A FRAMEWORK FOR PROJECT MANAGEMENT

Project Management Institute
Education Department

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Much of the information included in this seminar is derived from the *PMBOK® Guide* (PMI Standards Committee, 1996, Upper Darby, PA: Project Management Institute). For example, all of the Core Planning Processes Slides are taken from there, and quoted material throughout the document that is not cited is from the *PMBOK® Guide*.

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SEMINAR LEARNING OBJECTIVES

1. Establish a common language and understanding of basic project management terms and concepts such as PMBOK®, project, project management, operations, programs, stakeholders, earned value, scheduling techniques, and project manager responsibilities and competencies required for participant's success.
2. Describe the purpose, inputs, and outputs of the core processes in each of the five Process Groups: Initiation, Planning, Execution, Control, and Closing.
3. Define the nine Knowledge Areas of Project Management and the processes in each.
4. Define and explain the relationship of Process Groups, Knowledge Areas, Project Phases, and Project and Product Life Cycles.
5. Explore the impact on project management of functional, matrix, and projectized organizational approaches.
6. Establish a basic knowledge and understanding of the following project management tools and techniques and how and when to use them:

   Project Charter
   Project Scope Statement
   Work Breakdown Structure
   Responsibility Matrix
   Project Planning
   Scheduling
   Activity-on-Arrow (AOA) Technique
   Activity-on-Node (AON) Technique
   Precedence Diagramming Method
   Bar/Gantt Chart
   Scheduling Overall
7. Provide insight into your areas of project management knowledge and interpersonal skill strengths and gaps, based on your project management environment.
8. Demonstrate a clear understanding of what activities, tools, and techniques are necessary in each phase of a project.

YOUR EXPECTATIONS

It is important to have learning objectives in mind beforehand in order to help us focus on the right issues during the session. The "right" issues are those that will, in some way, help build the project management competencies relevant to your career and performance goals.

- With what expectations do you come to this experience?
- What are you expecting to gain from this seminar?

Presentation Slides

A Framework for Project Management

The Project Management Institute
Education Department

Welcome

Welcome to this seminar, *A Framework for Project Management.* It is designed to provide a basic structure or model that can be helpful in thinking about, understanding, discussing and managing projects. It will prepare you to develop more advanced skills by applying seminar content to your position responsibilities, studying the recommended readings in project management (see Appendix C), and in taking other seminars offered by PMI® and educational organizations who subscribe to PMI standards of project management.

During this seminar we ask you to focus on applying these concepts to real-world projects through your active participation in the exercises and discussions based on your unique experiences. We believe this learning experience can help you succeed in today's environment of constant change, high performance expectations, resource constraints and global challenges.

PMI is grateful for the contributions of time, energy, and professional expertise of many PMI members who have reviewed the material and made many suggestions to improve its effectiveness.

Good luck on what we hope will be an enjoyable educational experience!

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Your Expectations

- What would you like to learn from this experience?
  - Solution to a specific problem?
  - Project management concepts/knowledge?
  - Specific skills?
  - Other?

 3

A Framework for Project Management Units

1. Introduction and Key Concepts
2. Project Life Cycle Models
3. Initiating Projects
4. Planning Projects
5. Executing Projects
6. Controlling Projects
7. Closing Projects
8. Organizational Impacts
9. Overview of Knowledge Areas
10. Role of the Project Manager

Additional materials

A. Seminar Evaluation Forms
B. Exercises
C. Resources for Project Management Professional Candidates

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Unit 1: Introduction and Key Concepts

Upon completion, you will be able to ...

- Define key PM concepts
- List the reasons why PM is needed
- Explain the difference between projects and operations
- Identify trends in the PM environment
- List project success and failure factors
- Identify potential benefits of PM

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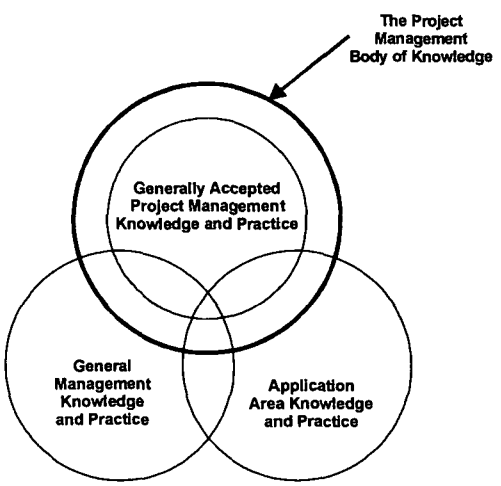
Key PM Concepts from the *PMBOK® Guide*



This figure is a conceptual view of these relationships. The overlaps shown are not proportional.

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Why Do We Need Project Management?*

- Exponential expansion of human knowledge
- Global demand for goods and services
- Global competition
- Above requires the use of teams versus individuals

* *Project Management—A Managerial Approach*, 1995, by Jack R. Meredith and Samuel J. Mantel Jr.

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Project and Statement of Work (SOW)

- A project is "a temporary endeavor undertaken to create a unique product or service."
- A SOW is a narrative description of products or services to be supplied under contract.

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Project Management

"The application of *knowledge, skills, tools* and *techniques* to project activities in order to *meet* or exceed stakeholder needs and expectations from a project."

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PM Environment
Discussion Question

- What are some trends that impact the environment in which projects are managed today?

