Managing Projects the Right Way

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- BS and MS in Engineering, Stanford University
- ■22 years professional experience at Hewlett Packard, Agilent Technologies and Advanced Energy Industries: R&D, Strategic Marketing, Strategic Alliance Management, Professional Services, Operations, General and Executive Management

UAA Teaching:

□PM A601/401: Fundamentals

□PM A610: Scope

PM A622: Communications

□PM A623: Stakeholder Engagement and Collaboration

□PM A690S/A490S: Lean Six Sigma Greenbelt

□PM A685/686 A&B: Capstone Project

ESM: A613 Managing Technical People

PMPP, Intro to Project Management, Risk Management and Project Controls Training

Managing Projects the Right Way

- What is a Project?
- What is Project Management?
- Role of the Project Manager and Stakeholders
- Project Lifecycle
- Overview of Project Management Process
 Groups and Knowledge Areas



Port and Harbor Project Examples

- Harbor float replacement/renovation
- Electrical service installation (float power pedestals)
- Crane installation
- Water service improvements
- Public facility construction (new offices, restrooms, camp grounds)
- Steel piling replacement or rehabilita
- Others



"PCC's members realize that no matter how large or how small a marina or port is, the problems and the underlying causes are the same — some just have to deal with them on a larger scale."

Where do I begin?

- ☐ You are put in charge of a project and you must:
 - ✓ Define scope
 - ✓ Organize resources
 - ✓ Adhere to schedules
 - ✓ Identify and manage risks
 - ✓ Assess progress
 - Engage and communicate with stakeholders
- □ Are you ready to initiate, plan, execute, control and close the work?

THE GOOD NEWS: YOU ARE NOT ALONE!















"As long as humankind does things, there will be projects."

Nichols and Steyn

Evidence of projects is everywhere...



From: blog.lib.umn.edu/muwah005/architecture/



From: www.educ.uvic.ca/.../438/CHINA/CHINA-WALL.HTML

...and in the news. Recent examples:

Millennium Park, Chicago

- Ground breaking targets, 1998:
 - Total cost: \$150 million
 - Gehry band shell: \$10.8 million
 - Completion: 2000 (millennium!)



Actual

- Total Cost: \$475 million
- Gehry band shell: \$60.3 million
- Completion date: Summer 2004



Recent examples: Boston "Big Dig"



Cost estimate for total project:

From: www.cegltd.com/storv.asp?storv=8751&headline=...

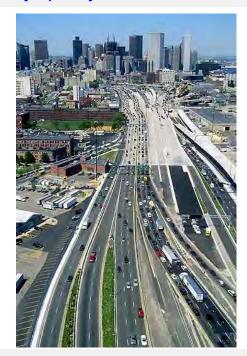
Circa 1989, seeking federal funding \$ 2.5B

1991, ground-breaking \$ 5 B

□ 1997 \$10.8 B

Summer 2004, 92% complete \$14.6 B

Projected at completion \$ 20 B??



From: www.roadtraffic-technology.com/.../big_dig1.html

Recent examples: Sydney Opera House



Source: Wikipedia

Estimate for total project in 1959:

Schedule: 4 years, Cost: \$ 7.0M

- Results at 1973 Completion:
- Schedule: 14 years, Cost \$100M





Recent examples: Denver International Airport



Estimate for project in 1989:

Schedule: 4 years, Cost: \$2.8B

Results at 1995 completion

Schedule: 16 month behind schedule

Cost: \$2.0B over budget



Photos courtesy of www.flydenver.com

Recent examples: Trans-Alaska Pipeline

562

Preconstruction:

- Preconstruction: Permitting, Right of Way, Legal rulings, US Government Acts, etc:
- 1968-1974 (~ 6 years)

Results at 1977 completion:

- Schedule: April 1974-July 1977
 - 3yrs, 2months
- Cost: \$8B



Recent examples: Olympics Beijing China



Estimate for total project:

Initial estimates: 28-30M Yuan



Results at 2008 Games

450M Yuan (\$65B), 5 times cost of Athens
 Olympic games



The Importance of Project Management

- \$2.5 Trillion spent annually on projects in US (25% GDP)
 - Critical to sustained economic development
 - New jobs and competitive advantage derived from innovation and continuous improvement
 - Projects drive change and enable business value creation
 - Used in all sectors: private and public
 - Transferable across most businesses and professions
 - Millions consider PM the major thrust of their profession; Not always a title but a critical job requirement



Why Do Projects Fail or Suffer Overruns?

Typical reasons

- Weather
- Inadequate requirements definition
- Insufficient resources
- Changing priorities of customer or management
- Intractable technical problems
- Resistance from stakeholders
- Wrong project for the stated needs
- Inadequate tracking and control
- Inexperienced project manager and/or team

WHAT IS A PROJECT?







Why do projects?

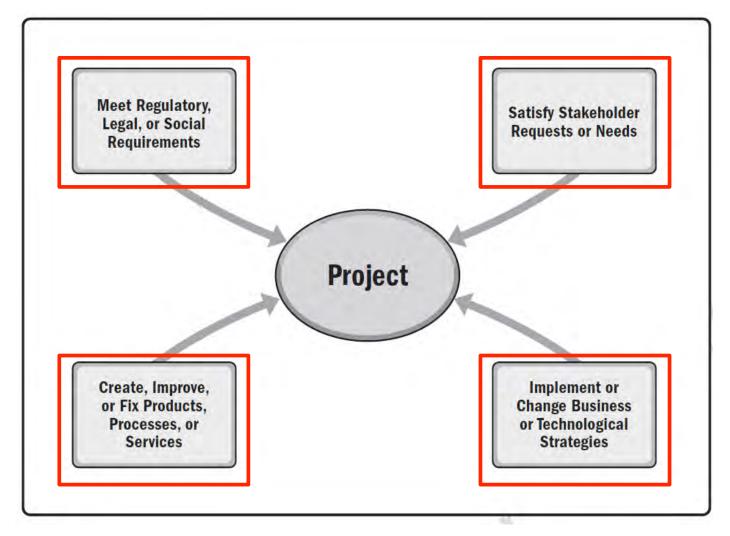


Figure 1-2. Project Initiation Context

PMBOK ® Guide 6th Edition (2017) p. 8

Project Management Sector Examples

Commercial/For Profit

- Industrial (R&D, Manufacturing, Natural Resources, etc)
- Services (Banking, Consulting, Accounting, Security, etc.)

Government/Nonprofit

- Disaster recovery
- Government Agencies (e.g. State of Alaska, Federal Government, NASA, Corps of Engineers)

Military

Campaigns, deployments, weapons systems

Other Non-profit examples

- Habitat for Humanity
- Political campaigns



Definition of a Project

"A temporary endeavor undertaken to create a unique product, service or result." РМІ РМВОК





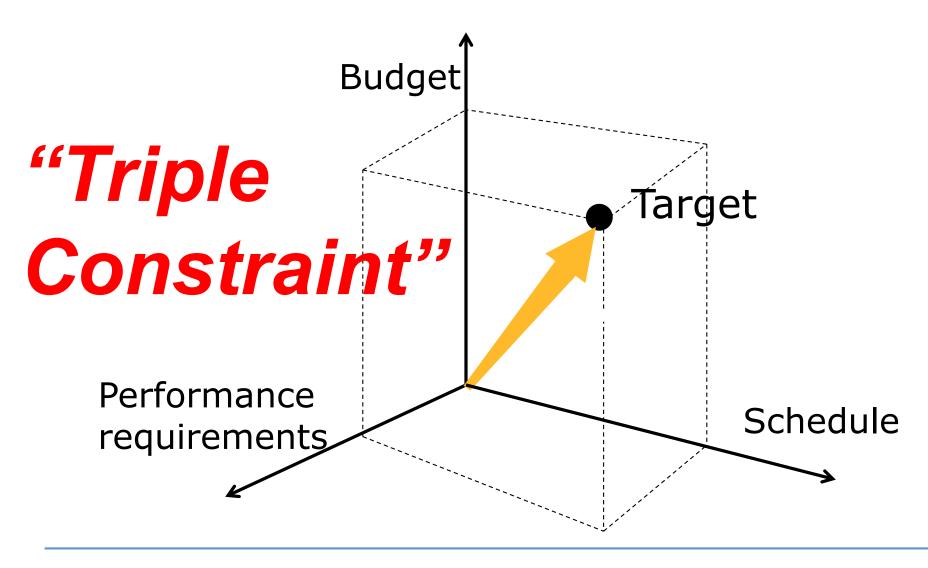
Major Characteristics of Projects

Established objective

- Satisfy customer/stakeholder requirements
- Aims at a specific end result or deliverables
- Temporary: Clear beginning & end; follows logical sequence of phases.
 - Defined end-point vs. ongoing operational work
- Typically involves several departments and professionals
 - Cross disciplinary, cross-organizational
- Something not done before
 - Not routine. Unfamiliar. Involves risk.
- Specific time, cost and performance expectations
 - Balance tradeoffs within constraints while meeting stakeholder requirements



"Three Dimensions" of Projects: Requirements, Schedule, and Budget





What is Project Management?

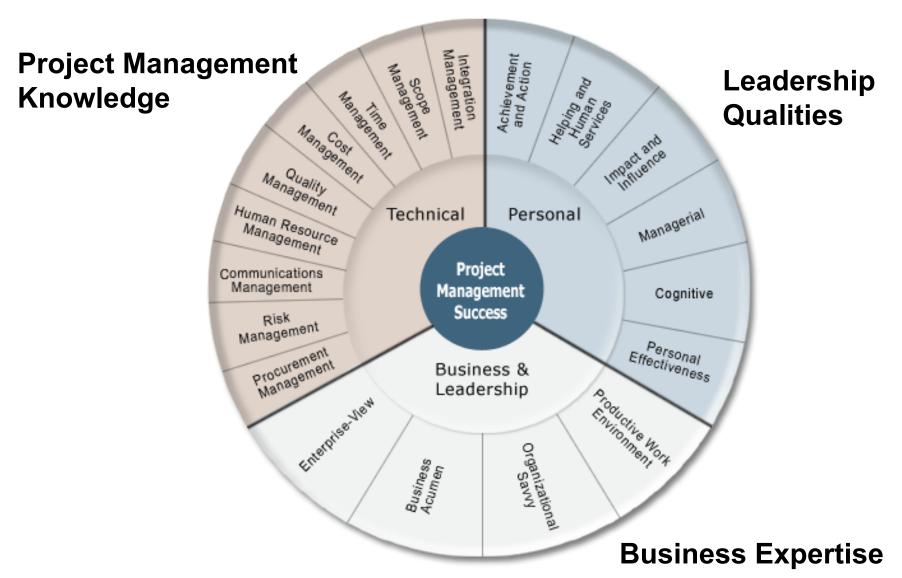


What is "Project Management?" Simple Definition: Making Ideas Reality

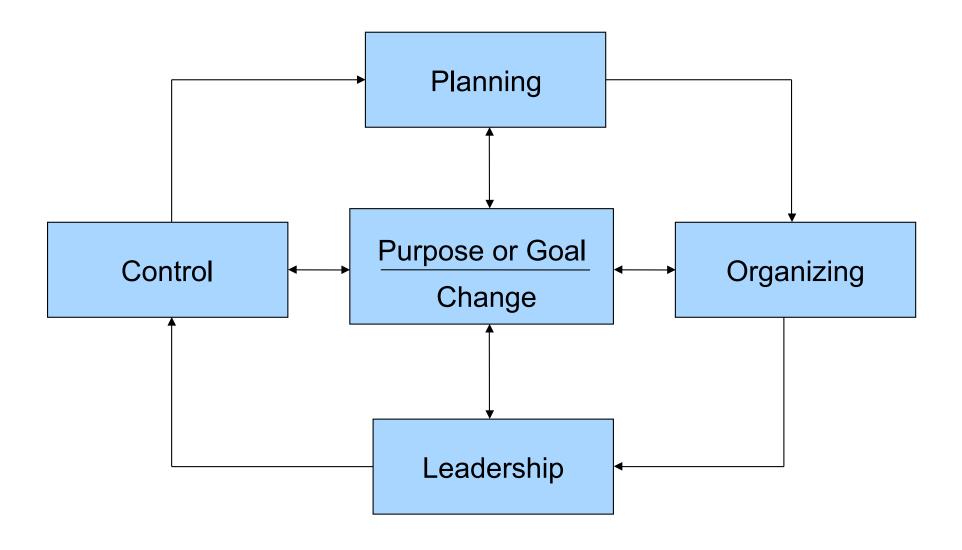
Leadership <u>and</u> management to accomplish project goals.



Project Management Success



Leadership and Management Functions

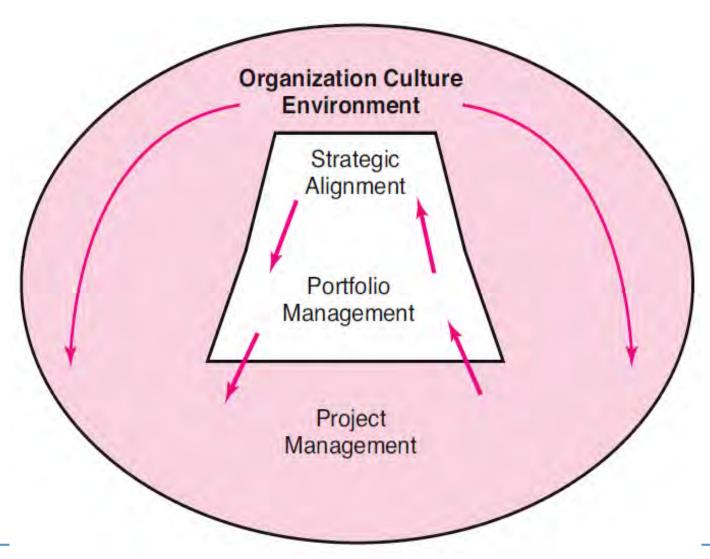


The Strategic Management Process Overview

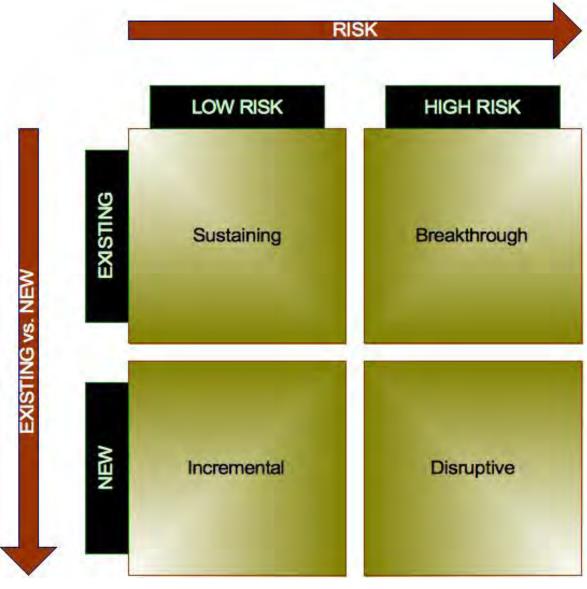
20% Management effort in strategy formulation, 80% effort in implementation

- Strategic Management
 - Requires every project to be clearly linked to strategy.
 - Provides theme and focus of firm's future direction.
 - Responding to changes in the external environment environmental scanning
 - Allocating scarce resources of the firm to improve its competitive position—internal responses to new programs
 - Requires strong links among mission, goals, objectives, strategy, and implementation.

