1. Introduction

A project manager needs to decompose a project into smaller 'chunks' in order to effectively plan and schedule a project. Methods for project decomposition are therefore important for a project manager to master.

In this topic, we will discuss the work breakdown structure and how it can be used to efficiently plan and manage activities in an IS project environment.

The presentation below illustrates how work breakdown structure (WBS) fits in the project management roadmap.

In the project planning and scheduling phase, the project manager is faced with the challenge of planning the project given the various resources, time and budget constraints. Here, one of the key methods a project manager applies is work breakdown structure (WBS).

Objectives: Work Breakdown Structure

Upon completion of this topic, you should be able to

- define and describe the benefits of a work breakdown structure
- distinguish between project-oriented and process-oriented WBS
- use a work breakdown structure to decompose a project into its constituent parts

2. Work Breakdown Structure

View the presentation to learn about work breakdown structures.

Work Breakdown Structure

A work breakdown structure (WBS) is a hierarchical representation of the complete set of tasks or deliverables involved in a project. The WBS is often used as a starting point for project planning and estimation.
WBSs are generally product or process oriented. A product oriented WBS identifies the components of a solution. A process oriented WBS identifies the tasks or work that need to be completed.

It is the project manager's preference that determines whether they use a product or process oriented WBS. Most IS projects are quite complex in nature, so the WBS provides a good starting point for decomposing a project into more manageable chunks. Indeed, it is very hard for us to comprehend a large complex project unless it is decomposed into smaller chunks. The granularity to which the WBS is taken will vary and depends upon the level of detail to which a project manager will chose to manage a project.

As a guide, however, the lowest level of granularity in a WBS should be a work-package that is assignable, measurable, loosely couples and deliverable.

**Assignable**

It should be possible to assign costs and resources to the work package.

**Loosely couples**

It should be as independent as possible from other work-packages.

**Deliverable**

There should be a clear deliverable or point of completion.

**Measurable**

It should be possible to track the progress of the work-packages.

**Benefits of a WBS**

Modern project management tools usually provide the functionality for creating a WBS and maintaining a database of individual work-packages. However, it is easy for a project manager to make the mistake of over-decomposing a project into too fine a level of detail, particularly in the unmistakable belief that it will make the project easier to manage.

There are a number of benefits in creating a WBS:

1. It provides a starting point for fleshing out a project plan
2. It clearly defines the work that is to be carried out on a project and can be used to confirm and clarify the scope of a project
3. It can be used to support the contract between a buyer and a supplier
4. It can assist in project estimation such as costs and resources
5. It shows the dependency relationship between large project tasks or deliverables in smaller, composite tasks and deliverables
6. It can be used to assign staff to particular work-packages
7. It can be used to track project progress

Creating the WBS is usually an iterative process where the project manager starts with the major items, gradually decomposing these into smaller items. This should be an inclusive process whereby a project manager consults project stakeholders and team members to ensure that the WBS is accurate and complete.

Of course, the WBS may change during the course of a project when new requirements emerge that were not anticipated originally. Hence, the WBS is also a
useful tool for tracking the completion of work-packages. If a WBS has been well developed, it is often possible to reuse the WBS as a template on future projects.

### 3. Exercise

Click the link below for an exercise to identify the components of a WBS.

**Exercise: Work Breakdown Structure**

**Exercise Alternate Text**

**Exercise**

In this exercise you are required to complete a Work Breakdown Structure. Imagine that you are writing a book. The book has an introduction chapter, two chapters and an index. Each chapter is broken down to a number of topics, which has one or more sections. In order to organise your work you want to decompose the book using a work breakdown structure (WBS).

There are four levels in the WBS. Each level is further broken down into smaller items. You need to place the following components at the appropriate location in the WBS. The components are:

- Book
- Introduction
- Chapter 1
- Chapter 2
- Index
- Topic 1
- Topic 2
- Section 1
- Section 2
- Section 3

### 4. Self-Assessment

Now, try the self-assessment questions to test your understanding of the topic. Click the following link to open the Self-Assessment in a new window.

**Self-Assessment**

Q1. Which one of the following describes a process oriented work breakdown structure?

1. It identifies the major components of a solution
2. It identifies the tasks that need to be completed
3. It identifies the people that will be required on the project
4. It identifies the skills that will be required on the project
Q2. Which one of the following is a feature of a work-package?
1. Assignable to an individual
2. Closely coupled to other work packages
3. Divisible into smaller work-packages
4. An activity, which involves the customer

5. Summary

This topic covered the following main points:
- A work breakdown structure (WBS) is a hierarchical representation of the complete set of tasks or deliverables involved in a project.
- A WBS can either be project-oriented or process-oriented. The decision lies with the preference of the project manager.
- A work-package is the lowest level of granularity in a WBS and it must be assignable, loosely coupled, measurable and deliverable.
- Creating the WBS is an iterative process and if well developed, it can be used as a template for future projects.