Notes on Project Planning
Part of a Series of Basic Concepts in Project Management
Full Series and the Latest Version at www.manageprojectsbetter.com

PM TUTORIAL

Notes On
Project Planning

"Plan your project so you can lead the team, so you can measure your progress and identify issues and so your stakeholder's expectations are properly set"

THE BASIC BASICS

Projects must have a plan, even if the plan is only for the next week's work. Without a plan, the team has no common goal nor a common understanding of what work is needed and what will be done first and who will do the work and so on. Without a plan, there really is no project.

Here are the basic things you can do.

- Before planning, make sure you have adequate requirements for the project itself and for what the project will deliver. No requirements, also means no project and means no plan is possible. (See the "Requirements" tutorial for general overview)
- It is often best to assemble the plan with your team, decide who will help
- Start by identifying the work needed, make an outline of all required work.
- Sequence the work in a top level flow chart or schedule.
- Identify who will do the work.
- Identify what resources are needed to do the work.
- Don't try to write a "book" for the plan, no one will read it, instead consider the plan a set of graphics (work outline, schedule, table of work assignments, etc.)
- Review the plan with any key stakeholders that did not help make the plan.
- Remember for yourself and tell others "no plan is perfect, but it has to be good enough."

Once your plan is in place, of course things will change so the plan must be changed to line up with the new reality. Once the plan gets disconnected from reality, it is of no value to the project. For those you work with that don't see planning as being worth the time, ask them about how other projects that had no plan worked out.

PLANNING TUTORIAL FOLLOWS

PLANNING TUTORIAL

What is a Project Plan?

Project Plan - The set of information that defines the project scope and commitments, project organization, responsibilities, detail tasks, schedules, resource needs and management methods that are necessary to complete all project commitments.

- o *What Work is Required*
- o *Who Does What Work*
- o *When Does the Work Happen*
- o *How Much Resources Are Required*

A Plan

| What Work |
| Who |
| When |
| Resources |

What is The Context of the Project Plan Relative to Project Phases?

Common project phases are depicted in the graphic.

All projects start with some type of problem or needed outcome that is the basis for the project to exist. This initial state may include varying levels of requirements and constraints. Key project steps include defining the nature of the project, validating the need for the project and the feasibility of the project including top level estimates of resources in terms of funding, schedule, personnel and other resources to form the basis of a formal or informal project proposal. Negotiations follow between the project team and the project's sponsor / customer and a baseline agreement is formed to identify what will be done and what the cost and schedule limitations will be. The project is then planned to identify all work, assign work, develop detail schedules and budgets and to define all necessary management and operational processes necessary to complete the project. Project performance follows planning and involves the tracking of requirements compliance, schedule performance, budget performance and other measures that are aligned with the project's priorities. As the project completes all planned and necessary work, the project completion criteria is validated and formal administrative project closure actions are taken in accordance with the organization's operating processes.
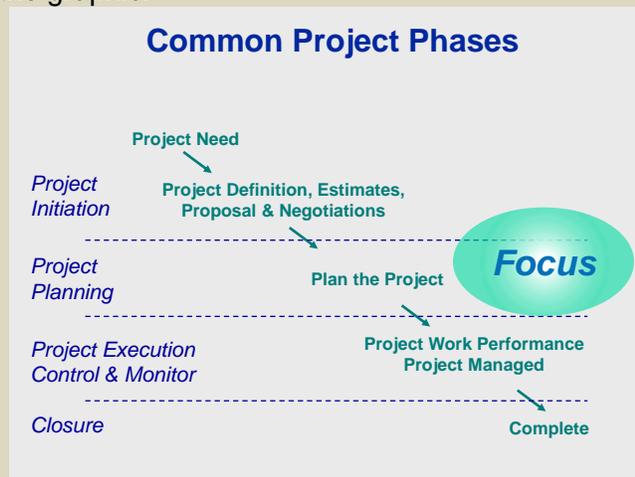
Common Project Phases

Project Need

Project Initiation — Project Definition, Estimates, Proposal & Negotiations

Project Planning — Plan the Project — **Focus**

Project Execution Control & Monitor — Project Work Performance Project Managed

Closure — Complete

What Are the Key Functions of a Plan?