Integrated Management of Projects



Portfolio Management Approach



Project, Program, Portfolio Relationships

- Projects can stand alone or be part of programs and broader business portfolios
- Programs are a collection of related projects managed in a coordinated way to obtain leveraged benefits
- A Portfolio is a collection of projects or programs grouped together to facilitate management of work to achieve strategic objectives



Relationships between Portfolio, Program, Project Management and Operations

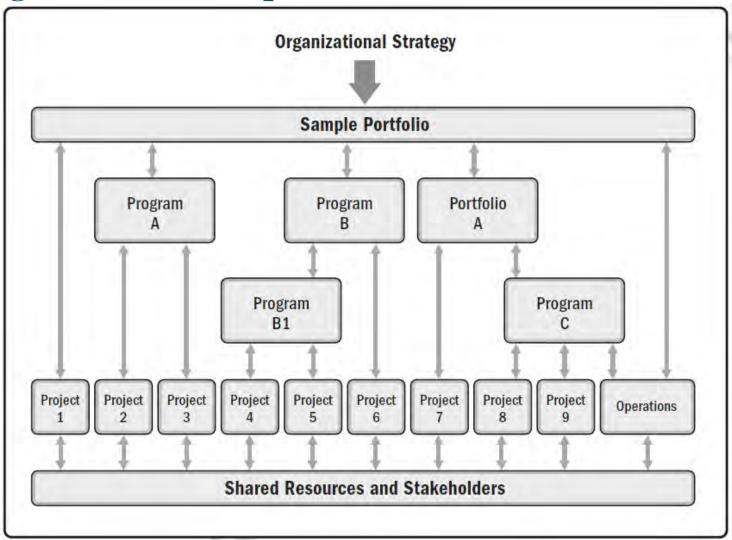
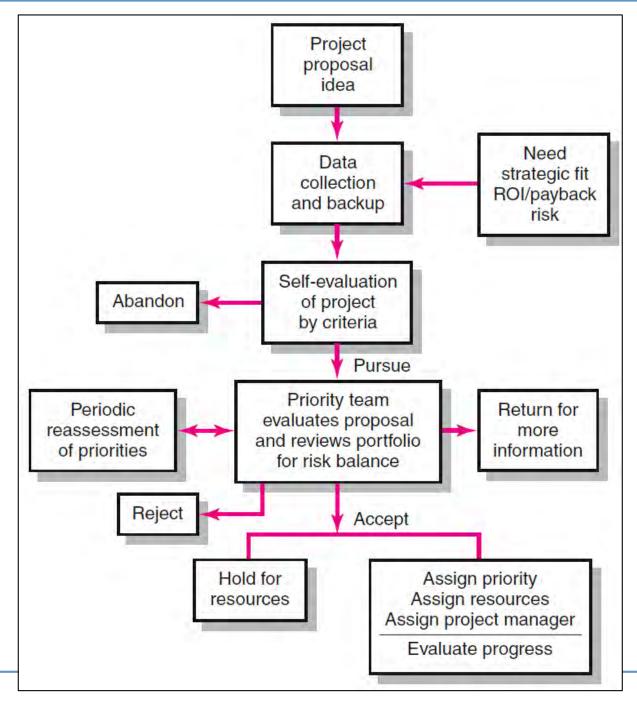


Figure 1-3. Portfolio, Programs, Projects, and Operations

Project Screening Process



Multi-Criteria Screening Matrix

Citteria Weight	Stay within core competencies	Strategic fit	Urgency	25% of sales from new products	Reduce defects to less than 1%	Improve customer Ioyalty	ROI of 18% plus	Weighted total
	2.0	3.0	2.0	2.5	1.0	1.0	3.0	
Project 1	1	8	2	6	0	6	5	66
Project 2	3	3	2	0	0	5	1	27
Project 3	9	5	2	0	2	2	5	56
Project 4	3	0	10	0	0	6	0	32
Project 5	1	10	5	10	0	8	9	102
Project 6	6	5	0	2	0	2	7	55
:								
Project n	5	5	7	0	10	10	8	83

Characteristics of Objectives

Specific Be specific in targeting an objective

Measurable Establish a measurable indicator(s) of progress

Assignable Make the objective assignable to one person

for completion

Realistic State what can realistically be done with

available resources

Time related State when the objective can be achieved,

that is, duration

What is "Project Management"?

Longer Definition

Management to:

- Define and execute everything necessary to complete a complex system of tasks
- Achieve project end results that might be unique and unfamiliar
- And do it:
 - by target completion date
 - with constrained resources
 - with an organization that is cross-functional and newly-formed

Key Elements of Project Management:

Project Team

•Bringing together individuals and groups to form single cohesive team working towards common goal

Project Manager

•Plan, direct and integrate efforts of team and stakeholders to achieve project goals.

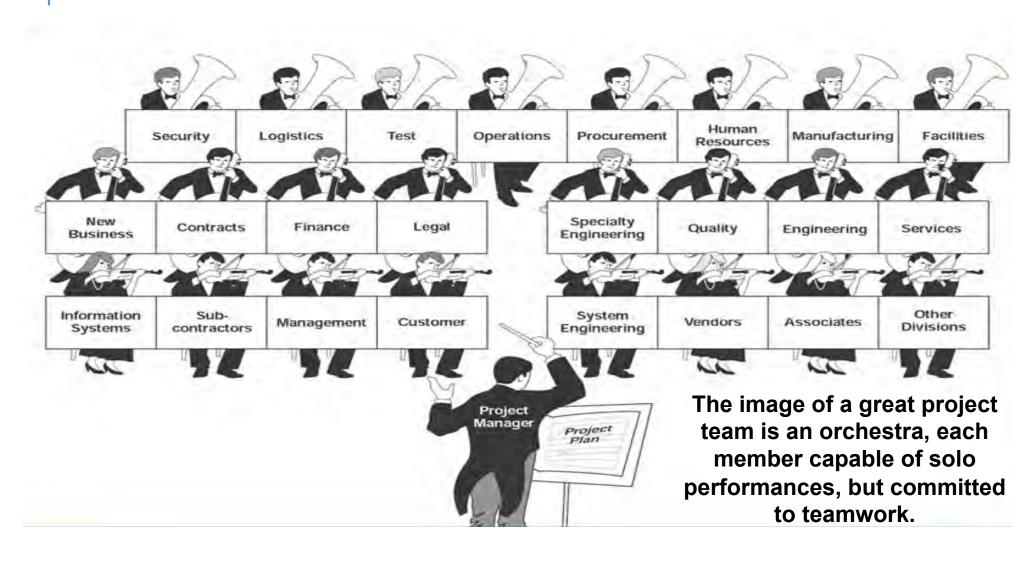
Project Methodology

•Organization structure, information processing, practices and procedures.

Characteristics of Project Management

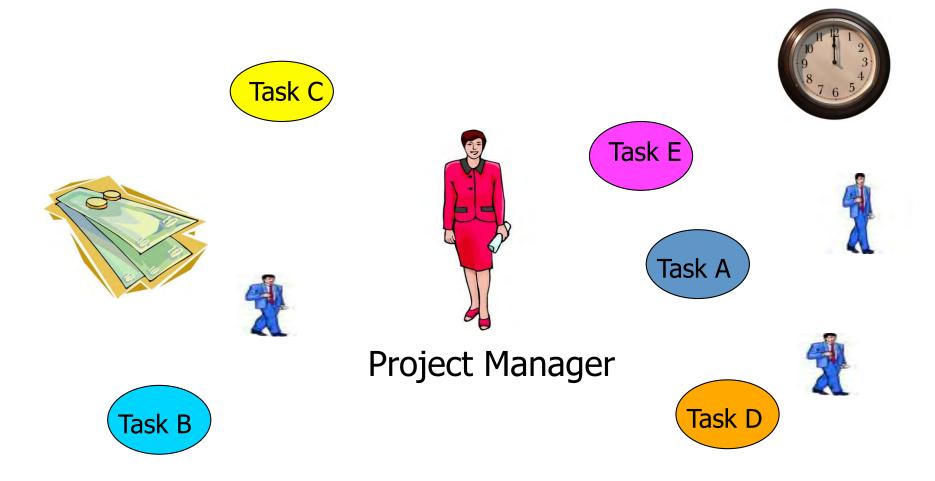
- A <u>project manager</u> leads the temporary, cross-functional, goal oriented effort to meet project objectives.
- 2. Requires <u>negotiation for and integration of resources and people</u> from different disciplines with a variety of skills from different functions within the organization.
- 3. Focus on delivery of product or service according to time, cost, and technical requirements to <u>support organizational goals</u>.
- Decision making, accountability, outcomes, and rewards are shared among members of the project team and supporting functional units.
- 5. Project management <u>sets into motion work in numerous support</u> <u>functions</u> such as HR, accounting, procurement, and IT.

Project Management in Action



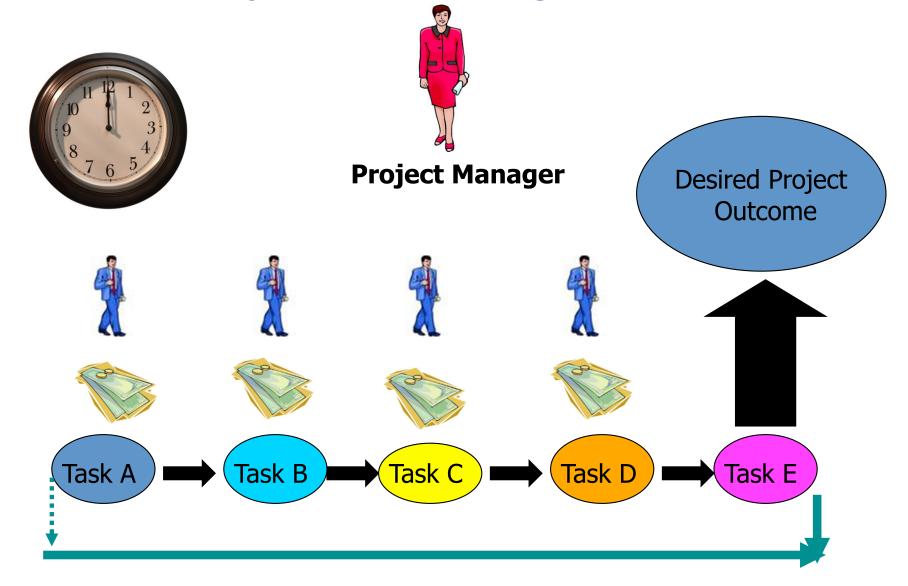
Source: Visualizing Project Management: A Model for Business and Technical Success, Kevin Forsberg, PhD, Hal Mooz, PMP and Howard Cotterman <u>John Wiley & Sons</u> © 2000

What Does This Mean?



PM 601 Course Material, Jang Ra (2007)

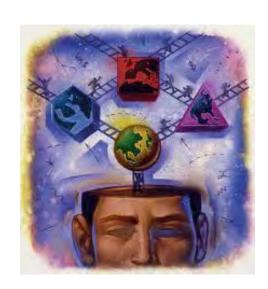
Project Management



41

Elements of Project Success

- Achievement of "Direct Objectives" or "Triple Constraint"
 - Scope, Time, Cost
- Efficiency
- Impact on customers
- Business impact on the organization
- Opening new opportunities for the future
- Health of the project team and organization
- Benefits to "external" environment



Other Elements of Project Success

- Moving an organization from current to future state
- Fulfilling contract Terms and Conditions
- Meeting organizational strategy, goals and objectives
- Achieving stakeholder satisfaction
- Acceptable customer/end-user adoption
- Integration of deliverables into organization's operating environment
- Achieving agreed-upon quality of delivery
- Meeting governance criteria
- Others.....

It is possible for a project to meet scope/schedule/budget goals and be unsuccessful from a business viewpoint!



Project Success:

These questions should be answered by the key stakeholders and project manager

- What does success look like for this project?
- How will success be measured?
- What factors may impact success?





ROLE OF PROJECT MANAGER AND STAKEHOLDERS

Role of Project Manager

- Person assigned by performing organization to achieve project objectives and meet stakeholder expectations
- Communication and relationship management hub
- Leadership and Management Skills:
 - Knowledge: project management and subject matter expertise
 - <u>Performance</u>: accomplishment, accountability, results, alignment with strategic objectives
 - <u>Personal qualities</u>: attitudes, ethics, personality, optimism and leadership
 - <u>Communication and relationship management:</u> ability to build networks and balance conflicting and competing interests towards consensus

Project Manager Competencies

Technical PM Skills

 Knowledge, skills, and behaviors related to specific domains of project, program and portfolio management.

Leadership Skills

 Knowledge, skills, and behaviors needed to guide, motivate, and direct a team, to help an organization achieve its business goals.

Strategic and Business Mgmt Skills

 Knowledge of and expertise in the industry and organization to enhance performance and deliver business outcomes.

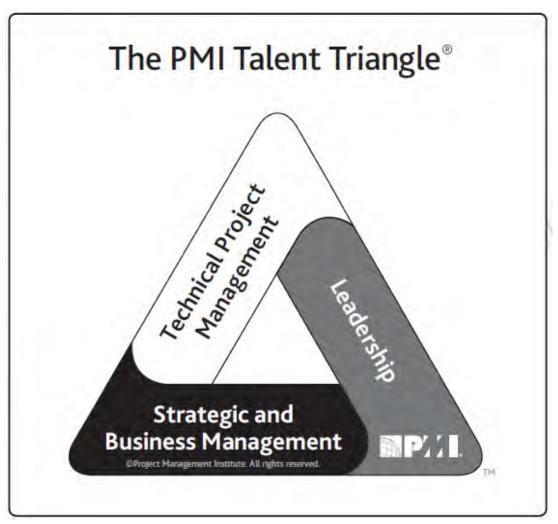


Figure 3-2. The PMI Talent Triangle ®

Project Manager's Sphere of Influence

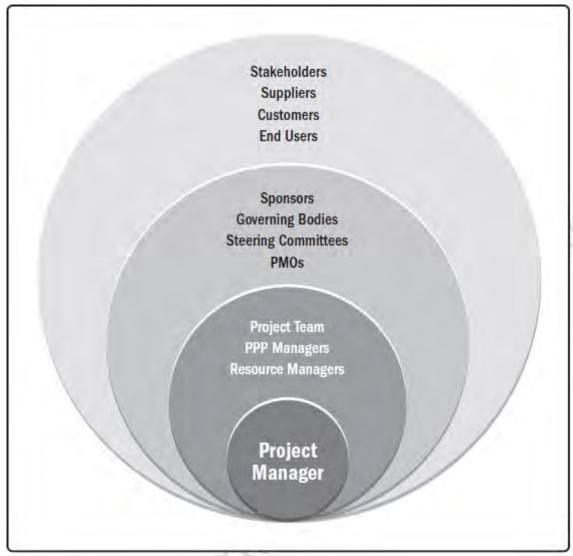
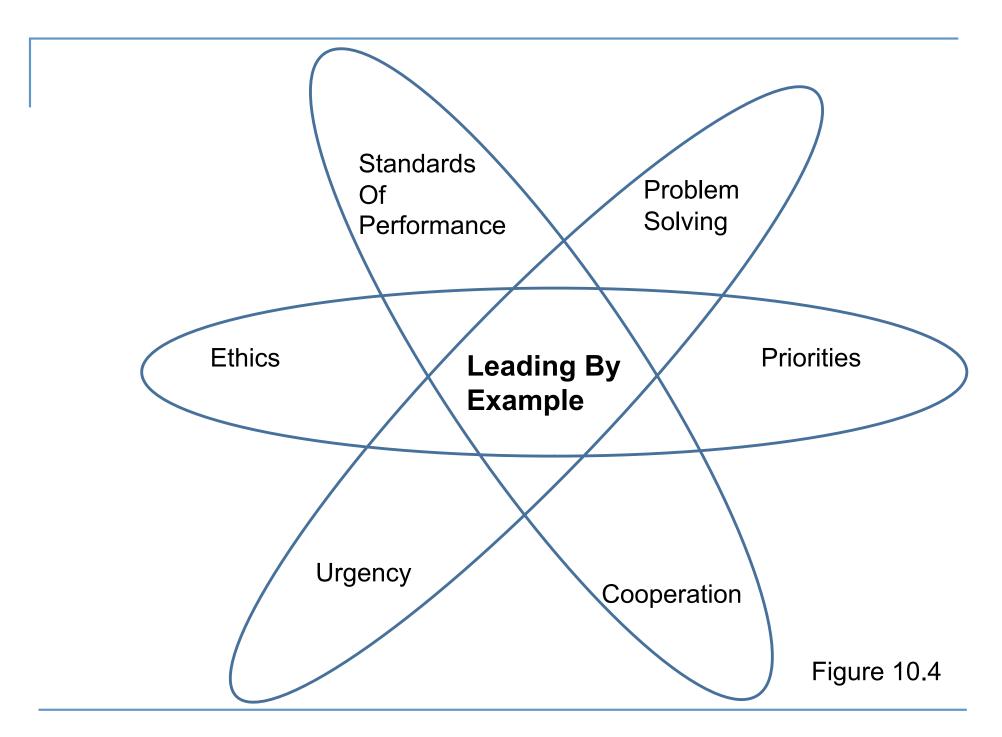


Figure 3-1. Example of Project Manager's Sphere of Influence

Challenges for Project Managers

- Manages temporary, non-repetitive activities and frequently acts independently of the formal organization.
 - Marshals resources for the project.
 - Is linked directly to the customer interface.
 - Provides direction, coordination, and integration to the project team.
 - Is responsible for performance and success of the project.
- Must ensure alignment of project work with organizational objectives
- Must engage and communication with the right people at the right time to address the right issues and make the right decisions.



Project Management "AND" Challenges

- Innovate AND maintain stability
- See the big picture AND get your hands dirty
- Encourage individuals AND stress the team
- Hands-on AND Hands-off
- Flexible AND Firm
- Team AND Organizational Loyalties

Key Traits of Effective Project Managers

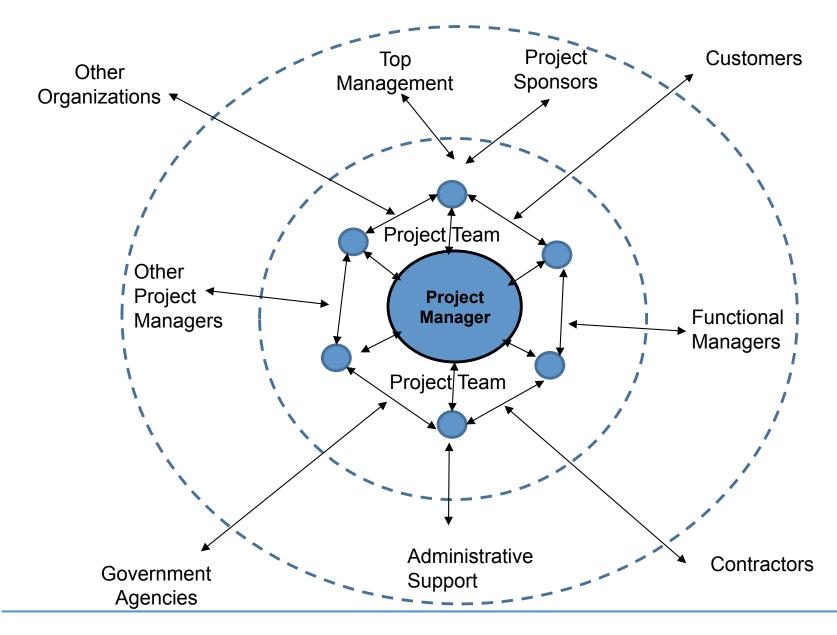
- Systems Thinking
- Personal Integrity
- Proactive
- High Emotional Intelligence (EQ)
- General Business Perspective
- Effective Time Management
- Skillful Politician
- Optimist

What is a project stakeholder?

