



Project Management Tools & Techniques

Susan W. Carey

Workshop Objectives

- Recognize project management terminology
- Explain roles and responsibilities for key players
- Develop a project proposal
- Construct a work breakdown structure
- Identify tools for tracking and controlling a project
- Recognize the importance of a formal closeout

INTRODUCTION TO PROJECT MANAGEMENT

Module Objectives

- Recite project management terminology
- Describe the characteristics of a project
- Distinguish between a project and sub projects
- Identify the benefits of project management
- Define the roles and responsibilities of the various stakeholders
- Determine what it takes for successful project management

BASICS OF PROJECT MANAGEMENT

Definition of a Project

- A series of inter-related and sequenced activities, managed by a single individual, designed and organized to accomplish a specific goal, within a limited timeframe, frequently with specific budgetary requirements

Remember:



Characteristics of Projects

- Undertaken at all levels
- Single person or thousands
- Duration could be weeks or years
- Single unit or entire organization

Projects are critical to the realization of the performing organization's business strategy because projects are a means by which strategy is implemented.

Characteristics of Projects

- Are unique
- Consume time
- Cost money
- Requires people
- Contain risks
- Sequence of tasks

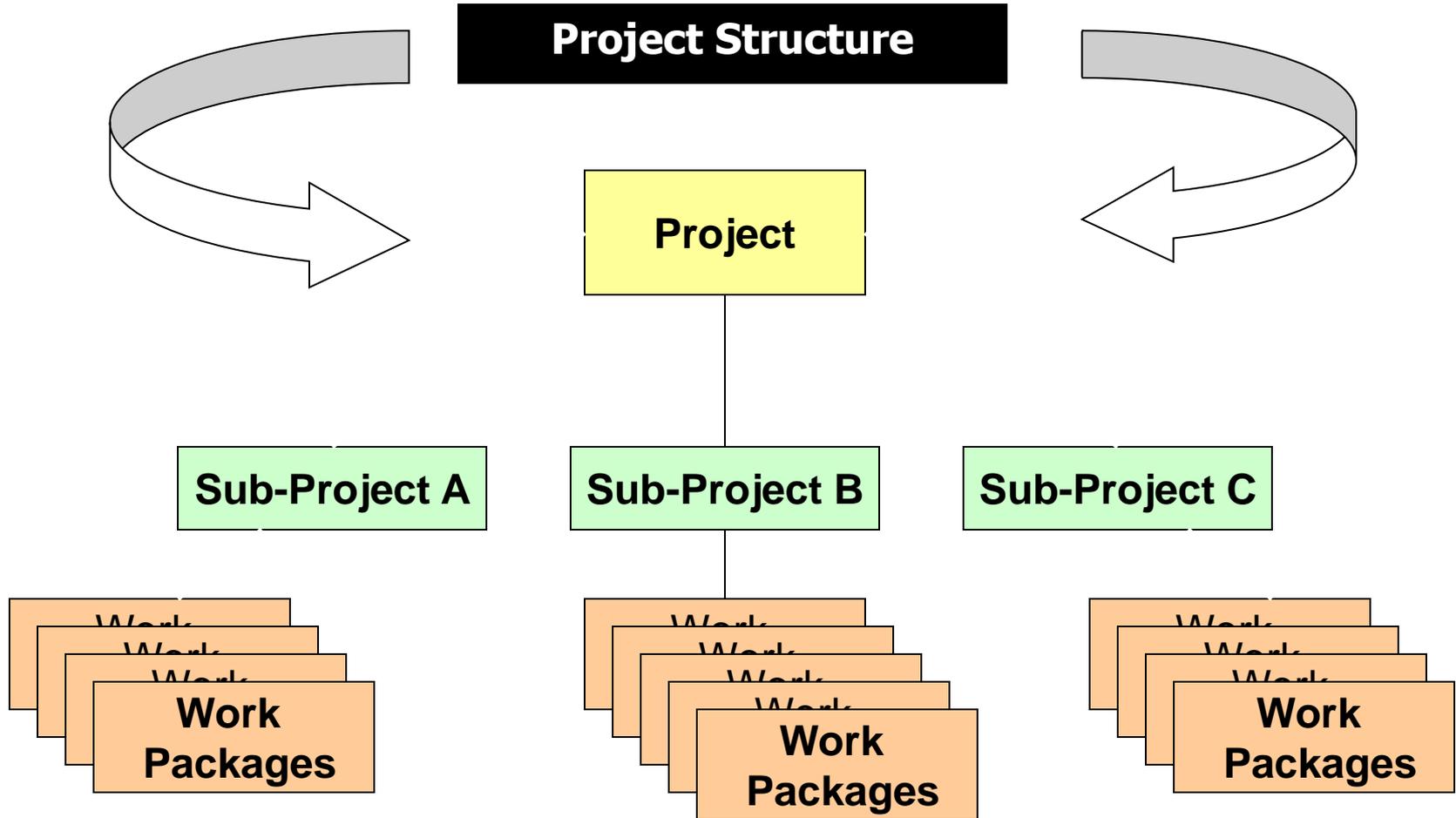
Types of Projects

- Developing a new product or service
- Effecting a change in structure, staffing, or style of an organization
- Designing a new transportation vehicle
- Developing or acquiring a new or modified information system
- Constructing or renovating a building or facility
- Building a water system for a community in a developing country
- Running a campaign for political office
- Implementing a new or improved business process or procedure

Subprojects

- Based on project process such as a single phase (e.g. design)
- According to human resource skill requirements (e.g. plumbing)
- By major deliverable (e.g. training)

Project Structure



Definition of Project Management

- Taking knowledge, skills, tools, and techniques, applying those to project activities to satisfy the business need for which the project was undertaken

Benefits of Project Management

- Do more with less
- Flexible framework
- Clear expectations
- Progress is monitored
- Lessons learned
- Do it right the first time
- Less frustration

Project Phases / Project Life Cycle

- Involve a degree of uncertainty
- Divide the project into several phases
 - Improve control
 - Provide links to operation
- Phases are referred to as the “project life cycle”

Characteristics of the Project Life Cycle

- Defines the beginning and end of a project
- Includes the following phases:
 - Initiation
 - Planning
 - Execution
 - Closeout

What's Your Organization Type?