 10

Accelerating Trends

- Corporate globalization
- Massive mergers and reorganizations
- Flatter organizations
- Short-term results driven

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Accelerating Trends (continued)

- Team environment
- Contract PM and outsourcing
- Primacy of interpersonal skills
- Multinational projects
- Importance of cultural differences
- Dependence on technology

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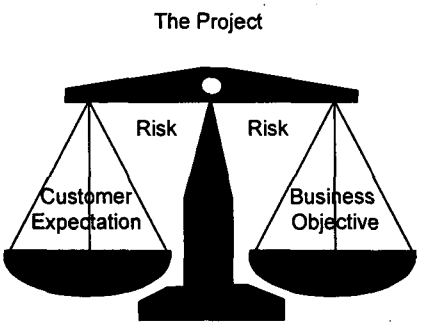
A Balancing Act

Schedule requirements cost



Source: William Gendron, presentation at 1998 PMI Global Forum

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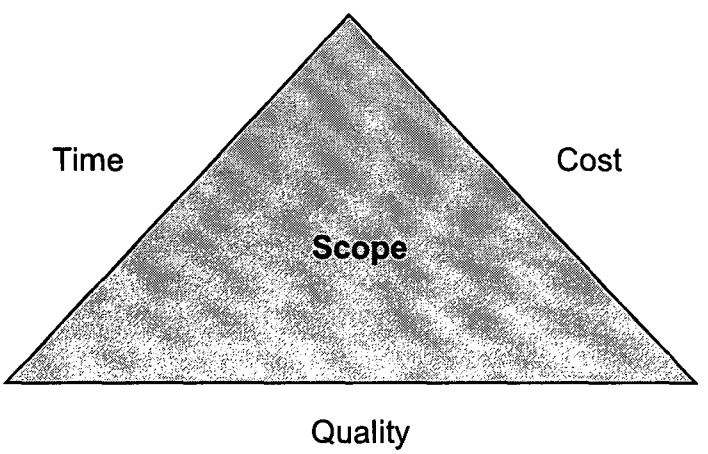
A Balanced Project



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Expectation and Objective Congruency

		Client/Customer Expectations	
		Low	High
Business Objectives	Low	OK	Customer wants more than the organization intends to provide.
	High	Business needs more from the project than the customer.	OK

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Contrast Projects and Operations
Discussion Question

- How are "projects" different from "operations"?

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Contrast Projects and Operations

Projects

- Create own charter, organization, and goals
- Catalyst for change
- Unique product or service
- Heterogeneous teams
- Start and end date

Operations

- Semi-permanent charter, organization, and goals
- Maintains status quo
- Standard product or service
- Homogeneous teams
- Ongoing

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Exercise 1-1
PM Pitfalls and Pluses

- Looking back on projects with which you were associated, what were the top three factors that caused serious problems?
- That created a perception of success?

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Common Pitfalls

- Unclear objectives
- Lack of senior management support
- Lack of effective project integration
- Inadequate funding
- Change in business priorities
- Original assumptions invalid
- Ineffective team
- Lack of effective communication processes
- Other?

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Factors Affecting Project Success

- Coordination and relations
- Adequacy of structure and control
- Project uniqueness, importance, and public exposure
- Success criteria salience and consensus
- Competitive and budgetary pressure
- Initial over-optimism, conceptual difficulty
- Internal capabilities buildup

Source: NASA study, "Determination of Project Success," 1974, by David C. Murphy, Bruce N. Baker, and Dalmar Fisher

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Potential Benefits of PM for the Organization

- Improved control
- Improved project support opportunities
- Improved performance

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Potential Benefits of PM for You

- Recognition of PM as a profession
- Future source of company leaders
- High visibility of project results
- Growth opportunities
- Build your reputation and network
- Portable skills and experience

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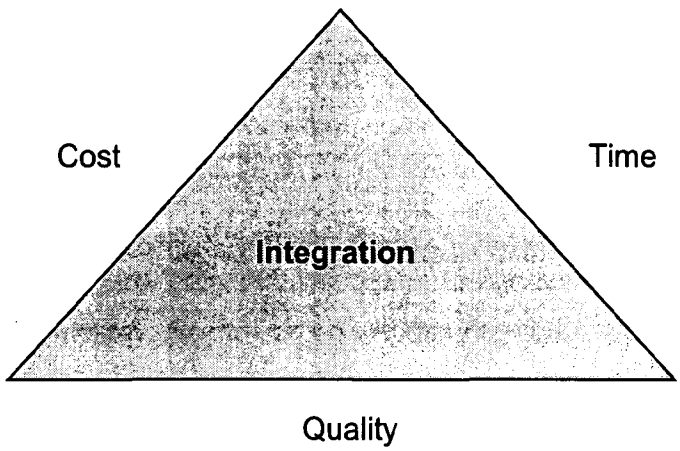
Integration Management



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Summary

- Defined key PM concepts
- Described why PM is needed
- Explained difference between projects and operations
- Identified trends in the PM environment
- Discussed project success and failure factors
- Identified potential benefits of PM

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Unit 2: Project Life Cycle Models

Upon completion, you will be able to ...

- List the purpose and types of project life cycle models
- Distinguish between project and product life cycle
- Define the role of phase reviews in PM
- Apply a model to a hypothetical and a real project

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Key Concepts

- Project phase: "A collection of logically related project activities usually culminating in the completion of a major deliverable."
- Project life cycle: "Collectively the project phases are known as the project life cycle."
- Product life cycle: The natural grouping of ideas, decisions, and actions into product phases, from product conception to operations to product phase-out.