- A means to <u>direct</u> <u>the</u> <u>team</u>
- A means to <u>measure</u> <u>progress</u>
- A means to <u>surface</u> <u>project</u> <u>problems</u> to resolve them in a timely manner
- A <u>vehicle</u> <u>to</u> <u>communicate</u> project on-going details to all project stakeholders
    - Project team
    - Organization management
    - Customer
    - Subcontractors and other project stakeholders

Is the Plan a Book?

A Plan is <u>Not </u>a Book

It is not necessary to write a book to produce a project plan. Actually a notebook full of paper has some definite drawbacks in that it takes a lot of time to prepare, few if any stakeholders will read the book and the book will be out of date soon and will anyone updated the book. The result is that preparing a notebook of detail information is probably not going to be an effective approach for the project.

Why?   No one wants to:
- *Write the book*
- *Read the book*
- *Keep the book up to date*

If the Plan is Not a Book, What is It?

A Plan is A Set of <u>Visuals</u>

<u>Plan</u> <u>Visuals</u>
- Work Breakdown
- Work Assignments
- Team Organization
- Milestones
- Schedule
- Resource Estimates

The core parts of any plan are really graphics, lists, charts, matrixes and outlines. Completing these "visuals" is a fully adequate plan that stakeholders will look at and understand and these can be easily maintained.
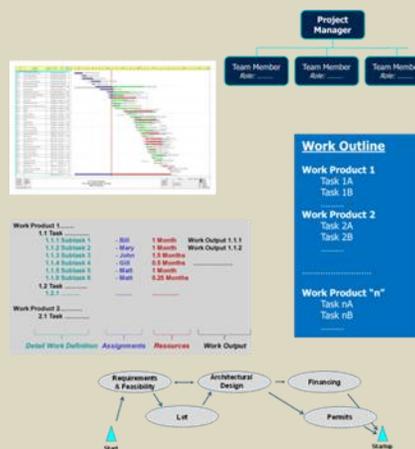
What is a Process for Planning?

Planning Process

The overall planning process starts with the set of driving requirements we discussed earlier. These requirements are the basis for the top level plan which includes the set of deliverables, project milestones and criteria, the form of the WBS, the form of the project organization and the master schedule. As the top level plan is completed, detail planning can be accomplished to defined individual detail tasks, task assignments, required resources and budgets and detail schedules. Iteration and overlap of planning steps is typically and often results in a more accurate and complete plan.

Overall Planning Process
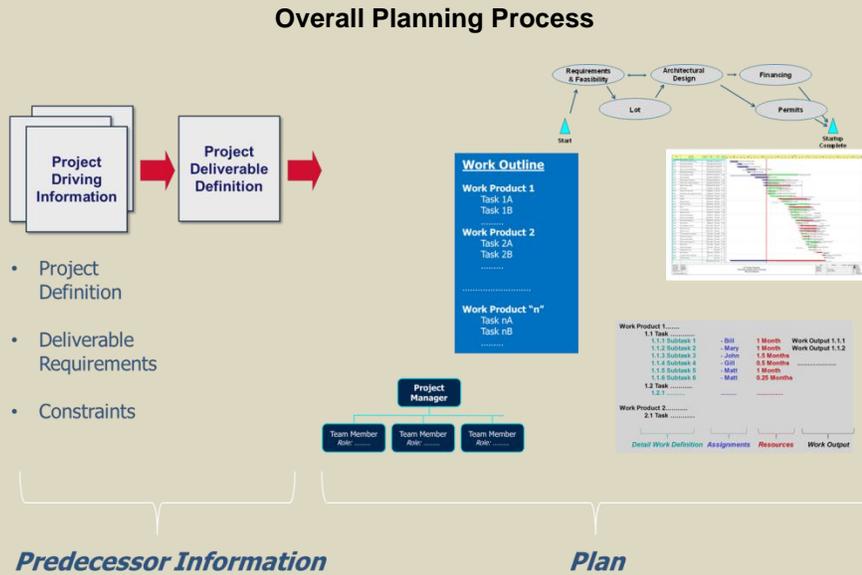
## What is a Work Outline or WBS?