- Functional?
- Matrix?
- Projectized?

Project Characteristics by Organization Type

Project Characteristics by Org Type	Funtional	Matrix			Projectized
		Weak	Balanced	Strong	
Project Manager's Authority	Little or none	Limited	Low to Moderate	Moderate to High	High to Almost Total
Resource Availability	Little or none	Limited	Low to Moderate	Moderate to High	High to Almost Total
Who controls the budget?	Functional Manager	Functional Manager	Mixed	Project Manager	Project Manager
Project Manager's Role	Part time	Part time	Full time	Full time	Full time
Project Mgmt Admin Staff	Part time	Part time	Part time	Full time	Full time

Challenges in a Matrix Environment

- Lack of PM's formal authority (biggest challenge)
- Resource management
- Dual reporting relationship
- Potential for duplication of effort
- Unclear roles and responsibilities
- Greater potential for conflict
- Lack of accountability

Types of Authority

- Formal
- Purse-string
- Bureaucratic
- Technical
- Charismatic

Key Players

- Project sponsor
 - Ensures the project meets the business needs
 - Provides funding
 - Approves key deliverables
 - Assists in issues resolution and change management

Project Sponsor Challenges

- Micro managing project sponsor
- The invisible project sponsor

Key Players

- Project manager
 - Assembles the project team
 - Assigns tasks and activities
 - Monitors progress, risk, issues
 - Manages the scope
 - Delivers on time and within budget
 - Ensures project documentation is prepared

Key Players

- Stakeholders
 - Individuals or organizations that are actively involved in the project or whose interests may be positively or negatively affected as a result of the project
 - May exert influence over the project and its results

Key Players

- Project leader
 - Responsible for a subproject
 - Ensures technical aspects are delivered
 - Monitors progress, risk, issues
 - Manages the scope and the change management process
 - Delivers on time and within budget
 - Communicates status to project manager

Key Players

- Project team members
 - Complete assigned tasks on time
 - Work with other team members
 - Monitor progress on their tasks
 - Resolve issues
 - Monitor changes and risks
 - Advise others of potential problems

Key Players

- Other
 - Subject matter experts
 - Business liaisons

Types of Teams

- Working group
- Pseudo team
- Potential team
- Real team
- High-performing team

Is PM a science or an art?

- Science

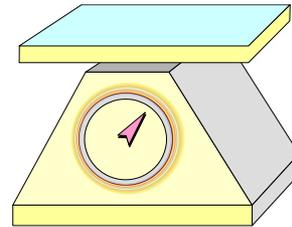
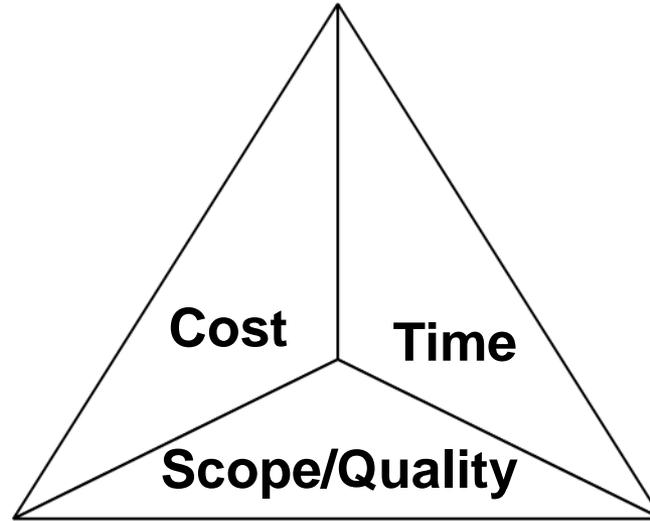
- Charts
- Graphs
- Calculations
- Tools
- Hard skills

- Art

- Politics
- Interpersonal
- Organization
- Communication
- Negotiation
- Conflict resolution
- Soft skills

Successful project managers are excellent at both

Triple Constraints



Customer Satisfaction

Competing Demands

- Stakeholders with different needs
- Identified and unidentified requirements
- Triple constraints of scope/quality, time, and cost

Differences between or among stakeholders should be resolved in favor of the customer.

Top Two Reasons Projects Fail

- Ineffective **COMMUNICATION**
- Lack of **LEADERSHIP**

Why is Communication Important?

You are the chief airplane washer at the company hangar and you:

- Hook the high pressure hose up to the soap suds machine.
- Turn the machine “on.”
- Receive an important call and have to leave work to go home.
- As you depart for home, you yell to your assistant, “Don, turn it off.”
- Assistant Don thinks he hears, “Don’t turn it off.” He shrugs and leaves the area right after you.
- The result.....