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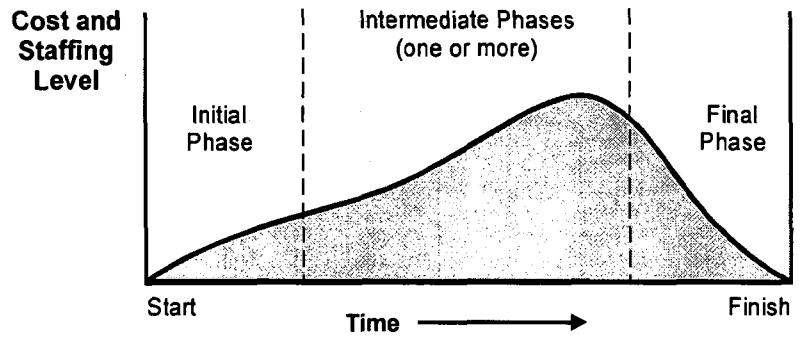
Generic Cost and Staffing Life Cycle



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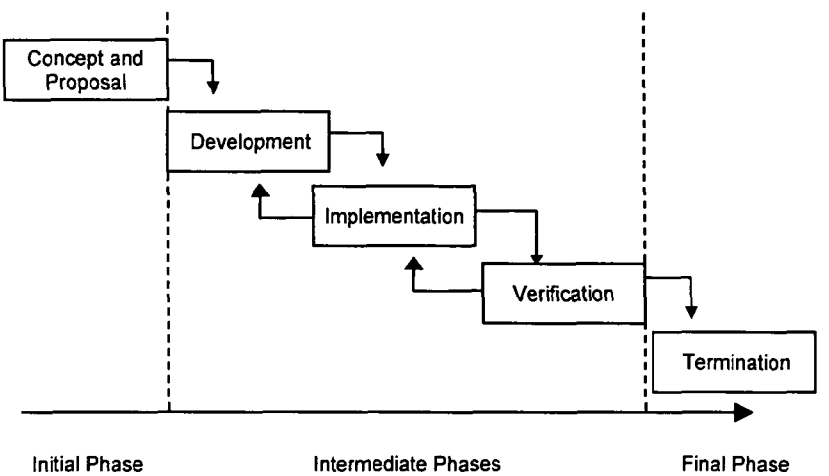
Project Life Cycle
Example Phases



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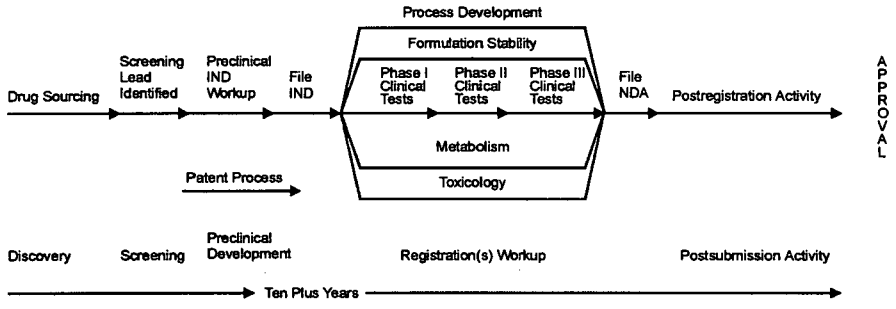
Pharmaceutical Project Life Cycle Model



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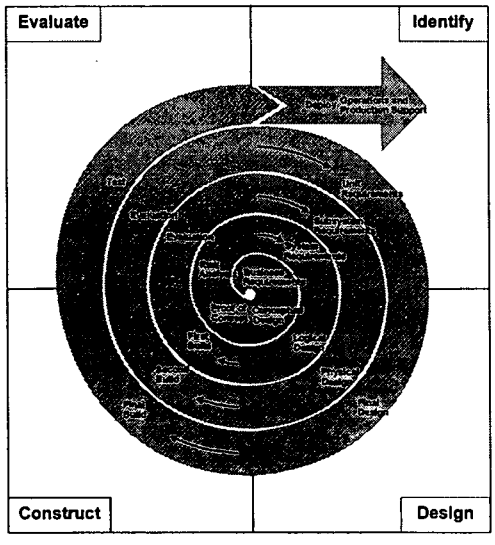
Spiral Methodology



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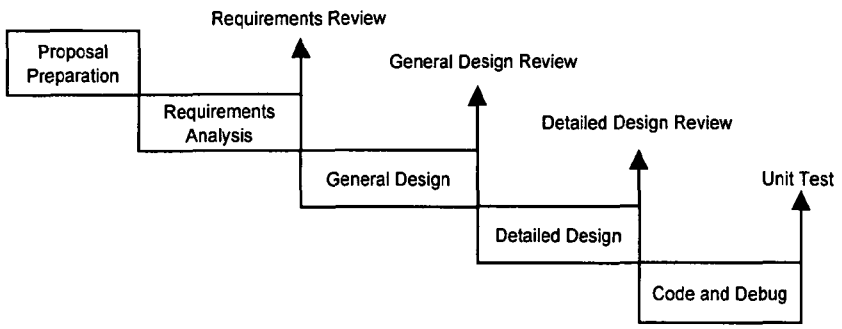
Importance of Phase Reviews



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Phase Initiation Example
Detailed Design Phase

- Ensure correctness and completeness of previous phase, e.g., general design phase
  - Assess all aspects of requirements, design approach, and deliverables
  - Identify and work off items
- Determine contractor rewards/payment for closing phase
- Conduct a readiness review to begin next phase, e.g., detailed design phase
  - Resource estimates and availability
  - Design maturity
  - Project plan review and update
- Secure stakeholder approval to proceed

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Exercise 2-1
Project Life Cycle Model

- Divide a current project on which you are working into phases, name them, and write a brief statement of purpose for each phase

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Summary

- Explained the concept and purpose of project life cycles
- Defined the role of phase reviews in PM
- Described life cycle models
- Differentiated project life cycle and product life cycle
- Applied a model to hypothetical and real projects

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Unit 3: Initiating Projects

Upon completion, you will be able to ...

