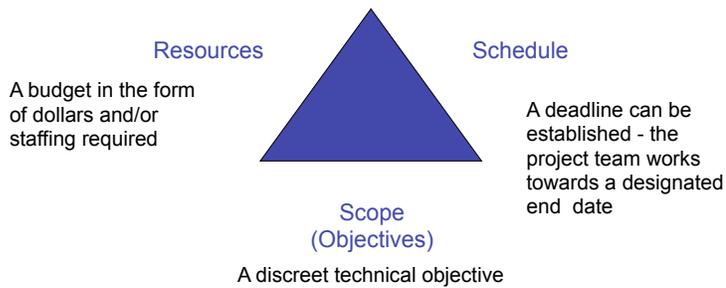


Basic Project Management & Planning

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What is Project Management?

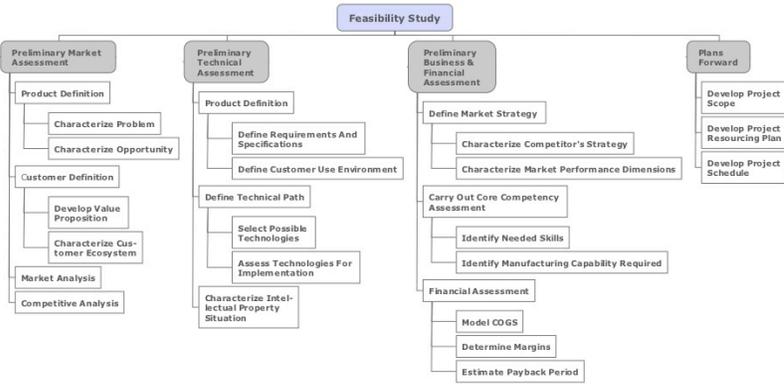
- A set of principles, methods, tools, and techniques for the effective management of objective-oriented work in the context of a specific and unique organizational environment.



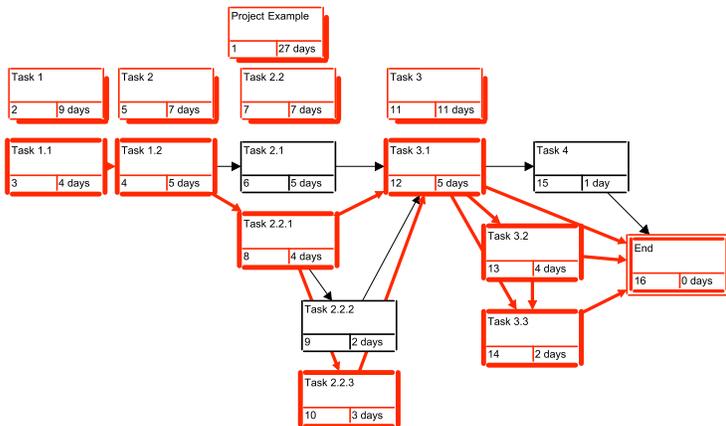
Project Management Process Tasks

- Assembling a project team with the required expertise
- Defining the project scope and objectives
- Planning
- Managing scope changes
- Controlling the project

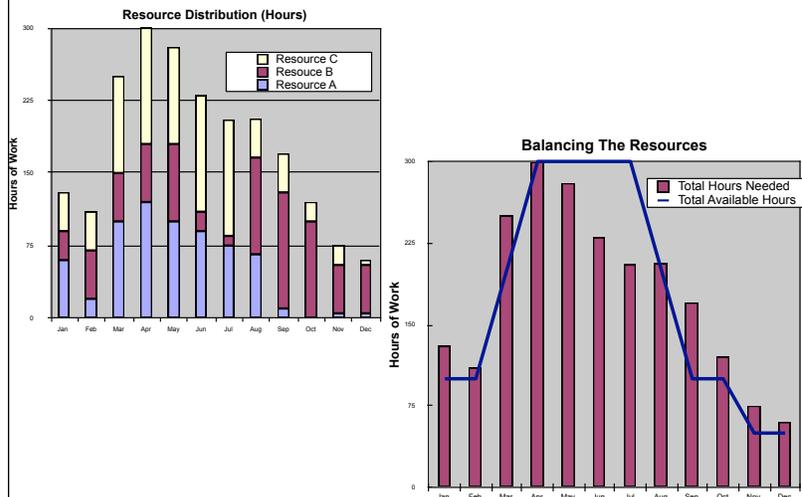
Partial Work Breakdown Structure for a Feasibility Study



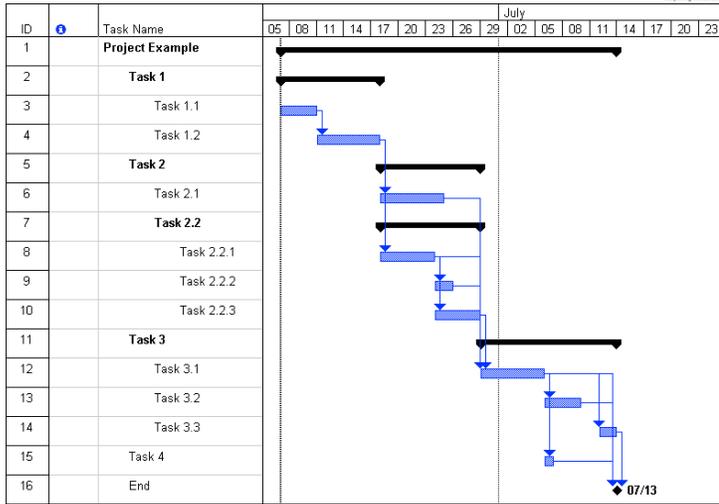
The Network Diagram



Resource Balancing



The Gantt Chart

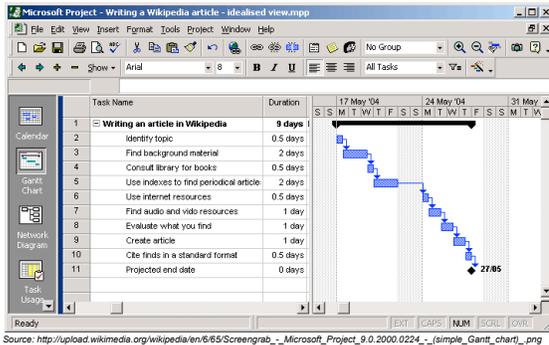


Project Management – Gantt Chart Assignment

Notes on symbology for your Gantt chart (commonly seen):

