

Process

The project Schedule outlines the tasks and activities of the project; the duration; start and end dates for each individual task and the project as a whole; and the resources and effort required. Developing a project Schedule involves a number of defined steps.

- Work Breakdown Structure (WBS)
- Work Packages
- Activities and tasks
- Schedule

For most projects there will be at least two separate Schedules developed. One will be for the Initiation Phase (Initial Schedule) and the other for the Planning, Execution and Closure phases. All schedules are added to Eclipse for tracking and updating.

The Initial Schedule is developed in the Initiation Phase of the project to help produce the Project Charter. At this point, the Schedule is not expected to be very accurate or contain firm dates; rather it gives the Project Manager (PM) a rough idea of the project timeline and the assignment of resources. When the Charter is approved, a second Schedule is developed, with the approval date as the Project “start date”.

In the Planning Phase, a Project Management Plan is created (from the Charter), and the second Schedule is updated with a more accurate and realistic timeline. In effect, the start and end dates of the first Schedule will be replaced by the start and end dates of the second Schedule. Eclipse allows for the development and saving of multiple schedules. This feature can help in creating “what if” schedules without disturbing the “active” schedule.

A process flow diagram outlining detailed steps in completing a Schedule is contained in Appendix “A”.

Work Breakdown Structure (WBS)

The WBS provides a clear description of the project’s deliverables. It describes the “what is to be done” **not** the process or schedule. Therefore the WBS:

- Is a deliverable breakdown structure
- Is a hierarchical decomposition of the work – the deliverables are decomposed to a level where a work package can be defined (see work package below)
- Is a graphical representation or textual outline of the project scope
- Represents 100% of the work defined by the project scope and captures ALL deliverables, internal, external, and interim, including project management

The WBS helps:

- Develop the work packages
- Define the project tasks

- Develop the schedule
- As a tool to communicate the project to stakeholders

An example of a Work Breakdown Schedule is included in Appendix “A”.

Work Packages

Work packages are the lowest level in a WBS decomposition where an activity duration can be reliably estimated and managed. A Work Package can be created where a Project Manager (PM) deems it necessary to help develop the project Schedule.

A work package details a level of work to be completed. It would contain a description of the work, details of constraints, and agreement between the PM and the team or individual doing the work, that the work can be done within the constraints. Assumptions would be defined in the work package depending on the needs of the project.

Work packages are particularly useful where contractors or other departments are involved in the project. A work package should define durations of 4 to 6 weeks. The PM would assign the work package and authorize the work to be completed according to the project Schedule. The PM would monitor and control the project at the work package level and not necessarily at the task level.

An example of a Work Package is included in Appendix “B”.

Activities and Tasks

Tasks are the lowest level of work defined in a schedule. A task is the work to be done and contains a description, the start and end dates, the resource assigned to work on the task and any dependencies on other tasks. Task duration should be 10 to 15 days but no more than 20 days of effort in order to allow progress to be measured.

A collection of similar tasks are grouped together and summarized as an Activity. This aids in the management of progress reporting and communication to stakeholders, where each task does not need to be communicated individually in detail.

Tasks are usually defined by the person who will perform the task. The Project Manager, Resource Manager and others who have knowledge of the work required, would be involved with identifying the tasks and the tolerances for how long they will take using the estimation .

The PMO is currently using the PERT method to determine the effort and duration required on a task or activity.

PERT (Project Evaluation and Review Technique) Analysis

PERT Analysis uses a weighted average of three duration estimates to calculate an estimated duration for a task. This is a great tool when you don't have a specific duration but do have duration estimates from reliable sources. Who are reliable sources? A reliable source is anyone with experience working with the particular type of task, including, but not limited to, skilled project managers, the people who will be

performing the work, and even the data logs of a resource like a machine (to find out how fast the equipment can get the job done).

PERT analysis requires three numbers:

1. Most Likely Time – The activity time which will likely occur most often
2. Most Pessimistic Time –The activity duration under the least favourable conditions
3. Most Optimistic Time –The minimum activity duration under the most favourable conditions

The formula to calculate the estimated effort or duration is:

Estimated Duration = Optimistic + (4 x Most Likely) + Pessimistic /6

Once this estimated duration is determined, a personal fatigue factor (PFD) should be applied. This is typically 20% of the estimate, and will allow for factors such as; experience level and issues which could impact the person not spending full time on the task.

Schedule

Once the tasks and activities are developed, the Schedule is produced. The schedule is a living document and needs to be monitored and kept up to date. It may be created directly in Eclipse or developed in MS Project and imported into Eclipse. Once complete, project milestones should be identified and incorporated into the Schedule. A “milestone” is a point in time in the project which identifies the end of a significant set of related activities indicating the completion of a major deliverable. A milestone has no duration or effort.