- List the main functions of each PM process group
- Describe the purpose of the initiation process
- Identify its inputs and outputs, tools and techniques
- Develop a sample project charter
- Give an example of how process groups can apply to the project as a whole or to a project phase

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Process Definition

- "A series of actions people take to bring about a desired result."
- Types of processes
  - Project management processes
  - Product-oriented processes
  - Business-oriented processes

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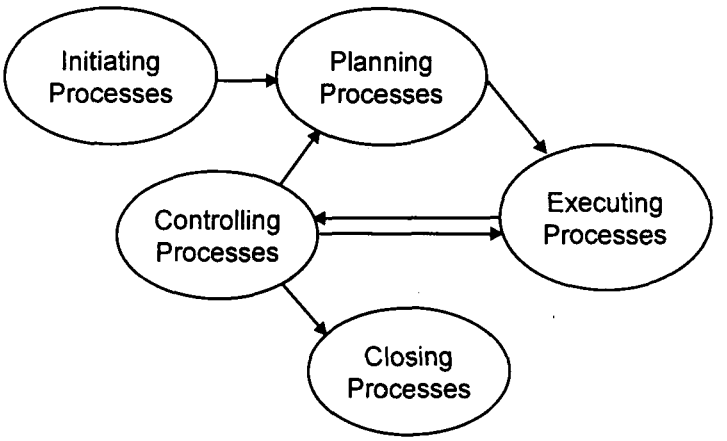
Process Groups



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Process Interactions

- Inputs
- Tools and techniques
- Outputs
- Taxonomy

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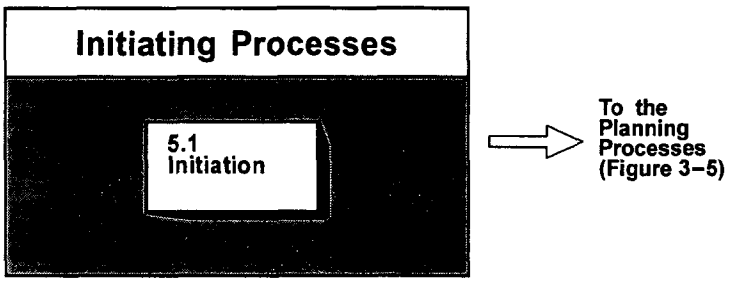
Process Group Overview



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Purpose of Initiation Process

1. To commit the organization to a project or phase
2. To set the overall solution direction
3. To define top-level project objectives
4. To secure the necessary approvals and resources
5. Validate alignment with strategic objectives
6. To assign a project manager

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Initiating Core Process—Initiation

Input	Process	Output
1. Product description 2. Strategic plan 3. Project selection criteria 4. Historical information	"Initiation is the process of formally recognizing that a new project exists or that an existing project should continue into its next phase."	1. Project charter 2. Project manager identified/ assigned 3. Constraints 4. Assumptions
	Tools and Techniques	
	1. Project selection methods 2. Expert judgment	

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Project Charter

"A document issued by senior management that provides the project manager with the authority to apply organizational resources to project activities."

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Project Charter Content

- Business need
- Project objectives
- Project deliverables
- Assumptions
- Constraints
- Key staff
- Written authorization

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Exercise 3-1
Project Charter

- Using the handout, complete the sample project charter
- Assume you are the project manager
- As an example, choose an anticipated major project assignment

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Sample Initiating Activities

- Negotiate, write, and refine the project charter
- Confirm how the project links to the business need
- Identify management responsibilities
- Identify geographic locations involved
- Test top-level objectives versus strategic business plans
- Make strategic procurement decisions, e.g., make, buy, or identify qualified vendors

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Key Outputs of Initiation Process

- Project charter
- Project manager identified/assigned
- Other key positions identified/assigned
- Constraints identified
- Assumptions identified

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Unit 4: Planning Projects

Upon completion, you will be able to ...