Detail Work Definitions – Work Outline or WBS (Work Breakdown Structure)

The development of detail work definitions follows the top level work outline previously developed in the top level plan. For each area of work, a breakdown of the work to complete a given work product is defined. In the figure below, the "hardware" work product (whatever it might be) has a set of work that must be complete to result in that hardware work product. In other words, the set of work below a given work product is the work required to produce that product.
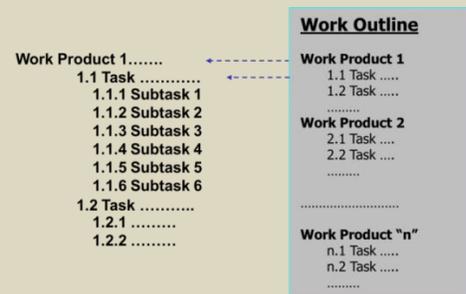
Project Schedules, What are Some Options for Developing Schedules?

Schedule Management Options

Options for schedule management:

Option 1 – Monitor a top level schedule
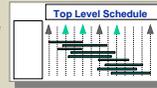
Option 2 – Use a networking tool and status detail schedule tasks
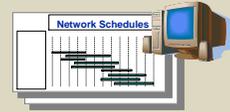
**Option 3** – Track milestone criteria completions
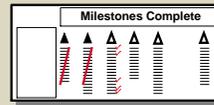
Schedule Option 1 – Manual Schedule

Option 1 is to develop a top level schedule for the project, which could be a manual or drawn schedule or a schedule developed by a schedule activity network, and this schedule is used by the team to track progress at a high level. Advantages are easy to do and use and it provides a top level status for management and customers. The disadvantages are that it only is an indicator of a problem and little or no granularity would exist to allow the project team to determine the root cause of the problem to define and implement corrective actions.

Schedule Option 2 – Network Schedule

Option 2 is to develop a schedule activity network using a tool. The advantages here are many with accurate calculated schedules, establishes a means to collect and store status, valuable milestone projections being possible and others being provided to the project team. The disadvantage is that it takes real time and energy to develop and maintain.
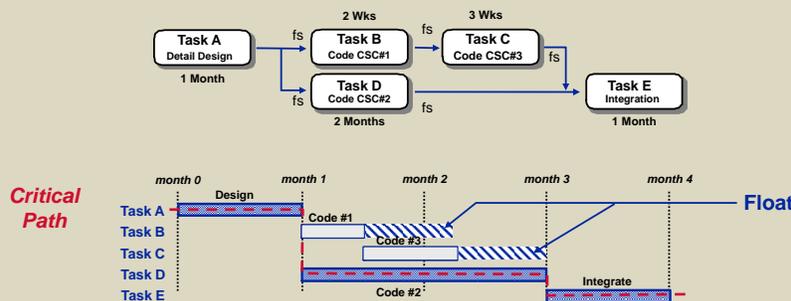
SCHEDULE CRITICAL PATH = End-To-End Tasks Determining project Length

Schedule Option 3 – Milestone Schedule

Option 3 is a basic milestone tracking approach where project milestones are defined each with specific work completion criteria. As the project progresses, the project team identifies what work elements are completed. The advantages include that this is easy to do, specific work completion information is known, good vehicle to show management and the customer and it provides the project team with a good overall schedule status understanding. The disadvantages include that this is not a real schedule, work task relationships are not included and only some granularity exists to understand the root causes of any schedule delays.

- If a milestone type of schedule is used, work completion for each milestone can be tracked by identifying closure criteria attained
- This is a great way to maintain a top level view of project progress for management and customer briefings and can be done in addition to the network schedule statusing approach
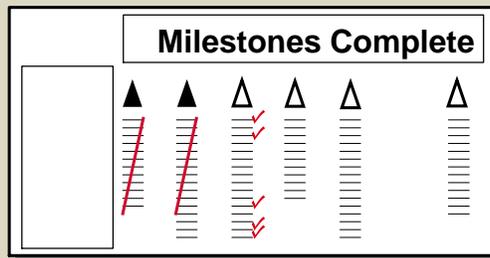
Schedule Management Options
Advantages and Disadvantages