- Persons or organizations such as customers, sponsors, the performing organization, and the public that are actively involved in the project
- Interests may be positively or negatively affected by the project
- May exert influence over project and deliverables

Early identification and analysis of stakeholders is critical to project success!

Network of Stakeholders



Project Relationships

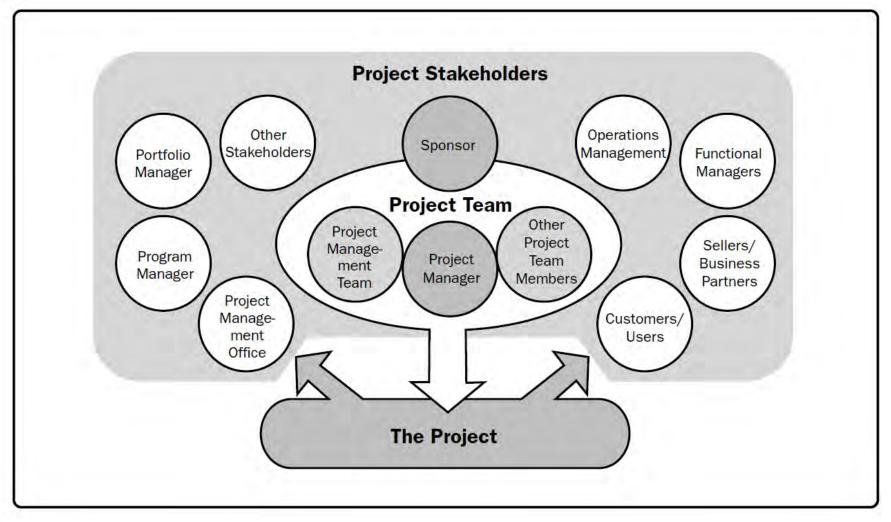
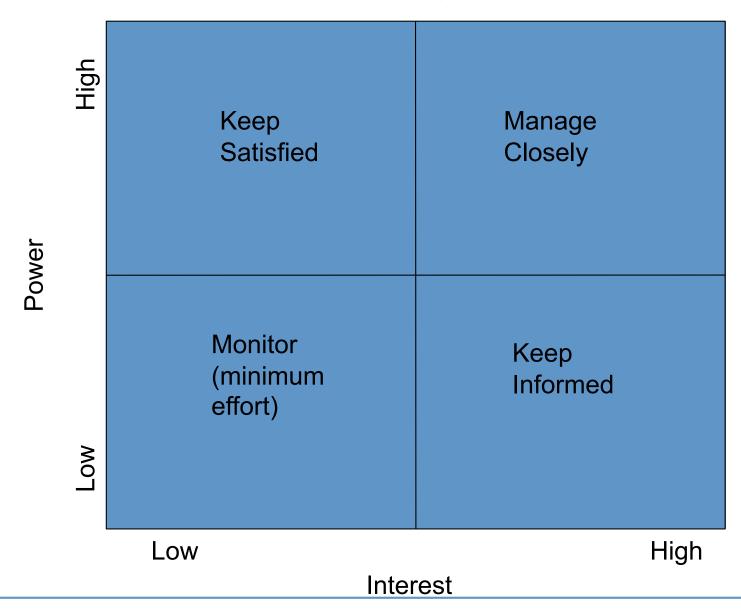


Figure 2-7. The Relationship Between Stakeholders and the Project

Key Stakeholders in Life Cycle

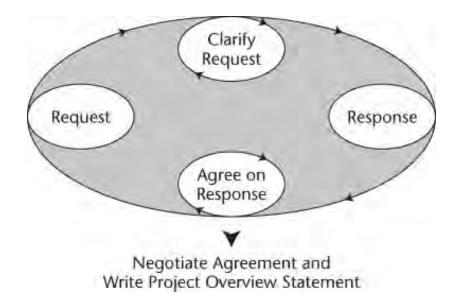
- Customer/Client (internal or external)
 - Party for whom project is being done
 - Pays for project
 - Has needs and requirements to be met
- User
 - Party that operates or is beneficiary of project end-item
 - Might be same as customer, might not
 - If different, important to differentiate user from customer
- Project Delivery Organization
 - Party that performs work for customer
 - developer, contractor, consultant, etc.

Stakeholder Power/Interest Grid

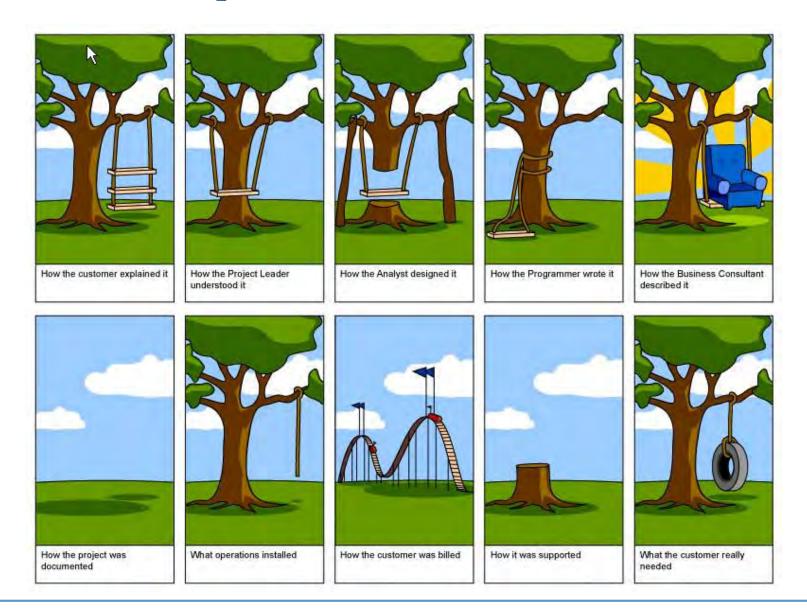


Project Definition

- Managing stakeholder expectations
 - Wants vs. needs
 - Conditions of satisfaction (COS)
 - Clarity of purpose
 - Specifying business outcomes



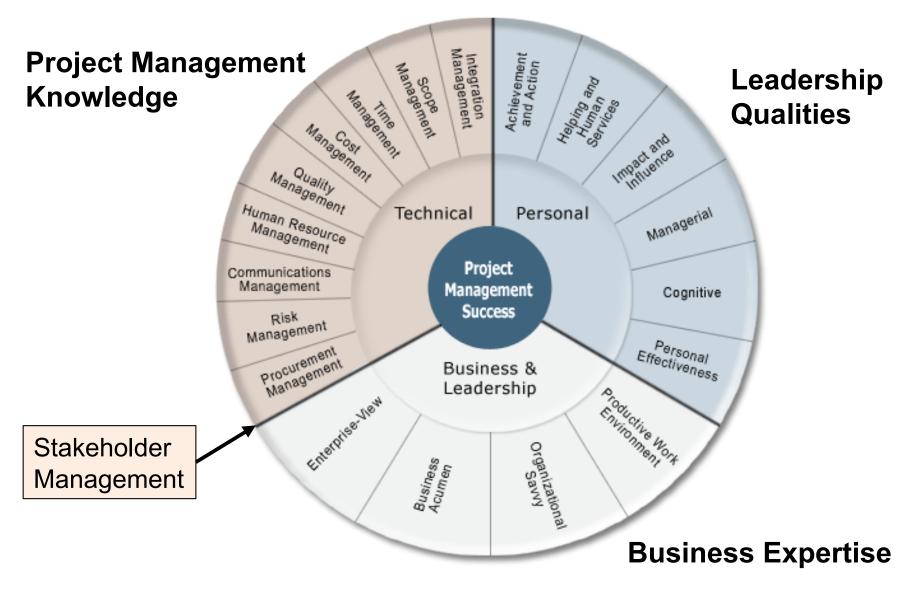
Customer Requirements Gone Wild



Key points

- Know and engage stakeholders
- Build relationships before you need them
- Build and sustain trust through frequent faceto-face contact
- Recognize, acknowledge and address issues directly and proactively

Project Management Success



PROJECT LIFECYCLE

Project Lifecycle

Phase A: Conception phase

- Perceived need or problem
- Initial screening or feasibility
- Proposal
- Concept approval/rejection

Phase D: Operation phase

- Customer gains control
- •System developer might remain involved with system/customer through: Maintenance, evaluation, enhancement, replacement

System Improvement

System termination



(To Phase A: repeat cycle)

Phase B: Definition phase

- Detailed requirements (User and system)
- Project Definition to meet requirements
- Project Plan

Phase C: Execution phase

- Design/development
- Procurement/fabrication
- Production/building
- Installation
- Training
- Commissioning

Phases A, B &C are "Project Lifecycle"

Project Lifecycle Phases

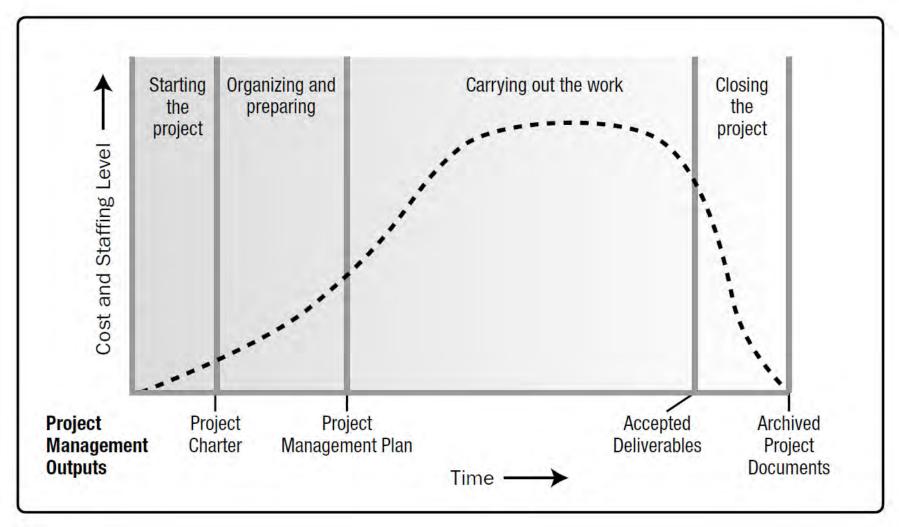


Figure 2-8. Typical Cost and Staffing Levels Across a Generic Project Life Cycle Structure

Interrelationship of Needs Assessment and Key Business and Project Documents

Needs Assessment:

 Business Goals and Objectives

Project Business Case:

- Business Needs
- Situation Analysis
- Recommendation
- Evaluation

Project Business Benefits Plan:

- Target Benefits
- Strategic Alignment
- Timeframe
- Benefits Owner
- Metrics
- Assumptions
- Risks

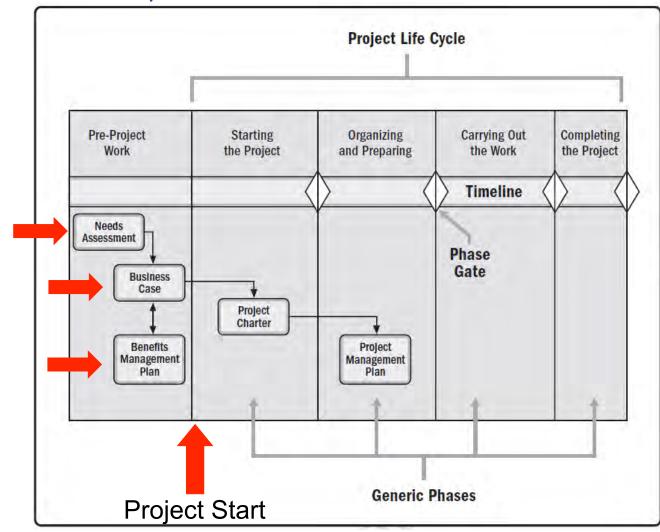


Figure 1-8. Interrelationship of Needs Assessment and Critical Business/Project Documents

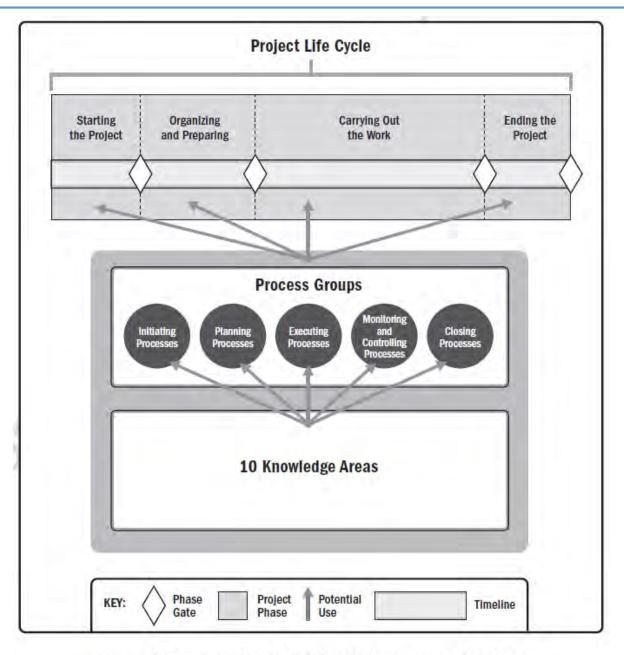


Figure 1-5. Interrelationship of PMBOK® Guide Key Components in Projects

Influence vs. Time

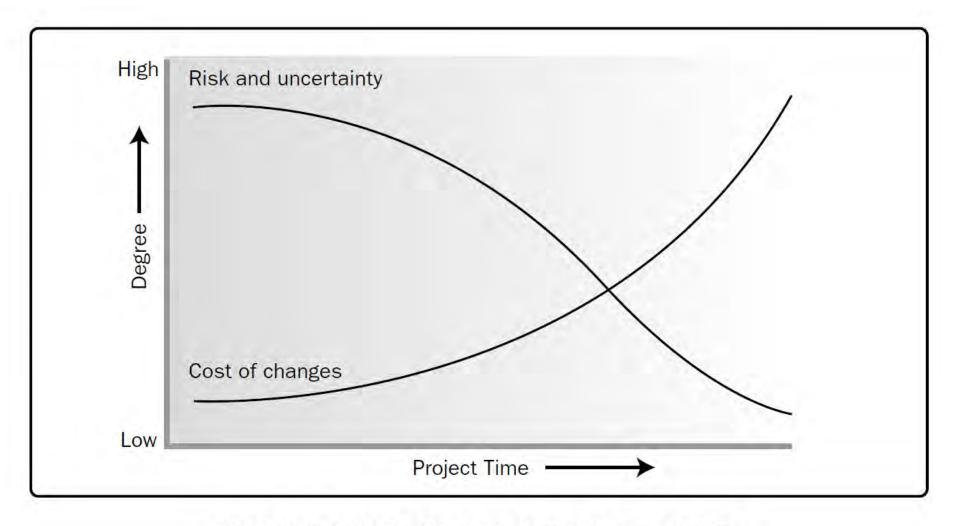
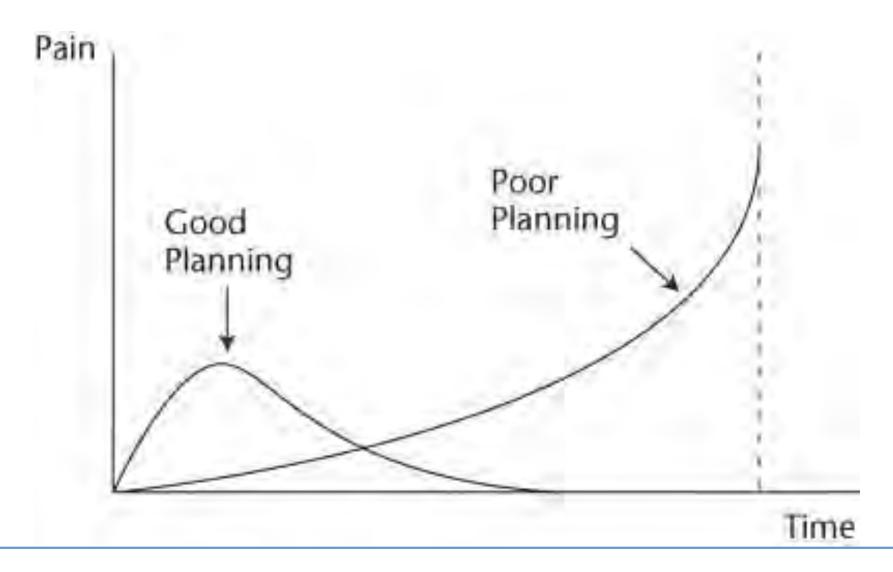


