Requirement description	Source /Requestor	Org /Dept	Business Justification/Need	WBS Deliverable	Test Strategy	UAT Responsibility	Status	Active/ Inactive Flag	Comments
1	Change the table component on the dashboard to a graph.	Ella Allen	Sales	Better representaion of the data and improved readability	Task 1.1 Task 4.7	Use cases to be developed.	Follow the test steps as defined in use cases and report any defects.	Done	Active	Jan 5: Testing started. Jan 8: Defected reported. Jan 9: Defect fixed Jan 10: UAT Continued
2	Add a drop down list for the regions	Tonya Harper	Sales	Will enable Area managers to understand their market more accurately	Task 1.2	Load testing to be done.	Load runner to be used to simulate a load and the regions will be verified for accurate representation	In Progress	Active	Make sure US territories hawaii and peurto rico are included in a separate regional unit.
3	Create a new category hierarchy to sorting the result set	Sammy Butler	Pricing	Will help the pricing department by automating the selection of categorized data.	Task 1.3	Assigned business users to perform unit testing as well as UAT	Check the categories in the base tables in the EDW.	Hold	Cancelled	It was determined that Pricing requirements were out of scope for this phase
4	...	...	...	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...	...	...	...
7	...	...	...	...	...	...	...	...	...	...
8	...	...	...	...	...	...	...	...	...	...

- Req #: Requirement Number; for each project requirement, begin to list them on the RTM in a numerical order and group them by function.
- Name: Enter the name of brief description of the requirement.
- RFP #: Request for Proposal (RFP); specify the identification number of the requirement as listed in the RFP.
- DDD #: Deliverable Definition Document (Also referred to as the Deliverable Expectation Document – DED); use the RFP requirement number as a reference for the DDD that is created for the requirement.
- PPT #: List the MS Project Subtask and Task numbers that are associated with the requirement.
- TS #: Test scripts should be prepared for the actual testing process.
- Verification: Use this field to record completion of the signoff process.

Resource: https://project-management.com/requirements-traceability-matrix-rtm/

Formative Activity 11: Requirements traceability matrix (KT0206)

Complete the following Formative Activity as per the instructions from the facilitator

Outcome 3

Guidelines for Topics

KM-03-KT03: Define scope

Topic elements to be covered include:

- KT0301 Project scope concepts and flow of data
- KT0302 Importance and benefits of defining the project scope
- KT0303 Input documents that are used to define the project scope (Scope Management Plan, Project Charter, Requirements Documentation, Organisational Process Assets)
- KT0304 Tools and techniques used to define the project scope (Expert judgement, Product analysis, Alternatives generation, Facilitated workshops)
- KT0305 Project scope statements (Product scope description, Acceptance criteria, Deliverable, Project exclusion, Constraints, Assumptions)

Internal Assessment Criteria and Weight

- IAC0301 An understanding of the concepts related to defining project scope as well as the flow of data is demonstrated
- IAC0302 The importance and benefits of defining the project scope can be explained and motivated
- IAC0303 Source documents that are used to define the project scope can be listed and their application explained
- IAC0304 Tools and techniques to define the project scope can be selected for a specific purpose and motivated
- IAC0305 Project scope documents can be identified, the application explained, evaluated for completeness, gaps identified and corrective measures motivated

Weight: 15%

KM-03-KT03:

Define scope

Topic elements to be covered include:

3.1 Project scope concepts and flow of data (KT0301)

3.2 Importance and benefits of defining the project scope (KT0302)

3.3 Input documents that are used to define the project scope (Scope Management Plan, Project Charter, Requirements Documentation, Organisational Process Assets) (KT0303)

3.4 Tools and techniques used to define the project scope (Expert judgement, Product analysis, Alternatives generation, Facilitated workshops) (KT0304)

3.5 Project scope statements (Product scope description, Acceptance criteria, Deliverable, Project exclusion, Constraints, Assumptions) (KT0305)

3.1 Project scope concepts and flow of data (KT0301) (IAC0301)

When following the requirements collection process, all the necessary requirements to ensure a successful project is gathered. Through the project scope process the final requirements are documented as part of the project scope.

Defining the Project Scope is defined as "a process of developing a detailed description of the project and product. The key benefit of the defined scope process is that it describes the project's boundaries by defining which of the requirements collected will be included in the project".[63]

As the project scope forms part of the project planning process it also involves the determination and documentation of specific project:

- Goals
- Deliverables
- Tasks
- Costs
- Deadlines

A scope statement or terms of reference refer to the documentation of a project scope. This document keeps the project team focused and on track. The project scope statement is:

- A guideline for making decisions in terms of change requests.

Good communication is key to effective scope management. This communication ensures that all parties to the project understand the requirements and project goals. Part of scope management is approvals and signoffs by stakeholders.[64]

Formative Activity 12: Project scope concepts and flow of data (KT0301) (IAC0301)

Complete the following Formative Activity as per the instructions from the facilitator

[63] https://www.invensislearning.com/blog/define-scope-of-project/
[64] https://www.techtarget.com/searchcio/definition/project-scope

3.2 Importance and benefits of defining the project scope (KT0302) (IAC0302)

The Project Management Institute defines a strong project statement based on the following key characteristics:

- It defines the boundaries of the project.
- It defines the business needs.
- It defines the expected outcome of the project.
- It identifies constraints that limit the project team's creativity for developing a solution.
- Lists assumptions according to decisions outside of the project team's control.
- Identify business processes impacted by the project.
- Identify internal and external sources the project team will interact with.

The benefits of the project scope are:

- It reduces uncertainty by defining the scope.
- It ensures that all stakeholders have the same understanding of the deliverables.
- With a strong project scope process there will be less change requests.[65]

The project scope may be revised and updated throughout the project life cycle due to additional:

- Risks
- Assumptions
- Constraints

The defined scope process starts with the definition of the high-level requirements and breaking it down into detailed requirements, which result in deliverables. The deliverables will then translate into objectives which the project team will have to accomplish for project success.[66]

[65] https://www.northeastern.edu/graduate/blog/develop-project-scope-statement/
[66] https://www.invensislearning.com/blog/define-scope-of-project/

The benefits of a project scope include:

- Define the project details to ensure that all stakeholders have the same understanding
- It is used as a roadmap to:
    - Assign tasks
    - Schedule work
    - Budget appropriately
- The team focuses on common objectives
- Prevents scope creep.[67]

Formative Activity 13: Importance and benefits of defining the project scope (KT0302) (IAC0302)

Complete the following Formative Activity as per the instructions from the facilitator

[67] https://www.techtarget.com/searchcio/definition/project-scope#:~:text=Project%20scope%20is%20the%20part,statement%20or%20terms%20of%20reference.

3.3 Input documents that are used to define the project scope (KT0303) (IAC0303)

As the define project scope process are important in the establishment of the requirements that will result in the success of the project, several documents should be used to ensure that all the requirements are covered and defined in detail.

The following documents serve as input documents to the defined scope process:

- **Project Charter**

  The project charter consists of the following:

  - A high-level description of the project
  - Product characteristics
  - Project approval requirements

  When a project charter is not used by a company, they can also compile an informal analysis.

- **The Project Management Plan**

  Documented in the Project Management Plan is:

  - Definition of Project Scope
  - Project Scope Validation
  - Control of Project Scope

- **Project Documents**

  Project documents include:

  - Assumption Log

    The assumption log identifies assumptions and constraints related to the project and product scope, including:

    - Project
    - Product
    - Stakeholders
    - Environment, etc.

  - Requirements Documentation

    The requirements documentation is the process of listing the requirements that will form part of the project scope.

  - Risk Register

The risk register contains response strategies to avoid or mitigate risks.

- **Enterprise Environmental Factors**

  The Define Scope process can be affected by the following enterprise environmental factors:

  - Organisation's Culture
  - Infrastructure
  - Personnel Administration
  - Marketplace Conditions

- **Organisational Process Assets**

  Factors influencing the Define Scope process include:

  - A project scope statement's policies, procedures, and templates
  - Project files from previous projects
  - Lessons learned from previous phases and projects[68]

Formative Activity 14: Input documents that are used to define the project scope (KT0303) (IAC0303)

Complete the following Formative Activity as per the instructions from the facilitator

[68] https://www.invensislearning.com/blog/define-scope-of-project/

3.4 Tools and techniques used to define the project scope ((KT0304) (IAC0304)

The tools and techniques included to Define the Project Scope are:

- Expert Judgement

  This is the consultation of a group or individuals that has expert knowledge in dealing with similar projects.

- Data Analysis

  Alternative analysis is the preferred method to use as a data analysis technique. This analysis is the evaluation of ways to meet the identified requirements and objectives.

- Decision Making

  For this process multi-criteria decision analysis is used. With this technique a decision matrix is used to establish necessities like:

  - Requirements
  - Schedules
  - Budget
  - Resources

- Interpersonal and Team Skills

  The technique used for interpersonal and team skills is facilitation, which is used in workshops and team sessions. The purpose is to reach a cross-functional and shared understanding of the project deliverables.

- Product Analysis

  This is the definition of products and services related to the project. Examples related to the product analysis process include:

  - Product breakdown
  - Requirements analysis
  - Systems analysis
  - Systems engineering
  - Value analysis
  - Value engineering[69]

[69] https://www.invensislearning.com/blog/define-scope-of-project/

Formative Activity 15: Tools and techniques used to define the project scope (KT0304) (IAC0304)

Complete the following Formative Activity as per the instructions from the facilitator

3.5 Project scope statements (KT0305) (IAC0305)

A scope statement is defined as "a document that defines all the elements of the project scope as well as assumptions, project requirements and acceptance criteria. Your project scope statement will act as the primary tool for stakeholders and teammates to refer back to and use as a guideline to accurately measure project success".[70]

The project scope statement is a section of the scope management plan. The scope management plan consists of the following to manage the project scope:

- The strategies
- Rules
- Procedures

The scope management plan is a section in the project plan. Therefore, the three documents that are important for the success of a project are:

- Project Scope Statement
- Scope Management Plan
- Project Plan

Following are the elements required to outline the Project Scope Statement:

- Project Goals and Objectives

  These elements define the purpose of a project. Project objectives lead to project goals.

- Project Requirements

  An agreement must be reached on:
  - The project scope
  - Expected quality
  - Risk
  - Benefits and cost

[70] https://www.projectmanager.com/blog/project-scope-statement#:~:text=A%20scope%20statement%20is%20a,to%20accurately%20measure%20project%20success.

- Project Scope Description

  At this step the project scope will be defined, and the following techniques can be used:

  - Work breakdown structure to visualise
    - Project tasks
    - Deliverables
    - Milestones
  - List what is in and what is out of scope.
  - Identify project constraints (e.g. Time or cost)
  - Create a scope baseline for the comparison of actual progress to the planned project scope.