Project Manager - Tips for Success

- Remain calm, even under stress
- Motivate and reward the team
- Be proactive
- Organize, plan, and communicate
- Set priorities and deadlines
- Have a sense of humor

Project Manager - Tips for Success

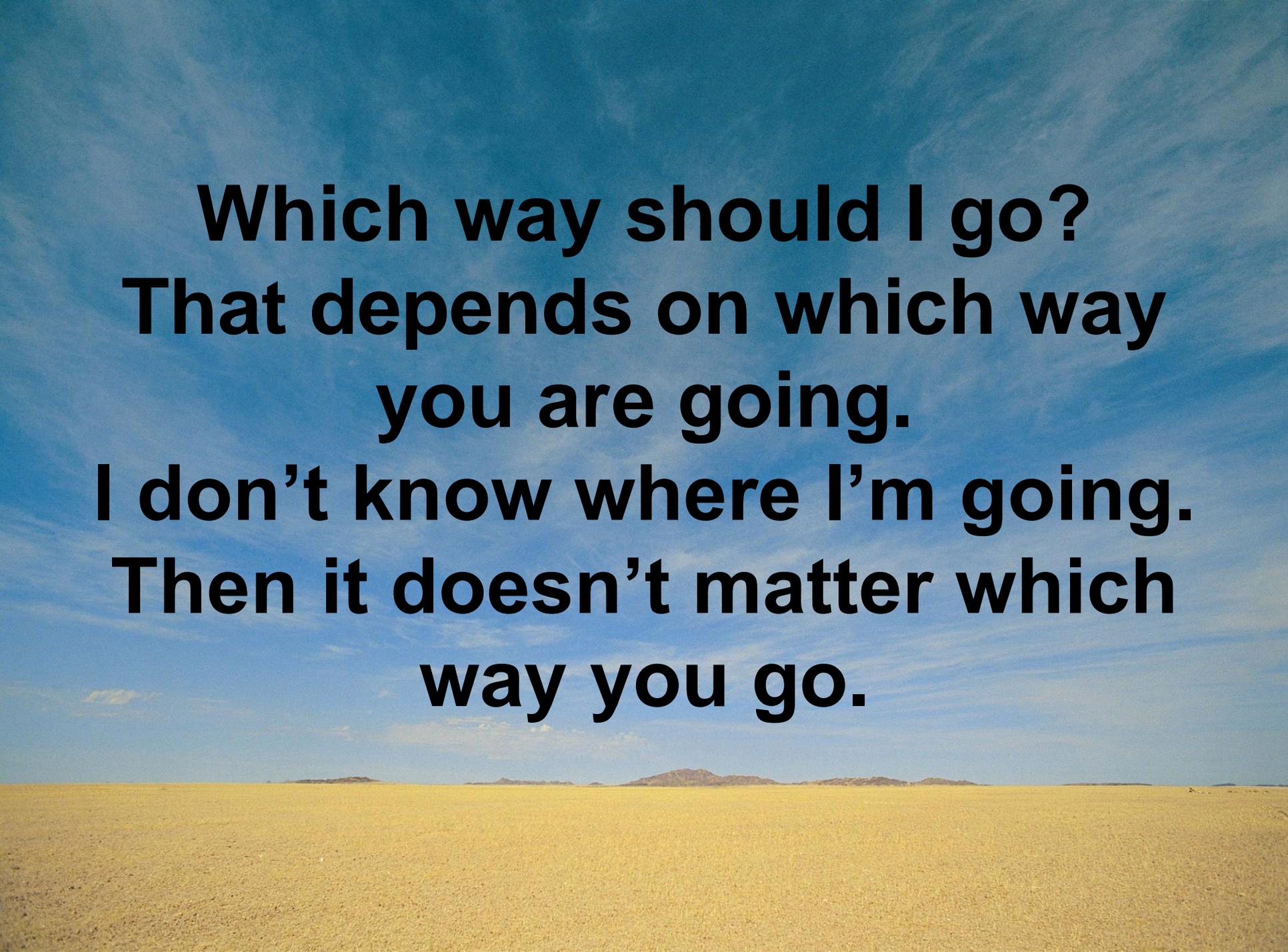
- Show strong leadership skills
- Generate a shared commitment
- Show empathy
- Work smarter, not harder
- Set realistic goals
- Lead by example

COMMUNICATION EXERCISE

PROJECT INITIATION PHASE

Module Objectives

- Identify the objectives of the initiation phase
- Prepare a project proposal
- Determine next steps for entry into the planning phase



**Which way should I go?
That depends on which way
you are going.
I don't know where I'm going.
Then it doesn't matter which
way you go.**

Gather Data

- Interview the project sponsor
- Identify key project stakeholders
- Conduct additional interviews
- Read documentation
- Learn as much as you can
- Research on the internet

Develop the Project Proposal

- Goal:
 - General statement of intent
 - Purpose toward which the effort is directed
 - Answers the question “why?”
 - Must be linked to an organizational strategic goal

Develop the Project Proposal

- Goal examples:
 - To improve our competitive position within the financial services industry
 - To reduce operating costs and become a more cost-effective service provider
 - To improve customer service and our image as the company that cares
 - To improve the quality of clinical care and reduce mortality rate
 - To provide quality services to our neighborhoods

Develop the Project Proposal

- Objectives:
 - Specific statements of the measurable results to be provided by the project

SMART

Develop the Project Proposal

- Objective examples:
 - To convert all data to release 3.6 of Acme Ledger System no later than March 31, 2008, at a cost not to exceed \$2.5 million, according to all internal standards, policies, and procedures
 - To renovate the youth shelter no later than May 1, 2008, at a cost not to exceed \$500,000, according to all building codes in Jefferson County, using the design suggested by ABC Architectural firm

Develop the Project Proposal

- Scope and major deliverables
 - Sum total of the project
 - What is included in the project
 - Major deliverables
 - Examples
 - Training
 - Construction
 - Equipment

Develop the Project Proposal

- Boundaries
 - Opposite of scope
 - What is not included
 - Helps manage expectations
 - Clarifies the scope
 - Avoid unpleasant surprises

Develop the Project Proposal

- Business considerations and requirements
 - Helps to understand the business environment
 - Special needs
 - Written by the business owner
 - Need to surface early for planning

Develop the Project Proposal

- Technical considerations and requirements
 - Helps to understand the technical environment
 - Special needs
 - Technology perspective
 - Need to surface early

Develop the Project Proposal

- Performance measurement criteria
 - Measures of success
 - Helps define when the project is over
 - Used during closeout phase
 - Ensures quality

Were we successful?