Figure 2-9. Impact of Variable Based on Project Time

Source: PMBOK 2013 (5th Edition) p 40

Project Lifecycle Pain Curve



Predictive Life Cycles

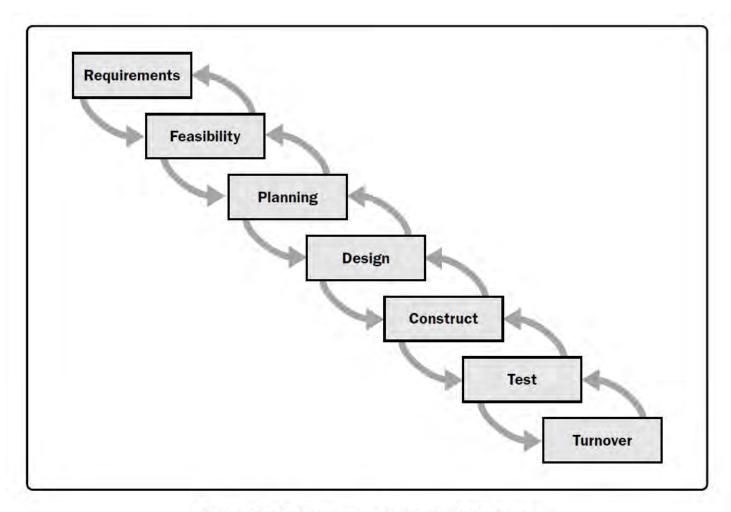
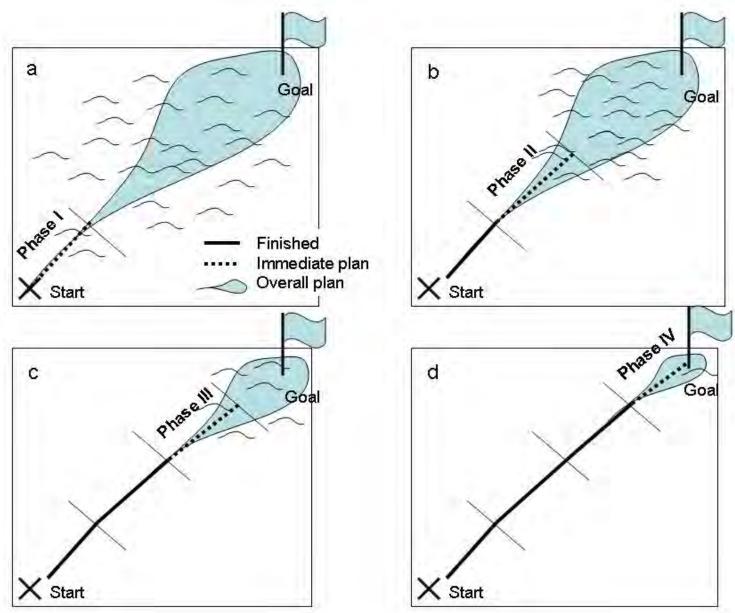
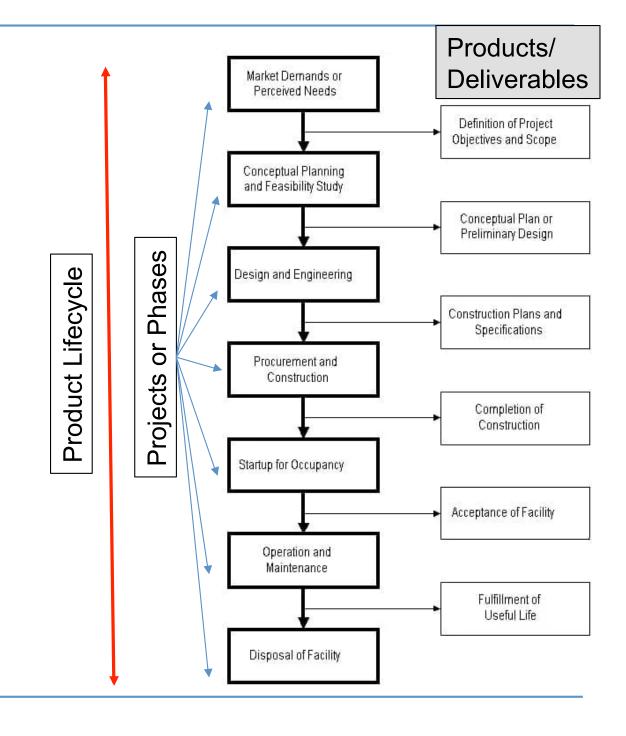


Figure 2-13. Example of Predictive Life Cycle

Phased Project Planning



Construction Lifecycle



OVERVIEW OF PROJECT MANAGEMENT PROCESS GROUPS AND KNOWLEDGE AREAS

History of Project Management and PMI

- 1958 Publication of many articles on project management
- 1961 Systems Managers at IBM
- 1969 PMI founded by 5 volunteers



- 1992 5000 members
- 2004 142,000 members
- 2005 over 170,000 members worldwide in 120 countries
- 2015 over 1,000,000 members and credential holders in 185 countries
- 2018 Over 1,400,000 Members and credential holders

Source: www.pmi.org

PMI PMBOK Guide: Five Process Groups

- Initiating
- Planning
- Executing
- Monitoring and Controlling
- Closing

Project Management Process Groups

- <u>Initiating:</u> Defines and authorized new project or phase of project by obtaining authorization to start the project or phase.
- Planning: Establishes scope, refines objectives, and defines the course of action required to attain project objectives.
- <u>Executing:</u> Completes work defined in project management plan to satisfy project specifications
- Monitoring and Controlling: Track, review and regulate the progress and performance of project; IDs areas where change is required and initiates corresponding change.
- <u>Closing:</u> Finalizes all activities across all Process Groups to formally close project or phase.

Source: PMBOK 5th Edition 2013-page 49

Process Group Interactions within Project or Phase of Project

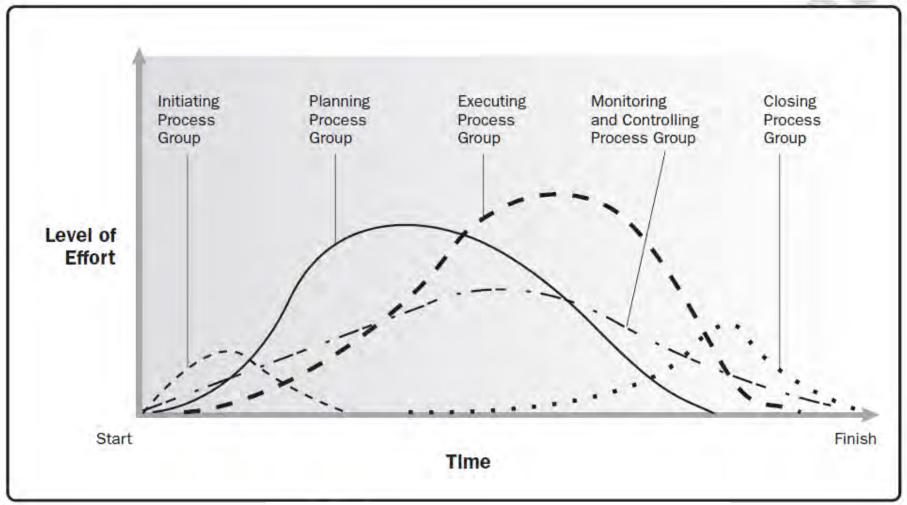
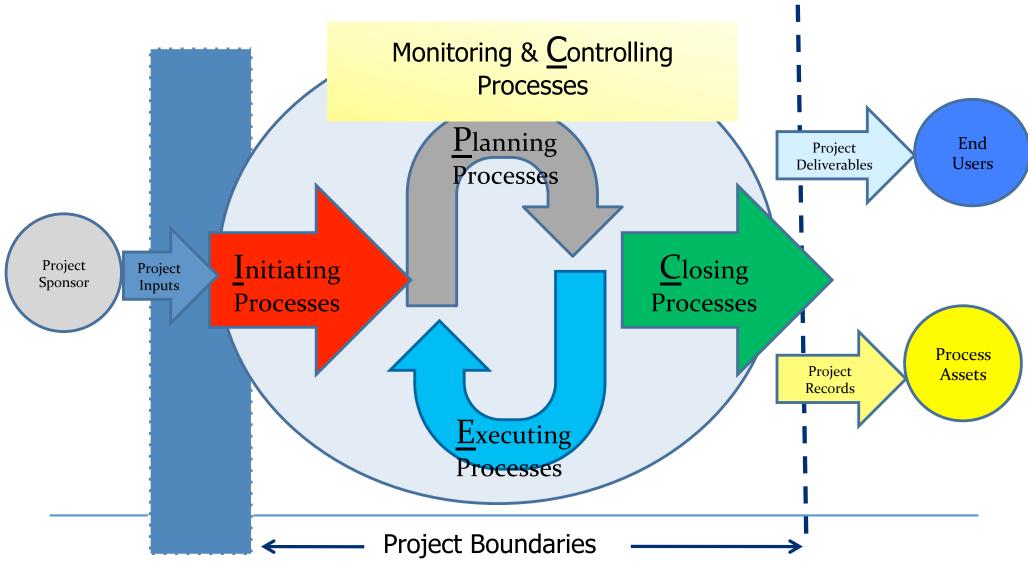


Figure 1-5. Example of Process Group Interactions within a Project or Phase

PMI PMBOK Project Management Process Groups IPEMCC



Project Management Process Groups: Initiating

Processes performed to define a new project or new phase of an existing project by obtaining authorization to start the project of phase.

- Set vision, establish objectives and clarify expectations for project among key stakeholders- <u>Ensure Alignment</u>
 - Business case established and alignment with organizations' strategic portfolio/program objectives (external from project)
 - Define new project or phase
 - Obtain formal authorization (Sponsor)
 - Initial scope and financial resources
 - Key internal and external stakeholders identified
 - Project Manager is selected, establish authority to apply resources
 - Project Charter (Integration Management) and Stakeholder Register (Stakeholder Management) prepared



Project Management Process Groups: Planning

Processes required to establish the scope of the project refine the objectives and define the course of action required to attain the objectives that the project was undertaken to achieve.

- Establish total scope of effort, solidify objectives and measures of success, and develop course of action—
 <u>Build Solid Foundation</u>
 - Establish total scope of effort (What will be done and what it will take)
 - Define and refine the objectives and chart course of action
 - Prepare Project Management Plan (Integration Management) and other project documents used to carry out the work
 - Manage and facilitate on-going feedback loops: "Progressive Elaboration"
 - Delineate strategy and tactics and course of action to successfully complete work; establish clear, measures of success.
 - Establish how work will be done and path forward
 - Ongoing integration of approved changes to baseline
 - Stakeholder collaboration and engagement
 - Alignment with organizational procedures and governance

Project Management Process Groups: Executing

Processes required to complete the work defined in the project management plan to satisfy project requirements.

- Completion of work defined in project management plan to satisfy project specifications-<u>Deliver to Plan</u>
 - Coordinate people and resources
 - Manage stakeholder expectations
 - Integrate and perform activities of project per project management plan
 - Address planning updates and rebaseline
 - Analysis and planning of responses to changes and variances
 - Trigger change requests (input to Perform Integrated Change Control)
 - Most of project budget and resources expended
 - Integrate approved changes to baseline
 - Collaborate with, engage and maintain alignment among stakeholders, balance interests, resolve conflicts.
 - Align with organizational procedures and governance

Project Management Process Groups: Monitoring and

Controlling. Processes required to track, review, and regulate the progress and performance of the project; identify any areas in which changes are required; and initiate the corresponding changes.

- Track, review, and orchestrate the progress and performance of the project; identify and initiate required changes-<u>Stay on Track</u>
 - Measure project performance at regular intervals, events or exception conditions
 - Identify variances from project management plan "baseline"
 - Proactively control change and recommend corrective/preventative action to avoid problems
 - Monitor ongoing activities against project management plan and baseline
 - Influence factors that could circumvent approved integrated change control or configuration management
 - Ongoing "health" check; identify where attention required

Project Management Process Groups: Closing

Processes performed to formally complete or cloe the project, phase or contract.

- Conclude all activities across all Process Groups to formally complete project, phase or contractual obligations-Formal Conclusion
 - Verify defined processes are completed
 - Establish formal project or phase completion
 - As appropriate, establish formal "premature" closure of project
 - Acceptance by customer or sponsor to formally close project or phase
 - Conduct post-project or phase-end review
 - Record impacts of tailoring to any process
 - Document lessons-learned
 - Update organizational process assets
 - Archive relevant project documents
 - Close out procurement activities
 - Perform team member assessment and release resources
 - Celebrate success!!



PMI PMBOK, Ten Knowledge Areas



- Project Integration Management
- Project Scope Management
- Project Schedule Management
- Project Cost Management
- Project Quality Management
- Project Resource Management
- Project Communications Management
- Project Risk Management
- Project Procurement Management
- Project Stakeholder Management

PMBOK Knowledge Area and Process Group Mapping

	Initiating	Planning	Executing	Mon/Cont	Closing
Integration	Develop Project Charter	Develop Project Management Plan	Direct and Manage Project Execution Manage Project Knowledge	Monitor and Control Project Work Perform Integrated Change Control	Close Project or Phase
Scope		Plan Scope Management Collect Requirements Define Scope Create WBS		Validate Scope Control Scope	
Schedule		Plan Schedule Management Define Activities Sequence Activities Estimate Activity Durations Develop Schedule		Control Schedule	
Cost		Plan Cost Management Estimate Costs Determine Budget		Control Costs	
Quality		Plan Quality Management	Manage Quality	Control Quality	
Resources		Plan Human Resource Management Estimate Activity Resources	Acquire Resources Develop Team Manage Team		
Communications		Plan Communications Management	Manage Communications	Monitor Communications	
Risk		Plan Risk Management Identify Risks Perform Qualitative Risk Analysis Perform Quantitative Risk Analysis Plan Risk Responses		Monitor Risks	
Procurement		Plan Procurement Management	Conduct Procurements	Control Procurements	
Stakeholders	Identify Stakeholders	Plan Stakeholder Management	Manage Stakeholder Engagement	Monitor Stakeholder Engagement	

Project Integration Management

The Project Manager's Primary Responsibility

- The processes and activities needed to identify, define, combine, unify and coordinate the various processes and project management activities within the Project Management Process Groups.
- Integrative actions crucial to controlled project execution: meeting requirements, balancing stakeholder needs, allocating resources, making tradeoffs, managing interdependencies,
- Ties together and manages interdependencies of the other nine Knowledge Areas.
- Tailoring processes to achieve specific project requirements.