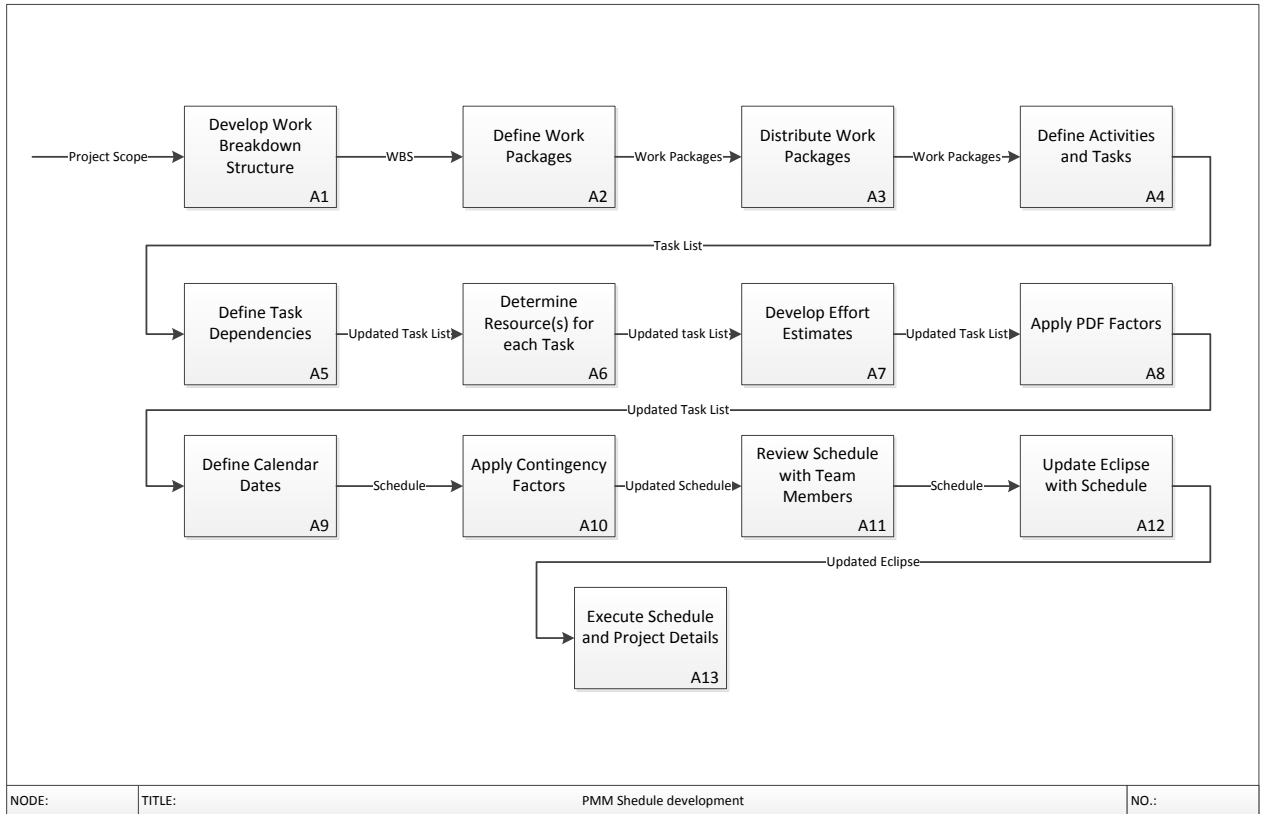
A final step in the development of the Schedule is to determine a contingency factor to be applied to the schedule. Typically, a contingency of 10% is applied at the overall schedule level and not at the task level. On a large project contingency can be applied at a phase, sub-phase or activity level.

Once initial and subsequent schedules are developed, they should be “baselined”. In most cases, this is done at the completion of the Project Management Plan. A baseline establishes a point of reference from which a comparison can be made against the plan.