Develop the Project Proposal

- Benefits
 - Positive results expected from the project
 - Purpose for which the project was undertaken
 - May be
 - Tangible
 - Intangible

Develop Project Proposal

- Priorities
 - Time driven?
 - Cost driven?
 - Scope/quality driven?

Remember the triple constraints

Develop Project Proposal

- Assumptions
 - Factors that are considered to be true, real, or certain
 - Must occur to be successful
 - Must be documented and understood

Budget is approved

Resources are available

Develop Project Proposal

- Constraints
 - Factors that may limit your options:
 - Pre-defined budget (e.g. not to exceed)
 - Pre-determined project team
 - Time-driven project

Develop Project Proposal

- Risks
 - Unplanned events
 - Can have positive or negative consequences
 - Uncertainty
 - Document at a high level

Develop Project Proposal

- Open issues or pending decisions
 - Items that must be resolved before proceeding
 - May include resource or technical issues
 - Outstanding questions

Action Items List

Develop Project Proposal

- Interdependencies to other projects
 - Predecessor projects
 - Successor projects
 - Co-dependent projects

Develop Project Proposal

- High-level costs
 - Ballpark estimate of project cost
 - Known costs and best guess at other costs

Provide a range of estimates, if possible

Develop Project Proposal

- Major milestones and high-level target dates
 - Ballpark estimate of project length
 - Show major milestones
 - Use ranges

Develop Project Proposal

- Alternative implementation strategies
 - Ask subject matter experts
 - Review other projects
 - Include advantages and disadvantages

Big bang or phased?

Make or buy?

Develop Project Proposal

- Recommended approach
 - Select best alternative
 - Explain the reasoning
 - Include any risks

Develop Project Proposal

- Resource needs
 - Specific people
 - Specific skill sets
 - Equipment
 - Training rooms

Gain Sponsor Approval

- Present the proposal
- Explain your approach
- Receive approval
- Ask for needed assistance
- Negotiate due date for next phase
- Agree on progress reporting
- Publish announcement memo

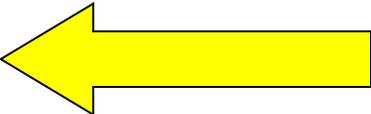
PROJECT PROPOSAL EXERCISE

PROJECT PLANNING PHASE

Module Objectives

- Identify the planning processes
- Describe a detailed work breakdown structure
- Build an activity list
- Estimate the duration of activities
- Document risks
- Finalize project plan development