Project Management is Systems Management

- Orientation to achieve overall system mission and objectives
- Optimization of whole vs. individual parts
- Interaction and synergy among parts
- Measureable, results orientation

Project Initiation



- **Clarify Objectives**
- **Prepare Charter**
- **ID Stakeholders**



Project Planning



- Project Mgmt Plan
- **Project Baseline**
- Measures of success

Project Execution



Produce outcomes and deliverables

Project Close Out



- Transfer deliverables
- Close out contracts
- Lessons learned

Monitoring and Control



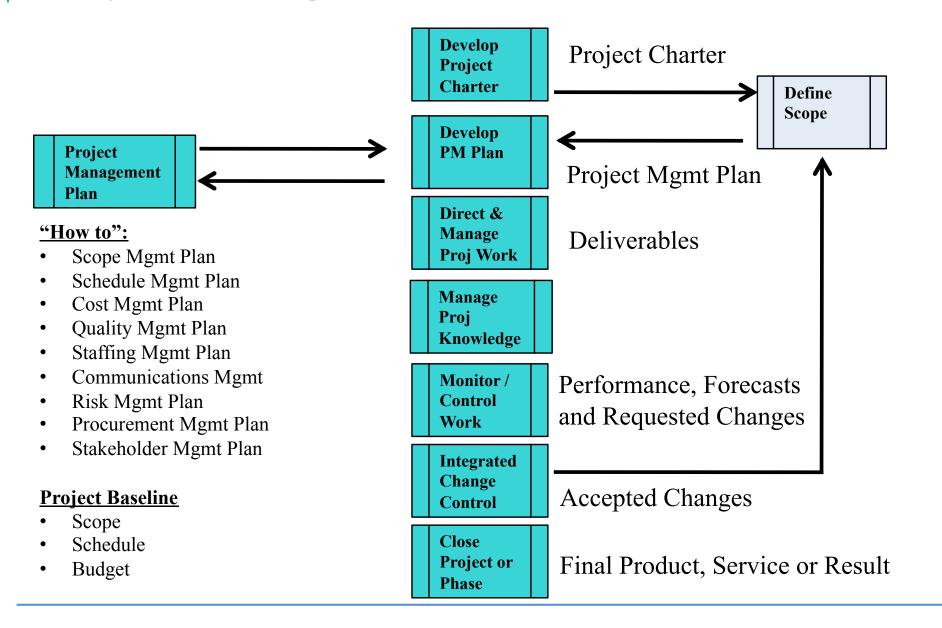
- Measure and report progress
- Control change
- Accept deliverables







Project Integration Processes



One Page Project Charter

PROJECT Project Name Project No. Project Manager OVERVIEW **STATEMENT** Known issue, Specific, Problem/Opportunity customer Measureable, request, Assignable, Goal corporate Realistic, Timeinitiative, related: Objectives mandated SMART) requirement, etc. Measureable Success Criteria Outcome. business value: timeframe. increased measure, action revenue. reduced costs, Technology, Assumptions, Risks, Obstacles improved environmental, service Interpersonal, Cultural, Causal relationships Prepared by Date Approved by Date

Effective Project Management: Traditional, Adaptive, Extreme by Robert Wysocki (2009)

Project Management Plan and Project Documents

P	roject Management Plan	Project Documents			
1. 5	Scope management plan	Activity attributes	19. Quality control measurements		
2. F	Requirements management plan	2. Activity list	20. Quality metrics		
	Schedule management plan	3. Assumption log	21. Quality report		
4. (Cost management plan	Basis of estimates	22. Requirements documentation		
5. (Quality management plan	5. Change log	23. Requirements traceability matrix		
1 1 1 1 1 1 1	Resource management plan	6. Cost estimates	24. Resource breakdown structure		
6. F 7. (8. F 9. F	Communications management plan	7. Cost forecasts	25. Resource calendars		
8. F	Risk management plan	8. Duration estimates	26. Resource requirements		
9. F	Procurement management plan	9. Issue log	27. Risk register		
10. 5	Stakeholder engagement plan	10. Lessons learned register	28. Risk report		
11. (Change management plan	11. Milestone list	29. Schedule data		
12. (Configuration management plan	12. Physical resource assignments	30. Schedule forecasts		
, ,	Scope baseline	13. Project calendars	31. Stakeholder register		
14. 9	Schedule baseline	14. Project communications	32. Team charter		
	Cost baseline	15. Project schedule	33. Test and evaluation documents		
0	'erformance measurement baseline	16. Project schedule network diagram			
17. F	Project life cycle description	17. Project scope statement			
18. [Development approach	18. Project team assignments			

Specific Documents and Artifacts

PMBOK® Guide 6th Edition (2017) Table 4-1. Project Management Plan and Project Documents p. 89

Additional Components

Change Control Process Example

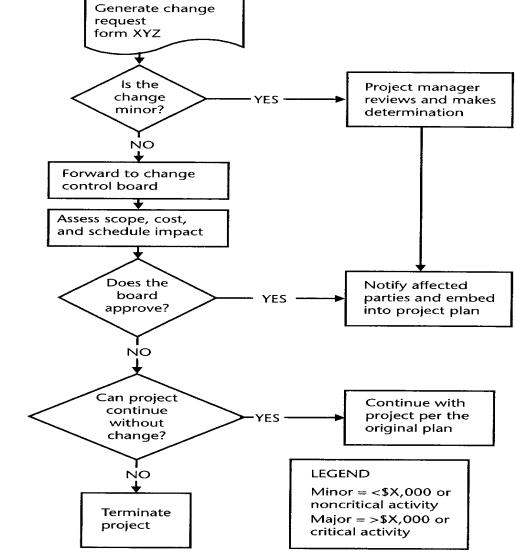


Figure 4.1 Change process.

Source: The Project Management Communications Toolkit, Pritchard,

Artech House 2004

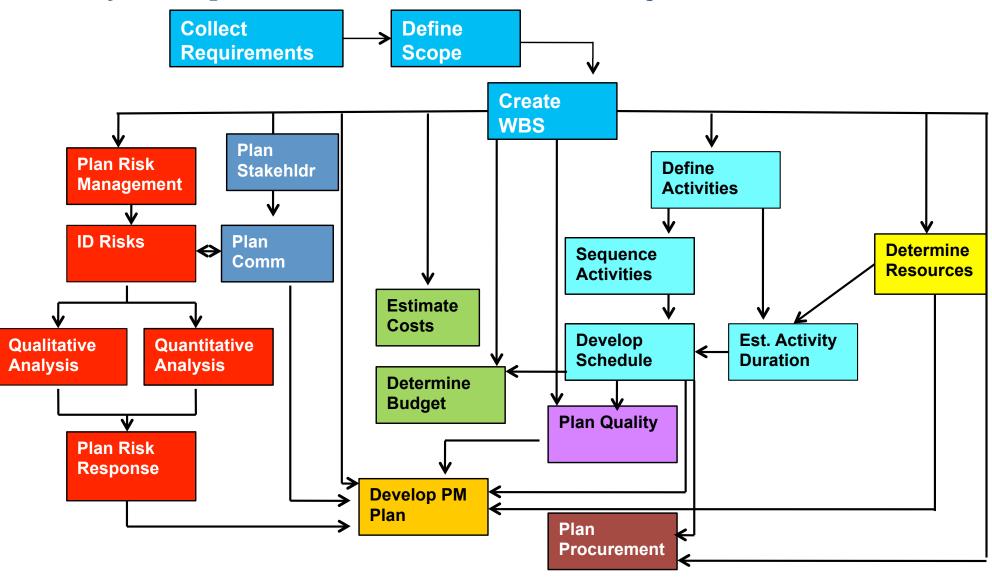
Project Scope Management: "All of the work and only the work."



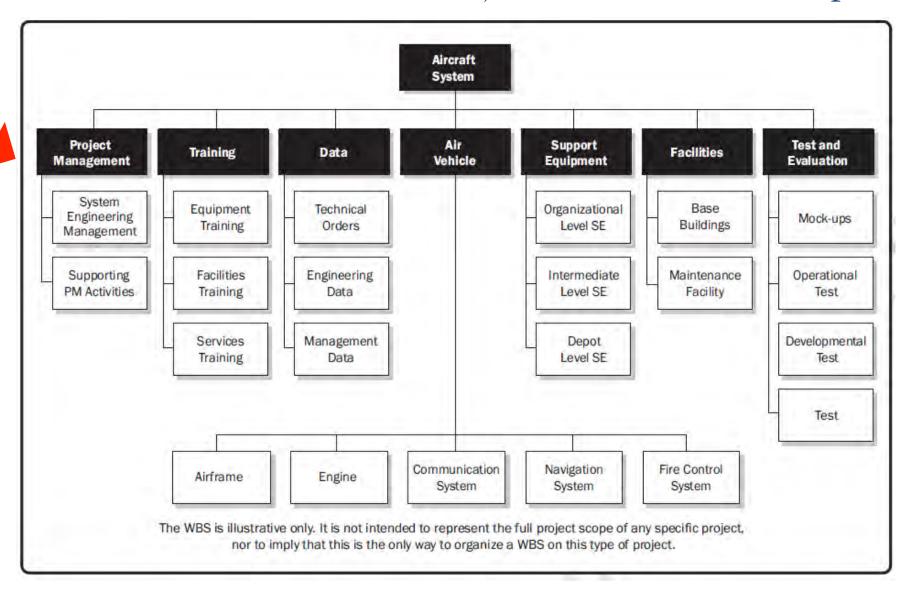
Process Group	Process Name		Main Outputs
Planning	Plan Scope Management	\Rightarrow	Scope Management Plan Requirements Mgmt Plan
	Collect requirements		Requirements documentation Requirements traceability matrix
	Define Scope		Project Scope Statement
	Create WBS	 	Scope Baseline (Work Breakdown Structure and WBS Dictionary)
Monitoring and Controlling	Validate Scope	=	Accepted Deliverables Work Performance Information Change Requests
	Control Scope		Project Scope Statement (updates)
			Scope Baseline (updates)
			WBS (updates)

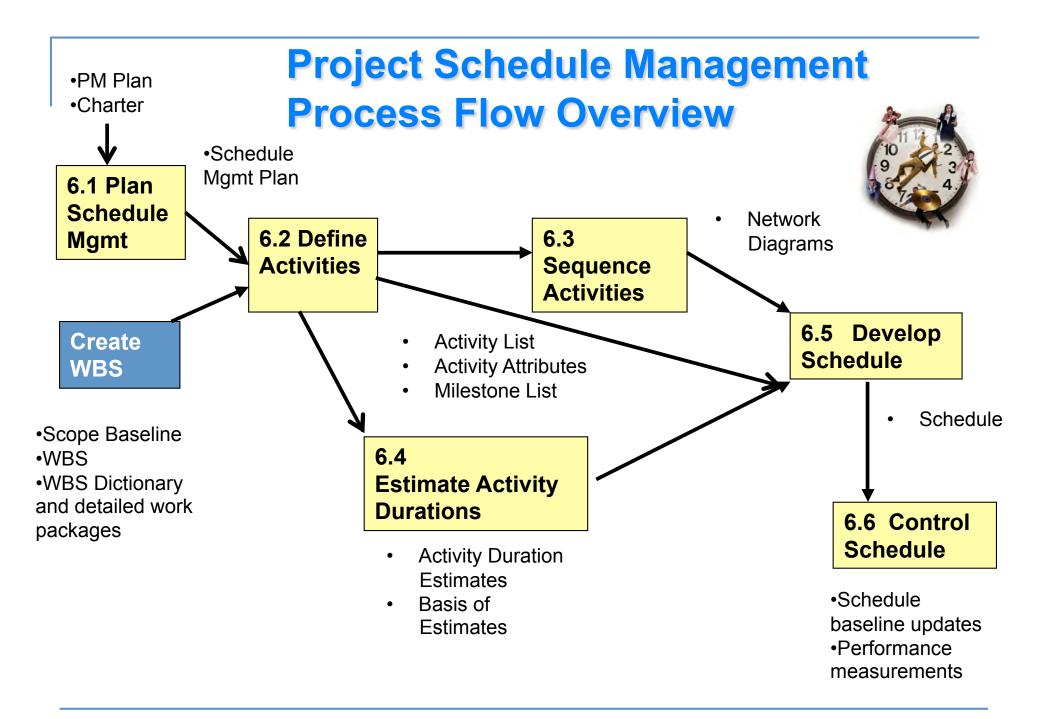
Value of WBS

"A Project Management Plan is no better than its WBS Decomposition"

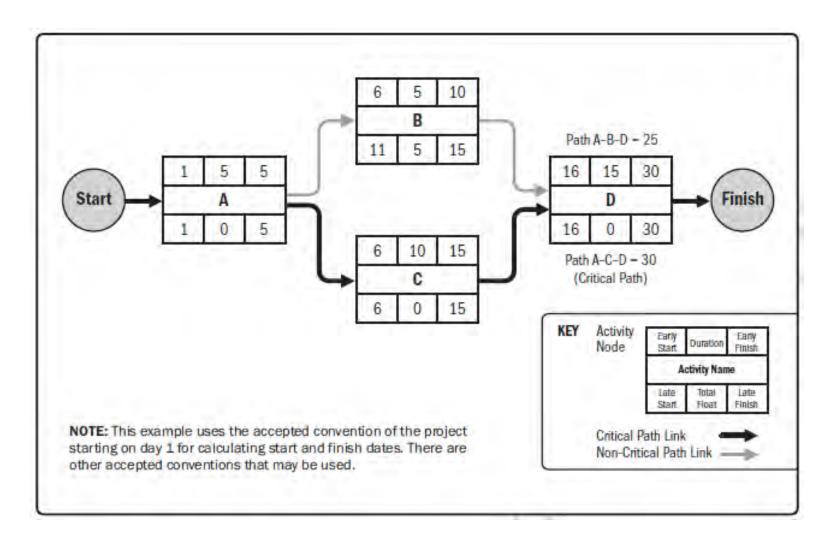


Work Breakdown Structure: Major Deliverables Example





Critical Path Method (CPM)



Milestone Chart

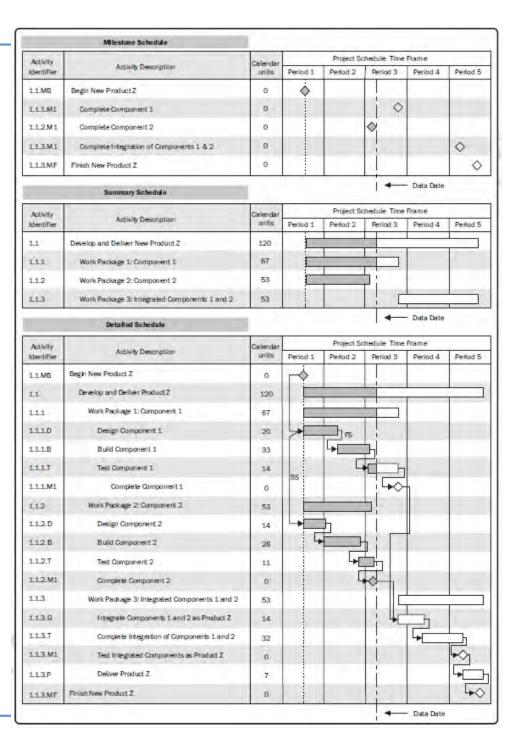


Project Schedule Presentations

Summary Schedule



Detailed schedule With logical relationships



Project Cost Management:

Estimating, budgeting, and controlling costs so project can be completed within approved budget



Process Group	Process Name		Main Outputs
Planning	Plan Cost Mgmt		Cost Management Plan
	Estimate Costs	→	Cost Estimates
			Basis of Estimates
	Determine Budget		Cost Baseline
			Project Funding Requirements
Monitoring and	Control Costs	→	Work Performance Information
Controlling			Cost Forecasts
			Change Requests
			Proj. Mgmt Plan Updates
			Project Document Updates

Source: PMP Exam Success Series: Bootcamp Manual, Crosswind, 2008 pg 205 adapted for PMI PMBOK 6e 2017

Cost Baseline, Expenditures and Funding Alignment

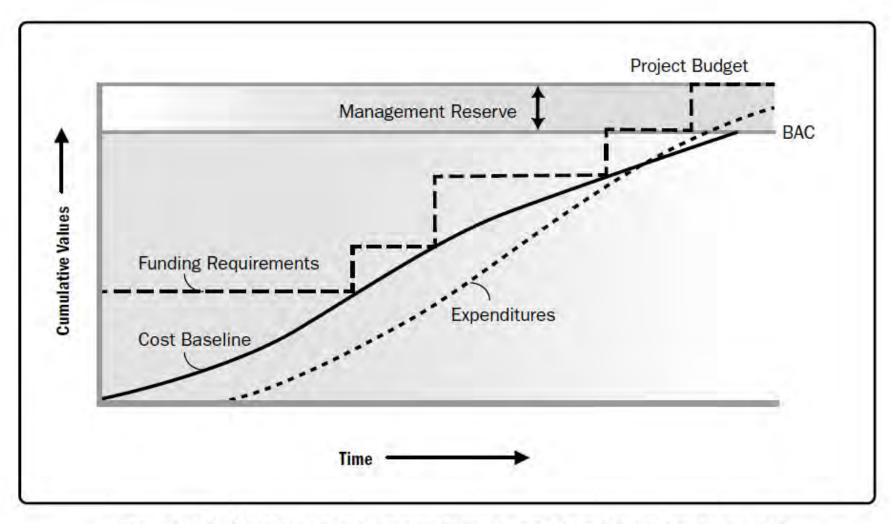
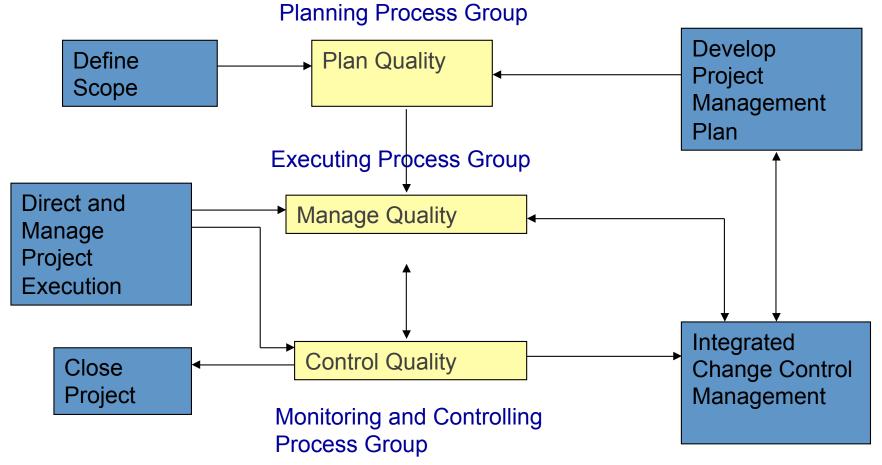