    Boundaries are set with exclusions and constraints and assist with the management of stakeholder expectations. Boundaries also set limitations for the project team to work within.

- Project Exclusions

  In any project the items that will be excluded should also be listed as per the following examples:

  - Application updates planned for other projects.
  - Restricted or rescheduled customer access.

- Project Constraints

  The three main project constraints are:

  - Time
  - Cost
  - Scope

  } Triple constraint that is interconnected

  Other project constraints that can also occur are:

  - Resources
  - Organisation
  - Method
  - Customers, etc.

- Project Assumptions

Project assumptions are usually based on constraints, namely:

- Time
- Cost
- Scope

These will address primary resources required, as well as here the biggest risk may be.

- Project Deliverables

These are the deliverables that need to be produced to meet business objectives as agreed with the stakeholders. Project deliverables can include:

- Product
- Instruction and installation manuals
- Marketing materials
- Press releases

Advertising campaigns, etc.[71]

Formative Activity 16: Project scope statements (KT0305) (IAC0305)

Complete the following Formative Activity as per the instructions from the facilitator

[71] https://www.projectmanager.com/blog/project-scope-statement#:~:text=A%20scope%20statement%20is%20a,to%20accurately%20measure%20project%20success.

Outcome 4

Guidelines for Topics

KM-03-KT04: Work breakdown structures

Topic elements to be covered include:

- KT0401 Project work breakdown concepts and flow of data
- KT0402 Importance and benefits of a work breakdown structure
- KT0403 Input documents to develop a work breakdown structure (Scope Management Plan, Project Scope Statement, Requirements documentation, Enterprise Environmental Factors, Organisational Process Assets)
- KT0404 Tools and techniques to create a work breakdown structure (Decomposition, Expert judgement)
- KT0405 Scope baseline
- KT0406 The work breakdown structure report and dictionary

Internal Assessment Criteria and Weight

- IAC0401 An understanding of the concepts related to developing a work breakdown structure as well as the flow of data is demonstrated
- IAC0402 The importance and benefits of developing a work breakdown structure can be explained and motivated
- IAC0403 Source documents that are used to develop a work breakdown structure can be listed and their application explained
- IAC0404 Tools and techniques to develop a work breakdown structure can be selected for a specific purpose and motivated

Weight: 20%

KM-03-KT04:

Work breakdown structures

Topic elements to be covered include:

4.1 Project work breakdown concepts and flow of data (KT0401)

4.2 Importance and benefits of a work breakdown structure (KT0402)

4.3 Input documents to develop a work breakdown structure (Scope Management Plan, Project Scope Statement, Requirements documentation, Enterprise Environmental Factors, Organisational Process Assets) (KT0403)

4.4 Tools and techniques to create a work breakdown structure (Decomposition, Expert judgement) (KT0404)

4.5 Scope baseline (KT0405)

4.6 The work breakdown structure report and dictionary (KT0406)

4.1 Project work breakdown concepts and flow of data (KT0401) (IAC0401)

A Work Breakdown Structure (WBS) can be defined as "a hierarchical outline of the tasks required to complete a project. The Work Breakdown Structure "breaks down" the structure of a project into manageable deliverables. Each deliverable is assigned a task, or series of tasks that can be further broken down into subtasks to meet the needs of the project".[72]

One of the advantages of a Work Breakdown Structure is that it can break a complex project down into understandable tasks, which are then broken down into smaller tasks that can be assigned to specific teams or people.

Planning the scheduling of the project is one of the main purposes of a Work Breakdown Structure. In terms of the scheduling the tasks are allocated to a timeline with a start and end date, as well as which tasks are dependent on other tasks, and which can be done in conjunction with other tasks.

As a result, the Work Breakdown Structure is an overall plan that can be viewed by all stakeholders in terms of progress of the project and workflow management.

The WBS consists of the following components:

- Tasks
    - Task number
    - Task ID
    - Task Title
    - Description of each task
- Task Owner
    - The person responsible for the task
- Task Dependency and Predecessors
    - Linking of tasks when there is a dependency between the tasks
- Start and Finish Date of Task
    - Estimation of how long the task will take and also provide an overall view of the duration of the project.
- Duration

[72] https://www.adeaca.com/blog/faq-items/what-is-a-work-breakdown-structure/#:~:text=into%20manageable%20deliverables.-,A%20Work%20Breakdown%20Structure%20(WBS)%20is%20a%20hierarchical%20outline%20of,the%20needs%20of%20the%20project.

    - This is displayed in days and hours in a calendar
- Work Estimate
    - Estimation of the duration of each task in terms of hours or days.
- Task Status
    - Is the task assigned to an owner/resource
    - Start date of the task
    - Is the task in progress
    - Is the task delayed or in danger of being late
    - Is the task complete
- Gantt Chart
    - This is a visualisation of the Work Breakdown Structure
    - Tasks are graphically displayed over time.[73]

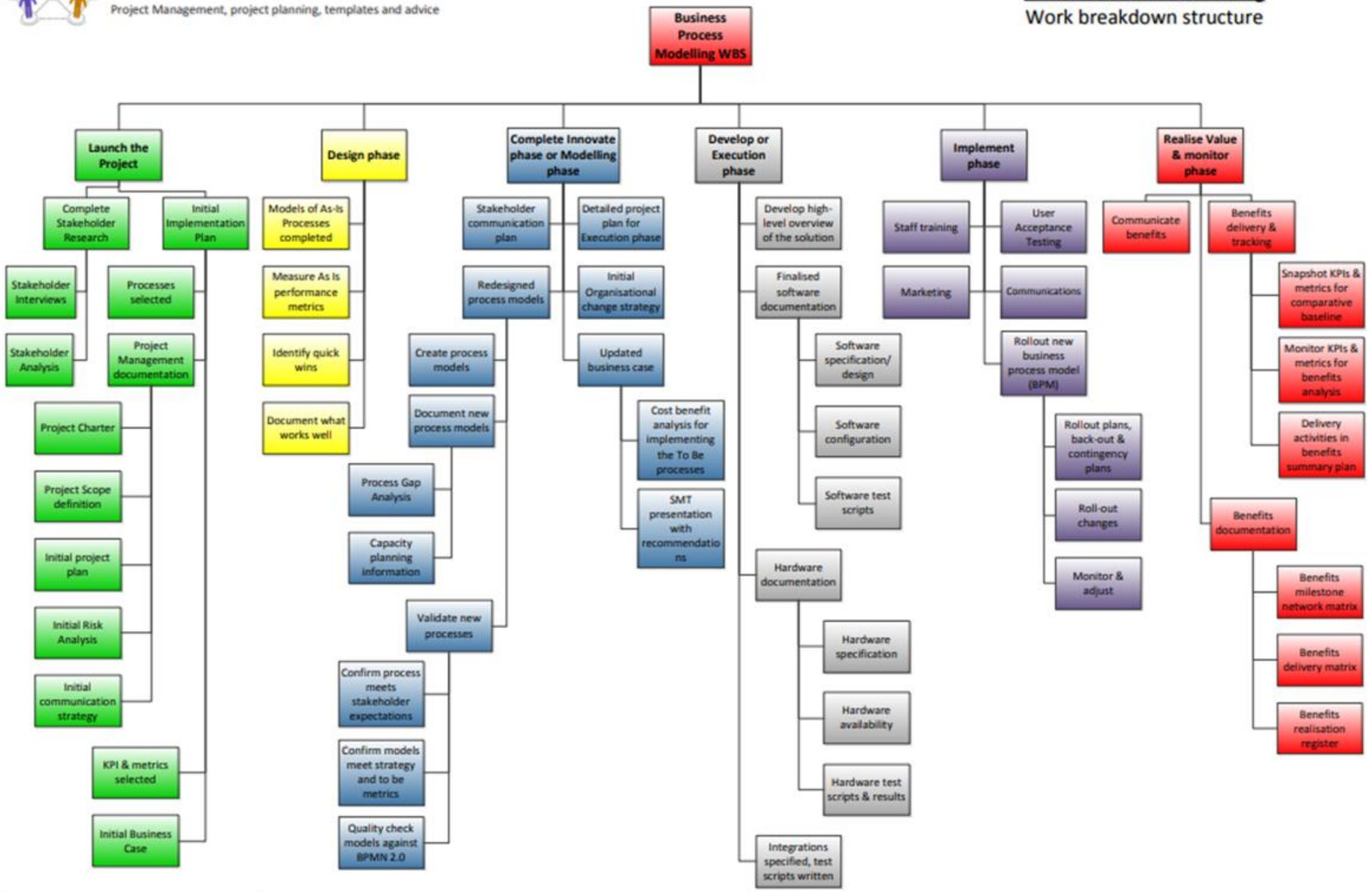
Following is an example of a Work Breakdown Structure:

[73] https://www.adeaca.com/blog/faq-items/what-is-a-work-breakdown-structure/#:~:text=into%20manageable%20deliverables.-,A%20Work%20Breakdown%20Structure%20(WBS)%20is%20a%20hierarchical%20outline%20of,the%20needs%20of%20the%20project.

