
Advanced Topics in Project Management: Control, Procurement and Human Aspects

By

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any topic presented in this seminar.**

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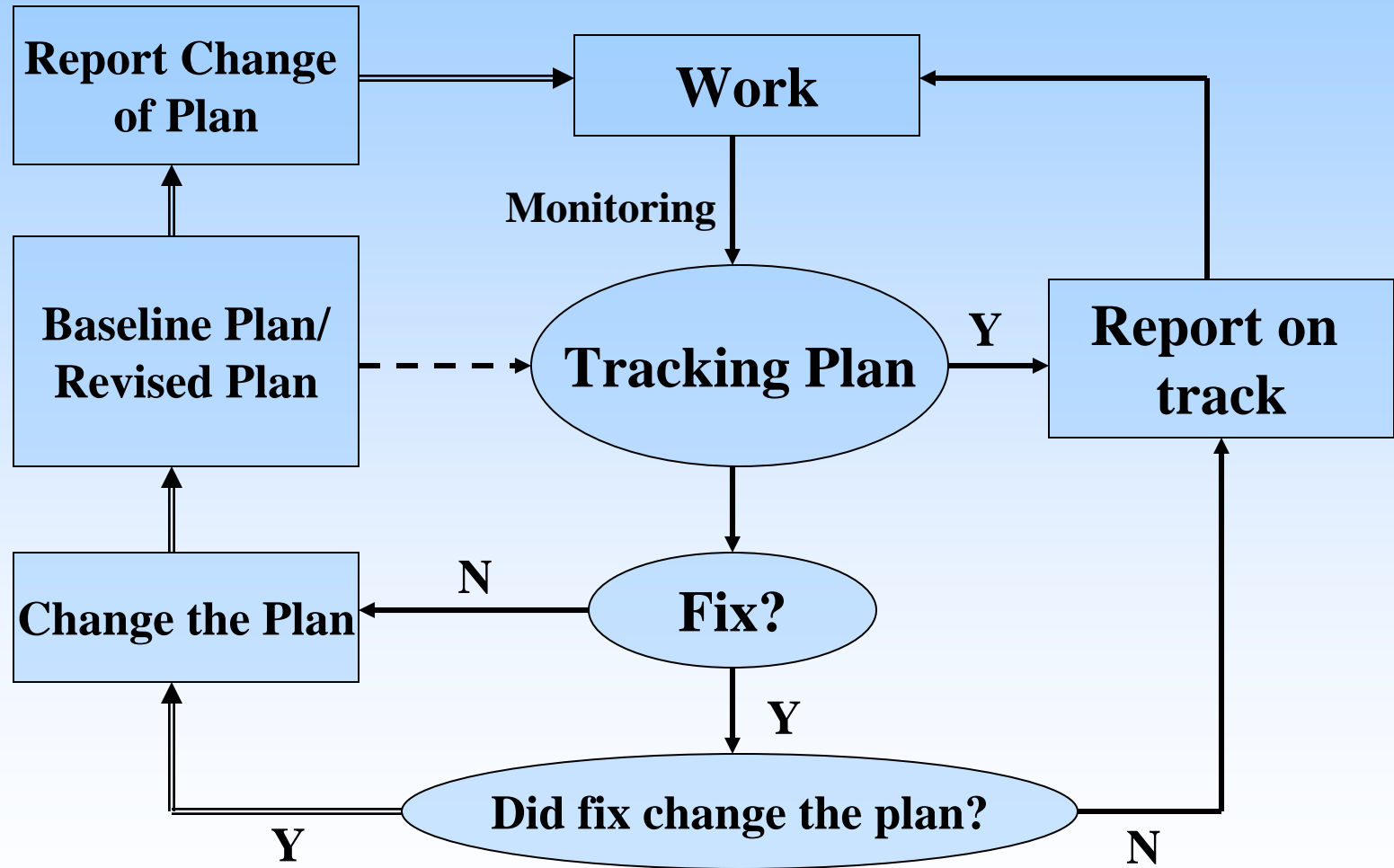
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Project Management

Module 1

Scope/ Time/ Cost Control

Scope/Time/Cost Control



Scope/Time/Cost Control

Three steps of control:

1. Monitoring

Formal and informal methods for getting truthful information about project progress.

2. In the case that the project is off plan, determining whether or not there is a problem (deciding the degree of panic required).

3. Reacting to the problem (before the project gets out of control):

This may be a physical fix or a change in the plan. If the latter option is taken, all the stakeholders must be warned – (see *Project Communication Management*)

- Control is never draconian.
- Control is management by exception.

Project Control - Monitoring

Should be possible by ALL Stakeholders

Mostly by PM and Client

How does PM/Client Monitor?

Formal

- Attend team meetings, reviews
- Receive status reports (communication)

Informal

- Pizza, beer, hang around watercooler and corridors
- Intuition: informal chats

You need intuition because you can't believe everything you hear or read.

Other Monitoring Meetings

Project (Manager's) Review Meeting

- **Project Manager meets with each Team Leader(s); Possibly other involved functions**
- **Client may attend (formal invitation)**
- **Predefined agenda and minutes/report:**
 - **Project Status & Metrics**
 - 1. Deliverables made vs. scheduled**
 - 2. Review work in progress**
 - 3. Work packages accomplished vs. scheduled**
 - 4. Actual effort on current and closed work packages vs. plan**
 - **Schedule Status**
 - **Review of effort on WBS items vs. plan**
 - **Actual and projected staffing profile vs. plan**

Other Monitoring Meetings

Project Manager Review Meeting (Continued)

- **Team Performance**
 - **Internal - on time for deadlines**
 - **External - turnaround of customer requests**
 - **Team ability**
 - **Risk review: status of known risks, analysis of new**
 - **Review of engineering strategy plans**
 - **Review of issues from Project Meetings**
 - **Review of issues from other meetings, e.g., with client**
 - **Objectives for next period**
 - **Review of action items**
 - **Review of decisions**
 - **Next meeting**
-
- **THE MINUTES OF A CONTRACTOR'S PROJECT MEETING MAY BE A CONTRACT DELIVERABLE (in CDRL)**

Project Control

Two Very Important Meetings

Project Kickoff Meeting:

- ***Part 1: (General) Attendees: All team members plus Stakeholders (Vendor, PM, Client)***
 - **Introductions**
 - **Goals**
 - **Provide History**
 - **Roles, Structure, Contacts**
 - **Standards, Guidelines**
 - **Set up 'Functions' team**
 - **(High level) Schedules, budget**
 - **Establish mood of enthusiasm**

Project Control

Two Very Important Meetings

- **Project Kickoff Meeting:**
- ***Part 2: (Technical) Implementation Team(s)***
 - **Look at Requirements, Specs, SOW, CDRL**
 - **Design standards**
 - **Rules, Procedures**
 - **Reporting**
 - **Training requirements**
 - **Problem areas**
 - **Risks**

Post Project Review (and Post Project Report Audit/Lessons Learned)

Topics

- **History (report only)**
- **Description**
- **Estimates vs. Actuals**
- **Control methods; Status reports/Gantt's**
- **Evaluations**
- **Risks**
- **Successes/Failures**
- **Reusability**
- **Recommendations**

Why have one?

