4 PLANNING THE PROJECT

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Developing the Work Breakdown Schedule

A sound project plan must account for each task and sub-task required to reach the project objectives; achieving only part of the project's stated goals is not sufficient. Identifying tasks and who is responsible for each task clarifies the role of each team member, while giving them the chance to further define what is required for completing their specific job(s).

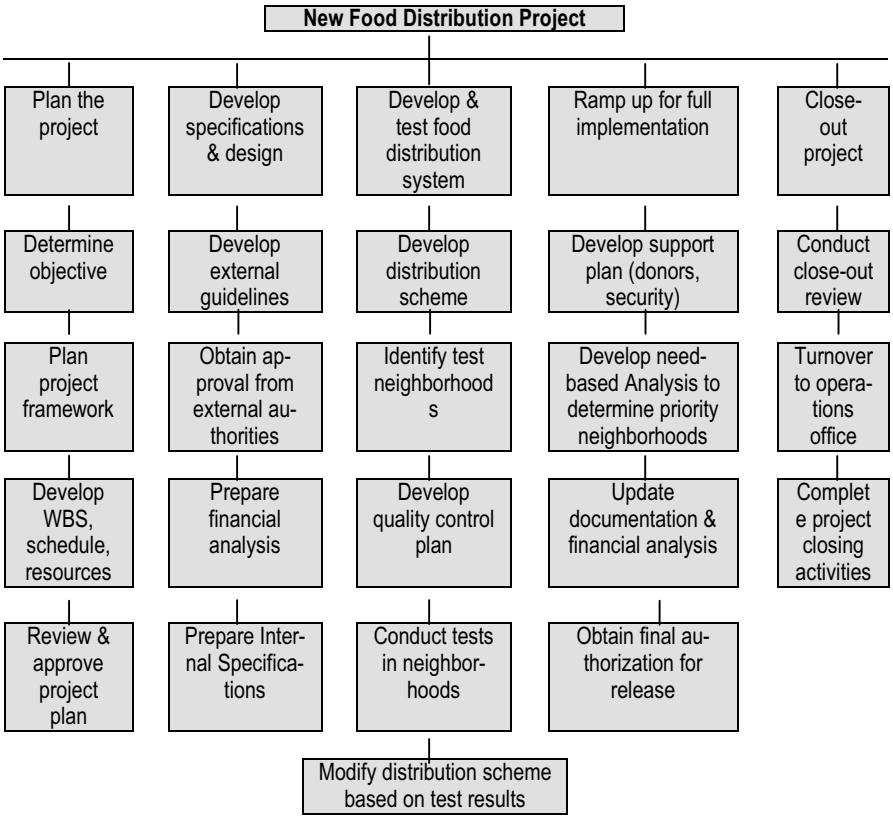
The *Work Breakdown Schedule* (WBS) is the most important project management tool and is the basis for all other project management planning. It is a structured way of breaking a project down into its various components.

Key questions to ask when developing a work breakdown schedule are:

- Are all the tasks identified and do they have ownership?
- Are all they tasks assigned to the best-qualified team member(s) for that task?
- Are often-forgotten tasks such as planning the project, approval cycles, testing, printing, etc. included?
- How long will the tasks take? Hours? Weeks? Days?

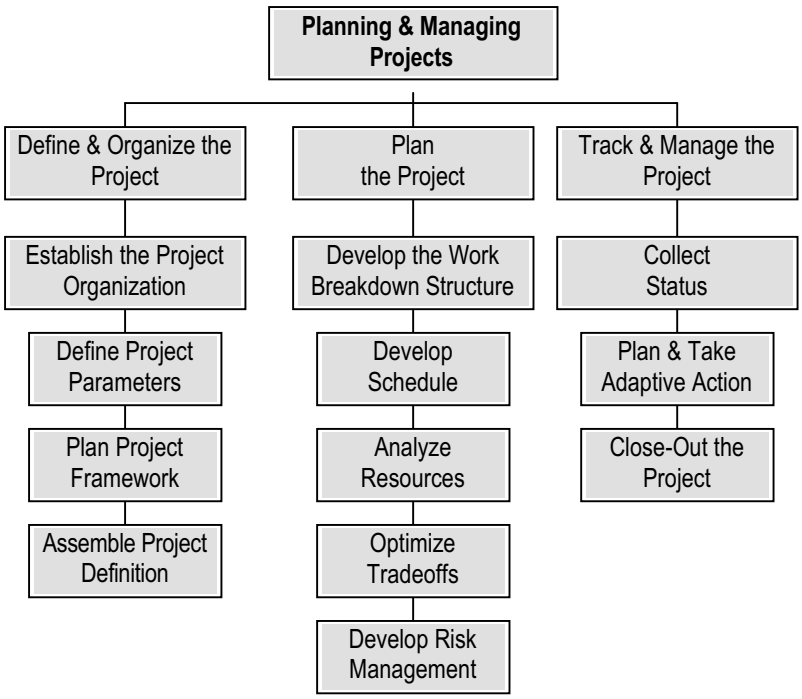
[1] See footnote page 3.