- Describe the purposes of the planning processes
- Identify the inputs and outputs of core planning processes
- Describe the function and develop sample planning deliverables such as a scope statement, WBS, and milestone chart
- List the major tools and techniques used in the core planning processes
- Identify the planning facilitating processes and their functions

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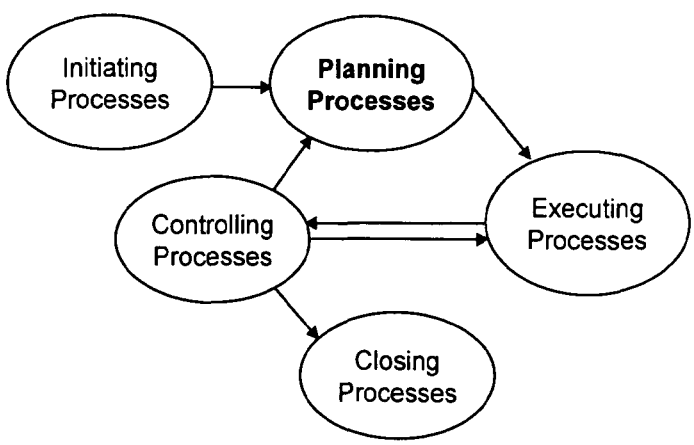
Planning Process Group



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Purpose of Planning Processes

To develop a project plan that:

- Facilitates later accomplishment*
- Ensures project wide integration
- Monitors change effectively
- Provides decision support information to stakeholders
- Can be updated by iterative planning activities

* *Project Management—A Managerial Approach*, 1995, by Jack R. Meredith and Samuel J. Mantel Jr.

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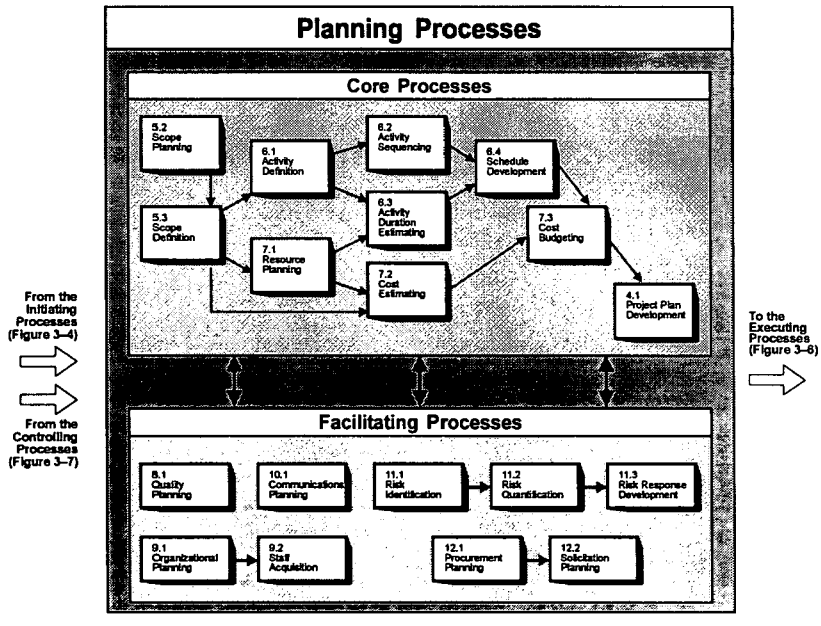

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Core Planning Processes
Scope Planning

Input	Process	Output
1. Product description 2. Project charter 3. Constraints 4. Assumptions	"... the process of developing a written scope statement as the basis for future project decisions including, in particular, the criteria used to determine if the project or phase has been completed successfully."	1. Scope statement 2. Supporting detail 3. Scope management plan

Tools and Techniques

1. Product analysis
2. Cost/Benefit analysis
3. Alternative identification
4. Expert judgment

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Project Scope Statement Purpose

- To provide a general description of the sum of the products and services to be provided by the project
- To develop a common understanding of project scope among stakeholders
- May make explicit some exclusions that, based on the audience, would be assumed to be part of the project

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Exercise 4-1
Scope Statement

- Using the handout in your manual, develop a project scope statement based on the project charter developed in the initiating process exercise

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Core Planning Processes
Scope Definition

Input	Process	Output
1. Scope statement 2. Constraints 3. Assumptions 4. Other planning outputs 5. Historical information	"... subdividing the major project deliverables (as identified in the scope statement) into smaller more manageable components ... "	1. Work breakdown structure

Tools and Techniques

1. Work breakdown structure templates
2. Decomposition

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Work Breakdown Structure (WBS)

- "A deliverable oriented grouping of project elements which organizes and defines the total scope of the project.
- Each descending level represents an increasingly detailed definition of a project component.
- Project components may be products or services."

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WBS Purpose

- To define:
  - Solution strategy or general approach
  - Implementation tactics
- To support more accurate estimates of project duration and cost than can be made at the project level
- To provide a basis for estimating project resources:
  - Departmental or subcontractor support
  - Vendors and their products
  - Services
  - Any other identifiable resource