Constructive criticism

Document the experience

Who attends?

Part 1: Client, Project Team

Part 2: Project Team (if there was a client problem)

Project Control - Monitoring

Monitoring by Team Leader

- *How Much? Depends on*
 - **Project complexity**
 - **Worker expertise**
 - **Module/people interfaces**
 - **Workers' egos**
 - **Listen (as well as talk)**
- *How often?*
 - **Constantly informally**
 - **Weekly Status meeting**

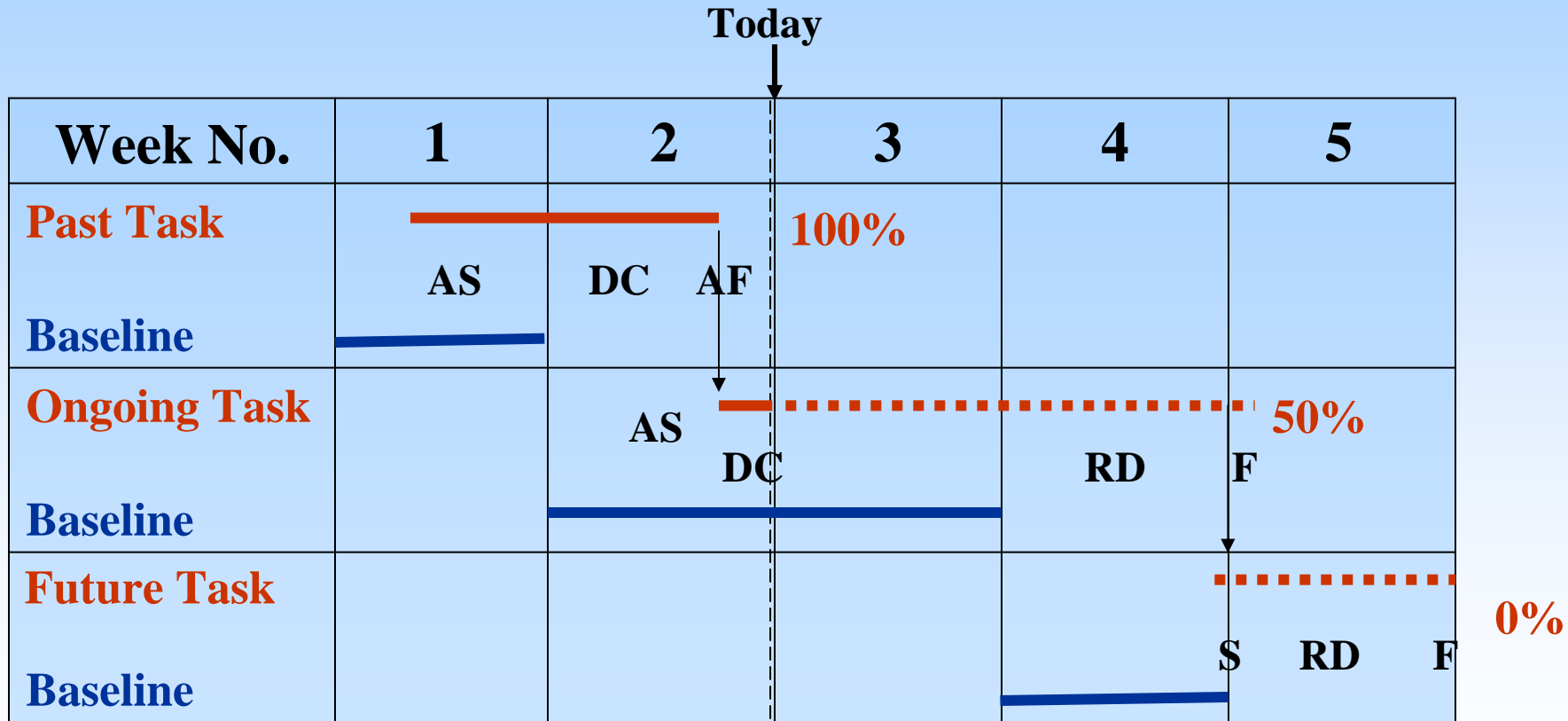
Project Control - Monitoring Steps

Step 1 - Take a baseline.

- **Baseline plan: a copy of the plan (WBS with all dates, assignments, costs).**
- **Used to report progress against the baseline.**
- **Taken at a mutually agreed upon planning point:**
 - **Proposal or Analysis completion**
 - **+25% to -10% stage**
- **Baseline is (theoretically) not alterable**
- **Unless major scope change occurs.**

Project Control - Monitoring Steps

Tracking Gantt to report



Project Control - Monitoring Steps

Step 2: Items to monitor

- **Track: (Versus Baseline):**
 - **Time: Actual Start, Finish, or % complete.**
Duration complete, remaining duration
 - **Work: Actual work, remaining work**
 - **Cost: Actual cost, Remaining cost**
- **Replan if necessary:**
 - **Duration, or remaining duration (or end date)**
 - **Remaining work**
 - **Remaining cost**

STEP 3: Report: see Project Communications

Monitoring Methods

Team Status Meeting

- **Team, TL**
- **Objective**
 - **Gather information (verbally)**
 - **Force people to report in front of their peers**
 - **Discussion: Accomplishments**
 - **Work packages**
 - **Action items**
 - **Technical issues**
- **Frequency depends on Scope: Weekly is common**
 - **toward the end of the week**

Module 2 - Procurement

Overview

Project Procurement management (PPM) is the process of acquiring goods and services from outside the performing organization. - *PMBOK*