stakeholdermap.com

Project Management, project planning, templates and advice

Business Process Modelling
Work breakdown structure

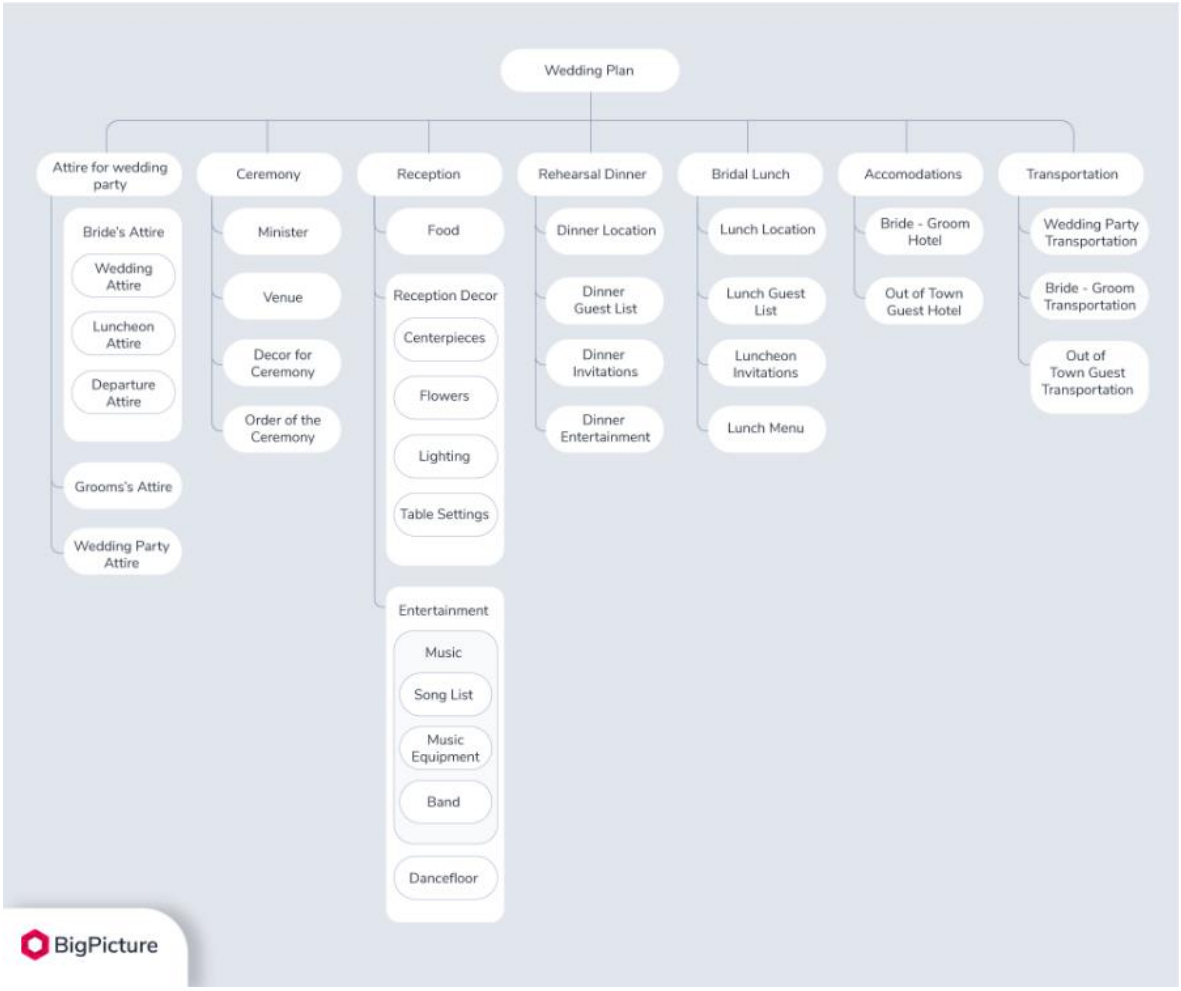


More Work Breakdown Structures

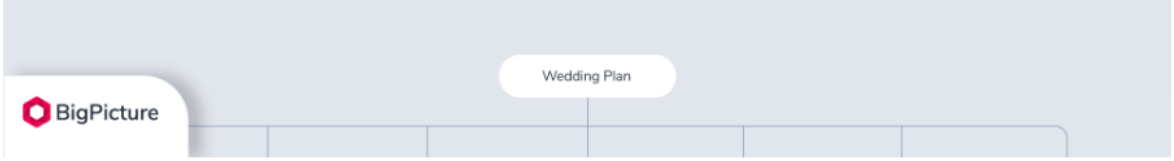
stakeholdermap.com

As the WBS is a hierarchical structure it has four levels as will be explained by the following example:

Following is a WBS for Wedding Planning:



The Top Level (Level 0) is the project title that is also known as the final deliverable. According to the above example the final deliverable will be a wedding. Level 0 therefore describes the scope of the project. As depicted as follow:



WBS level 0.

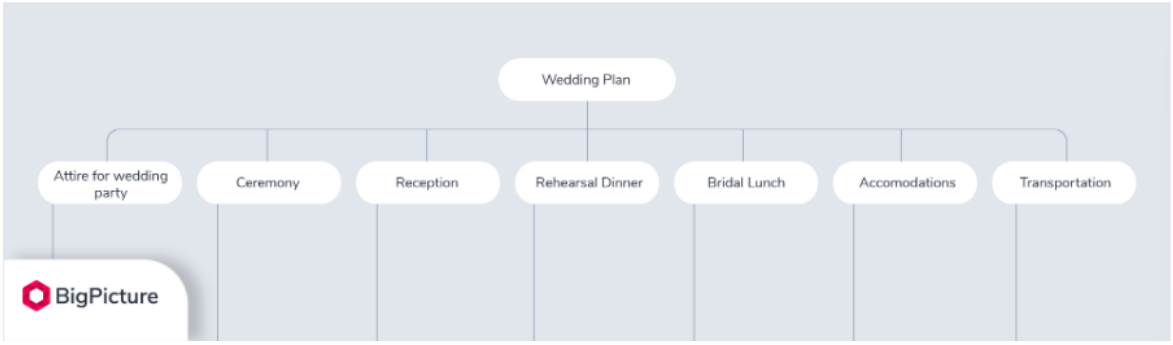
The second WBS level (Level 1) is control accounts. These are work packages from which the status is measured. This level thus control areas of the project scope. Control accounts include:

- Project major parts
- Phases
- Systems
- Features

The main parts of the wedding project are:

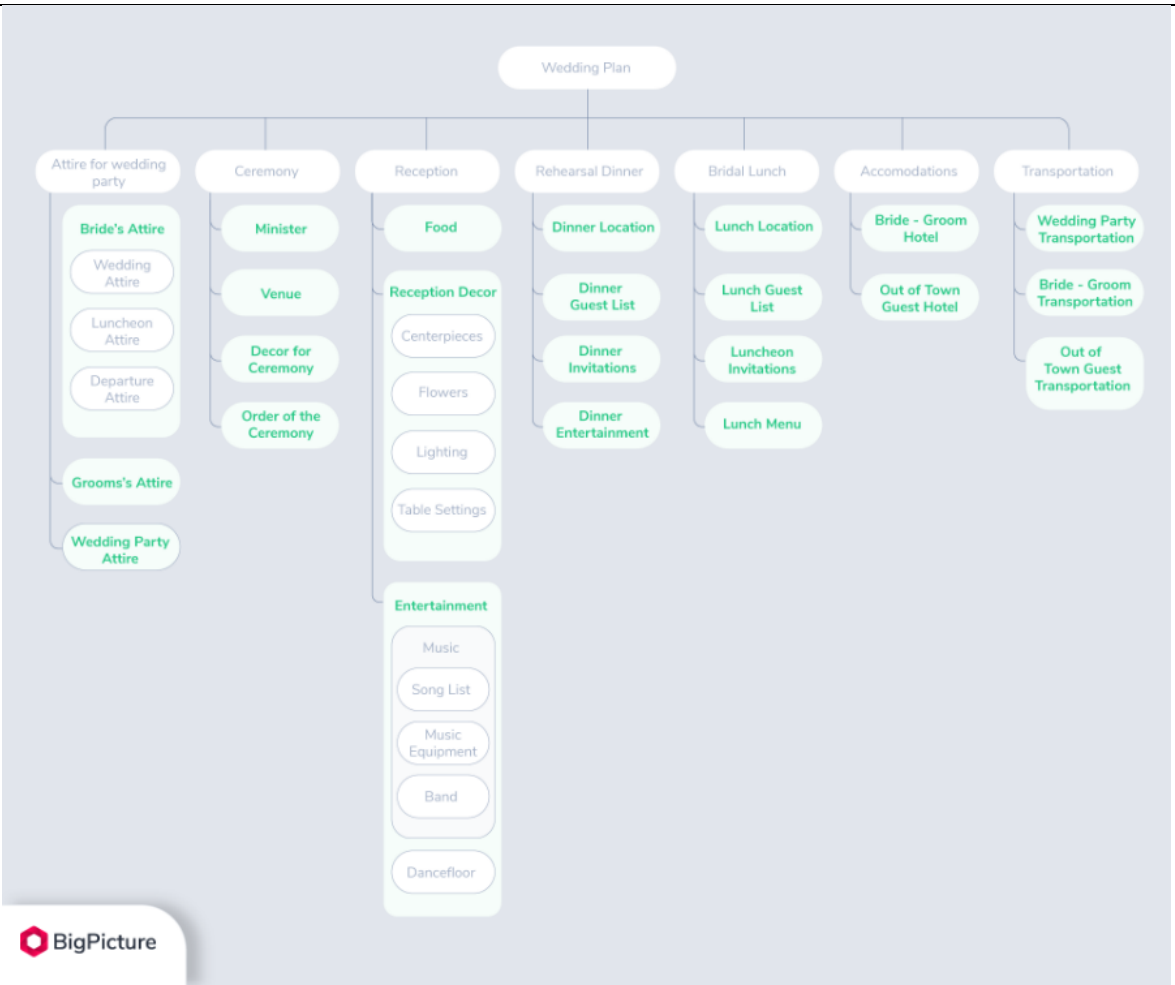
- Choosing an attire
- Organising Meals
- Taking care of the guests
- Delivering speeches

As depicted as follows on the WBS:



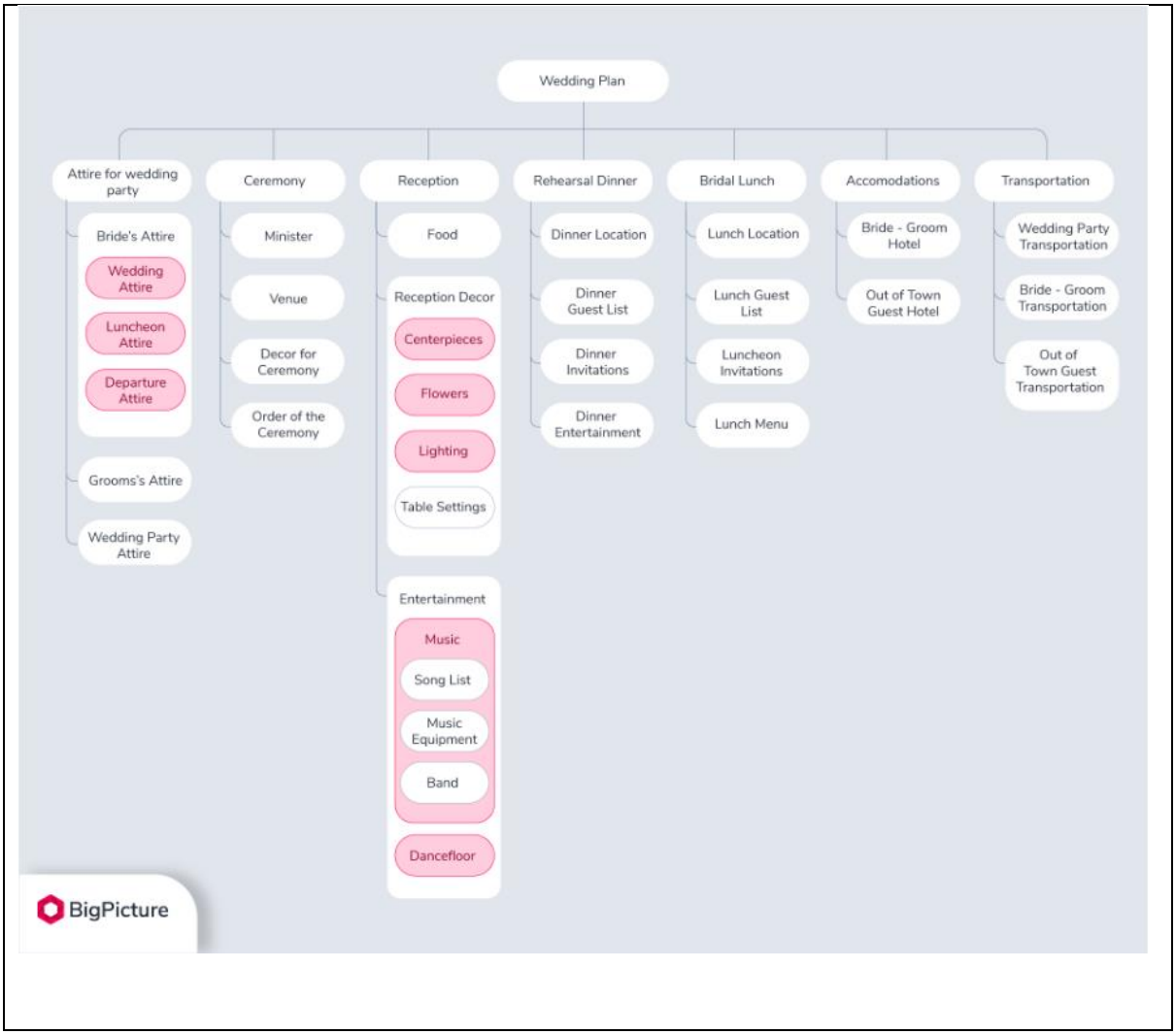
The third WBS level (Level 2) is work packages. Each work package is a deliverable. In terms of this deliverable it is what customers or stakeholders will get on the completion of the project. The size of the work packages should be that the project manager can manage, coordinate, execute and monitor it easily.