Figure 7-9. Cost Baseline, Expenditures, and Funding Requirements

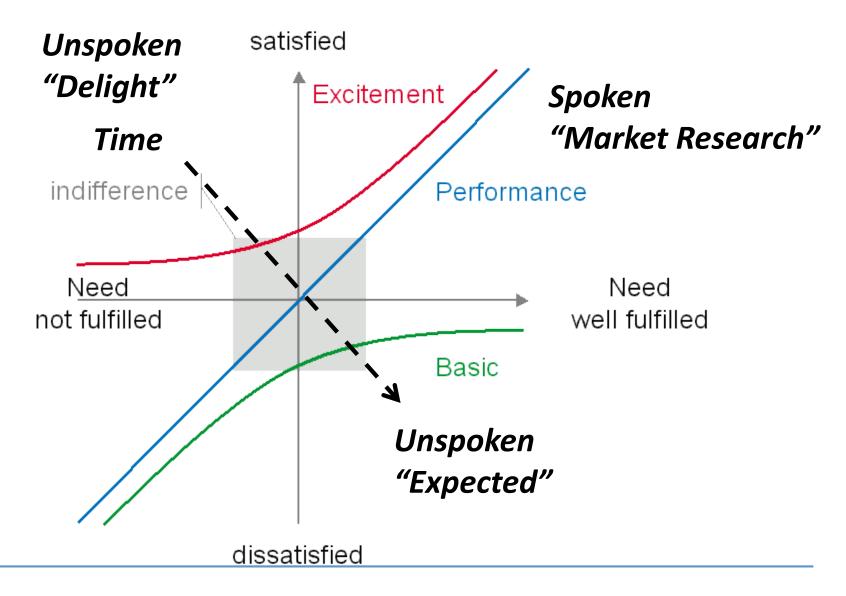
Quality Management

Satisfying stakeholder requirements for which project was undertaken





Kano Model



Source: Wikipedia

Credit: Professor Noriaki Kano (1984) The Journal of Japanese

Society for Quality Control, April, pp. 39-48 Recipient of 1997 Deming Prize for Individuals

Modern Definition of Quality

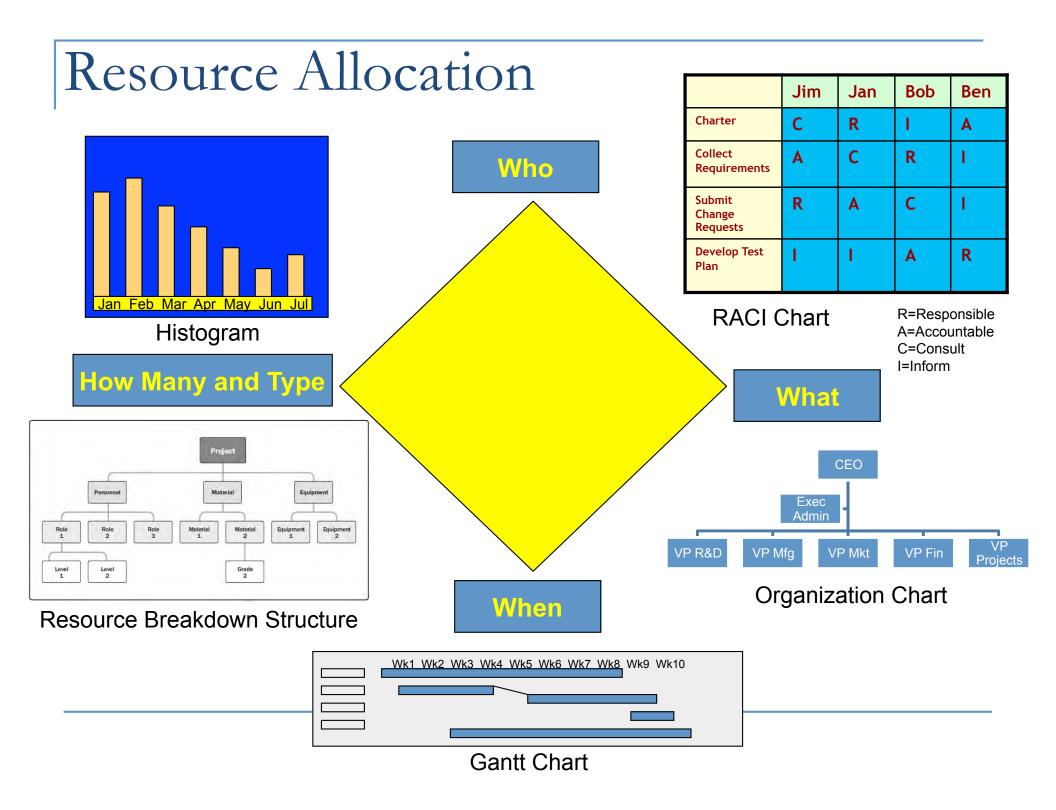
- Customer Satisfaction
- Prevention over inspection
- Continuous Improvement
- Management Responsibility
- Mutually beneficial partnership with suppliers

Project Resource Management

The right resources at the right time



Process Group	Process name		Main Outputs
	Plan Resource Management		Resource Management Plan
Planning	Estimate Activity		Resource requirements
	Resources		Basis of estimates
			Resource Breakdown Structure
Executing	Acquire Resources		Physical resource assignments Project team assignments Resource calendars
	Develop Team		Team Performance Assessment
	Manage Team		Change requests Enterprise Environmental Factors and Org Process Asset Updates
Monitoring and Controlling	Control Resources		Work performance information
			Change requests and document updates

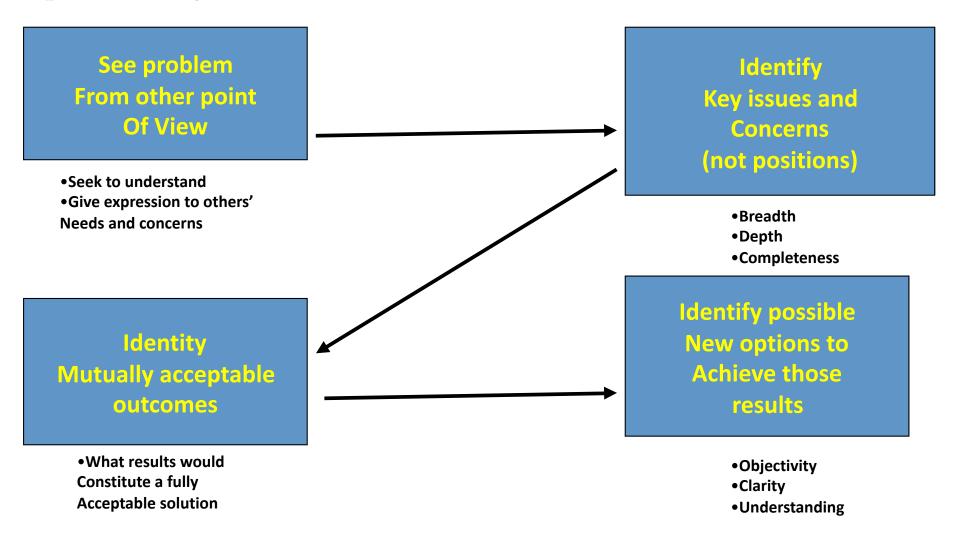


Interpersonal and Team Skills

- Conflict Management
- Influencing
- Motivation
- Negotiation
- Team Building

Principled vs. Positional Approach:

Separate Person from Problem



Team Development Life Cycle

Form	Creation of team when people are put together per the project organizational Planning needs
Storm	Chaos that occurs as people start to get accustomed to working together
Norm	Point in time when team behavior starts to normalize and people grow accustomed to working together. Newness has worn off.
Perform	Activity that transpires when the team works as a team rather than group of people. Working at optimal level.
Adjourning	Team completes the work and moves on from the project

Communications Management

90% of a project manager's time is spent

communicating



Identify Stakeholders
Initiating

Plan Communications
 Planning

Distribute Information
 Executing

Manage Stakeholder Expectations Executing

Report Performance Monitoring & Controlling

Project Communications The right information, effectively delivered, at the right time



Process Group	Process name		Main Outputs
Planning	Plan Communications Management		Communications Management Plan
Executing	Manage Communications		Project Communications
Monitoring and	Monitor	1	Work performance information
Controlling	Communications		Change requests and document updates

- 90 % of a PM's time is spent communicating
- #1 most cited reason for project challenges and failure

Communications Model

Verbal, written, body language

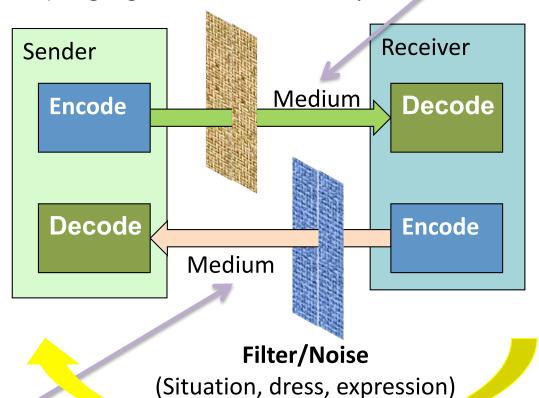
Filter/Noise

(Language, Non-verbal, History, etc.)

Current Emotional State

Culture:

- Generational
- National
- Professional discipline
- Gender
 Personality biases
 (assumptions)



Current Emotional State

Culture:

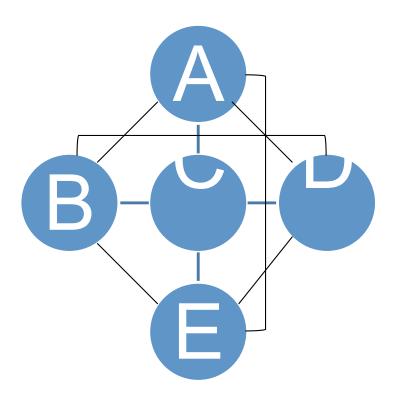
- Generational
- National
- Professional discipline
- Gender

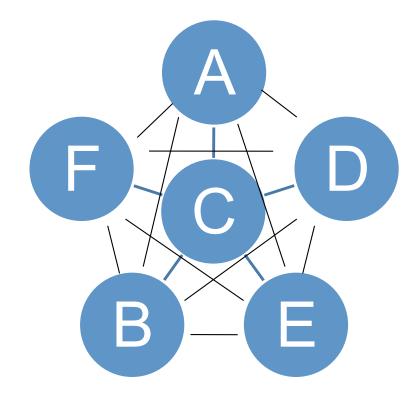
Personality biases (assumptions)

Verbal, written, body language

Feedback

Communication Channels





5 people = **10 paths** $(5 \times 4)/2$

Add one more person

6 people = **15 paths** $(6 \times 5)/2$

Project Management



Where are we?

How is the system?

In Project Management these are what we need to continually know and be able to communicate effectively.

Risk Management

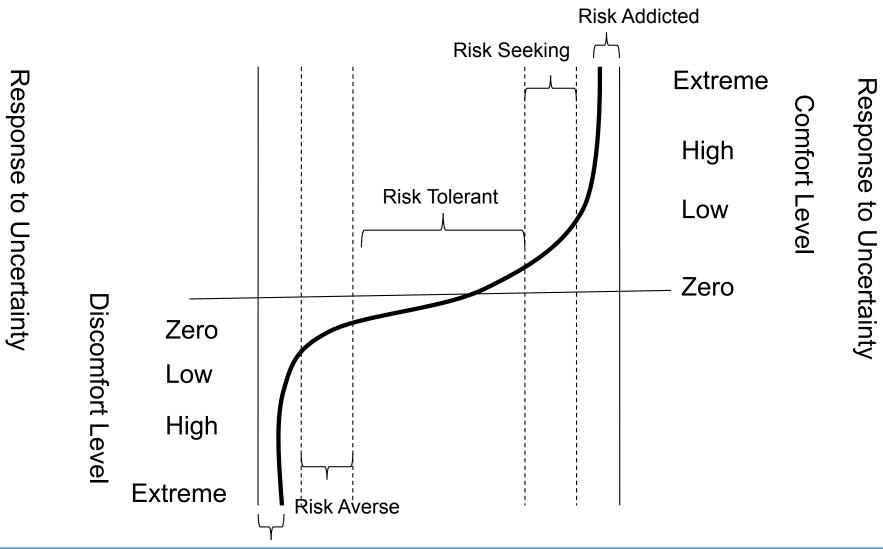
Increase probability and impact of positive events and decrease probability and impact of negative events.

Process Group	Process Name		Main Outputs
	Plan Risk Management	\rightarrow	Risk Management Plan
	Identify Risks		Risk Register Risk Report
Planning	Perform Qualitative Risk Analysis	~	
	Perform Quantitative Risk Analysis	\rightarrow	Change Requests Risk Register Updates
	Plan Risk Responses	\rightarrow	
Executing	Implement Risk Responses	~	
Monitoring and Controlling	Monitor Risks	→	Work performance Information Change requests Risk Register Updates

Also, create and maintain a risk management data bank for Project and organizational process assets....

Risk Attitude Spectrum An important driver of behavior is whether uncertainty is perceived

An important driver of behavior is whether uncertainty is perceived As favorable, neutral, unfavorable or hostile



Probability and Impact Matrix

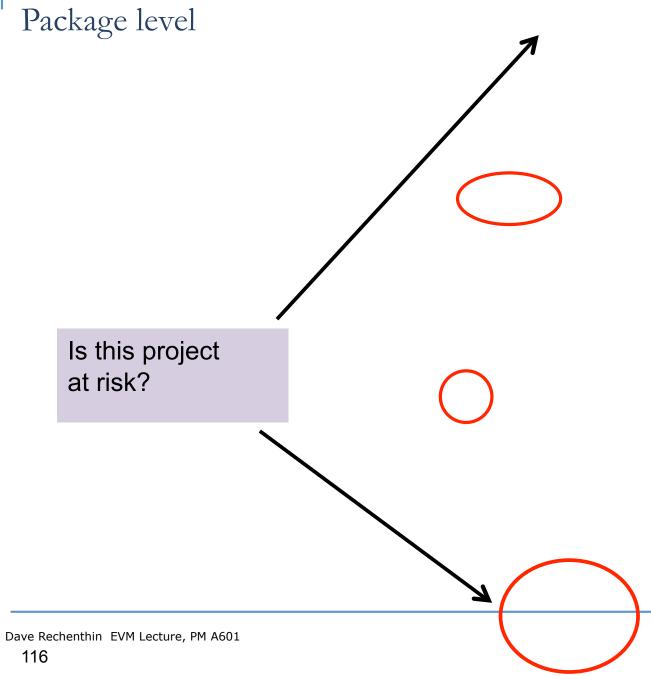
Probability		Threats					Opportunities				
0.90	0.05	0.09	0.18	0.36	0.72	0.72	0.36	0.18	0.09	0.05	
0.70	0.04	0.07	0.14	0.28	0.56	0.56	0,28	0.14	0.07	0.04	
0.50	0.03	0.05	0.10	0.20	0.40	0.40	0,20	0.10	0.05	0.03	
0.30	0.02	0.03	0.06	0.12	0.24	0.24	0.12	0.06	0.03	0.02	
0.10	0.01	0.01	0.02	0.04	0.08	0.08	0.04	0.02	0.01	0.01	
	0.05	0.10	0.20	0.40	0.80	0.80	0.40	0.20	0.10	0.05	

Impact (ratio scale) on an objective (e.g., cost, time, scope or quality)

Each risk is rated on its probability of occurring and impact on an objective if it does occur. The organization's thresholds for low, moderate or high risks are shown in the matrix and determine whether the risk is scored as high, moderate or low for that objective.