Procurement

Basic steps

- 1. Procurement planning - planning what to procure and when**
- 2. Solicitation planning - document product requirements and potential sources**
- 3. Solicitation - publishing an RFP, obtaining proposals**
- 4. Source selection - choosing a bidder**
- 5. Contract administration - managing the project and the relationship**
- 6. Contract close-out - settlement, final payment, review**

Procurement Planning

*To Procure or Not to Procure?
That is the question
Build vs Buy*

- **Have we analyzed all make/buy/rent options (cost/benefit)**
- **Can we do it in-house?**
- **All or part?**
- **Will confidential knowledge get out?**
- **Do we have the procurement knowledge?**
- **Are there appropriate vendors?**
 - **Do products exist as-is?**
 - **Can products be modified?**
 - **Will users modify requirements to suit?**

Procurement Planning

Contract Type	Risk (to buyer)	Risk (to seller)	Cost
Fixed price	Low	High (depends on quality of requirements)	High
Fixed price with escalation	Low	Medium (escalation due to scope changes)	Medium
Fixed price with penalty/incentive	Medium-low	Medium-low	High
Cost reimbursable (Time & Material)	High	Low	Medium

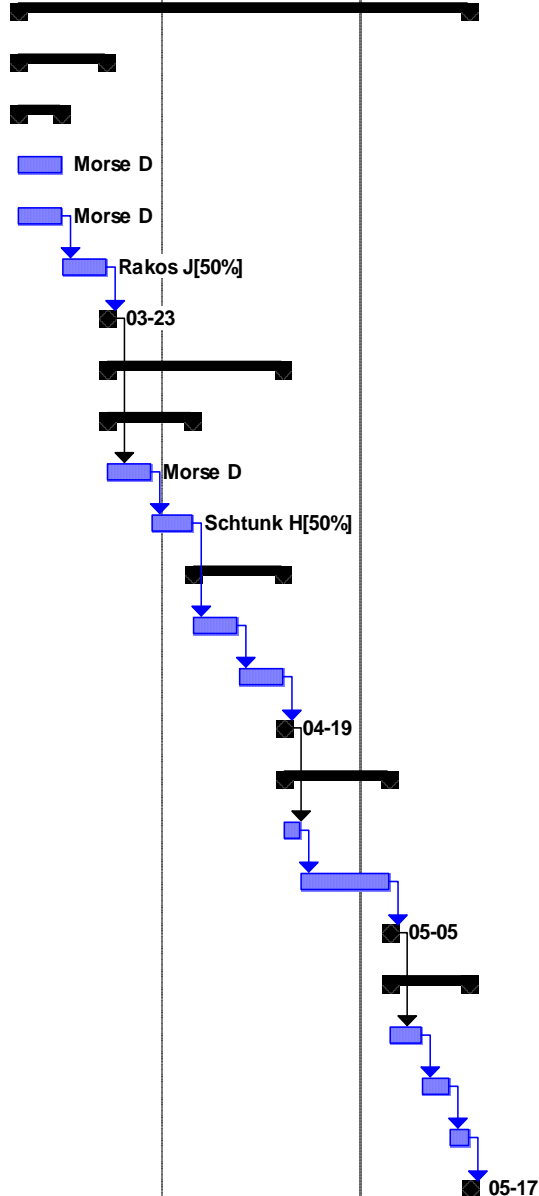
- Others:**
- Cost plus fixed fee/percentage
 - Cost plus incentive fee
 - Cost plus with ceiling
 - Cost Plus or Fixed with Bonus
 - Joint profit

Five Guiding Principles for Government Contracting

- Equality
- Fairness
- Accountability
- Transparency
- Probity

WBS and Schedule for Procurement

ID	WBS	Task Name	Duration	Predecessor	February			March			April			May			June			July				
					07	14	21	28	07	14	21	28	04	11	18	25	02	09	16	23	30	06	13	20
1	1	Y2K for DFO Contract	52 days																					
2	1.1	Requirements	10 days																					
3	1.1.1	Analyze needs	5 days																					
4	1.1.1.1	Interview clients	5 days																					
5	1.1.1.2	Read documents	5 days																					
6	1.1.2	Write SOW	5 days	5																				
7	1.1.3	SOW Approved	0 days	6																				
8	1.2	RFP	20 days																					
9	1.2.1	Develop RFP	10 days																					
10	1.2.1.1	Write document	5 days	7																				
11	1.2.1.2	Approved by Director	5 days	10																				
12	1.2.2	RFP on Street	10 days																					
13	1.2.2.1	Bidder's conference	5 days	11																				
14	1.2.2.2	Handle questions/updates	5 days	13																				
15	1.2.3	RFP Closed	0 days	14																				
16	1.3	Proposals	13 days																					
17	1.3.1	Open proposals	3 days	15																				
18	1.3.2	Evaluate proposals	10 days	17																				
19	1.3.3	Vendor chosen	0 days	18																				
20	1.4	Contracting	9 days																					
21	1.4.1	Vendor meetings	3 days	19																				
22	1.4.2	Write contract	5 days	21																				
23	1.4.3	Award contract	1 day	22																				
24	1.5	Project completed	0 days	23																				



Solicitation Planning

Evaluation Criteria (Published in RFP)

- **Type 1: Detailed evaluation of precise attributes (e.g., for physical product such as the purchase a Work Station)**

Function	Score	Weight	Total
Network Card	Mandatory		
1G RAM	10		
2G mhz CPU	8		
100G disk	8		
Dual core	6		
DVD R/RW	4		
Grand Total			
Cost			
Cost/Point			

Cost may be treated as an evaluation item if:

- 1. The proposals will be similar in cost**
- 2. Cost is not an issue**
- 3. Cost will not be treated linearly (1/2 the cost does not imply half the score)**

Solicitation Planning

Evaluation Criteria

- **Type 2: Detailed based on imprecise attributes (e.g., purchase a software package)**

Function	Score	Weight	Total
Performance			
Growth			
Reliability, availability			
etc.			