Following is the work packages as per the wedding example:



The last of the WBS levels (level 3) is activities. Individual work packages are being delivered by the completion of the set of activities.

Following is an example of the third level of the WBS:



Resource: https://bigpicture.one/create-work-breakdown-structure-project-management/

A Work Breakdown Structure also functions as a flowchart indicating when the three general components will take place and how the data will flow. The general components as can be deducted from the previous diagram:

- Deliverables
- Work Components
- Individual Tasks

Information flows from each of these components to the next to not only represent how the flow of data will be, but also the flow of the project, including inter-dependencies.[74]

[74] https://business.adobe.com/blog/basics/work-breakdown-structure

Formative Activity 17: Project work breakdown concepts and flow of data (KT0401) (IAC0401)

Complete the following Formative Activity as per the instructions from the facilitator

4.2 Importance and benefits of a work breakdown structure (KT0402) (IAC0402)

A Work Breakdown Structure is a tool that can be used to ensure that deliverables are produced successfully. It assists project managers in the planning of their projects and all related work deliverables.

The importance of a WBS include:

- Creating measurable and independent tasks
- Assigning costs to each task
- Track progress in a schedule form
- Define the scope of the project
- Fulfil intended purposes
- Assign responsibility for the tasks

The benefits of creating a WBS include:

- The required work is defined and organised
- A schedule can be developed by adding estimates in terms of time (hours/days) to the WBS
- Scope risks can be identified
- It is an illustration of the entire scope
- Communication points can be identified
- A visual representation of when deliverables are behind schedule
- Assignment of accountabilities and responsibilities
- Show control points and milestones
- Project costs can be estimated by using a WBS
- It minimises the risk of missing any important deliverables
- Assists with resource allocation
- It is a repeatable approach to planning projects
- It is a tool for team brainstorming and collaboration

This is a tool to engage with the project team and to invest them in the planning of the project[75]

Formative Activity 18: Importance and benefits of a work breakdown structure (KT0402) (IAC0402)

Complete the following Formative Activity as per the instructions from the facilitator

[75] https://uwaterloo.ca/ist-project-management-office/methodologies/project-management/planning/work-breakdown-structure/wbs-benefits

4.3 Input documents to develop a work breakdown structure (KT0403) (IAC0403)

The work breakdown structure is used to break projects down into manageable pieces. This document is compiled at the start of the planning process and forms part of the foundation of project planning.

Several documents are used as input documents in the process of creating a Work Breakdown Structure, as discussed as follows:

Scope Management Plan

The Scope Management Plan is a written reference guide. The Scope Management Plan:

- details the Project Scope definition and development,
- create the Work Breakdown Structure
- validate the scope
- verify completion of project deliverables
- control the scope baseline
- handle scope changes

The Work Breakdown Structure supports the creation of the following in the Scope Management Plan:

- Cost estimates
- Scheduling
- Activity dependency
- Resource assignments

The creation of the Work Breakdown Structure is done through decomposition, which is the process of subdividing project deliverables in smaller tasks.

Project Scope Statement

The scope of a project can be defined with the use of a Work Breakdown Structure (WBS). The broad scope statement is taken and subdivided into smaller work packages, which makes it easier for all stakeholders to understand as well as to measure.

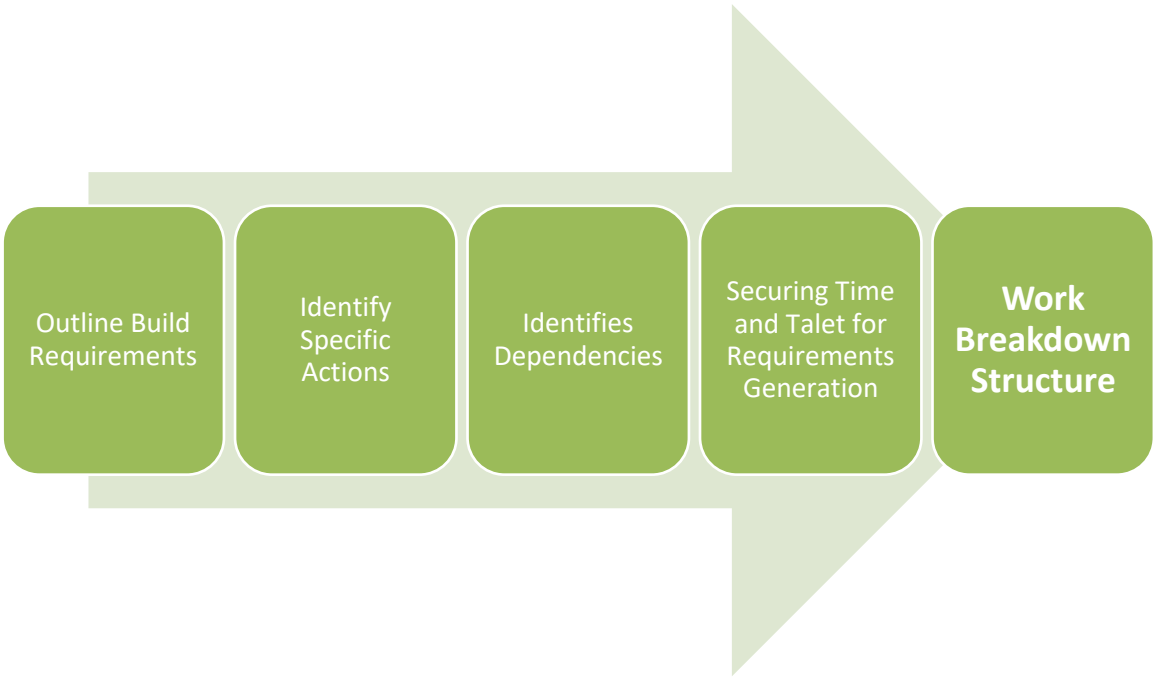
The WBS functions as a core element of the project scope planning.[76]

Requirements documentation

The Work Breakdown Structure is built with the information from the requirements document. Included in the Work Breakdown Structure should be the associated items of the different project requirements. These requirements should be decompositioned to ensure that all the required activities are allocated. This ensure that the time and energy that should be focused on requirements gathering, and documenting are done.

The contents of the requirements documentation will also give input into the actions that should deliver the overall project results. The requirements listed in the requirements documentation will list specific actions that should be included in the WBS.[77]

Depicted in the following diagram is the different elements of the Requirements Document that feeds into the Work Breakdown Structure.



Adapted from: https://www.valuetransform.com/requirements-work-breakdown-structure/

[76] https://www.techrepublic.com/article/work-breakdown-structures-help-define-project-scope/#:~:text=A%20work%20breakdown%20structure%20(WBS,smaller%2C%20manageable%20packages%20of%20activities.
[77] https://www.valuetransform.com/requirements-work-breakdown-structure/

Enterprise Environmental Factors (EEFs) and Organisational Process Assets (OPAs)

Enterprise Environment Factors (EEFs) "include all policies, practices, procedures, and legislation that exist both inside and outside of the organisation that will impact the way you manage a project". [78]

As part of the standard range of templates, contracts, registers, and assessment tools the Work Breakdown Structure templates are used in the management of projects. These templates are compiled to include mandatory EEF's to ensure that the physical and cultural environment is an effective workspace.[70]

Formative Activity 19: Input documents to develop a work breakdown structure (KT0403) (IAC0403)

Complete the following Formative Activity as per the instructions from the facilitator

[78] https://www.simplilearn.com/enterprise-environmental-factors-organizational-process-assets-article

4.4 Tools and techniques to create a work breakdown structure (KT0404) (IAC0404)

As with any other document in project management, the work breakdown structure process also involves different tools and techniques to track the deliverables and ensure that all tasks are delivered.

Different tools and techniques are used to create a Work Breakdown Structure to achieve the following steps:

- Recording of the overarching objective.
- Dividing the project into smaller pieces (concrete deliverables).
- Dividing the project phases (Deliverables or sub-tasks).[79]

The techniques used in terms of the Work Breakdown Structure is as follow:

- **Decomposition**

  Decomposition is "a planning technique that subdivides the project scope and project deliverables into smaller, more manageable components, until the project work associated with accomplishing the project scope and deliverables is defined in sufficient details to support executing, monitoring, and controlling the work".[80]

  The scope of the project is defined in terms of individual sub-deliverables. This will ensure that the project participants understand the tasks that should be delivered. The work packages should be enough to effectively manage the project on the different defined levels.