Option 1 – Manual Schedule
Pros: Quick
Cons: No Predictions, Little Information, No Root Cause

Option 2 – Networking Tool
Pros: Detailed, Accurate Predictions
Cons: Real Effort Required, Requires a Tool and Tool Knowledge

Option 3 – Milestone Matrix
Pros: Quick, Good Visibility
Cons: No Predictions, No Root Cause

Additional FAQs
Related to Project Planning

Question: A project team will start on the project plan near the award of a significant contract, what initial project startup work should be completed before the team gets too serious about working the details of project planned schedules and budgets?

Answer: The team needs to work toward a fully workable and negotiated contract if that is not already in place. This would include a final statement of work, terms and conditions, technical specifications with very few, if any, open issues or "tbds." Secondly, the team needs a useable definition of the core deliverable for this project. This is the top level definition of the project's end products. As one example, the deliverable for a systems development project would be the system architecture.

This is not necessarily a detailed and final system design, but is a definition of the delivered product in sufficient detail and completeness to enable a plan for the project to be developed.

Question: What role does the deliverable definition for the project play in the development of the project plan?

Answer: The deliverable definition is the seller's response to the customer's requirements defined in the contract and is the necessary derived information that must be in place to form the basis for the identification of project work. The project plan is certainly based also on the contract, but it is the deliverable definition that will form the basis for determining detail tasks, schedules and budgets.

Question: How would the project plan actually be prepared?

Answer: Key planning steps include the following.

- Outline the Work – Identify all work required in outline or WBS form.
- Define the Team – Identify the team needed to complete all work.
- Sequence the Work – Determine the sequence the work must be completed in.
- Estimate Resources – Estimate what resources in terms of labor, materials and other costs will be needed for completing all work.
- Assign Work – Assign all work to someone one the team or to external parties that will report to someone on the team.

Question: The plan has many parts, what parts of the plan would you assign to what individuals on your project?

Answer: None. The project plan needs to be developed by the project team, led by the PM. No one person completes the plan independently as all parts of the plan will require input from those managing the work and completing the work.

Question: What parts of project planning are necessary during the proposal or bid preparation?

Answer: All parts. The level of detail may differ from post award planning but all parts of the project plan are needed during the proposal phase to support the proposal efforts, especially the cost estimates.

Question: What do the words "integrated baselines" or "integrated project plan" mean? What happens if this integration does not exist?

Answer: These terms denote the condition that all components of the plan are mutually compatible. As examples, the work outline is consistent with the team identified. The work required is consistent with the schedule and budget limitations on the project. If these conditions do not exist, the plan is invalid and cannot be used to manage the project.

Question: Is work authorization, or the process by which an individual piece of work identified in the work outline is officially designated to start by an identified individual or organization, needed to manage a project.

Answer: The answer is yes. Work authorization can be an important part of managing the project. Besides the function of assigning work, budgets and schedule to an individual or organization, work authorization performs a number of additional and critical project managing functions. The most critical is establishing a commitment on the part of the performing organization or individual by defining the work that is required and the budget and schedule that have been allocated to that work. Work authorization is a "king pin" that links all of the work accomplished during the planning of the project to the performance phase by formally establishing that the plan is what we all have agreed to do. Without this commitment vehicle, an outstanding plan may be of very limited value in effecting a successful project as no one is committed to it.

Question: What type of reserve(s) should be considered for a typical project?

Answer: Cost and schedule reserves should exist and technical performance reserves should be strongly considered for any project with challenging and/or risky performance requirements. Stuff happens and all the bad things that can happen to a project cannot be predicted and "margins or reserves" need to be embedded in the plan to support a successful project and to appropriately set expectations for all stakeholders.

Question: How are schedule reserves developed?