Solicitation Planning

Evaluation Criteria

- **Type 3: Generic evaluation (e.g., contract project team, process, consultant)**
 - **PM must have x years documented experience; PMP**
 - **Understanding of needs**
 - **Technical capability**
 - **Management approach**
 - **Financial capacity**
 - **Cost**
 - **References**
 - **Etc.**
- **Your ‘gut feeling’ in an interview**
 - **Can you defend the decision in a court?**

Solicitation Planning

- **Rank by Total Score; if cost is an issue, then Cost/Point.**
- **Factor in:**
 - **Their Project Management**
 - **Communication**
 - **Quality Assurance**
 - **Methodology**
 - **Risk management**
 - **Also**
 - **Type of contract**
 - **Terms and conditions/legalities**
 - **Support/warranty**
 - **Client furnished equipment and other responsibilities and dependencies**
 - **Change management and escalation**
 - **Compensation if late**
 - **Payment**
 - **Insurance**

Solicitation Results

Proposals: Vendor's Considerations

- **Preparation**
 - **Take the time to do it right**
 - **Treat it as a project: PM, team**
 - **Follow the structure of the RFP**
 - **Can you have informal contact with the client?**
 - **Present formally**

Solicitation Results

Proposal Outline

- 1. Cover Letter (main points: cost, schedule, sell, close)**
- 2. Title Page**
- 3. Table of Contents**
- 4. Scope**
- 5. Advantages (why choose us)**
- 6. Financial (how the cost and delivery date was determined, payback)**
- 7. Project Plan (major steps, how the client fits into each step)**
- 8. Deliverables**
- 9. Acceptance**
- 10. Alternatives (why other solutions (competitors) should not be chosen)**
- 11. Terms, Conditions and Assumptions**
- 12. Terminology (if non technical reader)**

Source Selection and Contracting

Selection: Use Evaluation Criteria

- **Screen out non compliant bids (some aspects not addressed at all)**
- **Lowest price may not be the best value. You get what you pay for!**
- **May divide the deliverables and use more than one vendor**
- **You do not have to pick one (e.g., even lowest bid is too expensive)**
- **Check references, certifications**
- **Award notice; brief the losers as well**
- **Anticipate bid protests (e.g., COREL)**

Contract Administration

Manage it as you would any other Project

- **The contract is managed at two levels**
 - **Contractor does (internal) project management. Buyer is key client/stakeholder.**
 - **Buyer manages seller's project (external), using milestones, reviews, reports.**

- **Ask for (in contract) and respond to**
 - **Progress/status/earned value reports**
 - **Audits**
 - **Quality reports**
 - **If non performance, react as agreed**
 - **Non payment**
 - **Cancellation of contract**

Contract Close-out

Verify all promised items delivered

- **Product, Documentation, Training**
- **Quality of deliverables with formal acceptance**
- **Support (warranty in place)**

Termination

- **Normal completion**
- **Cancelled by buyer (default)**
- **Cancelled by seller (frustration, e.g., failed to provide client furnished equipment)**
- **Mutually for convenience**

Post project Review

- **By contractor with report**
- **By contractor + client with report**

Project Management

Module 3

Project Communication

Project Communication

- **Project Communications Management involves the processes required to ensure timely and appropriate generation, collection, dissemination, storage and ultimate disposition of project information.**

- PMBOK

- **__ % of PM's time is spent communicating.**
- **Communication Planning: *Who* needs *What* information,, *Where*, *When*, and *How* (what method will be used).**

Project Communication

WHO?

- **Who must you communicate with?** All stakeholders
- **Challenge #1: stakeholders change, so communications must change.**
- **Challenge #2: N people have $N * (N-1)/2$ lines of communication.**

WHAT?

- **Project progress (cost/time/quality, trend/forecast)**
- **Resource usage**

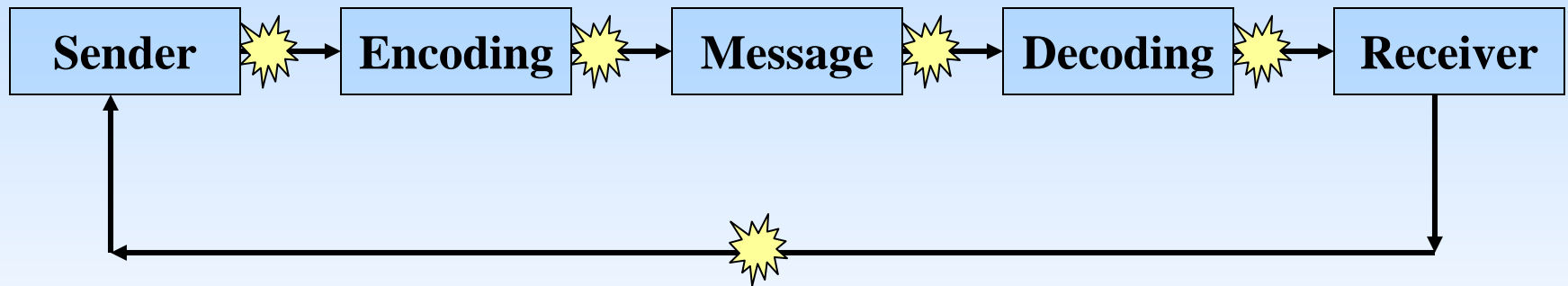
Project Communication

HOW?	Technology	Use with Stakeholders	Message
	Conversation (face to face)		
	Conversation (phone)		
	Meetings/ Video Conf.		
	Memo/ Letter		
	Document		
	E-mail		
	On-line availability of info: Database /Internet		
	Fax		

Project Communication

Avoiding Miscommunication

A Communication model:



 **Filters!**

Project Communication

Filtering Phenomena! (What I meant was not what I said and definitely not what you understood...)

- **Filtering phenomena**
 - **Language**
 - **Culture**
 - **Semantics**
 - **Intelligence/knowledge**
 - **Message content**
 - **Ethics**
 - **Reputation/authority**
 - **Organizational status/position**
 - **Historical considerations**
 - **Clothes**

Project Communication

Method 1: Meetings (Value?)