  100% of the work should be included in the development, decomposition and evaluation of the Work Breakdown Structure. The 100% rule thus include:

  - 100% of the work defined by the project scope
  - Capture all deliverables (internal, external and interim)
  - The rule applies at all levels within the hierarchy

[79] https://www.lucidchart.com/blog/how-to-create-a-work-breakdown-structure-and-why-you-should
[80] https://www.pmi.org/learning/library/applying-work-breakdown-structure-project-lifecycle-6979

- **Expert Judgement**

  Expert judgment is "a technique in the project planning process that refers to making a judgment based on skill, expertise, or specialised knowledge in a particular area. The expertise can be used on an individual's training, educational background, career experience, or knowledge of the product or market".[81]

  The experts can be:

  - Project team member
  - Project stakeholder
  - Consultant
  - Subject matter expert
  - Project manager

  Following is the accepted framework for eliciting expert judgment:

  - Frame the problem
  - Plan the elicitation
  - Select the experts
  - Train the experts
  - Elicit judgments
  - Analyse/Aggregate judgement
  - Document/communicate results[82]

Formative Activity 20: Tools and techniques to create a work breakdown structure (KT0404) (IAC0404)

Complete the following Formative Activity as per the instructions from the facilitator

[81] https://www.wrike.com/project-management-guide/faq/what-is-expert-judgment-in-project-management/
[82] https://www.wrike.com/project-management-guide/faq/what-is-expert-judgment-in-project-management/

4.5 Scope baseline (KT0405)

The scope baseline can be defined "as a written agreement of the expectations and requirements of the project stakeholders".[83] The scope baseline is used throughout the project life cycle to monitor and measure the actual versus the planned results.

The scope baseline consists of:

- A scope statement
- Work breakdown structure
- Work breakdown structure dictionary

Elements that are required to document the scope baseline, namely:

- Milestones

  This is a specific point(s) in the project to be met by an agreed date.
- Budget

  This is the planned amount to be spent on the project.
- Schedule

  This is where the duration of the project with a planned start and end date.
- Scope

  This is the expected outcome of the project with its associated deliverables.
- Work Breakdown Structure

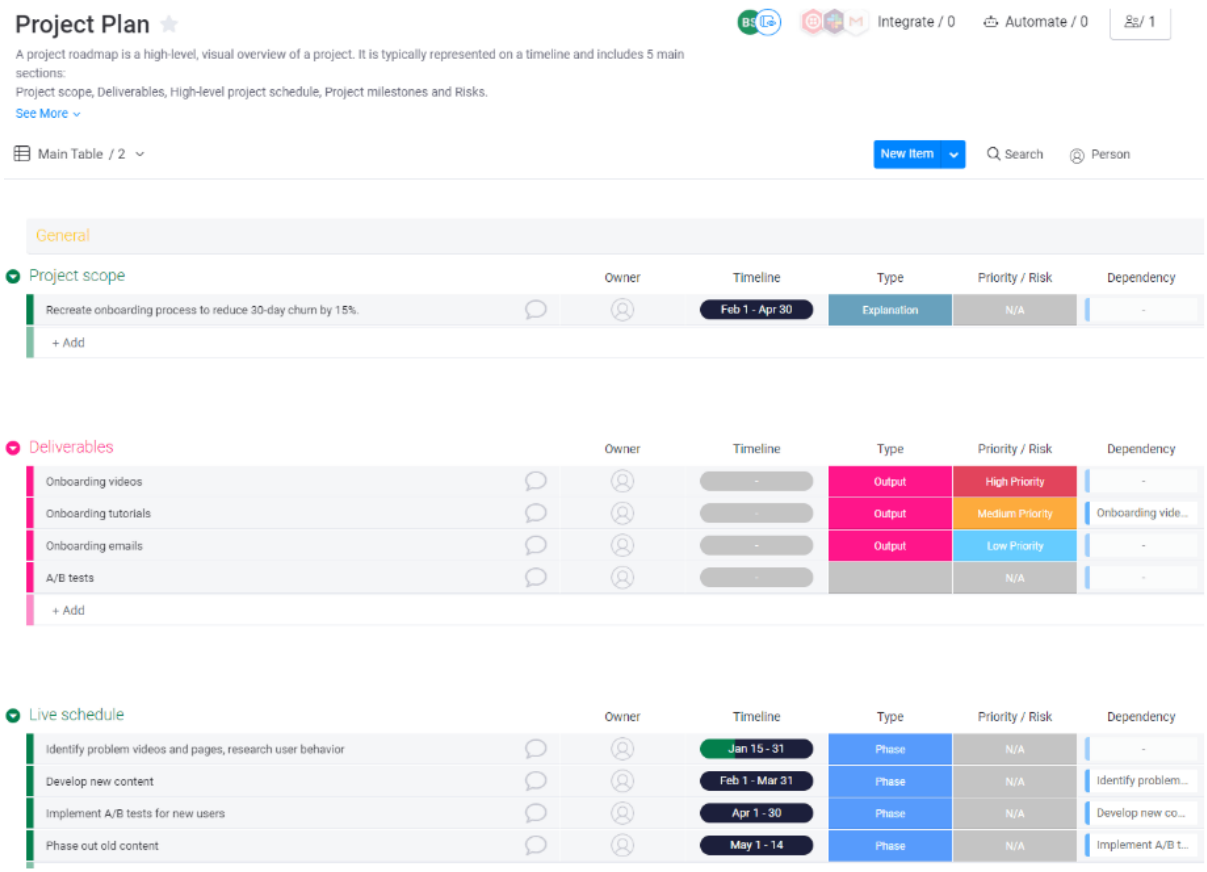
  This is the deliverables that are broken into a list of activities or tasks.

When creating a scope baseline the project charter can be used as a starting point. Following are the steps to take to develop a project baseline.

- Use the initial project plan or charter

  Below is an example of a project plan that can be used:

[83] https://www.wrike.com/professional-services-guide/faq



Resource: https://monday.com/blog/project-management/baseline-a-project-plan/

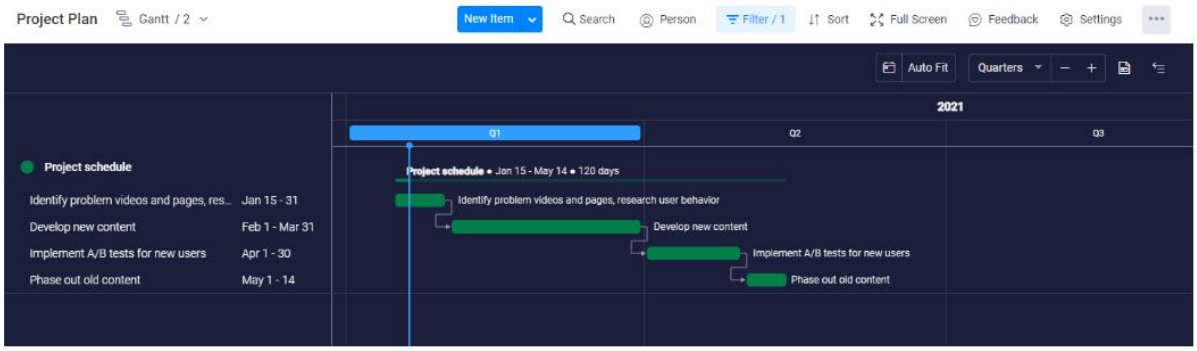
- Solidify all phases and milestones

  It is important to ensure that all the information of each phase is in order, for example:

  - Project flow – is it realistic?
  - Are there too much or just enough details?
  - Focus on capturing high-level phases (research, design, prototype, etc.)
  - Build out milestones within the phases

- Add buffers to the budget and schedule

  All possible costs should be included in the budget to factor in any unexpected expenses as well. A tool to use to make this easier is the Gantt chart, as per the following example:



Resource: https://monday.com/blog/project-management/baseline-a-project-plan/

- Update the scope baseline throughout the project

  As a project progress, issues, risks and concerns may arise that requires change requests. All of this, including any date changes should be updated throughout the project life cycle.[84]

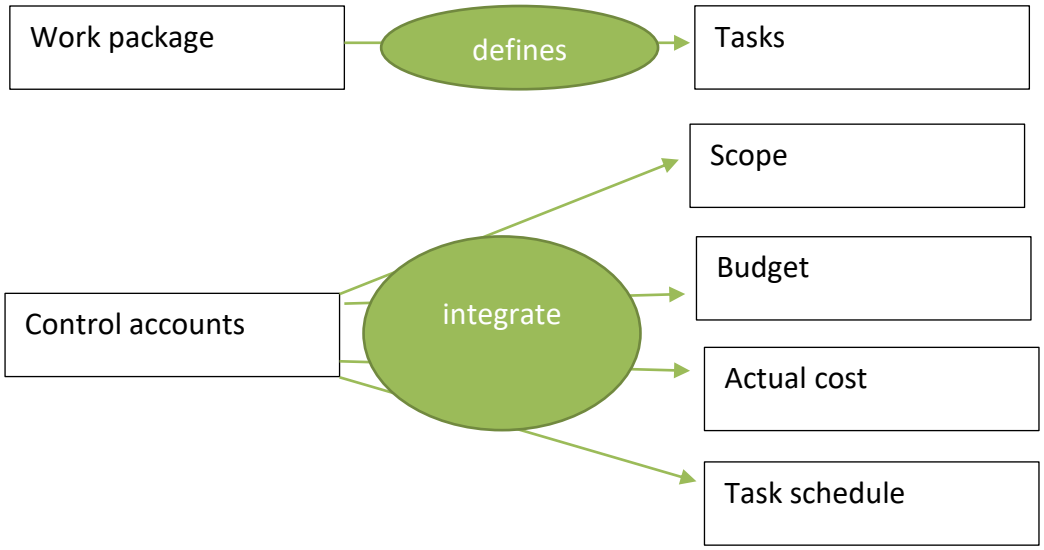
Formative Activity 21: Scope baseline (KT0405)
Complete the following Formative Activity as per the instructions from the facilitator

[84] https://monday.com/blog/project-management/baseline-a-project-plan/

4.6 The work breakdown structure report and dictionary (KT0406) (IAC0405)

A Work Breakdown Structure (WBS) dictionary is defined as "where the details of the tasks, activities, and deliverables of the work breakdown structure are located. The content includes whatever milestones are related, the project scope and in some instances dates, resources, cost, and quantity".[85]