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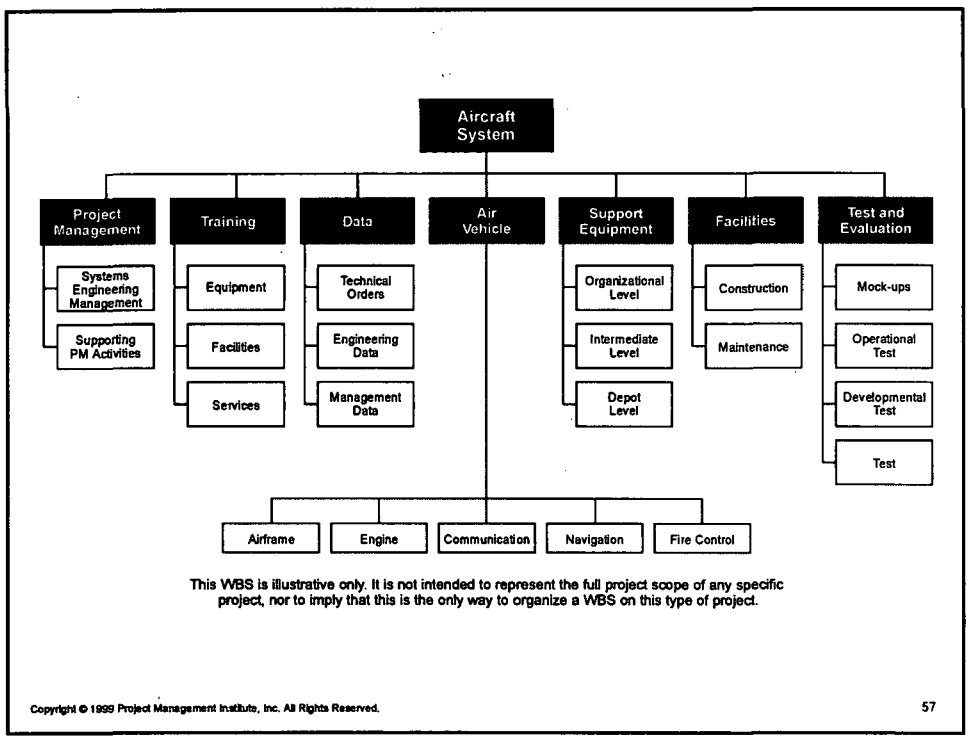

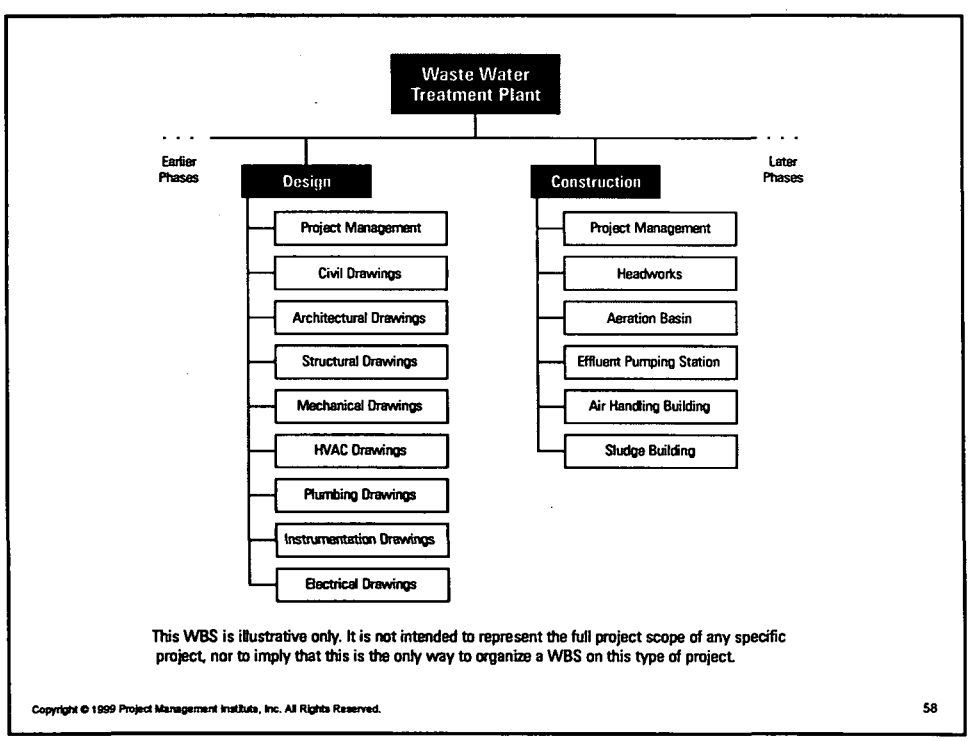

Validate Your WBS

- All major elements been identified at top level?
- Decomposed into measurable components?
- Lower level(s) items necessary? All inclusive?
- Would stakeholders agree WBS is satisfactory?
- Can elements be scheduled, budgeted, and assigned to a unit that will accept responsibility?
- Too much or too little visibility and control ?
- Can status reports be generated at all levels?

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Using the WBS to Estimate Cost

- Project manager establishes work requirements by defining the
  - What—"shalls" and "wills"
  - When—sequence
  - Why—dependencies
- Functional managers estimate cost by determining
  - How—equipment and methods
  - Who—type and level of expertise
  - Where—location, department

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Exercise 4-2
Work Breakdown Structure

- Using "Post-it® Notes," construct a WBS for your project or subproject
- Apply the WBS validation criteria
- Discuss any learning or insights with a classmate, including any learning from applying the WBS test criteria

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Core Planning Processes
Activity Definition

Input	Process	Output
1. WBS 2. Scope statement 3. Historical information 4. Constraints 5. Assumptions	"Identifying the specific activities that must be performed to produce the various project deliverables."	1. Activity list 2. Supporting detail 3. WBS updates
	Tools and Techniques	
	1. Decomposition 2. Templates	

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Project Charter Content

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- Assumptions
- Constraints
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Tools and Techniques

1. Work breakdown structure templates
2. Decomposition

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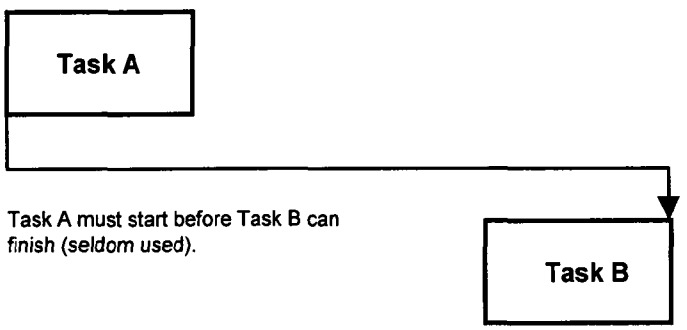
Precedence Relationships
Start to Finish