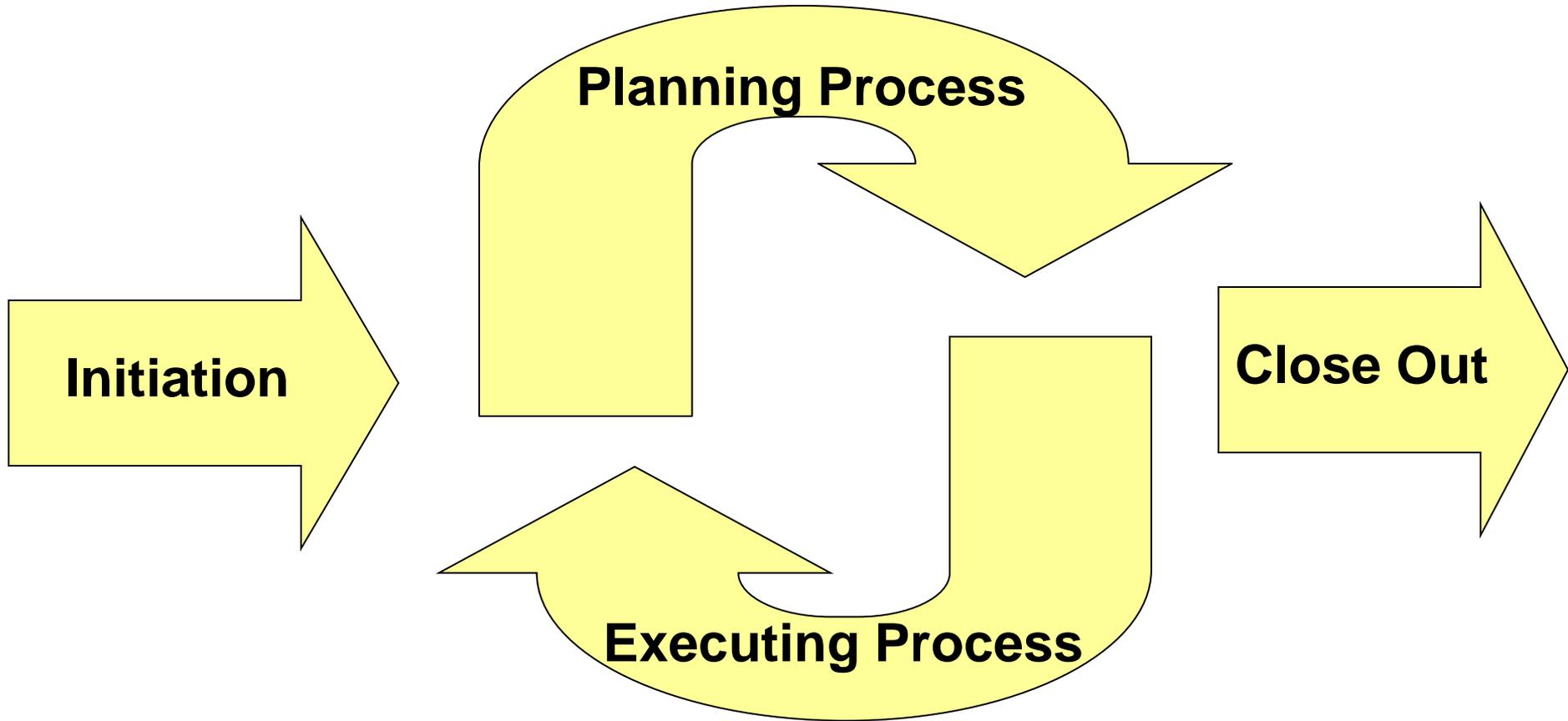
Guess the Percent

- What percent of your project team's time should be spent on planning?
 - A. 10%
 - B. 20% 
 - C. 30%
 - D. Between A and B
 - E. Between B and C

Planning Processes

- There are several planning processes
- Planning is an ongoing effort throughout the life of the project

Planning is an Iterative Process



Planning Phase Deliverables

- Integrated project management plan
 - Project definition (approved project proposal)
 - Project structure
 - Subsidiary management plans

Subsidiary Management Plans

- Integration
- Communications
- Risk
- Procurement
- Cost
- Quality
- Human Resources
- Scope
- Time

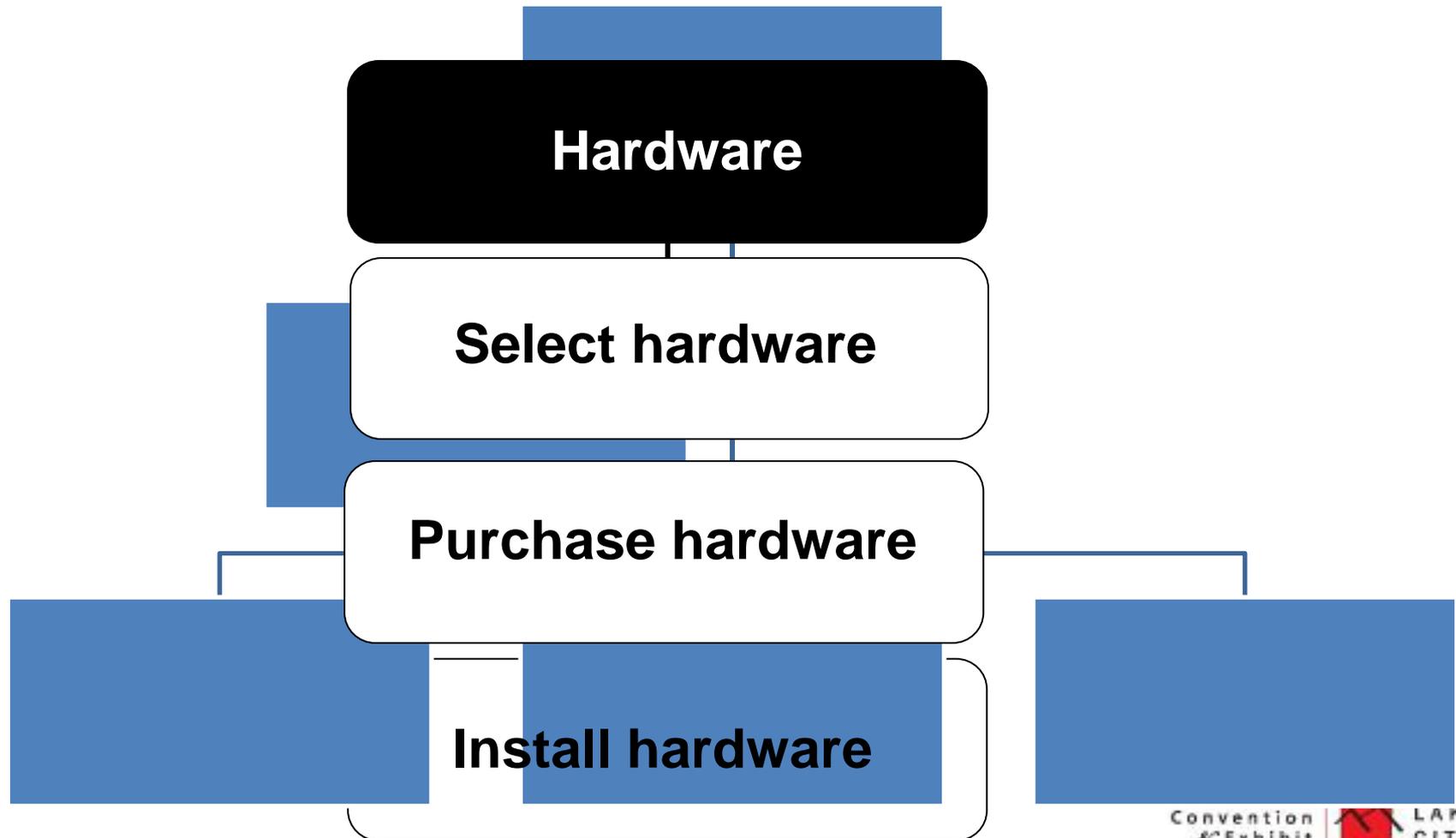
Creating the Work Breakdown Structure

- Deliverable-oriented, tree-like structure
- Graphically defines all the work in the project