Sample Project WBS



A good way to start identifying tasks is to gather the team in one room for a "brainstorming" session, in the kick-off meeting. Have each member write down as many tasks as they can think of. Try to get it down to the lowest effective task level. At the same time the team is helping to generate tasks and related ideas, they will develop a better understanding of their role(s) vis-à-vis the project. Moreover, as the team members are being asked to think and give ideas, trust and esprit d'corp will be developed between the project manager and the team as well as between the team members themselves. As each task is identified and agreed, a team member will be assigned responsibility for each task.

Life Cycle as WBS



Developing the Project Schedule

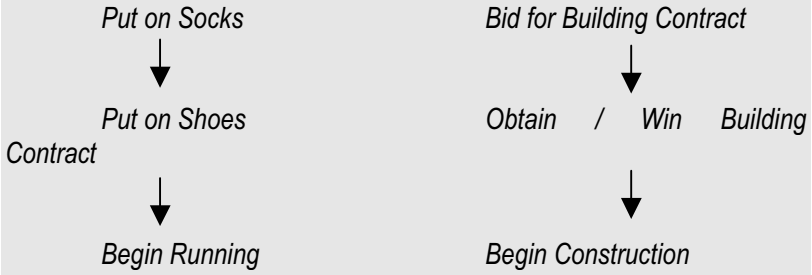
In most project situations the question "When will the project be completed?" is the primary concern of stakeholders and the project team alike. Developing a schedule in a disciplined, systematic manner is likely to be both predictable and reality-driven. Credible schedules support good project management by highlighting those tasks and task-related decisions that must be made or reached within a given period of time. While planning is the road map to success, schedules dictate how long it takes to get there.

A schedule is created from two primary factors:

- Logical relationships between tasks or sub-tasks (called dependencies)
- Time estimates for each task

Logical relationships are the sequence or flow of work in the project. They are usually displayed in a dependency diagram.
Breaking down projects into the lowest level tasks in a sequential way is central to schedule development. Moreover, the logical sequencing of tasks and sub-tasks gives ready insight as to what work has been left out of the original plan. When such omissions are discovered, the project team can return to the WBS stage to further define what tasks are required, with these tasks then incorporated into a revised schedule.

Examples of Dependency / Sequences



Logical Relationships

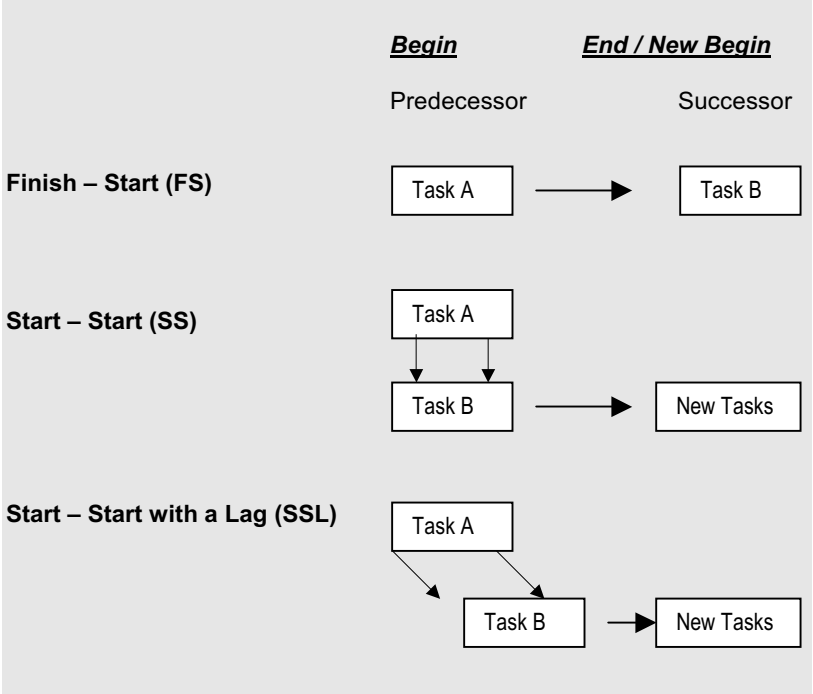
Three common and useful types of logical relationships are:

- **Finish-Start (FS)**: In this common relationship, a new task cannot begin until the task preceding it has been completed. For example, a teacher cannot grade a paper until it has been turned in to the teacher.