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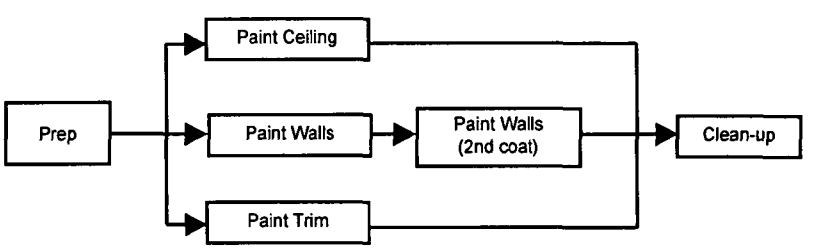
PDM Example
Diverging-Converging Activities

Diverging Activities

Single predecessor with multiple successors

Converging Activities

Multiple predecessors with single successor



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Forward Pass Definitions

- **Early Start Date (ES)**
  - Earliest possible point in time an activity can start, based on the network logic and any schedule constraints
- **Duration (DU)**
  - Number of work periods, excluding holidays or other nonworking periods, required to complete the activity; expressed as workdays or workweeks
- **Early Finish Date (EF)**
  - Earliest possible time the activity can finish
- **Forward Pass**
  - Starting at the beginning (left) of the network develop early start and early finish dates for each task, progressing to end (right-most box) of the network

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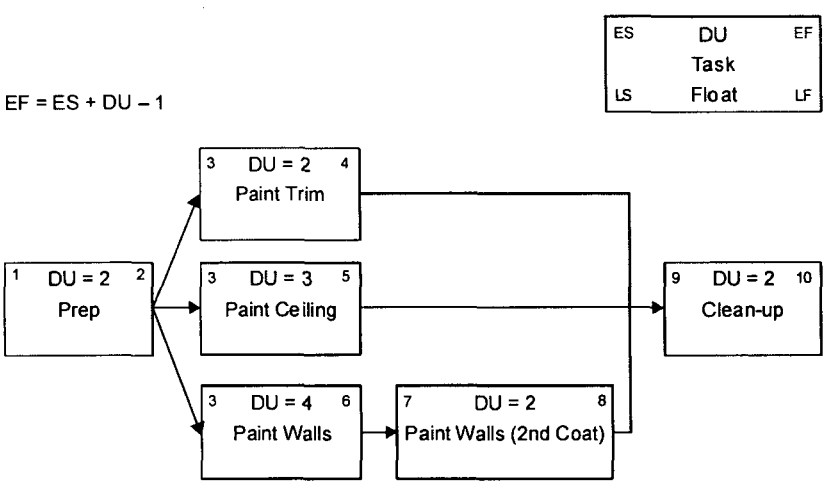
Forward Pass Calculation



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Task Identification
Forward Pass

Name	Duration	ES	EF
Prep	2	1	2
Paint Trim	2	3	4
Paint Ceiling	3	3	5
Paint Walls	4	3	6
Paint Walls (2nd Coat)	2	7	8
Clean-up	2	9	10

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Backward Pass Definitions

- **Late Start Date (LS)**
  - Latest point in time that an activity may begin without delaying that activity's successor
  - If the activity is on the critical path, the project end date will be affected
- **Float or Slack**
  - Latest point in time a task may be delayed from its earliest start date without delaying the project finish date
- **Late Finish (LF)**
  - Latest point in time a task may be completed without delaying that activity's successor
  - If the activity is on the critical path, the project end date will be affected
- **Backward Pass**
  - Calculate late start and late finish dates by starting at project completion, using finish times and working backwards

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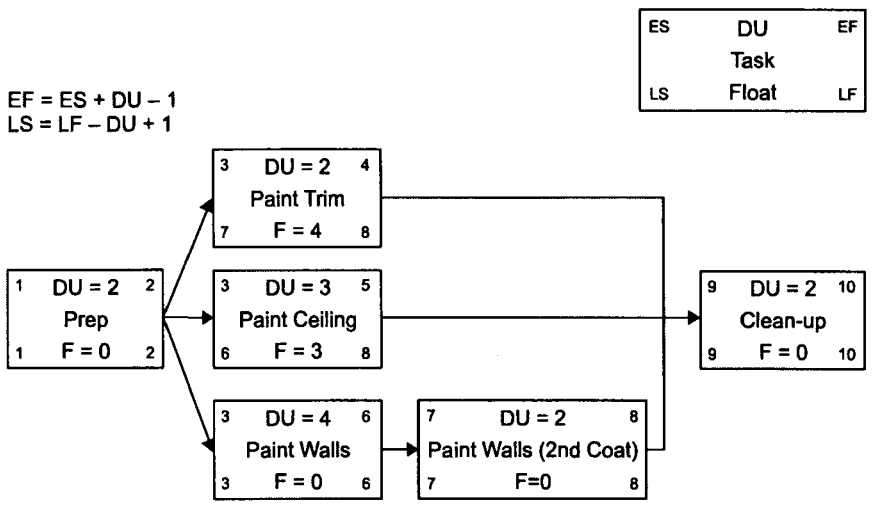
Backward Pass Calculation