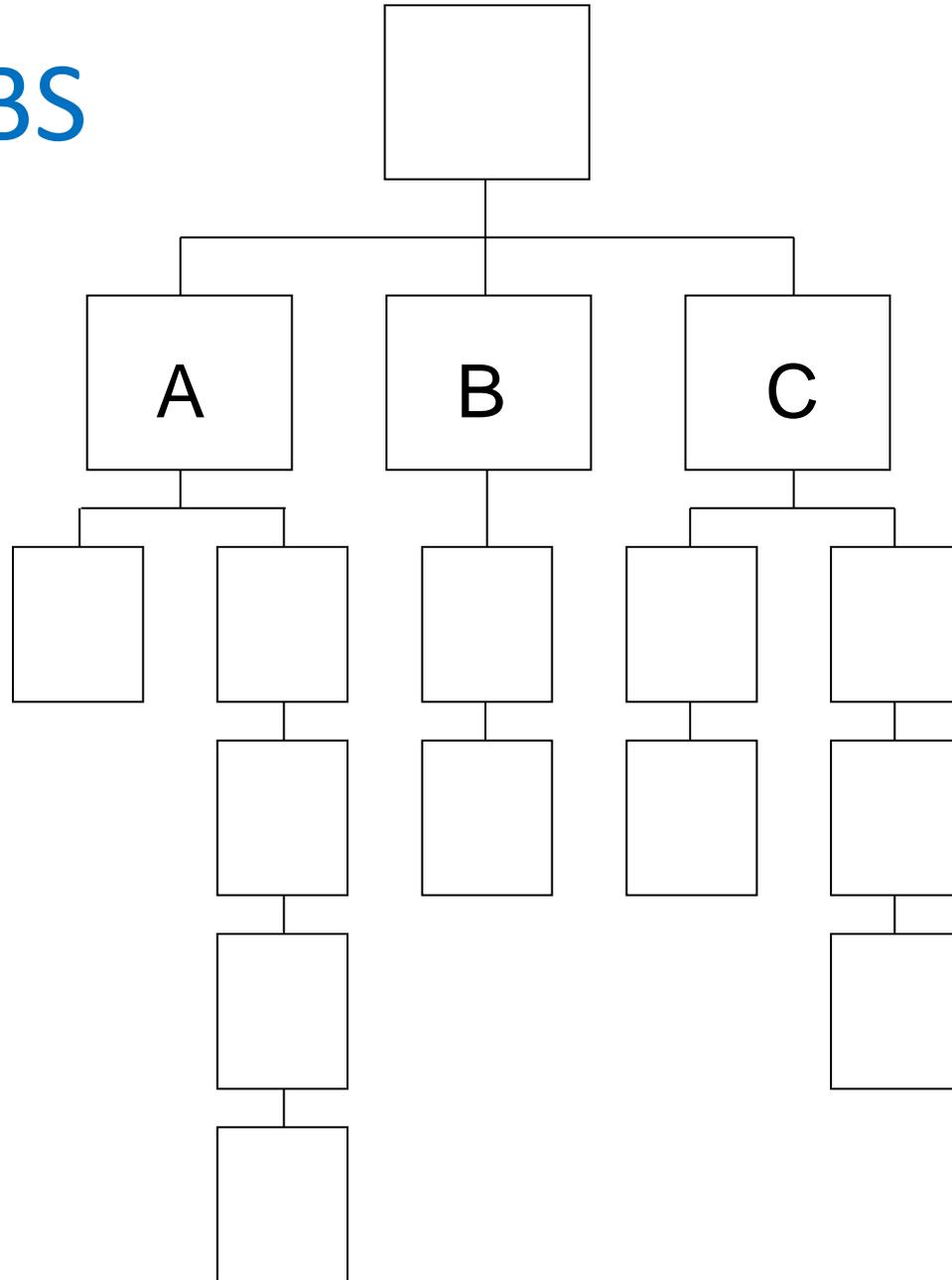
Golden Rule of Project Management

If it's not in the work breakdown structure, it's not in the project!

Sample Deliverable Breakdown



Sample WBS



Roles and Responsibilities

- Start with the WBS
- Identify project roles, responsibilities, and reporting relationships
- Document primary and support responsibilities

Selecting Resources

- Work with functional managers
- Ensure right skill sets are available when needed
- Create your own resource pool

Defining the Work

- Identify your deliverables (work buckets)
 - Usually a single word
 - Must be a NOUN
- Break each deliverable down into tasks
 - These require action
 - Starts with a VERB
- Break each task down as far as necessary

Sequencing the Work

- Document interactivity dependencies
- Ensure a realistic schedule
- Identify constraints

Identifying Dependency Relationships

- Mandatory
 - Inherent in the work itself
 - Physical limitations
- Discretionary
 - Based on best practices
 - Specific sequence desired

Estimating the Time Required

- Estimate the time needed to complete each activity
- Consider each resources' availability