Running a good meeting

- **Minimize number of attendees**
- **Agenda (with time allotted to topics)**
- **Attendees warned**
- **Good location**
- **Subject matter can be: Feasibility, Plans, Proposal, Specs, Walkthroughs**
- **Keep minutes, action items**

Project Communication

Running a good meeting

- **When?**
 - **Set frequency for**
 - **Team meeting**
 - **Your Steering Committee**
 - **Contractor team status meetings**
 - **Client meetings**
 - **When necessary:**
 - **Milestone**
 - **Start of a major phase**
 - **Reviews**
 - » **Overall approach and plans**
 - » **Functional requirement spec. (SRR)**
 - » **Design Docs, Interface Design Docs, PDR, CDR**
 - » **Work package status**
 - **Major problem**
 - **Project Kickoff and Post Project Review**

Project Communication

Method 2: Reports

Reporting Project Status to Stakeholders

Status Report

- **Author: Project Manager**
- **Objective:**
 - **Allows monitoring by other stakeholders (outside the project team)**
 - **Progress reporting**
 - **History**
 - **Gets client/management off the team's back**
 - **Early warning**
- **Frequency: Have things changed that the world needs to know about? (Weekly or Bi-weekly is common)**

Project Communication

Status Report Contents (1 written page + one MSProject produced page)

- **Page 1: Word process one page**
- **(If you have numerous small projects try a table)**
 1. **Accomplishments past period**
 - **Referring to Gantt (pg. 2)**
 - **Tasks started as per schedule (or not)**
 - **Tasks on-going as per schedule (or not)**
 - **Tasks complete as per schedule (or not)**
 2. **Plan for next period**
 - **Tasks planned to start, continue or complete**
 - **(compare to plan)**
 3. **Problems solved past period**

Project Communication

Status Report Contents

- 4. New problems (point out where Gantt has changed since last report, and keep it to this period only!)**
 - Cause/description of problem
 - Responsible resource
 - Intended solution
 - Project impact
 - *Flag any action required from recipient(s)*
- 5. Time and expenses for period**
- 6. Trend analysis and project forecast**
 - (You know this better than the computer)

Project Communication

Status Report Contents

- **Page 2: Computer produced Gantt chart, showing**
 - **Data date (vertical line)**
 - **(Past) Actual start/finish dates versus baseline plan**
 - **(Future) Rescheduled start/finish dates versus baseline plan**

Project Communication

Other types of Progress Reports

- **Based on deliverables:**
 - **(Contracted) Deliverables**
 - **Against planned schedule dates and durations**
 - **Software: Ensure deliverables are flagged**
 - **Best for reporting to Client**

Project Communication

Example: Progress Report based on deliverables (Client report)

Name	Act. Start	Act. Finish	% Comp.	Act. Dur.	Rem. Dur.	Qtr 3, 1994			Qtr 4, 1994			Qtr
						Oct	Nov	Dec	Jan	Feb	Mar	
Annual Survey Fe	1/10/93	NA	31%	44.46d	100.53d							
Definition	1/10/93	NA	100%	36d	0d							
Project concept	1/10/93	7/10/93	100%	1w	0w							
Requirements Do	11/10/93	22/10/93	100%	2w	0w							
Preliminary Plan	27/10/93	19/11/93	100%	3.6w	0w							
Resources appro	NA	NA	0%	0d	0d							
Analysis	22/11/93	NA	39%	9.08d	13.92d							
User Prototype	22/11/93	NA	43%	2w	2.6w							
Functional Specs	22/11/93	NA	50%	1w	1w							
Development Pla	NA	NA	0%	0w	1w							
Plan Approved ar	NA	NA	0%	0d	0d							
Design	NA	NA	0%	0d	30d							
Top level	NA	NA	0%	0w	2w							
Medium level	NA	NA	0%	0d	3d							
Low level	NA	NA	0%	0d	3d							

Project Communication

*Based on milestones: Against planned schedule.
(Upper level management report)*

Name	Act. Start	Act. Finish	% Comp.	Act. Dur.	Rem. Dur.	Qtr 3, 1994			Qtr 4, 1994			Qtr	
						Oct	Nov	Dec	Jan	Feb	Mar		Apr
Annual Survey Fe	1/10/93	NA	31%	44.46d	100.53d								
Definition	1/10/93	NA	100%	36d	0d								
Resources appro	NA	NA	0%	0d	0d								
Analysis	22/11/93	NA	39%	9.08d	13.92d								
Plan Approved at	NA	NA	0%	0d	0d								
Design	NA	NA	0%	0d	30d								
Approved	NA	NA	0%	0d	0d								
System Test	NA	NA	0%	0d	10d								
Sign Off	NA	NA	0%	0d	0d								
Acceptance Te	NA	NA	0%	0d	3d								
Sign off	NA	NA	0%	0d	0d								
Operation	NA	NA	0%	0d	20d								
System sign-off	NA	NA	0%	0d	0d								

Project Communication

Communication of issues/flagging

ID	Task Name	Flag	Duration	Start	Qtr 3		1998 Qtr 4			1999 Qtr 1			1999 Qtr 2			1999 Qtr 3	
					Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
1	Telecom Group		160 d	'98 Oct 06	63%											99/02/01 Overall T	
2	Network Projects		160 d	'98 Oct 06	64%												
3	John Rakos		70 d	'98 Oct 12	58%												
4	ATM Implementati	Red	40 d	'98 Oct 12	63%												
5	Novell 5.0	Green	70 d	'98 Oct 12	56%												
6	Jane Blitz		160 d	'98 Oct 06	68%												
7	Server Upgrade	Yellow	80 d	'98 Oct 06	68%											99/03/01	On schedule; over budget
8	Virtual LAN	Green	80 d	'99 Jan 26												68%	
9	Telephone Systems		1 d	'98 Oct 06	0%												
10	PBX	Green	1 d	'98 Oct 06	0%												

Software: use annotations to:

- Detail most important action items
- Resources required
- Notes to yourself
- Status of deliverables
- Anything that needs visibility
- More detail can be placed into 'notes' fields

Project Communication

Project Library

- **Single, central location for:**
 - **History**
 - **Status**
 - **Reports**
 - **Plans**
 - **Issues**
 - **Problems**
 - **Risks**
 - **Minutes**
 - **Memos**
 - **All documentation needed for *managing* the project (basically everything except technical documents)**
- **Used for both Control and Communication:**
- **Everyone can access it.**
- **Keep it in a Public Place!**

Project Management

Module 4

Human Resources

Project Human Resources Management

Processes required to make the most effective use of the people involved in the project. - PMBOK

Challenge: Constantly changing stakeholders:

- **Project team**
- **Client (owner, sponsor, user)**
- **Management**
- **Other functions involved**
- **Additionally: ambiguous roles and responsibilities, multiple priorities**

Project Human Resources Management

Why is it important?