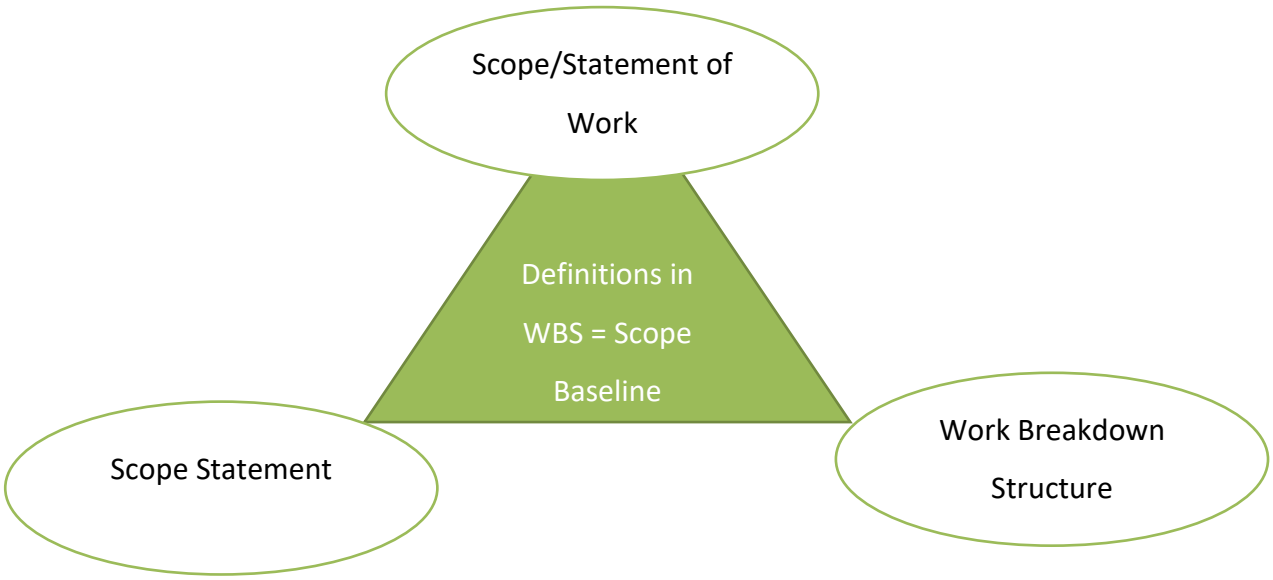
Each step of the WBS is defined in the dictionary. The dictionary also details how to execute each of these tasks to reach project deliverables. The following are included in the WBS dictionary:



Adapted from: https://www.projectmanager.com/blog/wbs-dictionary

[85] https://www.projectmanager.com/blog/wbs-dictionary#:~:text=What%20Is%20a%20WBS%20Dictionary,%2C%20resources%2C%20cost%20and%20quantity.

The essential elements of the definitions in the WBS dictionary to measure and monitor the scope of work is as follows:



Adapted from: https://www.projectmanager.com/blog/wbs-dictionary

As a work breakdown structure is a visual tool, the purpose of the dictionary is to explain the details of each step. It thus provides additional context.

The title and number in the WBS will correspond to the individual steps set out in the WBS dictionary. Team members will thus better understand what should be achieved through the different tasks and objectives set out in the WBS.

Other purposes of the WBS dictionary include:

- Meeting regulatory or compliance requirements
- Deliverables are meeting quality expectations
- Ensure that the work is done correctly the first time around
- Assist in avoiding unnecessary costs
- Ensure timely revisions

The person responsible for developing the WBS dictionary is the project manager, but it is not done in isolation. Through interviews and meetings, the required information will be gathered to complete all the details.

Resources for the completion of the WBS dictionary include:

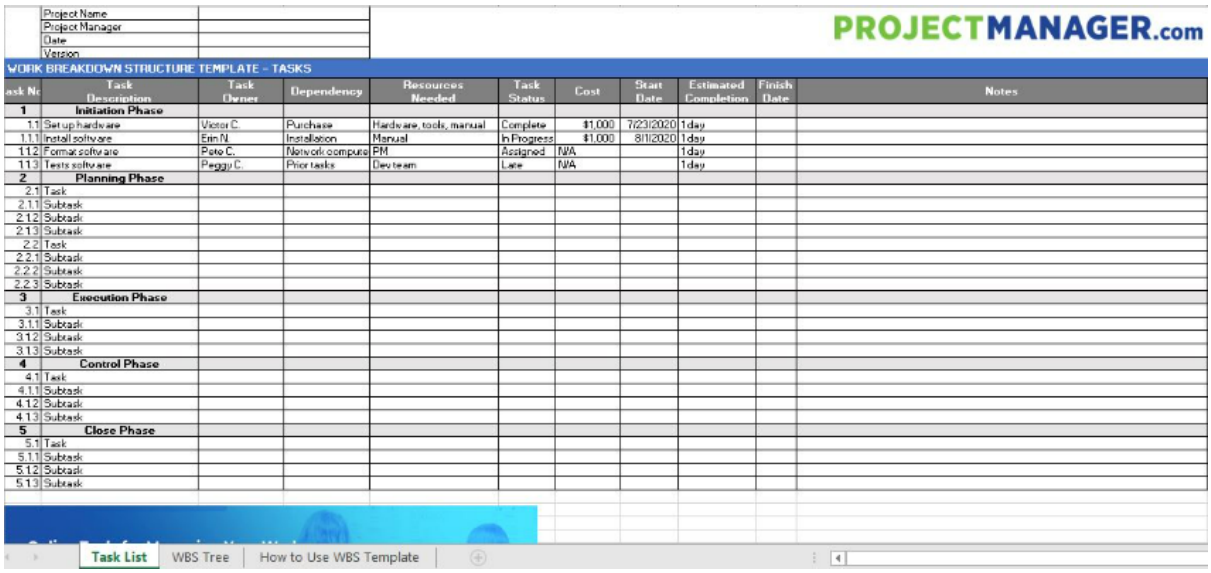
- Stakeholders
- Subject Matter Experts

- Project team members

When creating a WBS dictionary it should be noted that the details for each element should be short and to the point. The following steps should be followed when compiling a WBS dictionary:

- Identify Item
- Describe It
- Note Assumptions and Constraints (for example, dependencies, equipment requirements, etc.)
- Assign Owner
- Set Milestone (Date that indicates the end of one phase and the beginning of another)
- Make a Schedule
- List Resources
- Calculate Cost
- Define Quality
- Know Acceptance Criteria
- Collect Technical References (guidelines, manuals, standards, etc.)
- Settle Agreements[86]

Following is an example of a WBS with its associated WBS dictionary:



	Project Name									
	Project Manager									
	Date									
	Version									

PROJECTMANAGER.com

WORK BREAKDOWN STRUCTURE TEMPLATE - TASKS

ask No	Task Description	Task Owner	Dependency	Resources Needed	Task Status	Cost	Start Date	Estimated Completion	Finish Date	Notes
1	**Initiation Phase**									
1.1	Set up hardware	Victor C.	Purchase	Hardware, tools, manual	Complete	$1,000	7/23/2020	1 day		
1.1.1	Install software	Erin N.	Installation	Manual	In Progress	$1,000	8/1/2020	1 day		
1.1.2	Format software	Pete C.	Network compute	PM	Assigned	NA		1 day		
1.1.3	Tests software	Peggy C.	Prior tasks	Dev team	Late	NA		1 day		
2	**Planning Phase**									
2.1	Task									
2.1.1	Subtask									
2.1.2	Subtask									
2.1.3	Subtask									
2.2	Task									
2.2.1	Subtask									
2.2.2	Subtask									
2.2.3	Subtask									
3	**Execution Phase**									
3.1	Task									
3.1.1	Subtask									
3.1.2	Subtask									
3.1.3	Subtask									
4	**Control Phase**									
4.1	Task									
4.1.1	Subtask									
4.1.2	Subtask									
4.1.3	Subtask									
5	**Close Phase**									
5.1	Task									
5.1.1	Subtask									
5.1.2	Subtask									
5.1.3	Subtask									

Task List | WBS Tree | How to Use WBS Template

Resource: https://www.projectmanager.com/blog/wbs-dictionary

[86] https://www.projectmanager.com/blog/wbs-dictionary

PROJECTMANAGER.com

WBS Dictionary

Item Number	Description	Assumptions and Contraints	Owner	Milestone	Schedule	Resources	Cost	Quality	Acceptance Criteria	Technical References	Agreement
1.1	Install computers in each work station and make sure they're connected and operational.	Each terminal should be positioned away from windows to avoid glare.	Martin Lewis, Head IT	Need to be completed by 12/21/21	12/15/21-12/21/21	Installation manual, tools (wire cutter, screwdriver, etc.).	$50/hour	Must be operational	In working order, determined by Nancy Wolff, Project Manager	Floorplan, electrical system.	Must conform to work-related guidelines for building.
1.1.1											
1.1.2											
1.1.3											

Resource: https://www.projectmanager.com/blog/wbs-dictionary

Formative Activity 22: The work breakdown structure report and dictionary (KT0406) (IAC0405)

Complete the following Formative Activity as per the instructions from the facilitator

Outcome 5

Guidelines for Topics

KM-03-KT05: Validate scope

Topic elements to be covered include:

- KT0501 Scope validation concepts and flow of data
- KT0502 Importance and benefits of validating the project scope
- KT0503 Input documents to validate project scope (Requirements documentation, Requirements Traceability Matrix, Verified Deliverables, Work Performance Data)
- KT0504 Tools and techniques to validate the project scope
- KT0505 Scope validation reports and outputs (Accepted deliverables, Change requests, Work performance information, Project document updates)

Internal Assessment Criteria and Weight

- IAC0501 An understanding of the concepts related to validating a project scope as well as the flow of data is demonstrated
- IAC0502 The importance and benefits of validating a project scope can be explained and motivated
- IAC0503 Source documents that are used to validate a project scope can be listed and their application explained
- IAC0504 Tools and techniques to validate a project scope can be selected for a specific purpose and motivated
- IAC0505 Scope validation documents can be identified, the application explained, evaluated for completeness, gaps identified and corrective measures motivated

Weight: 15%

KM-03-KT05:

Validate scope

Topic elements to be covered include:

5.1 Scope validation concepts and flow of data (KT0501)

5.2 Importance and benefits of validating the project scope (KT0502)

5.3 Input documents to validate project scope (Requirements documentation, Requirements Traceability Matrix, Verified Deliverables, Work Performance Data) (KT0503)

5.4 Tools and techniques to validate the project scope (KT0504)

5.5 Scope validation reports and outputs (Accepted deliverables, Change requests, Work performance information, Project document updates) (KT0505)

5.1 Scope validation concepts and flow of data (KT0501) (IAC0501)

Scope validation in project management refers to the process of formalizing acceptance of the project scope by stakeholders. It involves reviewing deliverables and ensuring that they meet the agreed-upon project scope. Here's an explanation of scope validation concepts and the flow of data in project scope management:

1. **Concept of Scope Validation**:
    - **Verification vs. Validation**: Before diving into scope validation, it's essential to understand the difference between verification and validation. Verification ensures that the project is on track and that the work is being done according to the plan. Validation, on the other hand, ensures that the deliverables meet the requirements and satisfy the stakeholders' needs.
    - **Stakeholder Involvement**: Scope validation requires active involvement from stakeholders. They play a crucial role in reviewing deliverables and providing feedback to ensure alignment with their expectations.
    - **Formal Acceptance**: Scope validation results in formal acceptance of deliverables by stakeholders. This acceptance indicates that the project scope has been successfully achieved.
2. **Flow of Data in Scope Validation**:
    - **Deliverable Review**: The first step in scope validation is to review the deliverables produced during the project. These deliverables should align with the project scope defined in the project scope statement.
    - **Comparison with Requirements**: Deliverables are compared against the requirements outlined in the project scope statement, project charter, and other relevant documents. This comparison ensures that the deliverables meet the specified criteria.
    - **Stakeholder Feedback**: Stakeholders provide feedback on the deliverables based on their expectations and requirements. This feedback helps identify any discrepancies or areas for improvement.