Creating the Project Schedule

- Tasks and activities
- Start and finish dates
- Resources
- Dependencies

MS Project Schedule

	WBS	Task Name	% Complete	Duration	Start	Finish	Predecessors	Resource Names
1	1	☐ The Wedding Project	40%	159 days?	12/29/05	08/12/06		
2	1.1	☐ Marriage Proposal Received	0%	0 days	12/29/05	12/29/05		
3	1.2	☐ Planning	0%	1 day	12/29/05	12/29/05	2	
9	1.3	☐ Communication	42%	136 days?	02/01/06	08/12/06		
10	1.3.1	☐ Save-the-Date Cards	100%	57 days	02/02/06	04/23/06		
11	1.3.1.1	Research potential vendors	100%	0.8 wks	02/02/06	02/07/06		Consultant[25%]
12	1.3.1.2	Review choices	100%	0.1 wks	02/07/06	02/08/06	11	Bride
13	1.3.1.3	Select desired design	100%	2.6 wks	02/05/06	03/07/06	12FF	Bride,Groom
14	1.3.1.4	Customize layout	100%	2.1 wks	03/08/06	03/19/06	13	Bride,Groom,Consultant[25%]
15	1.3.1.5	Determine quantity	100%	1.05 wks	03/20/06	04/13/06	14	Bride,Groom
16	1.3.1.6	Submit order and pay	100%	1 day	04/14/06	04/16/06	15	Father
17	1.3.1.7	Receive cards	100%	1 day	04/21/06	04/22/06	16FS+5 days	Mother
18	1.3.1.8	Distribute cards	100%	1 day	04/22/06	04/23/06	17	Mother
19	1.3.2	☐ Save-the-Date Cards Mailed	100%	0 days	04/23/06	04/23/06	10	
20	1.3.3	Invitations	0%	1 day?	02/01/06	02/01/06		
21	1.3.4	RSVPs	0%	1 day?	02/01/06	02/01/06		
22	1.3.5	☐ Engagement Photo	13%	72 days	02/01/06	05/13/06		
23	1.3.5.1	Schedule sitting	100%	2 days	02/01/06	02/05/06		Bride
24	1.3.5.2	Attend sitting	0%	2 hrs	03/11/06	03/11/06	23	Bride,Groom
25	1.3.5.3	Review proofs	0%	1.1 wks	03/17/06	03/28/06	24FS+5 days	Bride,Groom
26	1.3.5.4	Select pose	0%	1.05 wks	03/29/06	04/22/06	25	Bride,Groom
27	1.3.5.5	Order pictures and pay	0%	1 day	04/22/06	04/25/06	26	Father
28	1.3.5.6	Receive pictures	0%	1 day	05/09/06	05/13/06	27FS+10 days	Mother
29	1.3.6	☐ Engagement Photos Received	0%	0 days	05/13/06	05/13/06	22	
30	1.3.7	☐ Engagement Announcement	0%	63 days	05/13/06	08/12/06		
31	1.3.7.1	Decide which newspapers	0%	2.25 days	05/13/06	05/18/06	22	Bride,Groom,Mother
32	1.3.7.2	Request procedure and cost estir	0%	1 wk	05/19/06	06/10/06	31	Father
33	1.3.7.3	Research possible formats	0%	12 days	06/12/06	06/27/06	32	Consultant[25%]
34	1.3.7.4	Gather personal information	0%	1 wk	06/26/06	06/30/06	33FS-2 days	Consultant[25%]
35	1.3.7.5	Write copy	0%	2 days	07/03/06	07/05/06	34	Consultant[25%]
36	1.3.7.6	Review and approve	0%	1.25 days	07/05/06	07/08/06	35	Bride,Groom
37	1.3.7.7	Write cover letter	0%	1 day	07/08/06	07/09/06	36	Mother

Estimating the Project Cost

- Base estimate:
 - Start with the WBS
 - Select an estimating method
 - Estimate expected cost of project by cost category
 - Estimate contingency (management) reserve for:
 - Cost mitigation
 - Scope changes
 - Unexpected risk events

Project Cost Management

#	Category	Original Budget	Revised Budget	Actual Cost	Total	Comments
1	Software					
2	Hardware					
3	Consulting services					
4	Interfaces					
5	Furniture					
6	Contingency					
	Totals	\$	\$	\$	\$	

Project Communication Plan

- Identify key project stakeholders
- Determine the information needs
 - Upwards communication
 - Lateral communication
 - Downward communication
- Document what, when, why and how information will be distributed
- Develop documentation standards

WBS EXERCISE

Sample Communication Plan

Stakeholder	Information	Frequency	Method	Responsibility
Steering Committee	Milestone Report	Monthly	Email	Project Manager
Project Sponsor	Progress Report	Weekly	Email	Project Manager
Project Team	Progress Report	Weekly	Email/Post to Portal site	Project Manager
	Meeting Minutes	Weekly	Email/Post to Portal site	Project Manager
	Action Items	Weekly	Face to Face in Team Meeting	Project Manager
All Management Staff	Training Needs	March, 2008	Staff Meeting	Sponsor
	Changes project will bring	February, 2008	Email and Letter	Sponsor

Scope Management Plan

- Spells out the process involved for making changes to the scope
- Defines who has the authority to approve changes

Change Control Process

- Can be different from project to project
- Simple projects – simple solution
 - PM and/or Sponsor signs off on any changes
- Complex projects –
 - May have different levels of change
 - May have a Change Control Board in place to approve more detailed or complex changes

Integration Management Plan

- Document spelling out how each of the individual plans will work together

Project Management Plan

- Combination of subsidiary mgmt plans
- Assemble all planning deliverables
- Publish final plan to key project personnel and management
- Track and compare actual implementation to original baseline

PROJECT EXECUTION PHASE

Module Objectives

- Identify what needs to be monitored during the execution phase
- Describe the steps necessary for maintaining control of the project during execution
- Illustrate how variances should be managed
- Differentiate between various performance reports

Murphy's Law

- When things are going well, something will go wrong
- When things just can't get any worse, they will
- When things appear to be going better, you have obviously overlooked something

Ongoing Questions during Execution

- Are we on schedule?
- Are we on budget?
- Has the business need changed?
- What new issues do we have to address?
- Are any risk events materializing?
- Where are we in danger of not meeting our goal?

Ongoing Questions during Execution

- Are we delivering a quality product?
- Are our vendors delivering as promised?
- Do we have enough resources?
- Are unauthorized changes being allowed?
- Is the team working together productively?

