

Assessment 1 - Work Breakdown Structures

Question 1.1 What is a Work Breakdown Structure?

A Work Breakdown Structure (WBS) is a logical breakdown of project activities into smaller defined scopes of work. Typically it comprises multiple levels of activities in a hierarchical structure with each level of activity broken down into smaller constituent parts. There is no limit to the number of levels within a WBS, the lowest level contains project activity based on manageable deliverables, tasks or activities and is referred to as a 'Work Package'.

A defined WBS enables the project team and relevant stakeholders to identify and organise project tasks and steps required to complete the project.

Question 1.2 Describe role of WBS in success of a project.

A well prepared WBS defines the steps required to complete the project and break down all of the project activities into manageable tasks and activities. When a WBS has been fully populated with required resources, details of inputs including documentation and other completed tasks, the WBS makes it easier to define and plan specific resources (materials, plant and personnel) required for each Work Package. This enables tighter control over use of resources in a project and availability of resources at the time when a Work Package is being completed, thus ensuring schedules can be maintained and excessive resources are not acquired or retained adding additional cost to the project.

Question 1.3 Define a WBS Dictionary.

A WBS Dictionary is a formatted document that includes basic details relating to the tasks/ activities contained in the WBS. It includes, as a minimum, the WBS numbering, Activity Name and a brief description of the content of the activity and relationship of elements within the WBS. Additional information can be included to list required resources, inputs such as documentation and preceding tasks.

The Dictionary is a useful reference for project stakeholders, particularly when the WBS is not self-explanatory or when the project is complex.

Question 2 Discuss the various steps for creating a WBS.

There are a number of key steps to create a WBS, typically it is developed on a top down basis. The overall project will be Level 1. To further develop the WBS, the first stage is to understand the full scope of the project to ensure that the WBS covers all aspects of the project. This will require reading of the project documents, such as the Scope of Work (SoW) and in certain cases the Request for Pricing (RFP) documents, to gain familiarisation of the full project scope.

Secondly, having understood the full scope, the project can be broken down into smaller key components to generate further levels. Starting at Level 1, consider what components make up the whole scope, these components will be Level 2.

From the Level 2 components, consider what has to be done to complete each task. Subdivision of the Level 2 components generates the Level 3. Subdivision of components at each level can be completed until a desired level of time or resource management can be achieved. The lowest level of each branch of the WBS is referred to as a Work Package.

Finally, having developed the WBS it can be drawn as either an Organisation Chart or as an indented list. Whichever method is used it will enable visual representation of the hierarchal structure of the project. From each Work Package, it will be possible to follow how that Work Package is incorporated in higher levels making up the project.

Question 3 What are the different types of WBS diagrams?

There are 3 formats for presenting WBS in diagrammatic form, Indented List, Spreadsheet and Organisation Chart.

The Indented List as shown in Figure 1, offsets each level to enable identification of successive levels through the WBS.



Figure 1 - Indented List

The Spreadsheet format, or Tabular View presents the WBS in table format. This format is more suited to a project with multiple levels where indenting levels could be make the structure harder to read.

Level	WBS Code	Element Name
1	1	Widget Management System
2	1.1	Initiation
3	1.1.1	Evaluation & Recommendations
3	1.1.2	Develop Project Charter
3	1.1.3	Deliverable: Submit Project Charter
3	1.1.4	Project Sponsor Reviews Project Charter
3	1.1.5	Project Charter Signed/Approved
2	1.2	Planning
3	1.2.1	Create Preliminary Scope Statement

Figure 2 - Spreadsheet format

Possibly the most commonly used is the Organisation Chart format, also known as Tree format, where the WBS is set out to show branches and lines to preceding levels in the hierarchy.

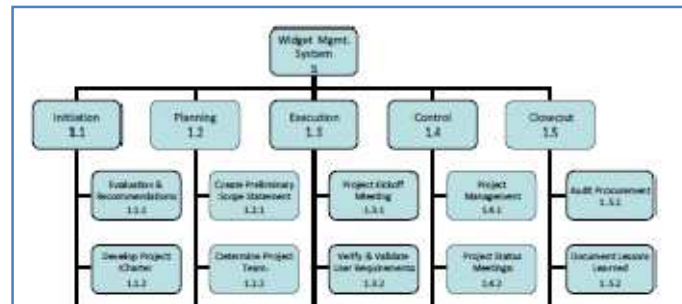


Figure 3 - Organisation Chart Structure

For each of the above formats the WBS can be based on Deliverables or Activity based or a combination of deliverables and activities.

Deliverable based WBS lists events or milestones are described using nouns. For example, Product is fabricated, Product is painted.

Alternatively, an Activity based WBS utilises descriptions based on actions that need to be completed. Verbs are used to define the tasks, for example, Weld bracket in place, Apply Primer.

A WBS can be prepared to utilise both Deliverable and Activity based descriptions may have different levels defined by Deliverables while other levels are defined by Activity as shown in Figure 4.

2.1	Product is Fabricated
	2.1.1 Cut Steel
	2.1.2 Drill fixings
	2.1.3 Weld bracket
2.2	Product is painted
	2.2.1 Apply Primer
	2.2.2 Apply finishing coat

Figure 4 - Deliverable and Activity based WBS