- **Issue Resolution**: If any issues or discrepancies are identified during the scope validation process, they are addressed promptly. This may involve making corrections or adjustments to the deliverables to ensure they meet the desired standards.
- **Formal Acceptance**: Once the deliverables have been reviewed, any issues resolved, and stakeholders satisfied with the results, formal acceptance of the deliverables is documented. This acceptance signifies that the project scope has been successfully validated.

Overall, scope validation is a critical aspect of project management that ensures alignment between project deliverables and stakeholder expectations. By following the flow of data outlined above, project managers can effectively validate the project scope and achieve successful project outcomes.

Formative Activity 23: Scope validation concepts and flow of data (KT0501) (IAC0501)

Complete the following Formative Activity as per the instructions from the facilitator

5.2 Importance and benefits of validating the project scope (KT0502) (IAC0502)

The main focus of validating the project scope is on deliverable verification that will be handed over to the stakeholders. It is therefore important to complete the deliverables that meet the standards of the stakeholders. The deliverables will not be accepted if the validate scope process is not followed. When the deliverables are not accepted, it will need to go through a Change Request process.[87]

Validating the project scope is part of the Monitoring and Controlling process. This process includes the formalisation of acceptance of all the project deliverables. The focus of this process is thus to confirm that the correct product or service will be delivered through the project.

The deliverables are thus reviewed with the stakeholders and will result in an overlap of the Control Quality process. Before a sponsor or stakeholder can sign off on the scope the following needs to be done:

- Do the deliverables meet the defined quality standards?

Thereafter, present the documentation for sign-off.[88]

Formative Activity 24: Importance and benefits of validating the project scope (KT0502) (IAC0502)

Complete the following Formative Activity as per the instructions from the facilitator

[87] https://www.invensislearning.com/blog/validate-scope.
[88] https://www.projectmanagement.com/blog/blogPostingView.cfm

5.3 Input documents to validate project scope (Requirements documentation, Requirements Traceability Matrix, Verified Deliverables, Work Performance Data) (KT0503) (IAC0503)

As part of the validation of the project scope process several formal documents are being used as inputs to do the validation with the different stakeholders. Input documents that are used in the Validate Scope process, include:

- **Project Management Plan**

  Contained in the Project Management Plan is the Scope Management Plan. This plan specifies how formal acceptance will be attained. Following are the Project Management Plan components that apply to validating the project scope:

  - Scope Management Plan
  - Requirements Management Plan

    This part of the process describes how the project requirements will be validated.
  - Scope Baseline

    The baseline is compared to the actual results. This comparison is necessary to determine whether change, corrective or preventive action is required.

- **Project Documents**

  The following project documents are used as input into the Validate Scope process:

  - Lessons Learned Register

    These include the lessons learned from previous, as well as the current project. The implementation of the lessons learned can be part of later stages of the project to improve efficiency and effectiveness of the validation process.
  - Quality Reports

    Listed in the quality reports are the issues experienced throughout the project life cycle. Included are the recommendations for improvement as well as the details provided by the control quality process. The information in the Quality Reports is reviewed and confirmed before product acceptance will take place.
  - Requirements Documentation

    The following are listed as part of the requirements documentation process:

    - Project requirements

- Product requirements
- Acceptance criteria

By having deliverables clearly defined it will assist in the detection of deviations to the agreed scope.

- Requirements Traceability Matrix

  Requirements are linked to their origin and is tracked throughout the project life cycle. It also serves as a comparison between the performance of the project and the Project Management Plan. Each requirement is linked to an objective to add business value.

- Verified Deliverables

  This is a process (control quality process) where deliverables are:

  - Completed
  - Checked for correctness
  - Checked for quality

- Work Performance Data

  Included in the work performance data is:

  - Degree of compliance
  - The number of non-conformities

Severity of non-conformities[89]

Formative Activity 25: Input documents to validate project scope (KT0503) (IAC0503)

Complete the following Formative Activity as per the instructions from the facilitator

[89] https://www.invensislearning.com/blog/validate-scope/#:~:text=Validate%20Scope%20is%20the%20process,product%20by%20validating%20each%20deliverable.

5.4 Tools and techniques to validate the project scope (KT0504) (IAC0504)

Validating the project scope is to ensure that all the requirements are covered for acceptance. Several tools and techniques are used for the formalisation of this process, that will be further discussed.

Included in the validate project scope process is:

- Inspection

  Through this process the work/product is examined to confirm that it follows the documented standards. Included in the results are measurements that can be applied at any level. Inspections are also referred to as:

  - Reviews
  - Product reviews
  - Audits
  - Walk-throughs
- Group Decision-Making Techniques

Alternatives are evaluated in a group setting. The group will reach an agreement between the parties which will lead to delivering the desired objectives.[90]

Formative Activity 26: Tools and techniques to validate the project scope (KT0504) (IAC0504)

Complete the following Formative Activity as per the instructions from the facilitator

[90] https://www.invensislearning.com/blog/validate-scope/#:~:text=Validate%20Scope%20is%20the%20process,product%20by%20validating%20each%20deliverable.

5.5 Scope validation reports and outputs (Accepted deliverables, Change requests, Work performance information, Project document updates) (KT0505) (IAC0505)

The core feature of Project Management is to accomplish project deliverables. Through validate scope acceptance of the completed project deliverables acceptance is formalised. The scope validation process is necessary to create different documents that will serve as inputs into the other phases of the project life cycle.

The following are outputs of the validate scope process:

- Accepted Deliverables

  These deliverables are approved by the stakeholders as:

  - It meets the acceptance criteria of the Project Management Plan

  Approval is the principal output of the process and is performed by:

  - Project manager
  - Customer
  - Sponsor
  - Functional/Operational managers

- Change Requests

  When the final deliverables are not accepted by the stakeholders it will be documented with the associated reason. These unaccepted deliverables will thus require changes as managed by the Change Request process.

- Work Performance Information

  The information about deliverables that form part of the Work Performance Information is as follows:

  - When the deliverable has been started
  - Progress of the deliverable
  - When the deliverable is finished
  - Whether the deliverable has been accepted

  This process takes place at every stage of the project life cycle.

- Project Document Updates

Included in the list of documents that define the status on completion is:

- Lessons Learned Register

  This register consists of:

  - Challenges the project encountered
  - How these challenges could have been avoided
  - Approaches for validation of deliverables
  - Timely updates of the above

- Requirements Documentation

  The actual results of the validation will be documented in the Requirements Documentation.

- Requirements Traceability Matrix

  All results from the validation process will be updated in the Requirements Traceability Matrix. It will include information on the methods used and the outcome of the process.[91]

Formative Activity 27: Scope validation reports and outputs (KT0505) (IAC0505)

Complete the following Formative Activity as per the instructions from the facilitator

[91] https://www.invensislearning.com/blog/validate-scope/#:~:text=Validate%20Scope%20is%20the%20process,product%20by%20validating%20each%20deliverable.

Outcome 6

Guidelines for Topics

KM-03-KT06: Control scope

Topic elements to be covered include:

- KT0601 Scope control concepts and flow of data
- KT0602 Importance and benefits of controlling the project scope
- KT0603 Input documents to control the project scope (Sections of the Project Management Plan (Scope baseline, Scope management Plan, Change management plan, Configuration management plan, Requirements management plan), requirements documentation, requirements Traceability Matrix. Work Performance Data, Organisation Process Assets)
- KT0604 Tools and techniques to control the project scope (Variances analysis)
- KT0605 Scope control reports and outputs (Work Performance Information, Change Requests, Project Management Plan Updates, Project Document Updates, Organisation Process Assets Updates)

Internal Assessment Criteria and Weight

- IAC0601 An understanding of the concepts related to controlling a project scope as well as the flow of data is demonstrated
- IAC0602 The importance and benefits of controlling a project scope can be explained and motivated
- IAC0603 Source documents that are used to control a project scope can be listed and their application explained
- IAC0604 Tools and techniques to control a project scope can be selected for a specific purpose and motivated
- IAC0605 Scope control documents can be identified, the application explained, evaluated for completeness, gaps identified and corrective measures motivated

Weight: 20%

KM-03-KT06:

Control scope

Topic elements to be covered include:

6.1 Scope control concepts and flow of data (KT0601)

6.2 Importance and benefits of controlling the project scope (KT0602)

6.3 Input documents to control the project scope (Sections of the Project Management Plan (Scope baseline, Scope management Plan, Change management plan, Configuration management plan, Requirements management plan), requirements documentation, requirements Traceability Matrix. Work Performance Data, Organisation Process Assets) (KT0603)

6.4 Tools and techniques to control the project scope (Variances analysis) (KT0604)

6.5 Scope control reports and outputs (Work Performance Information, Change Requests, Project Management Plan Updates, Project Document Updates, Organisation Process Assets Updates) (KT0605)

6.1 Scope control concepts and flow of data (KT0601) (IAC0601)

Control scope is defined as "the process of monitoring the status of the project and product scope and managing changes to the scope baseline. The control scope is a process that allows the scope baseline to be maintained throughout the life cycle of the project".[92] Part of scope control is to prevent scope creep.

Scope control is part of the monitoring and controlling process. The purpose of the scope control is to manage any changes in the project and is a method used by the project methodology PMBOK (Project Management Body of Knowledge).

Scope control consists of:

- Project Scope (size of the project), and
- Product Scope (size of the product).

While the project scope refers to the total amount of work to be done, the product scope refers to the different functions (features, functions, service, and quality) related to the end product or service created by the project.

Following is an example of Scope Control:

"A plan to build 100 new homes on a vacant lot can be considered a complicated project.

First, the surface has to be prepared for building, the foundations need to be laid and the sewer system needs to be expanded before building can start brick by brick. If each house has its own lay-out and design, the project becomes even more complicated, requiring many things to be considered. The general contractor will first have to map the building site so suppliers, builders and others know exactly what is part of the project. That map corresponds to the scope of the project.

In addition, it's the general contractor's responsibility to determine exactly what jobs need to be done, in what order and how long each part will take. This is about the size of the project and all sub-tasks. He creates a detailed plan with all this information, that will tell everyone what is expected of them.

As project leader, the contractor will obtain formal approval from all stakeholders. This leads to clear and well-defined tasks and requirements that can be used to work towards a common goal."