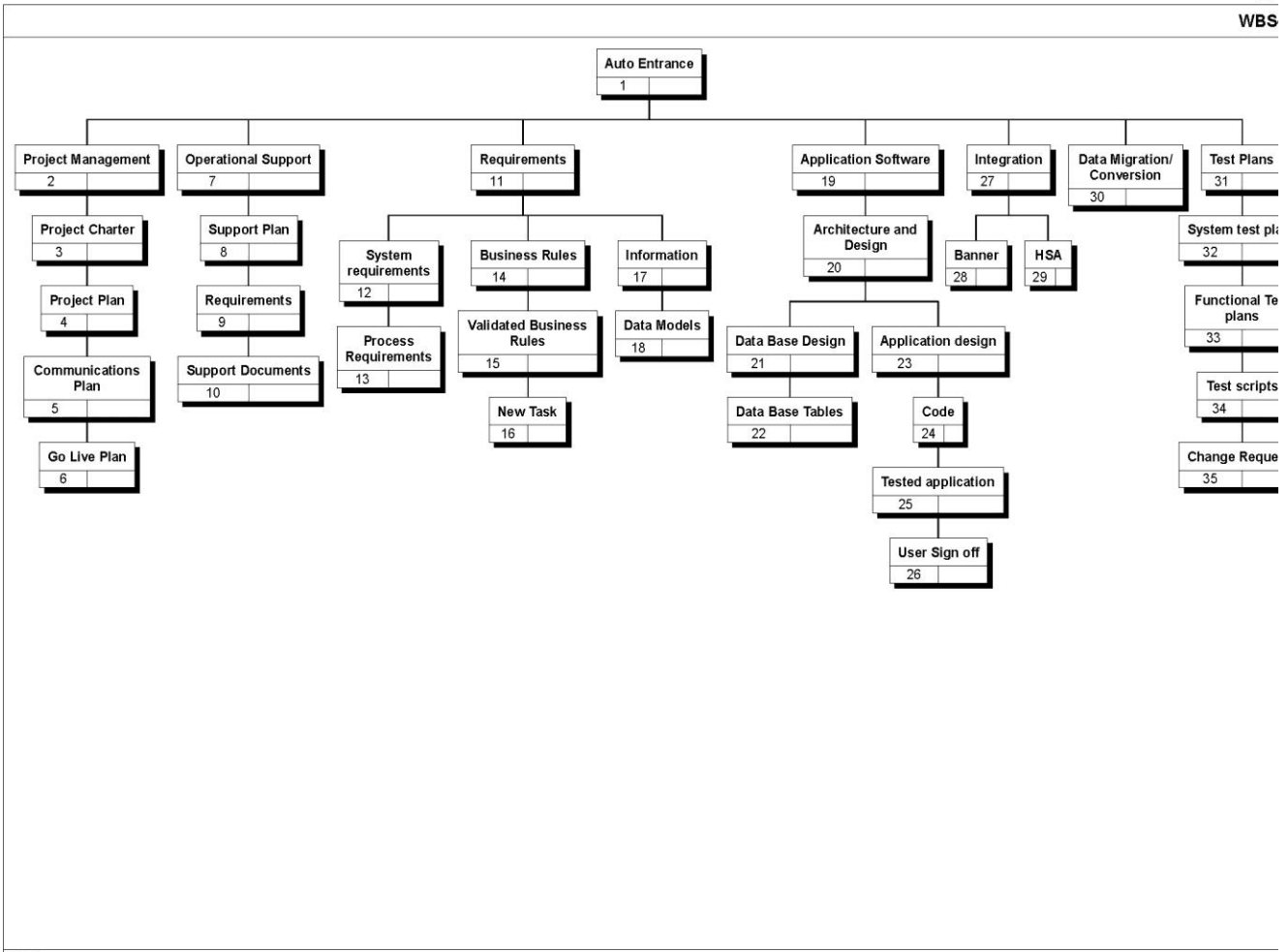
During the development of the Schedule it is important for the PM to keep in mind any “Assumptions” and “Constraints” identified in the Project Charter and/or Plan, and how they may impact the timeline. As well, risks and issues should be taken into consideration when creating the project schedule.

Appendix "A"

Process Flow



Sample WBS



Fields

Name
ID

Appendix “B”

Sample Work Package

The purpose of the Work Package is to agree and record clearly to a sufficient level of detail such that the person or team required to carry out the work knows what needs to be delivered, to what detail and quality standard and within what timeframe.

1. Work Package Number and Date:

Work Package ID 11

January 8, 2013

2. Team or Person Authorised (Who?)

Business Analyst/ Developer / Technical Analyst from Enterprise Applications or person names John Smith, Mary Jane ...

3. Project Objectives (What is this project going to do?)

The goal of this project is to re-develop the current auto-entrance process to properly align it with current admissions and scholarship procedures and practices.

4. Project Phase (Where does this work fit?)

Initiation

5. Work Package Description (What?)

A. Requirements

1. Document the processes involved in Auto Entrance.
2. Define and document the business rules, checks and validations associated with Auto Entrance.
3. Define the information (data) required of the process and detail its origins and end point.

6. Techniques/ Processes / Procedures to be used (How)

7. Interfaces to be maintained during the work (Who/what else will impact this work?)

8. Agreed timescale, cost and resources (task list, effort and by when?)

Sample

Activity/ Task	Days Effort	Elapsed Time (Duration)
1. Review current documentation	15	20 days March 1 to March 31, 2014
2. Document current business rules from: documentation and reverse engineering current UGAFa code.	10	20 days March 1 to March 31, 2014
3. Define Information needs	5	7 days March 17 to March 22, 2014

9. Any constraints to be taken into consideration

- Reverse engineering code may not allow the definition of all business rules
- Current system code was written by an outside developer in 2003 and may not be easily “read”
- Current documentation may not be available