- **Start-Start (SS)**: In this relationship, work on one task cannot begin until work on another related task has begun. However, once that related task work is begun work on the second task can begin and continue in parallel with the related task. For example, a list of potential donors to approach as funding sources is under development, yet, once a name is placed onto the list research can begin into that donor while new donor names are being added. Without the first donor name being identified, no research could begin.

- **Start-start with a Lag (SSL**): In this relationship, wherein a lag represents a delay between tasks, one task begins while a second task begins only when the first task reaches a specific enabling point. For example, imagine a firm that is developing a new software system to monitor financial records. Before software development can begin, however, a hardware design is required. As

soon as that hardware design is finished, the software design can begin in parallel with the creation of the actual hardware system.



Milestones

A *milestone* refers to a specific date and generally refers to key points or events in the project lifespan. Milestones are important because they typically represent the end point for a series of dependent tasks and thereby give insight as to project status vis-à-vis existing plans and schedules. Milestones are useful markers as they focus management, related stakeholders, as well as the project team upon key macro-level project tasks.

Examples of milestones:

- Start and Finish of a project
- Receipt of funding
- Completion of major deliverables
- Formal reviews or draft reports
- Training
- Testing
- Government approval
- Customer acceptance

If the project is achieving its milestones in accordance with scheduled dates, that is an indicator that the project is going well. However, if milestone date slippage occurs, that signals to

management and the project team that problems are present either in project planning – unrealistic plans and schedules – or implementation.

Estimating Task-Length

Estimating how long a task will take to complete is often a contentious area of project planning. A good approach to estimating task or subtask length is to develop an initial WBS using *historical* experience and trends (per task type) to quickly approximate task duration. While estimates are sufficient initially, further refinement of task length estimates throughout the project's lifespan are critical.

Historical data should be used to glean insight into how long tasks have taken previously. A situation might arise wherein a senior manager thinks the project team can complete a specific task within two months. Yet, the project manager's review of historical data reveals that similar tasks have typically taken four months. After determining that the previous tasks were handled properly, the project manager must relate this information in a cogent, concise manner to management. This will both adjust management to project task reality while ensuring a credible schedule.

Gantt Charts

A *schedule* is created by superimposing the dependency diagram, inclusive of task length estimates, on a calendar or time line. An efficient and common way of doing this is by creating a *Gantt Chart*. A Gantt Chart shows tasks in time and is easy to develop, read, and understand. Gantts can be created by hand by drawing in the tasks in sequence for the defined durations and drawing in lines to indicate the dependencies against a time line. They can also be created used specialized software programs such as *Microsoft Project Manager*.[2]

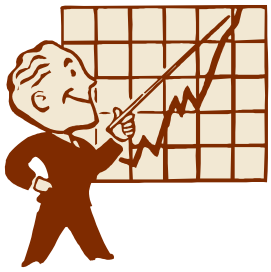
ID	**Task Name**	December		January		February		March	
		12/12	12/26	01/09	01/23	02/06	2/20	03/-5	
1	Design Subsystem 1								
2	Develop Subsystem 2								
3	Manufacture Subsystem 1								

[2] The following is an example of a Gantt [redacted] nstructed wit h Microsoft Project Management.

4	Test Subsystem 1				
5	Install Subsystem 2				

Analyzing Resources

"I need more resources!!!"



Adding resources – human, financial, or material – rarely improves project performance. Instead of raising the resources alarm, project managers need to *analyze* their actual *resource requirements* and develop a detailed picture of what the status of resources is and what can be done to improve existing resource performance and enable more *effective* resource related decision-making.

Key questions:

- Is one resource carrying too much of the task load?
- Do any resources have capacity not being used?
- What resources are impacted by parallel work?
- Are team members trained to perform the work?
- Is the right equipment being used?
- Is the right work process being used?
- Can new resources be identified?

The Gantt Chart can become central to analyzing resource issues; it indicates whether the same person or piece of equipment is the owner of multiple tasks as well as whether the same person owns several parallel tasks. It also indicates what resources are not being assigned tasks.

Optimizing Tradeoffs

The main motivator for implementing project management is to enable more effective decision-making by providing key management with the information they need to make informed – sometimes difficult – decisions. At the heart of successful project management lies the fact

that it is almost always necessary to give up something to achieve an optimum overall result in light of existing constraints and project environment realities.

Key Questions:

- Is the project or task / task-owner within the bounds of the POS?
- Is it possible to reduce the scope or change task sequence?
- Is it possible to enhance resource performance or obtain additional resources?
- Are there new or alternative work processes that can further optimize time and resource use?