Resource: https://www.toolshero.com/project-management/scope-control/

[92] https://www.invensislearning.com/blog/control-scope-in-a-project/#:~:text=Control%20scope%20is%20the%20process,life%20cycle%20of%20the%20project.

Formative Activity 28: Scope control concepts and flow of data (KT0601) (IAC0601)

Complete the following Formative Activity as per the instructions from the facilitator

6.2 Importance and benefits of controlling the project scope (KT0602) (IAC0602)

Scope Control keeps the stakeholders informed about changes by documenting these changes and monitoring it. To ensure efficient progression of all the processes in the project life cycle, the following needs to be frequently updated:

- Project documents
- Requirement documents
- Traceability matrix[93]

Part of the importance and benefits of controlling the project scope is that the managing of the scope ensure that the goals can be reached within a specific timeline and in the process including all the items that are critical to project success.

Furthermore, by controlling the scope it also prevents scope creep and that the scope changes become out of the project team's control.

It also allows that the changes and the addition o f critical tasks are happening without unnecessary items being added.

Scope control therefore is important for project management and should be managed with a balance of flexibility for critical items.[94]

Formative Activity 29: Importance and benefits of controlling the project scope (KT0602) (IAC0602)

Complete the following Formative Activity as per the instructions from the facilitator

[93] https://www.invensislearning.com/blog/control-scope-in-a-project
[94] https://project-management-knowledge.com/definitions/s/scope-control/

6.3 Input documents to control the project scope (KT0603) (IAC0603)

The purpose of control scope is to monitor the status of a project. It furthermore also assists in the managing of changes to the scope baseline.

Included as input in the control scope process is the following:

- **Project Management Plan**

  Many objectives need to be met in the Control Scope process. The following documentation define the information required in managing the scope:

  - *Scope Management Plan*

    The key benefit of this plan is to monitor and control the project scope.

  - *Requirements Management Plan*

    This plan describes how project requirements are:

    - Analysed
    - Documented
    - Managed

  - *Change Management Plan*

    The focus is on the changes that take place during the project life cycle.

  - *Configuration Management Plan*

    This plan is used to identify the elements that require formal change control. The Change Control Process is implemented to monitor the requested changes.

  - *Scope Baseline*

    This is the approved project scope and is managed to prevent scope creep. The scope baseline consists of:

    - Project scope statement
    - Work breakdown structure
    - WBS dictionary

    The project can follow the correct direction once the scope baseline is implemented.

  - *Performance Measurement Baseline*

To determine whether change, corrective action, or preventive action is required the actual results will be compared to the Performance Measurement Baseline.

- **Project Documents**

  The following documents are input to the Control Scope process:

  - Lessons Learned Register

    Lessons learned at the first stages of the project life cycle is implemented at later stages to mitigate risk and improve the scope control.

  - *Requirements Documentation*

    The project requirements should be:

    - Traced
    - Tested
    - Measured
    - Complete
    - Consistent
    - Well-documented
    - Accepted by the stakeholders

  - *Requirements Traceability Matrix*

    This tool identifies the impact of changes that affects the:

    - Project scope baseline
    - Deliverables

- **Work Performance Data**

  The following is documented through this process:

  - Number of change requests received
  - Number of approved changes
  - Number of project deliverables completed

- **Organisational Process Assets**

  Organisational Process Assets include:

  - Policies and procedures regarding scope management
  - Formal and informal scopes

- Methods of monitoring and reporting[95]

Formative Activity 30: Input documents to control the project scope (KT0603) (IAC0603)

Complete the following Formative Activity as per the instructions from the facilitator

[95] https://www.invensislearning.com/blog/control-scope-in-a-project

6.4 Tools and techniques to control the project scope (KT0604) (IAC0604)

Tools and techniques are required to accomplish the work set out in a project, without spending unnecessary money and resources. In each phase of the project scope different tools and techniques are used effectively in the different organisational cultures. These tools and techniques facilitate in creating a sufficient project strategy and the delivery thereof.

Tools and techniques that are used in the control scope process include:

- Variance Analysis

  This is a method that measures the differences between the project baseline and actual performance. By making this comparison the Project Manager can determine the performance of the project.
- Trend Analysis

This method is used to measure the success of a project at interval times. This will determine whether the project is improving or failing.[96]

Formative Activity 31: Tools and techniques to control the project scope (KT0604) (IAC0604)

Complete the following Formative Activity as per the instructions from the facilitator

[96] https://www.invensislearning.com/blog/control-scope-in-a-project/#:~:text=Control%20scope%20is%20the%20process,life%20cycle%20of%20the%20project.

6.5 Scope control reports and outputs (KT0605) (IAC0605)

The control scope is an important process to maintain the scope baseline and any required changes to the scope baseline. The purpose of this is to avoid scope creep which is to ensure that the scope is not expanding in an uncontrolled manner.

Documents included in the Control Scope Process (outputs) include:

- Work Performance Information

  The following information is included in the Work Performance Information:

  - How is the project scope performing?
  - What is the cause for the scope variance?
  - What are the results of the changes?

  The above will be a foundation for making scope decisions.

- Change Requests

  Change requests occur when there is an analyses on the scope performance. Included in the change requests are:

  - Preventive or corrective actions
  - Defect repairs
  - Enhancement requests

- Project Management Plan Updates

  The main areas for updating the project plan throughout the project life cycle are:

  - Scope Management Plan
    - Updates will reflect changes that occurred during the project roll out
    - How the scope will be managed due to changes occurring
  - Scope Baseline Updates

    When changes affect the project scope the following documents need to be updated:

    - Scope Statement
    - Work Breakdown Structure
    - Work Breakdown Structure Dictionary
  - Schedule Baseline

    Changes to the schedule baseline is based on approved changes in:

        - Scope
        - Resources
        - Schedule timeline
    - Cost Baseline

      Changes to the cost baseline is based on approved changes in:
        - Scope
        - Resources
        - Cost estimates
    - Performance Measurement Baseline

      Changes to the performance measurement baseline is based on approved changes in:
        - Scope
        - Schedule Performance
        - Cost Estimates
        - Revising Performance Measurement Baseline
- Project Documents Updates
    - Lessons Learned Register

      This document can be updated with techniques:
        - That controls scope
        - Causes of differences
        - Corrective actions for the completion of the project.
    - Requirements Documentation
        - This is an explanation of how a project's requirements meet a business' needs.
        - This document is updated with additional or changed requirements.
    - Requirements Traceability Matrix
        - Requirements are linked to the need.
        - The requirements development is traced throughout the project life cycle.

- This document is updated with updates in the requirement documentation.[97]

Formative Activity 32: Scope control reports and outputs (KT0605) (IAC0605)

Complete the following Formative Activity as per the instructions from the facilitator

[97] https://www.invensislearning.com/blog/control-scope-in-a-project/#:~:text=Control%20scope%20is%20the%20process,life%20cycle%20of%20the%20project.

References

- https://aipm.com.au/blog/scope-management-plan/
- https://asana.com/resources/scope-management-plan
- https://project-management-knowledge.com/definitions/s/scope-planning/
- https://www.icertglobal.com/project-scope-management-and-its-benefits/detail
- https://www.projectmanager.com/blog/great-project-documentation
- https://www.invensislearning.com/blog/control-scope-in-a-project/#:~:text=Control%20scope%20is%20the%20process,life%20cycle%20of%20the%20project.
- https://www.lucidchart.com/blog/tips-for-a-perfect-business-requirements-document#:~:text=A%20business%20requirements%20document%20describes,could%20impact%20a%20successful%20deployment.
- https://medium.com/@nhan.tran/business-requirements-vs-stakeholder-requirements-8a5127c4fb12#:~:text=Stakeholder%20Requirements%2C%20often%20referred%20to,%2C%20or%20event%2Dresponse%20tables.
- https://www.altexsoft.com/blog/business/functional-and-non-functional-requirements-specification-and-types/
- https://www.invensislearning.com/blog/define-scope-of-project/
- https://www.techtarget.com/searchcio/definition/project-scope#:~:text=Project%20scope%20is%20the%20part,statement%20or%20terms%20of%20reference.
- https://project-management-knowledge.com/definitions/s/scope-control/
- https://www.invensislearning.com/blog/control-scope-in-a-project/#:~:text=Control%20scope%20is%20the%20process,life%20cycle%20of%20the%20project.
- https://www.invensislearning.com/blog/control-scope-in-a-project/#:~:text=Control%20scope%20is%20the%20process,life%20cycle%20of%20the%20project.
- https://www.invensislearning.com/blog/control-scope-in-a-project/#:~:text=Control%20scope%20is%20the%20process,life%20cycle%20of%20the%20project.

- https://www.toolshero.com/project-management/scope-control/
- https://www.invensislearning.com/blog/validate-scope/#:~:text=Validate%20Scope%20is%20the%20process,product%20by%20validating%20each%20deliverable.
- https://www.invensislearning.com/blog/validate-scope/#:~:text=Validate%20Scope%20is%20the%20process,product%20by%20validating%20each%20deliverable.
- https://www.projectmanagement.com/blog/blogPostingView.cfm?blogPostingID=57483&thisPageURL=/blog-post/57483/Project-Scope-Management-Part-5--Validate-Scope#_=_
- https://www.projectmanager.com/blog/wbs-dictionary#:~:text=What%20Is%20a%20WBS%20Dictionary,%2C%20resources%2C%20cost%20and%20quantity.
- https://www.projectmanager.com/blog/wbs-dictionary#:~:text=What%20Is%20a%20WBS%20Dictionary,%2C%20resources%2C%20cost%20and%20quantity.
- https://www.simplilearn.com/enterprise-environmental-factors-organizational-process-assets-article
- https://www.projectsmart.co.uk/work-breakdown-structure/work-breakdown-structure-101.php
- https://www.techrepublic.com/article/work-breakdown-structures-help-define-project-scope/#:~:text=A%20work%20breakdown%20structure%20(WBS,smaller%2C%20manageable%20packages%20of%20activities.
- https://www.valuetransform.com/requirements-work-breakdown-structure/
- https://www.northeastern.edu/graduate/blog/develop-project-scope-statement/
- https://www.invensislearning.com/blog/define-scope-of-project/
- https://www.pmi.org/learning/library/applying-work-breakdown-structure-project-lifecycle-6979#:~:text=An%20additional%20key%20attribute%20of,accomplishing%20the%20project%20scope%20and

- https://www.wrike.com/project-management-guide/faq/what-is-expert-judgment-in-project-management/
- https://www.invensislearning.com/blog/define-scope-of-project/
- https://www.techtarget.com/searchcio/definition/project-scope#:~:text=Project%20scope%20is%20the%20part,statement%20or%20terms%20of%20reference.
- https://www.pmi.org/learning/library/stakeholder-management-plan-6090