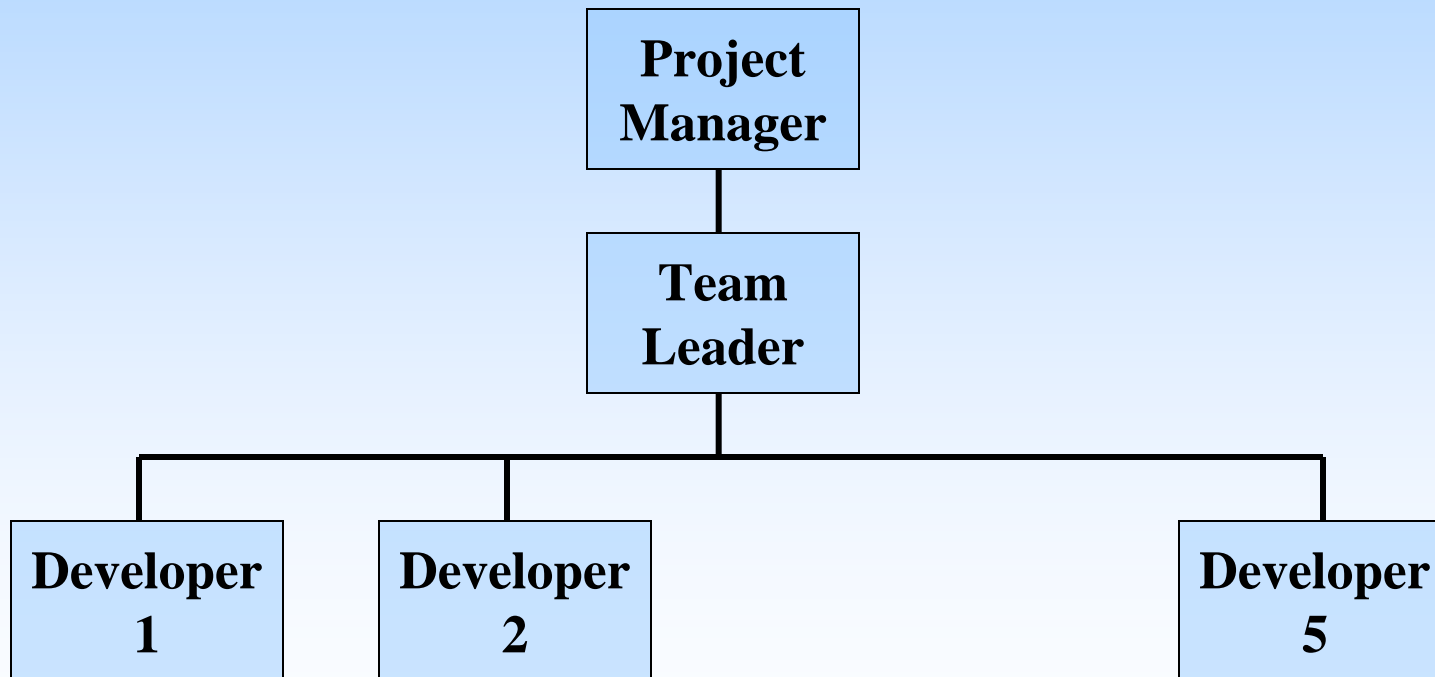
- **Of the projects that fail, 60% fail due to some aspect of HRM.**
- **PM spends 60% of time in HRM.**

Aspects

- **Choosing the right people**
- **Setting up the right organization**
- **Using the right management techniques**

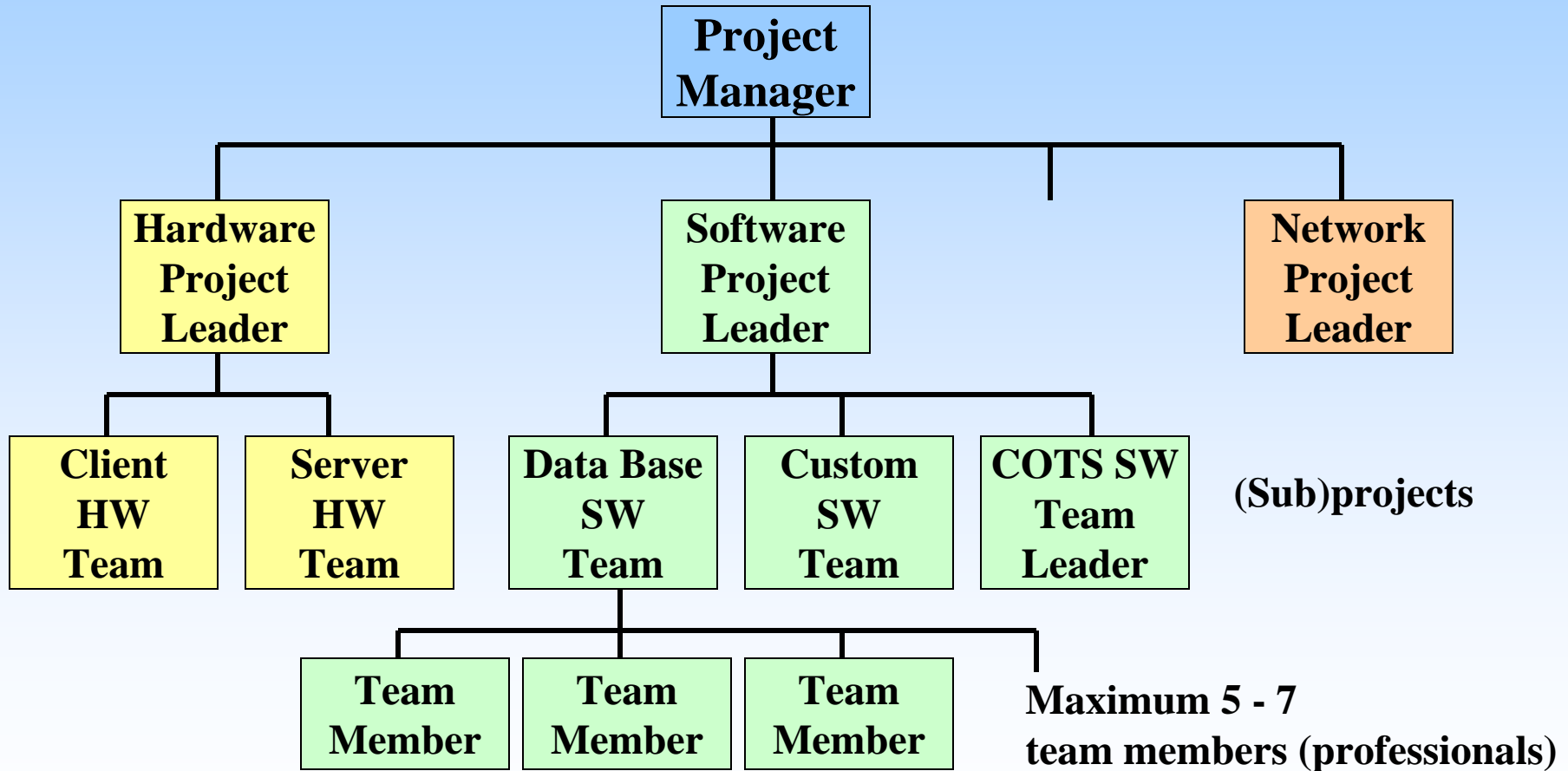
The Project Team

Team Structures *Small to Medium-sized projects*



The Project Team

Larger projects



The Project Team

Definitions

- 1. Responsibility: an obligation to act**
- 2. Authority: the right to impose a degree of obedience**
- 3. Accountability: individual is answerable - reward or punishment**