- **Horizontal bar:** shows task duration
- **Horizontal or Vertical lines with arrows:** connects task precedence
- **Diamond:** key milestones
- **Indentation of tasks:** visually separate stages/phases of work

MS Project example →



Source: http://upload.wikimedia.org/wikipedia/en/6/65/Screengrab_-_Microsoft_Project_9.0.2000.0224_-_simple_gantt_chart_.png

Project Management Terms

- **Task** – a piece of work to be undertaken.
 - **Duration** – estimated start and end date.
 - **Predecessor** – what tasks must be finished prior to it starting.
 - **Successor** – what tasks may started after the task finishes
- **Deliverables** – tangible outcome produced by the project.
- **Milestones** – a significant accomplishment in the project.
- **Resources** – assets (people, equipment, etc...) required for the project.
- **Loaded Cost** – the per hour resource cost.
- **Critical Path** – the sequence of tasks (usually a subset of all the tasks) that must be completed schedule for the entire project to be completed on schedule.
- **Baseline** – the original project schedule and resourcing (cost) with which the current status of the project is compared.
- **Gantt Chart** – visual PM representation. Bar chart showing tasks, start/end dates, predecessors, successors, resources, critical path, etc... Living document as a project moves forward (ie – input to Status Reports).

Project Risk Analysis and Management

- **Risk** is the (usually unknown) event or factor that leads to a changed or different outcome.
- **Uncertainty** is the range of outcomes that are possible, given the existence of risk.
- **Chance** is the uninfluenced possibility of a change in the expected outcome.

- “When you play a game of **chance**, the **risk** of losing is high because of the high degree of **uncertainty** of the outcome.”

Hartman, F.T., "Don't Park Your Brain Outside", Project Management Institute, 2000.
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Risk Analysis

- Risk analysis is about understanding what needs attention
- Basic Steps for Risk Analysis
 - Identify the potential risks
 - do not rely on checklists alone, consult the team, talk to experts.
 - Assess their impact
 - how probable is the risk?
 - The simplest categorization is high or low
 - what are the possible range of outcomes
 - outcomes most commonly considered include cost, work effort required, elapsed time and acceptability of end product
 - what would be the impact of the outcomes?
 - Develop strategy and tactics for dealing with them
 - risk management
 - dealing with the risks
 - avoiding unacceptable risk events, particularly the high impact ones.

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Risk Types

- Business Risk
 - Market
 - Financing
 - Shareholder
- Technological Risk
 - Robustness
 - Complexity
 - Ownership
- Societal Risk
 - Environmental
 - Socioeconomic
 - Political
- Project Delivery Risk
 - Duration
 - Size of Project
 - Complexity
 - Definition and Volatility

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Specific Project Risk Factors

- **Schedule**
 - Tasks on the critical path
 - Task that have several predecessors
 - Tasks that have minimal floats
 - Optimistically estimated tasks
 - Tasks reliant on external dependencies, such as vendor shipments
 - Major milestones
- **Resources**
 - Tasks with one individual working alone
 - Tasks with many people assigned
 - Tasks using scarce resources
 - Underskilled or unqualified people
 - Illness and turnover
- **Budget**
 - Uncertainty of funds
 - Shifts in budget priorities
 - Uncertain resource costs
- **Scope**
 - Uncertainty of new product development
 - Dynamics of customer requirements
 - Availability of tools and/or techniques
 - Large number of defects

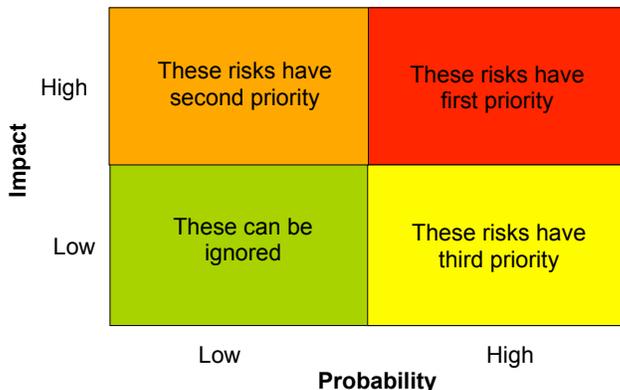
Bitz, I., and Knutson J., "Project Management", AMACOM, NY, 1991.

Sensitivity Analysis

- **Sensitivity of the Financial Model**
 - build a financial model of the project
 - forecast future outcomes of the project investment by changing one variable at a time and observing the change in outcomes forecasted
 - the factors that produce the largest change in outcomes, and are most probable, represent the risk factors that need attention.
- **Sensitivity of the Risk Model**
 - look at what could go wrong and assess the impact of that event on the project.
 - Develop alternatives for high probability, high impact risks.

Hartman, F.T., "Don't Park Your Brain Outside", Project Management Institute, 2000.

Simple Risk Assessment Matrix



Hartman, F.T., "Don't Park Your Brain Outside", Project Management Institute, 2000.