Answer: Definition and implementation of a schedule reserve will be dependent on multiple factors that will include the number and characteristics of schedule risks, the

assumptions made when the schedule was proposed, the number and size of potential schedule opportunities, schedule feasibility in the eyes of the project team, schedule priority with the customer, contract clauses related to schedule (such as penalties) and other factors. Schedule reserves are almost always recommended as schedule attainment is key to meeting customer needs and key to meeting project financial goals. The size of the schedule reserve must be reasonable in the eyes of the project team if the addition of the reserve makes the schedule unrealistic. The reserve must also be large enough to be of value. The reserve can be a at the end of the project that results in one major deliverable or may be segmented throughout the project if that is deemed of greatest value to maintaining schedule compliance.

Question: What is the relationship between cost and schedule reserves?

Answer: This depends on how the reserves are set up and a number of situations might exist. One approach would include a schedule reserve and then the corresponding financial resources that would not be required if the project completed all scope without using the schedule reserve would not be allocated and would be included in the financial reserve amount. The financial reserve also commonly includes reserve elements that are not schedule related. If project budgets are setup to include costs for project efforts that plan to expend a schedule reserve, then less of a relationship between the two reserves exists.

Question: How are technical reserves developed?

Answer: Technical reserves should be considered for all technical requirements that have a real risk of non-compliance. The challenge for the project team will be to select those requirements and then to select a level of reserve. Technical reserves must be of a sufficient level to be of value in supporting contract compliance, yet be of limited magnitude to avoid delivering more performance than what the project has contracted to provide. Special attention should be given to those technical areas that are of greatest importance to the customer and to those areas where technical non-compliance may have effects on other areas of the project efforts. The costs to the project to implement technical reserves in terms of finances, schedule, personnel, etc. should be considered when choosing specific requirements for which reserves will be identified and the size of the reserves. TPM or Technical Performance Measurement should be employed for all requirements for which technical reserves are being applied and the magnitude of the reserve should be clearly depicted on each chart. Example: a schedule reserve to allow for a late product delivery may only be related to a small number of increased hours for a few personnel on the project while other project work is continuing on schedule. Financial and schedule reserves may be correlated at the project level (example: development project delays cause increased labor for everyone on the project) but seldom are implemented at lower levels unless very clean lower level relationships exist.

Notes on Project Planning
Part of a Series of Basic Concepts in Project Management
Full Series and the Latest Version at www.manageprojectsbetter.com

Question: What is the relationship between reserves and project risks?

Answer: There should be a strong correlation between project risks and all three types of project reserves. As an example if a project has a total financial risk of $x, then the ideal situation is that an equal amount is set aside as a financial reserve. For schedule reserves, the ideal situation would be that significant schedule risks are offset by similar magnitude schedule reserve

Question: To what level of detail should budgets exist on the project?

Answer: The factors that must be addressed when determining the level of detail at which project budgets will be established include:
- levels that ensure accurate resource estimates (high level breakdowns typically threaten this needed accuracy)
- levels that ensure accurate work completion estimates
- levels that support adequate work separation to support accurate cost rollups for discrete work products (vs "peanut butter" costing techniques), this is critical for any metrics data collection
- levels that provide the lowest level of management on a project (typically the cost account manager) with sufficient visibility of project status

In addition to these classic level requirements, considerations should be given to the number of individuals working on a given budget and the duration of the overall budget. Limiting both of these to levels near 1 or 2 people and 1 or 2 months will support needed visibility into real project progress as well as accurate status information. The "90% completion syndrome" is a key condition that should be avoided and these techniques support that.

Question: To what level of detail should schedules be prepared?

Answer: Much of the same thinking that is related to the level of budgets applies to an appropriate level of schedule development. Key factors to consider include:
- Schedule levels that support an accurate calculation of the critical path
- Schedule levels that ensure accurate work completion status information
- Schedule levels that provide the lowest level of management on a project with sufficient visibility of planned project work and status

Question: A complete project plan includes management methods, what methods would you include in your project plan?

Answer: A number of management methods should be included in the project plan and common methods include:
- Risk management reviews
- Budget management approach

- Schedule management methods including status information collection and reporting
- Internal project reviews
- Subcontractor management approaches
- Customer communication and reviews
- Change management approach

END of PROJECT PLANNING TUTORIAL

These notes are provided for the sole purpose of education and are not to be sold or used for any other commercial purpose without the documented permission of the contact at www.manageprojectsbetter.com