The Project Team - Responsibilities

Project Manager Responsibilities

PLANNING STAGE:

Initiation

- Help Client write Project Concept**
- Help Client clarify Requirements**
- Risk management**
- Write Plan**
- Higher levels of WBS, estimates, schedule**
 - Start negotiating for resources**
 - Risk, Communication plans**
 - Write/Present Proposal to client (may assist Account Rep)**
 - QM plan**

The Project Team

Project Manager Responsibilities

Planning/Analysis

- Help write detail plan
- Get resource commitments
- **Technical Staff, Reviewers (technical, management), Information, Facilities, Hardware, Software, Training**

The Project Team

Project Manager Responsibilities

CONTROL STAGE: PM owns the *schedule* and *milestones*

- **Execution (Design, Build, Test)**
 - **Interface to Client, (Satisfaction, Control changes)**
 - **Communicate to enterprise**
 - **Manage staff**
 - **Monitor**
 - **Realize/react to issues**
 - **Report progress/warn if problems**
 - **Attend management meetings**
 - **Ensure resources materialize**
 - **Fight fires**
 - **Ensure staff produces documents**
 - **Announce to the world when product is ready**
 - **QA**

The Project Team

Project Manager Responsibilities

CONTROL STAGE (Execution Continued)

- **Acceptance**
 - **Schedule it, notify staff, run it**
 - **Ensure Client signs**
- **Roll out and Operation**
 - **Provide promised warranty**

Closure

- **Help sell next project**
- **Do Post Project Review and Apply learning to next project**
- ***KEEP THE PROJECT NOTEBOOK***

The Project Team

Project Manager Skills

- **Technical skills:**
 - Application, business, project management
- **People Skills:**
 - **Communication: Leadership, motivation, teaching, sensitivity to client needs**
 - **Knowledge of 'procedures', negotiation, change management, decision making**
- **People skills come first, then technical**

**"The Project Manager is the buffer
or screen for the administrivia."**

- P. W. Metzger

The Project Team

Team Leader Responsibilities

- **Job goal: product quality and integrity**
- **INITIATION**
 - **Help write Detailed Plan**
 - **Lower levels of WBS, estimates, schedule**
 - **Suggest resources**

The Project Team

Team Leader Responsibilities

EXECUTION

- **Design**
 - **Chief Designer**
 - **Help write Functional Specification**
 - **QC:**
 - **Lead it**
 - **Keep statistics**
 - **Control regression**
 - **Technical reviews (module design, test plan, documentation)**
 - **Help other designers**
 - **Supervise workers**
 - **Assign priorities**
 - **Help (especially with problems)**
 - **Do most complex/critical work (not Critical Path at first)**

The Project Team

Team Leader Responsibilities

- **Acceptance**
 - **Help demonstrate product**
 - **Fix problems**
- **Operation**
 - **Help rollout**
 - **Provide warranty**
- **THROUGHOUT**
 - **Report progress**
 - **Provide formal input into workers' reviews**

**What if the Project Manager has both
Project Administration and
Technical Leader roles?**

The Project Team

Technical Worker (e.g. Programmer) Responsibilities

- Detailed estimates
- Design
- Test and integration plan
- Maintenance documentation
- Build
- Report status
- Assist with integration and testing

- Possibly
 - Write user documentation
 - Write and provide training courses
 - Provide support

- **CANNOT MAKE COMMITMENTS TO THE USER**

Most Important Project Manager Skills: Motivation & Delegation

Motivation: to improve productivity

- **Theory X vs Y vs Z**

	Theory X	Theory Y	Theory Z
Author	??	McGregor	Ouchi
Theories	<ul style="list-style-type: none">•People need to be coerced to work•Punishment is the greatest motivator•Dictator approach is best	<ul style="list-style-type: none">•People will work to achieve objectives•Diplomatic approach is best	<ul style="list-style-type: none">•People will be motivated by team•Loyalty to company is a motivator

People Skills

Herzberg Studies to Improve Productivity (Motivation?):

- What were the factors that you remember about your most productive job (Motivators)?
- What were the factors that you remember about your least productive job (Demotivators)?

Herzberg Study Results:

Demotivators:

- | | |
|-------------------------------------|-----|
| – Company policy and administration | 38% |
| – My boss | 20% |
| – Work conditions | 18% |
| – Salary | 8% |

Motivators:

- | | |
|------------------------------------|-----|
| – Achievement | 50% |
| – Interesting Work (Professionals) | 48% |
| – (Non-professionals) | 13% |
| – Recognition | 25% |
| – Advancement | 23% |
| – Responsibility | 13% |

Managing People

Herzberg Motivators

What can you do, without anyone's permission, to increase your staff's feeling of:

- **Achievement**
 - Assign achievable goals, recognize completion,
- **Interesting Work**
 - Allow choice, change, good tools, flex time, team activities,
- **Recognition**
 - ‘Pat on the back’: verbal, email, announcement,
- **Advancement**
 - Title, Promotion, training,
- **Responsibility**
 - Delegate, assign important/visible work,

Managing People

Signs of a Solid Team

- **Low turnover**
- **Communication**
- **Respect for the others**
- **Pride in the team - 'We are the best'**
- **Ownership of deliverables**
- **Having fun**

Conclusions on Managing People

Deep Thoughts (by the 'experts')

- **People are your most important asset. In setting priorities people problems are first. If you lose their loyalty and respect you're dead. - Metzger**
- **A good manager will eliminate his people's excuses for failure. - Townsend**
- **Management must be available. (MBWA) - Peters**

Managing People

Deep Thoughts (continued)

- **LISTEN - Let the presenter solve the problem during the presentation.**
- **Provide formal training - your company!**
- **Have your people contribute to the decisions - Kidder**
- **Technical work is a cerebral activity.**
- **Technical workers are eternal optimists. Never ask, "What percent complete?"; ask rather, "How many hours/ days left?"**

Resources

- **PMFORUM is a good PM site. Focus is on international project management, but all facets of PM are addressed.**
 - pmforum.org
- **Within PMFORUM there are good links, including list of bookstores and publishers at**
 - www.pmforum.org/warindex.htm
- **For thousands of PM oriented titles, PMI.ORG's bookstore at is a good source.**
- **And the bible of Project Management texts:**
 - *Project Management, a Systems Approach to Planning, Scheduling and Controlling*, Harold Kerzner, 5th ed. 1995, Van Nostrand Reinhold.
- **John J. Rakos is available to teach or consult in any topic presented in this seminar.**

Project Management

Quality

Although QM is the responsibility of management, it requires the participation of the whole team.