Source: PMBOK®Guide 6th Edition, pg. 408

Tracking Risk at the WBS Work



Risk Response Planning

Strategies for Negative Risks or Threats

Avoid Transfer Mitigate

Risk Response Planning

Strategies for Positive Risks or Opportunities

Exploit

Share

Enhance



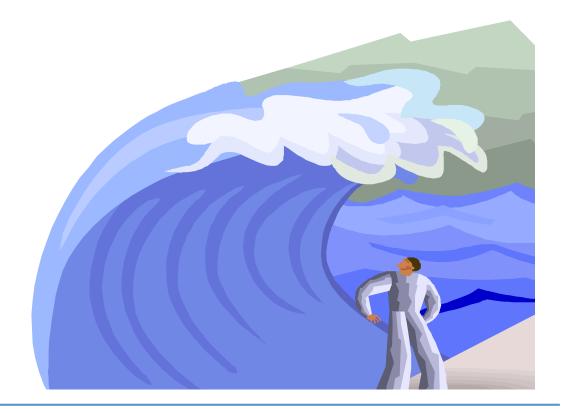




Risk Response Planning

Strategy for Both Threats and Opportunities

- Acceptance
 - Passive
 - Active



Risk Register

Risks	Severity (1-low 10-high)	Likelihood (1 unlikely 10 likely)	Ability to Detect (1 easy 10 highly unlikely)	RPN SXLXD	Risk Response and Action	Owner

Project Procurement

Purchasing and acquiring goods and services from outside the project team

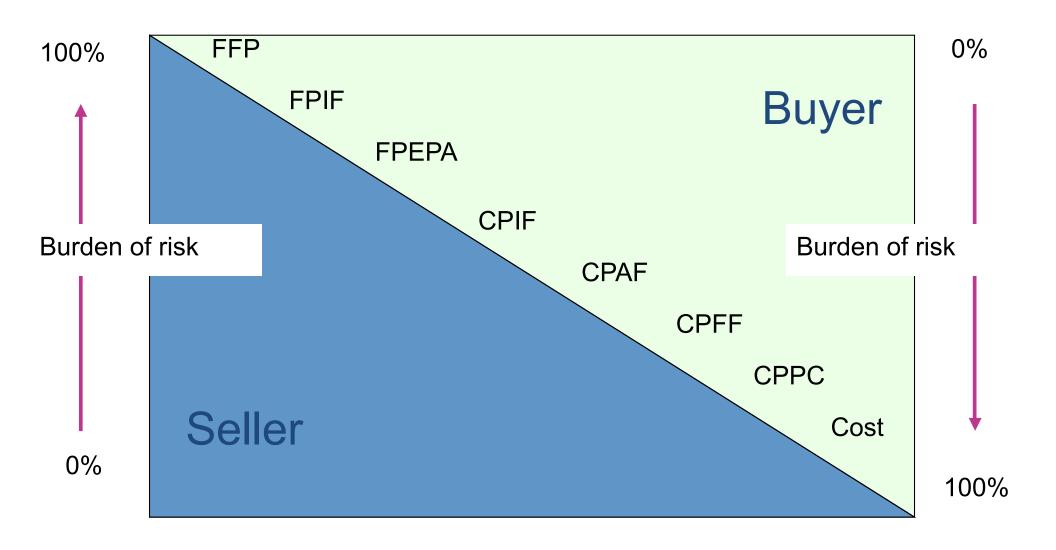


Process Group	Process name	Main Outputs
Planning	Plan Procurement Management	Procurement Management Plan Bid Documents Source Selection Criteria Make-Buy decisions Procurement Statement of work
Executing	Conduct Procurements	Selected Sellers Agreements Change Requests Project Document Updates
Monitoring and Controlling	Control Procurements	Closed procurements Work Performance Information Change requests Procurement document updates Project Document Updates

Comparison of Procurement Documentation

Procurement Management Plan	Procurement Strategy	Statement of Work	Bid Documents
How procurement work will be coordinated and integrated with other project work, particularly with resources, schedule, and budget	Procurement delivery methods	Description of the procurement item	Request for information (RFI), Request for quote (RFQ), Request for proposal (RFP)
Timetable for key procurement activities	Type of agreements	Specifications, quality require- ments and performance metrics	
Procurement metrics to manage the contract	Procurement phases	Description of collateral services required	
Responsibilities of all stakeholders		Acceptance methods and criteria	
Procurement assumptions and constraints		Performance data and other reports required	
Legal jurisdiction and currency used for payment		Quality	
Information on independent estimates		Period and place of performance	
Risk management issues		Currency; payment schedule	
Prequalified sellers, if applicable		Warranty	

Risk vs. contract type



Project Stakeholder Management

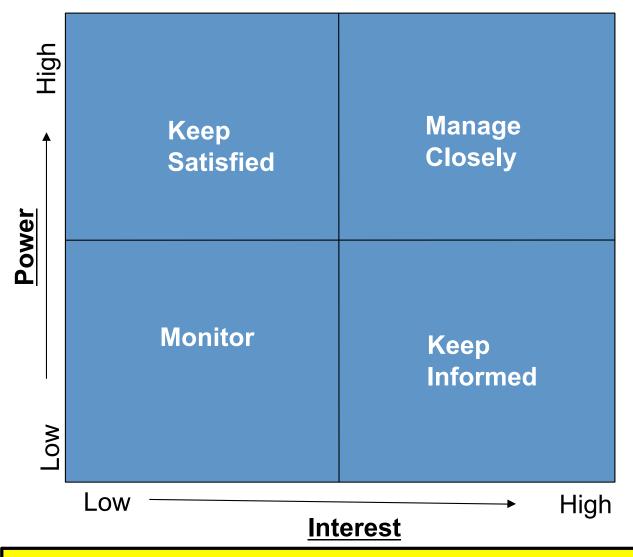
Engaging and aligning stakeholders over project lifecycle to fulfill requirements

Process Group	Process name	Main Outputs
Initiating	Identify Stakeholders	Stakeholder Register
Planning	Plan Stakeholder Management	Stakeholder Management Plan
Executing	Manage Stakeholder Engagement	Change requests Project Document Updates
Monitoring and Controlling	Monitor Stakeholder Engagement	Work Performance Information Change requests Project Documents Updates

Stakeholder Relationships



Stakeholder Assessment



- Stakeholders may have:
 - Interests
 - Rights
 - Ownership
 - Knowledge
 - Contribution
- Stakeholders will have different levels of:
 - Power
 - Urgency
 - Proximity
 - Legitimacy
- Directions of Influence
- Priority

Knowledge of a party's "stake" in the success or failure of the activity is key to managing the relationship between the work and that stakeholder.

Engagement Analysis: Current/Desired

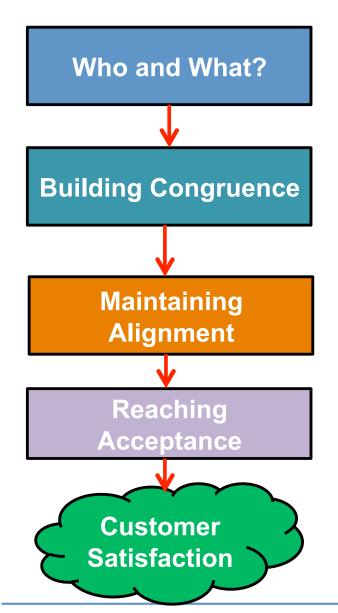
- Unaware-project and impacts
- Resistant-aware and resistant
- Neutral-aware and neutral
- Supportive-aware and supportive
- Leading-aware and actively engaged in project success

Stakeholder	Unaware	Resistant	Neutral	Supportive	Leading
Stakeholder 1	С			D	
Stakeholder 2			C	D	
Stakeholder 3				DC	

Figure 13-7. Stakeholders Engagement Assessment Matrix

13. Project Stakeholder Management





Who are they, what is their relationship to the project, and what are their requirements for the project and product of project?

What is the "best fit" solution that achieves the project objectives and addresses key stakeholder priorities?

During execution, keeping project work aligned with objectives, dynamic stakeholders, project changes and realized risks. Making tradeoffs, managing conflict.

Reaching acceptance and successfully transitioning results into operational environment.

Achieving measureable customer satisfaction.

Targeted Stakeholder Communication

Most appropriate information:

- Direction of influence
- Internal vs. external

Most effective message:

Message:

- Why are they important
- Expectations and requirements

Messenger:

- Who has knowledge
- Most likely listened to
- Can effectively influence attitude

Most efficient method

 Is current engagement position situation equal, less than or greater than optimal engagement position?

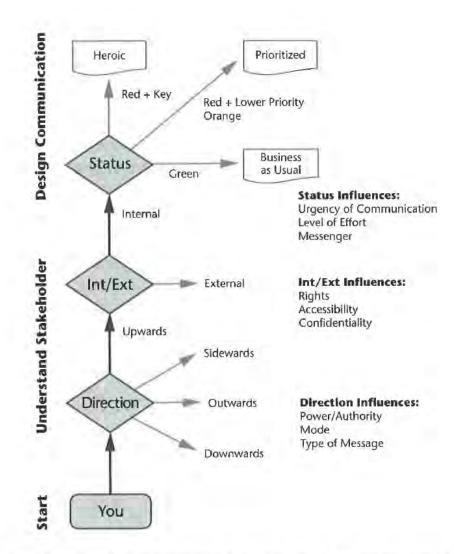
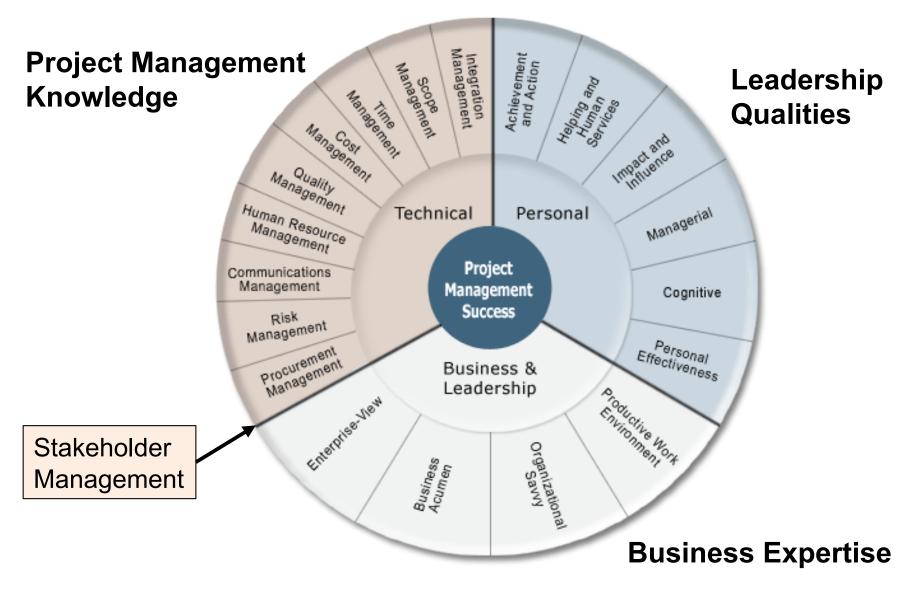


Figure 5.4 Stakeholder communication analysis: decomposition of upwards

Stakeholder Engagement in Lifecycle

				7	ype of	Participat	lon			
		Inf	orm	Cor	sult	Parti	nership	p	Co	ntrol
	Initiation Identification	SA	S _H	Sc		S,		SE		e
sycle	Planning		SK		SB		S			S ₀
Stage in Lifecycle	Execution Implementation	1	S _M	S _F		S _N	I	ă	- 3	S _G
Stag	Controlling Monitoring and Evolution						SL			So
	Closing				S				SA	
					, make			S _x = 3	Stakeh	older 2

Project Management Success



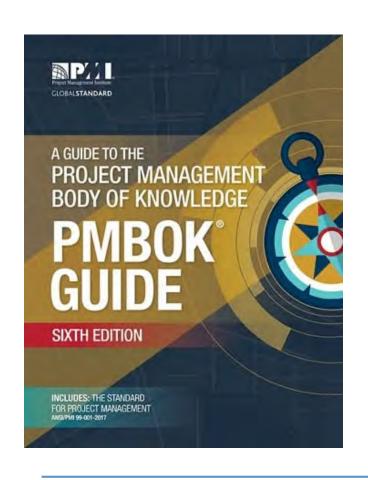


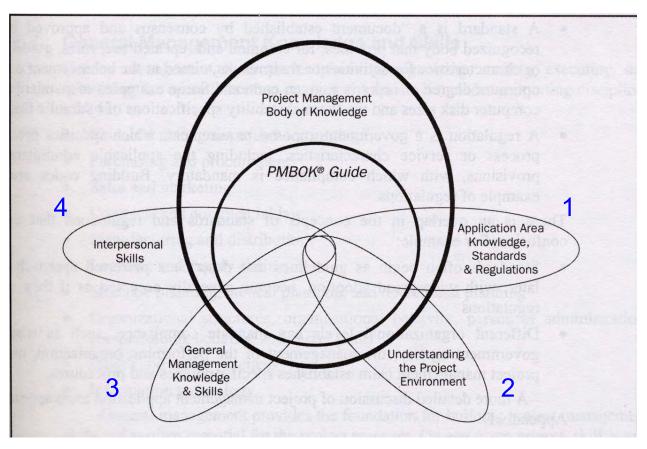
Sources

- Project Management: The Managerial Process (7th ed., McGraw-Hill) by Erik W. Larson and Clifford F. Gray
- Project Management for Business, Engineering, and Technology By John Nicholas, Ph.D. and Herman Steyn, Ph.D.
- Project Management Institute (PMI) Guide to Project Management Body of Knowledge (PMBOK® Guide) 3rd Edition (2004), 4th Edition (2008) and 5th Edition (2013), 6th Edition (2017)
- Effective Project Management: Traditional, Adaptive, Extreme by Robert Wysocki (2009)
- Effective Work Breakdown Structures, Haugan (2004)
- The Project Management Communications Toolkit by Carl Pritchard (2004),
 Artech House, Inc. Project Management Library,
- Project Management: A Managerial Approach, 6th Ed, Wiley, Jack R.
 Meredith, Samuel J. Mantel, Jr.
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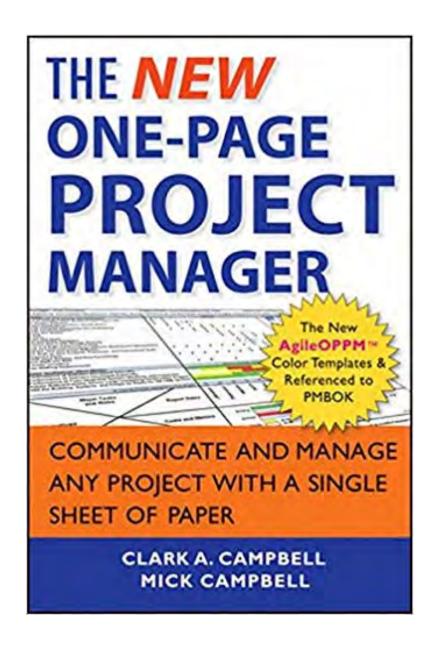
TOOL KIT

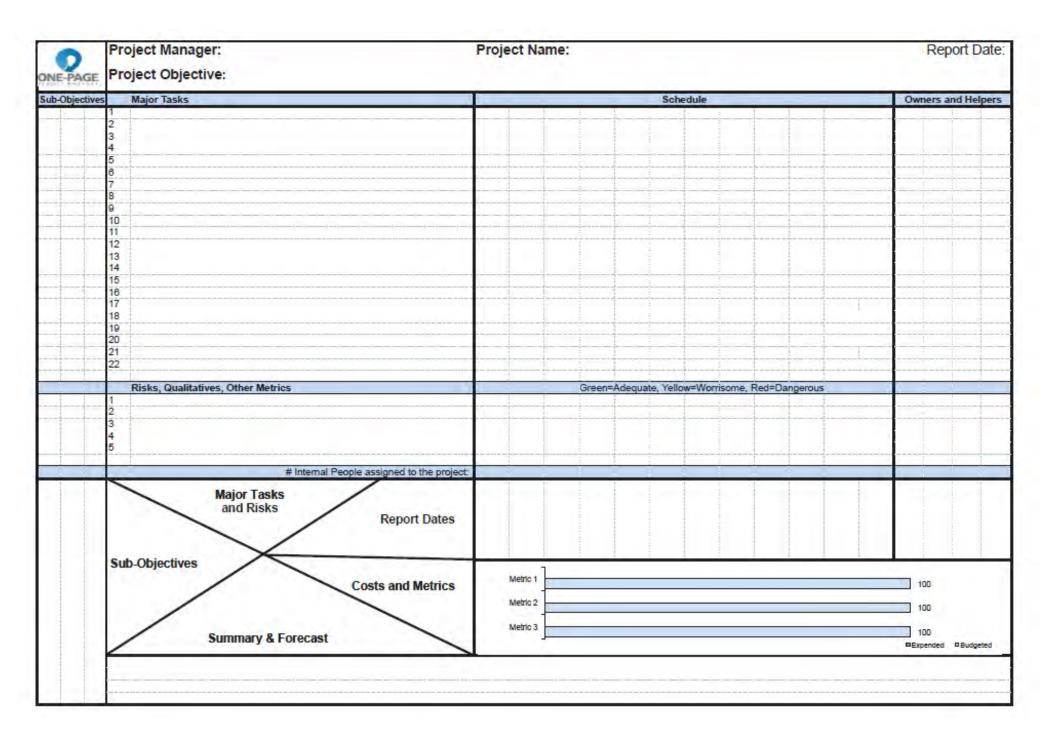
Project Management Institute (PMI) Guide to Project Management Body of Knowledge (PMBOK®Guide) 6th Edition (2017)





ISBN: 9781628253900





Project Management Knowledge Areas (10) Mapped with Processes (3/5/10/48)

Integration	Scope	Schedule	Cost	Quality	Resources	Commu nication	Risk	Procure- ment	Stakeholder
4.1 Develop Project Charter									13.1 ID Stake- holders
4.2 Develop Project Mgmt Plan	5.1 Plan Scope Mgmt 5.2 Collect Reqs 5.3 Define Scope 5.4 Create WBS	6.1 Plan Sched Mgmt 6.2 Define Activities 6.3 Sequence Activities 6.4 Est Activity Durations 6.5 Develop Schedule	7.1 Plan Cost Mgmt 7.2 Est Costs 7.3 Det. Budget	8.1 Plan Quality Mgmt	9.1 Plan Resource Mgmt 9.2 Estimate Activity Resources	10.1 Plan Comm Mgmt	11.1 Plan Risk Mgmt 11.2 ID Risks 11.3 Perform Qual Risk Analysis 11.4 Perform Quant Risk Analysis 11.5 Plan Risk Responses	12.1 Plan Procure- ment Mgmt	13.2 Plan Stakeholder Mgmt
4.3 Direct and Manage Project Work 4.4 Manage Project Knowledge				8.2 Manage Quality	9.3 Acquire Resources 9.4 Develop Team 9.5 Manage Team	10.2 Manage Comms	11.6 Implement Risk Responses	12.2 Conduct Proc.	13.3 Manage Stakeholder Engagement
4.5 Monitor and Control Project Work 4.6 Perform Integrated Change Control	5.5 Validate Scope 5.6 Control Scope	6.6 Control Schedule	7.4 Control Costs	8.3 Control Quality	9.6 Control Resources	10.3 Monitor Comms	11.7 Monitor Risks	12.3 Control Proc	13.4 Monitor Stakeholder Engagement
4.7 Close Project or Phase									

Pln (24)

Ex (10) M&C (12) Close(1) = 49









Basic Project Management Tools

Kelly Schactler University of Alaska Project Management Program Adapted by LuAnn Piccard (2108)



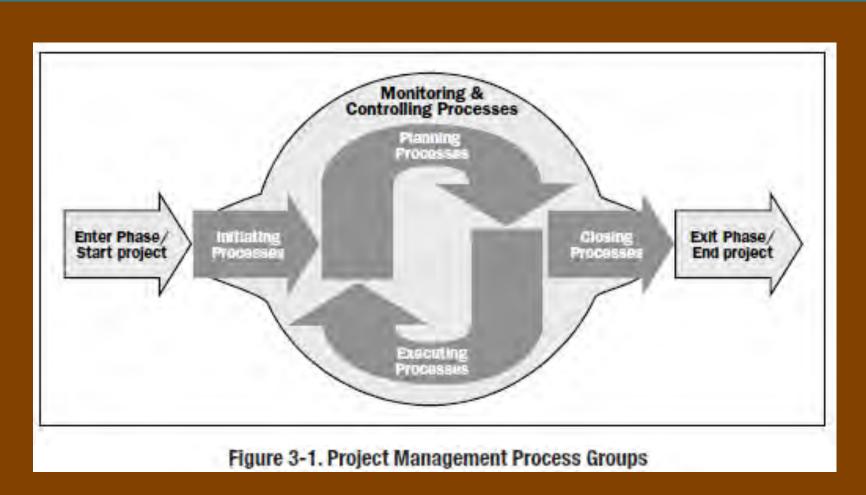
What is Project Management?