Monitoring the Schedule

- Update the project schedule on a weekly basis
- Compare actual to plan
- Report and address variances quickly
- Hold the team accountable for delivering on time
- Replan as necessary

Monitoring the Budget

- Review financial information no less than monthly
- Compare actual to plan
- Report and address variances quickly
- Hold the team accountable for cost containment
- Re-project expenses as necessary

Monitoring Scope

- Compare work results to the plan daily
- Ensure results meet the need
- Ensure formal acceptance is received
- Reflect approved changes in the project plan

Change Management

- Any modification to the benefits, scope, time or cost
- Need an organized process for change
- Follow the process for change as outlined in the change management plan
- Source of changes:
 - Sponsor
 - Regulatory
 - External
 - Internal
- Keep a record!

Change Control Log

ID	Short Description of Change	Date Requested	Date Needed	Date Change Made	Approved By
1	Add videography to scope of the wedding	3/15/06	10/14/06	07/15/06	Father of the bride
2	Wedding dress cost exceeded budgeted amount – need to increase cost of the project	4/1/06	4/5/06	4/5/06	Father of the bride

Scope Creep

- Changes through the “back door”
- Usually thought to be minor
- Enforce the change management process

What is a showstopper?

Monitoring Issues

- Use an “action items list” to document issues
- Ensure ownership is clear
- Assign an due date
- Review progress at the weekly status meeting

Sample Action Items List

#	Description	Originator	Responsibility	Due Date	Status	Comments
1	Determine who will host the out of town wedding shower	Mother of Bride	Mother of Groom	8/1/06	Closed	Aunt of Groom will host
2	Call bakery to change cake to all chocolate	Bride	Mother of Bride	8/31/06	Open	
3	Call shoe salon and order shoes 1/2 size larger	Bride	Mother of Bride	8/31/06	Open	

Monitoring Risk

- Review the risk management plan regularly
- Monitor triggers and the watch list
- Implement mitigation plans
- Invoke contingency plans as necessary
- Repeat the “identify, assess, respond” cycle as changes occur

Risk Management Plan

- Identify the potential RISK EVENT
- Rate the risk for:
 - Degree of impact
 - Probability of occurrence
- Will you place the risk on the watch list?
- Assign a risk owner to watch for the triggers

Risk Assessment Chart

Degree of Impact	HIGH	Red	Red	Red
	MED	Yellow	Yellow	Red
	LOW	Green	Yellow	Red
		LOW	MED	HIGH
		Probability of Occurrence		

Risk Assessment

- **Red** area – always “yes” which means develop a risk management plan.
- **Yellow** area – iffy, answer on a case-by-case basis.
- **Green** area – always “no”, don’t develop a risk management plan. Just hope it doesn’t happen and if it does deal with it then.

Monitoring Quality

- Review work products to ensure quality standards are met
- Use an independent reviewer
- Implement process improvements as necessary to eliminate unsatisfactory performance

Monitoring the Vendor

- Review the vendor's performance regularly
- Ensure performance meets the requirements as documented in the contract
- Insist on formal progress reports

Contract Administration

Monitoring Human Resources

- Will the resources be available as originally planned?
- Are resources being utilized effectively?
- Are resources working together?

Team Building

- Develop a personal rapport
- Be supportive of the team
- Be clear on expectations
- Take a personal interest
- Celebrate special occasions
- Be accessible

Performance Reporting

- Provide project information to key stakeholders in a timely manner and method
- Execute the communications management plan
- Report progress and trends on all aspects of the project

Progress Reports

- Project progress
- Accomplishments this reporting period
- Plans for the next reporting period
- Comments (yellow flags)
- Issues or concerns (red flags)

Performance Reporting Guidelines

- Steering committee, or senior management
 - Summary level information (monthly)
- Project sponsor
 - As agreed upon (varies)
- Project manager
 - Mid-level information (weekly)
- Team members
 - Detailed information (weekly)

RISK MANAGEMENT EXERCISE

PROJECT CLOSEOUT PHASE

Module Objectives

- Outline key tasks in the closeout phase
- Recognize the importance of formally closing out the project
- Address special challenges in project closeout
- Conduct a project review meeting and document final results

Entry into the Closeout Phase

- Project was completed successfully
- Project was put on hold
- Project was terminated or canceled

Closeout Activities

- Recognition
- Closure
- Performance improvements
- Final approvals
- Contract closure

Closeout Activities

- Transfer responsibilities
- Release resources
- Documentation
- Close out project accounting (time and budget)

Special Challenges

- Uncertainty
- Post-project depression

Project Review Document

- Introduction
- Performance Criteria
- Lessons learned
- Open issues or action items
- Acknowledgements
- Chronology of major events
- Appendix

Why Projects Don't Live up to Expectations

- Failure to reach agreement on requirements
- Political battles, unresolved conflicts
- Skill set mismatch
- Plan was not doable

Why Projects Don't Live up to Expectations

- Plan was not followed
- Ineffective communication
- Lack of leadership
- Lack of project management skills

Celebrate!!

- Show appreciation!
- Recognize key individuals!
- Reinforce positive behavior!

Let's Review!

Basics

- Definition of a project
- Organizational and sponsor challenges
- Hard versus soft skills
- Triple constraints
- Communicate, communicate, communicate!

Initiation

Input:

- Gathering data

Output:

- Project proposal

Planning

Input:

- Work breakdown structure
- Roles and responsibilities
- Activities

Output:

- Project management plan

Execution

Input:

- Integrated project management plan

Output:

- Progress reports

Close Out

Input:

- Lessons learned

Output:

- Final documentation
- Party!

Questions?

Merci

Ευχαριστώ

Köszönettel

Gracias

THANK
YOU

תודה

Vielen
Dank

Obrigado!