Quality Management (QM)

Planning and Control

- **QM includes the processes required to ensure that the project will satisfy the needs for which it was undertaken.** - *PMBOK*
- **Three processes:**
 - *Quality Planning*: to meet quality standards
 - *Quality Assurance*: ensure that the plan is done
 - *Quality Control*: inspect the products as they are produced to ensure that they meet the required quality.

Quality Planning

QM Plan (May just be part of Project Plan)

1. Clarify commitment of all the stakeholders and PM to Quality
2. Develop quality policy: short statement that expresses quality objectives, standards to use.
3. Review project environment for process/product characteristics that will demonstrate quality
 - Process: plans, specifications, standards, contracts
 - Product: design, test results, acceptance results, faults per, product performance
4. Define quality control methods:
 - Process: reviews, inspections,
 - Product: testing
5. Determine any investments required (training, contracting, certification, insurance...)
6. Determine roles & responsibilities (Consider Independent Verification & Validation)

Quality Planning

QM Plan (cont'd)

- **Choose a quality standard and define how to meet it.**
- **Quality standards:**
 - **ISO 9000 and 10000 series**
 - **SEI Capability maturity Model**
 - **Total Quality Management**
 - **Continuous Improvement**
- **Software Engineering Institute Capability Maturity Model**

Quality Assurance

Ensuring that the Plan is Implemented

- **Implementing all the planned and systematic activities of the quality policy**
- **Management of the Quality Systems: the total set of activities comprising Quality Planning and Quality Control**
- **Responsible person: PM, who may delegate to a QA person or group**
- **Reaction to any faults (Continuous improvement)**
- **Quality audits: review of the QA activities**
- **Performance records**
 - **Measurement (number of faults per...)**
 - **Trends**

Quality Control - Steps

- 1. Appropriate testing and verification**
- 2. Conduct QC activities to determine compliance with the required quality**
- 3. Use sampling and statistical techniques. Track using “control charts” such as Pareto diagram (80% of faults are from 20% of the causes)**
- 4. Accept or reject**
- 5. Take corrective action in “out of quality” situations**
- 6. Complete any rework, retain completed checklists, and results of any preventative or corrective action.**
- 7. Apply learning to next project**

Software Project Quality Management

Software Engineering Institute Capability Maturity Model (CMM)

- The CMM describes an evolutionary improvement path for organizations developing software projects. The path goes from Level 1 – an ad hoc, immature process to Level 5 – a mature, disciplined process. Each level above Level 1 has key practices for planning, engineering and managing projects. These practices improve the ability of the organization to meet the goals of cost, schedule, functionality and quality.
- The CMM can be used to judge the software project management maturity of an organization. An organization can be certified to be at a specific level.
- Although defined for software projects, the method can be applied to any organization. A PM maturity level has been defined similar to the CMM.

Software Project Quality Management

Structure of the CMM

- **Level 1 - The Initial Level**
 - L1 is characterized by an unstable organization environment, with no sound management practices, ineffective planning and reaction driven management. Success depends on a seasoned manager and team. The process is unpredictable and changing constantly. Occasional success happens due to individuals' capability or motivation, but the project falls apart when these people leave the team.

Software Project Quality Management

Structure of the CMM

- **Level 2 - The Repeatable Level**
 - Policies and processes for project management exist, based on past projects. All new projects can follow these policies, therefore effective project management is repeatable. An effective process is practiced, documented, trained, measured and able to be improved.
 - L2 projects have control methods for cost, schedule and function. They are controlled based on realistic results of past projects. Control is based on a managed baseline. Strong customer-supplier/subcontractor relationships are set up.

Software Project Quality Management

Structure of the CMM

- **Level 3 - The Defined Level**
 - At L3 the processes established at L2 are documented and enforced (defined) in the whole organization. A group is set up to control this. An organization wide mandatory training program is available for both managers and staff. The defined processes include roles, responsibilities, readiness criteria, inputs, standards, procedures, verification methods, outputs and completion criteria.

Software Project Quality Management

Structure of the CMM

- **Level 4 - The Managed Level**
 - At L4 there are quantitative goals for both the project products and processes. An organization-wide program measures quality and productivity. The results are stored, analyzed, and fed back into the processes, thereby achieving consistent project performance. Risks are known and managed, therefore the process is predictable and product is consistently high quality.

Software Project Quality Management

Key Process Areas

- **Level 2 (Repeatable) Key Process Areas**
 - **Requirements Management**
 - **Software Project Planning**
 - **Software Project Tracking and Oversight**
 - **Software Subcontract Management**
 - **Software Quality Assurance**
 - **Software Configuration Management**

Software Project Quality Management

Key Process Areas

- **Level 3 (Defined) Key Process Areas**
 - **Organization Process Focus**
 - **Organization Process Definition**
 - **Training Program**
 - **Integrated Software Management**
 - **Software Product Engineering**
 - **Intergroup Coordination**
 - **Peer Reviews**

Software Project Quality Management

Key Process Areas

- **Level 4 (Managed) Key Process Areas**
 - **Quantitative Process Management**
 - **Software Quality Management**

- **Level 5 – (Optimizing) Key Process Areas**
 - **Defect Prevention**
 - **Technology Change Management**
 - **Process Change Management**

Quality Management

- **Comments:**
 - **There are approximately 200 Level 5 organizations in the world.**
 - **There are approximately 100 Level 4 organizations in the world (most will go on to Level 5).**
 - **Most organizations are Level __.**
- **PM Responsibility:**
 - **Look for the highest possible Level of Maturity, and ensure that the organization is working toward a higher level.**