• The PMBOK Definition

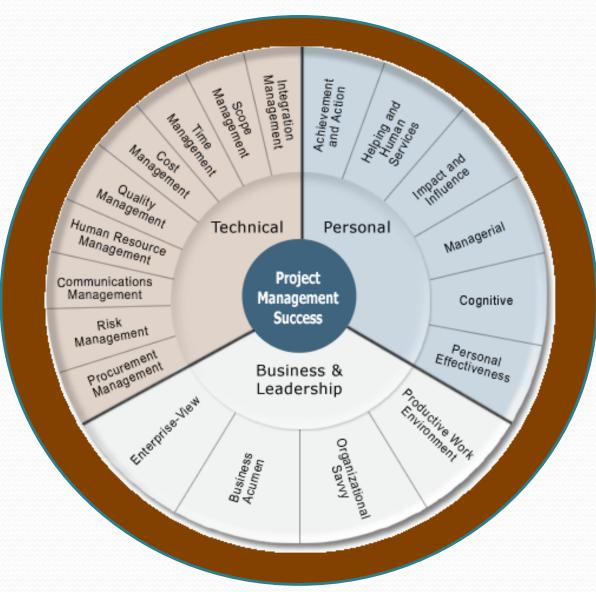
Project

Project Management

Project Management Process Groups



Knowledge Areas



Some of the Challenges



Putting Project Management Tools to Work for You



Charter



ID Resources and Budget



Stakeholder Analysis



ID Risks



Work Breakdown Structure



Monitor & Control



Lessons Learned

Time and Schedule

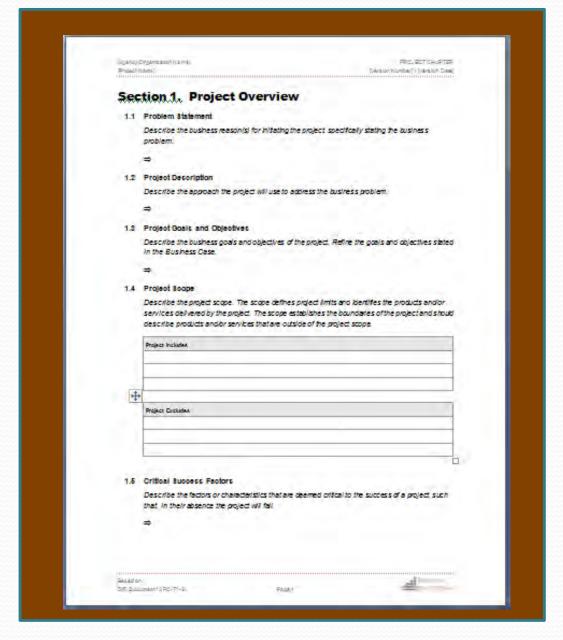
First Things First: Charter

Example of Project Charter Table of Contents

Section	Description
1	Introduction
2	Overview of the Project
3	Purpose of the Project
4	Objective
5	Business Need or Opportunity
6	Financial benefits of the project
7	Expected Benefits
8	Scope
9	Project Budget
10	Project Start and Finish Dates
11	Major Deliverables
12	Resources
13	Critical success factors of Project
14	Assumptions and Constraints
15	Sign-offs



Charter Example

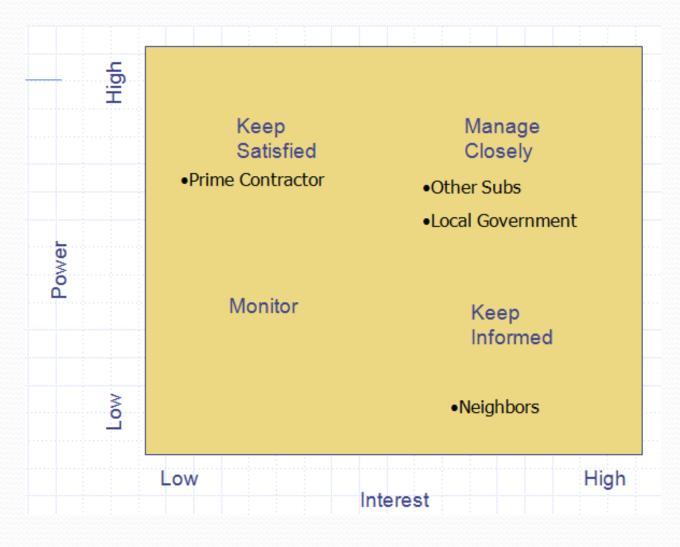


Next: Stakeholder Analysis

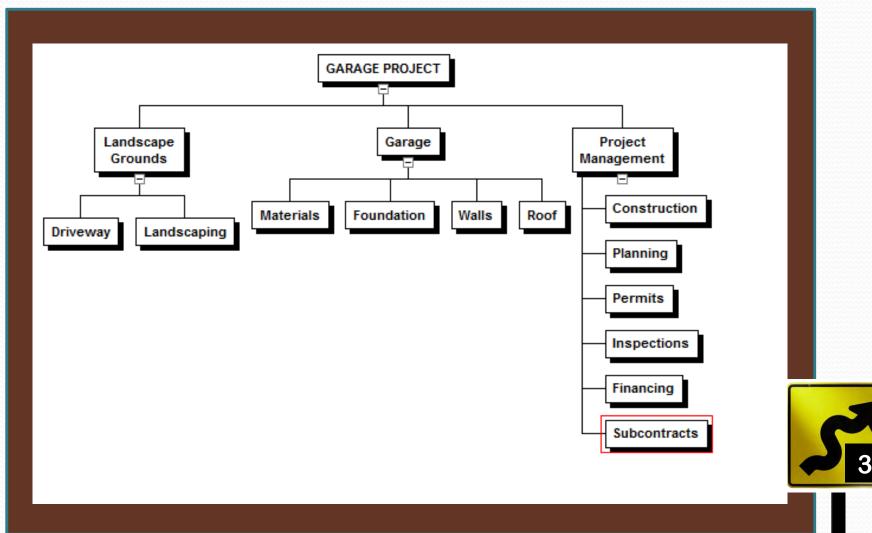
Stakeholders (Name)	Relationship To you	Type of Information needed	Format/Tool	Timing	Other Insights/ Needs
Prime Contractor/ Customer	Supervisor /Team Lead	Status reports, Meetings	Written reports/ Summaries	Weekly	Deadline sensitive
Other Subs	Team Member	Status Reports, Meetings, Summaries	Written Reports /Emails/ Face to Face	Weekly	Oversight needed
Neighbors	Customer	Managed info, via face to face as needed	Alerts as needed	As needed	Little input into process, but need to keep happy
Local Government	Interested Party	Updates as required bylaw	Status reports	As needed	



Stakeholder Power/Interest Grid



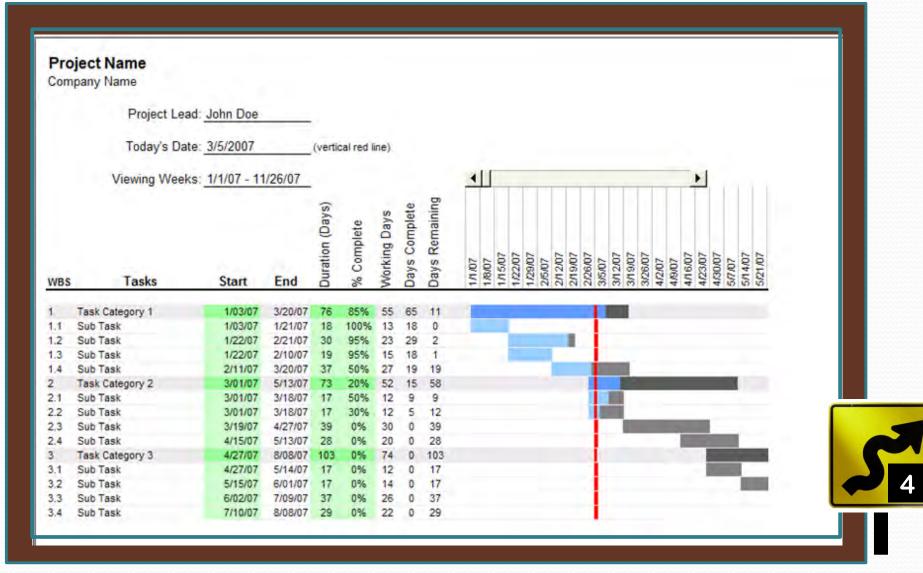
Next: Work Breakdown Structure



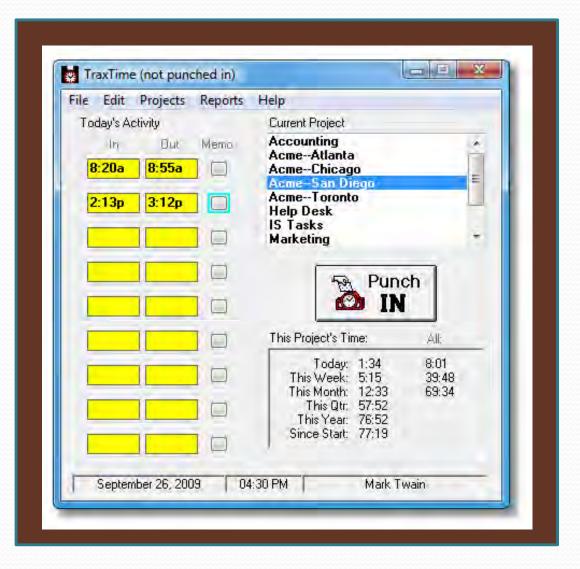
WBS Using Decimal Outline

```
Project: Garage
Level1: Garage Project
Level 2:
       1.0 Landscape
                                         Level3
               1.1
                      Driveway
               1.2
                      Landscaping
       2.0 Garage
                       Materials
               2.1
               2.2
                      Foundation
               2.3
                      Walls
                                         Level3
               2.4
                       Roof
               2.5
                      Utilities
       3.0 Project Management
               3.1
                      Construction Planning
               3.2
                       Permits
               3.3
                      Inspections
                                                  Level3
               3.4
                      Financing
               3.5
                       Subcontracts
```

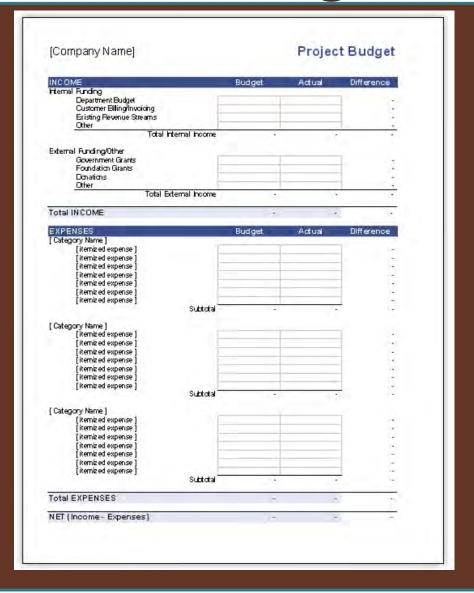
Next: Time & Schedule



Time & Schedule

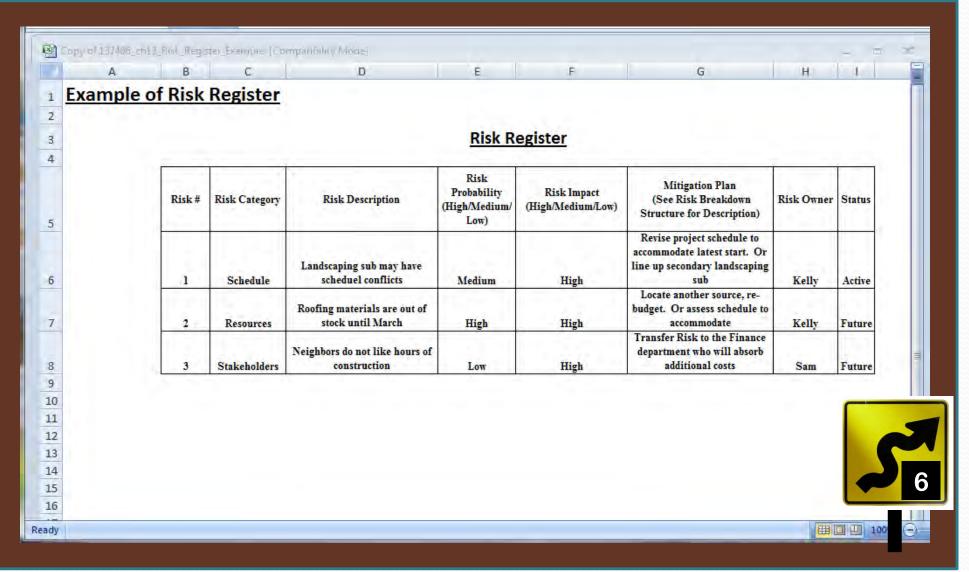


Resources and Budget





Next: Identifying Risk



Monitoring and Control

PROJECT STATUS REPORT

Reporting Period: February 1, 2010 to February 7, 2010

Project manager: B. Smith Project Title: DOT Garage

Accomplishments this Period:

- · Design submitted and approved
- Materials list drafted
- Roofing and drywall subs identified

Scheduled Items Not Completed:

- Approvals obtained from Prime
 Final Budget approved

Activities Next Period:

- Landscaping design developed
 Materials ordered

Issues:

· Neighbors complaining about view being blocked

Schedule Changes:

None at this time.

Budget Changes:

Project is running \$5,000 under budget at this time.

Staffing Changes:

None to date



Lessons Learned





Lessons Learned

Lessons Learned Template

ID	Date	Deliverable	Description	Activity	Contact	Recommendations
01	1/15/10	Garage	Be more proactive on PR with neighborhood on project construction times.	Garage & landscaping phases	Kelly	Give out contact & schedule in case there are questions or concerns.
02	1/26/10	Landscaping	Soil from Soil King Inc. contained too many rocks.	Landscaping	Sam	Get guarantee from supplier about % of rocks in soil
03	2/10/10	Roof	Shingles were out of stock-had to wait until March - delayed project	Garage	Sam	Pre-identify backup suppliers for in-stock materials.
04	2/15/10	Garage	Several copies of the blueprints were laminated & available at site, office & prime's location.	Garage	Kelly	Having several copies available & weatherproofed when needed saved time.

Recap: Basic Project Management **Tools**



Charter



ID Resources and Budget



Stakeholder Analysis



ID Risks



Work Breakdown Structure



Monitor & Control



Time and Schedule



Lessons Learned

Toolkit Resources

- Charter:
 - http://www2.dir.state.tx.us/management/projectdelivery/projectframework/justification/Pages/ProjectCharter.aspx
- Stakeholder Analysis
- WBS: Haugen, Gregory "Work Breakdown Structures"
- Time & Schedule:
 - http://www.spudcity.com/traxtime/?gclid=CMe9tPSy-J8CFRKiagodRxcSV
- Risk Register: Dow, William "Project Management Communications Bible"
- **Project Status Report:** Dow, William "Project Management Communications Bible"
- Lessons Learned
 - <u>www.projectinitiation.com/.../Lessons%20Learned%20Template.doc</u>
- Government website with templates:
 - http://www.oregon.gov/DHS/admin/bpm/pmo/

Questions?