If new methodologies or procedures are introduced, they must be made transparent to the project team, relevant management, and possibly additional stakeholders. The way in which trade-off optimization is made will differ dependent upon organization type, project type / purpose, and personnel involved. Yet, the concept – enabling informed decisions – will remain constant. Some potential trade-off decisions may be:

- Reduce or eliminate one or more major deliverables
- Change the sequence of work
- Develop new ways or adopt alternative ways to perform work
- Change the resource mix
- Accept the new project parameters

Maintaining a Strategic View

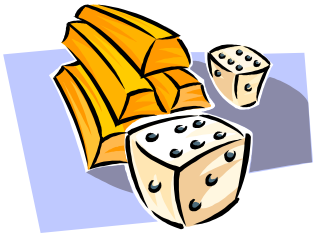
The project manager definitely has to worry about the minutest of project details. But at the same time, the project manager must be able to maintain and channel the project in line with the initial project vision (POS) and organizational objectives. Strategy is the vision, it lays out what is to be accomplished and the basics of how to get there. Tactics are the actual steps, the process, of achieving strategic vision. A successful project manager will employ tactics that are in line with and support project strategy.

The essence of effective optimization is examining the entire project plan and developing creative means for making it more efficient. Virtually anything about a plan can be changed, but the changes should be done in a ***systematic*** way, ***visible*** to all project participants. Analyzing

and assessing project plans and schedules and subsequently developing "what if?" scenarios (multiple scenario analysis) will go a long way to achieving efficiency in trade-off decision-making.

Developing Risk Management Plans

All projects, as with all aspects of life, contain elements of risk. Yet, despite this fact, many project planners either ignore or do not put sufficient effort into identifying, understand and mitigating risks. This often proves disastrous.



When asked at project onset, most team members can identify risks to project success. Also, often following unsuccessful or failed projects, team members can identify that the reasons for failure was known prior to project onset but no mitigating action was taken. People – managers, team members, stakeholders – are aware that project risks exist but are rarely willing to proactively manage them.

Causes

This phenomenon of no or little risk management is due to a variety of factors. Some causes might be:

- Willing state of disbelief "It won't happen to me"
- Perceive little or no time to identify, understand, and manage risk
- Perceived ability to overcome risks as they occur "the ad hoc approach"
- People dislike proactive – or any type of – risk management

Components

Risk management is broken down into two components. Risk assessment occurs first, followed by the actual risk management. They are defined as follows:

Risk Assessment
The project team quickly brainstorms possible risks to the project, then rank orders each risk by priority, likelihood, and potential result (if risk occurs). Focus is typically given to the top 2-5 risks (possibly more) dependent upon the size of the project and the project environment/ context. A risk management plan is then created or outlined for each of the top risks. In risk assessment, one looks over historical data to see

how much the average project deviates from initial expectations. In business, for example, one produces output, may have to from the work force; one must know how long he can sustain that. If at a certain point one cannot sustain if he has to shut down the business. In a humanitarian development project, one is not only talking about closing down a business but has to consider the impact this may have on all the people involved.

Risk Management

Plans that detail various alternative or parallel actions to be taken to reduce risk probability (preventive actions), and actions to be taken if the risk happens (contingency plans). Preventive actions may require that additional tasks be added to the project plan. Contingency plans require a "trigger" that sets the contingency plan into effect. An example might be that a contingency plan will go into effect when financial resources fall below 70 percent of what was originally planned. Thus the 70 percent point is the trigger; if finances fall below 70 percent the contingency plan is implemented.

Project Parameter	Potential Problem	When & How It Could Occur	Alternative Action	Owner of Action (member responsible)
Quality				
Budget				
Schedule				
Stakeholder Impact				

Key Questions:

- Have risks to the project been identified?
- Have they been defined by priority?
- Have actions been taken that reduce the probability that a risk will occur?
- Are there contingency plans if the risk actually occurs?
- How will you know if the risk has occurred?

- What is going to put your contingency plan into action?
- Who is responsible for managing project risks?

Risk Assessments and *Risk Management Plans* are written up and included in the project file, likely as an attached appendix to the PDD. Also, a team member is typically given the task of monitoring those factors that influence the contingency plan triggers. If a trigger point is reached, the team member will alert the project manager who will then implement the requisite contingency plan.

Everyone has a part to play in risk management, from the lowest level employee on up to the organization's top manager. In a project environment, the project manager – in conjunction with the team – will be responsible for identifying and managing risk. In a larger project team, a team member may be assigned the specific task of monitoring risk. Risk management procedures may also be dependent on the project's organizational structure. For example, in a matrix organization with a functional structure, you could have within each functional stream one person to assess that specific functional risk. One person could be for financial risk, another could be for management risk, and another one could assess political risk.