Critical Path: Prep, Paint Walls, Paint Walls (2nd Coat), Clean-up

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Task Identification
Forward and Backward Passes

Name	Duration	ES	EF	LS	LF	Float
Prep	2	1	2	1	2	0
Paint Trim	2	3	4	7	8	4
Paint Ceiling	3	3	5	6	8	3
Paint Walls	4	3	6	3	6	0
Paint Walls (2nd Coat)	2	7	8	7	8	0
Clean-up	2	9	10	9	10	0

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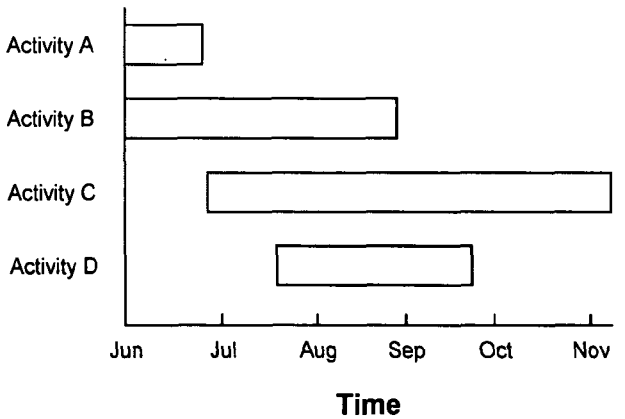
Scheduling Techniques
Bar/Gantt Chart



There are many other acceptable ways to display project information on a bar chart.

 83

Core Planning Processes
Schedule Development

Input	Process	Output
1. Project network diagram 2. Activity duration estimates 3. Resource requirements 4. Resource pool description 5. Calendars 6. Constraints 7. Assumptions 8. Leads and lags	"... determining start and finish dates for project activities."	1. Project schedule 2. Supporting detail 3. Schedule management plan 4. Resource requirements updates
	Tools and Techniques	
	1. Mathematical analysis 2. Duration compression 3. Simulation 4. Resource leveling heuristics 5. Project management software	

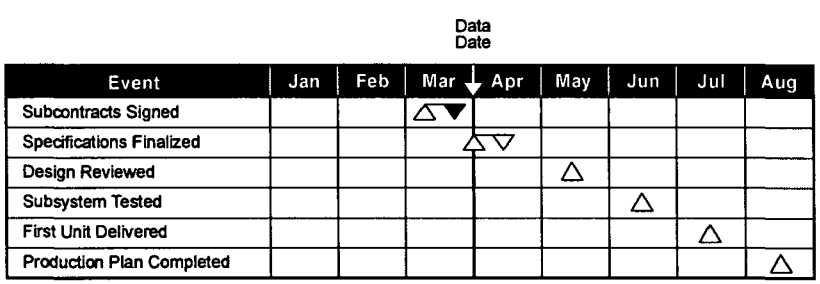
 84

Key Scheduling Concepts

- Master schedule
- Crashing
- Hanger
- Workaround
- Schedule variance

 85

Milestone Chart



There are many other acceptable ways to display project information on a milestone chart.

 88

Exercise 4-3
Project Milestones

- Identify the major milestones in your project

 87

Core Planning Processes
Resource Planning

Input	Process	Output
1. WBS 2. Historical information 3. Scope statement 4. Resource pool description 5. Organizational policies	"... determining what physical resources (people, equipment, materials) and what quantities of each should be used to perform project activities."	1. Resource requirements
	Tools and Techniques	
	1. Expert judgment 2. Alternatives identification	

 88

Core Planning Processes
Cost Estimating

Input	Process	Output
1. WBS 2. Resource requirements 3. Resource rates 4. Activity duration estimates 5. Historical information 6. Chart of accounts	"... developing an approximation (estimate of the costs of the resources needed to complete project activities."	1. Cost estimates 2. Supporting detail 3. Cost management plan

Tools and Techniques
1. Analogous estimating 2. Parametric modeling 3. Bottom-up estimating 4. Computerized tools

 89

Core Planning Processes
Cost Budgeting

Input	Process	Output
1. Cost estimates 2. WBS 3. Project schedule	"... allocating the overall cost estimates to individual work items in order to establish a cost baseline for measuring project performance."	1. Cost baseline

Tools and Techniques
1. Analogous estimating 2. Parametric modeling 3. Bottom-up estimating 4. Computerized tools

 90

Core Planning Processes
Project Plan Development

Input	Process	Output
1. Other planning outputs 2. Historical information 3. Organizational policies 4. Constraints 5. Assumptions	"... taking the results of other planning processes and putting them into a consistent, coherent document."	1. Project plan 2. Supporting detail

Tools and Techniques
1. Project planning methodology 2. Stakeholder's skills and knowledge 3. Project management information systems

 91

Facilitating Planning Processes

- Quality planning
- Communications planning
- Organizational planning
- Procurement planning
- Solicitation planning
- Staff acquisition
- Risk identification
- Risk quantification
- Risk response development

 92

Sample Planning Activities

- Subdividing deliverables into manageable components
- Allocating overall cost estimate to individual work items
- Identifying the specific activities people must perform to produce the project deliverables
- Identifying the sequence and duration of activities
- Determining project roles and responsibilities
- Other?

 93

Key Outputs of Planning Processes
The Project Plan

- Schedules
- Budgets
- Risk management plan
- Quality plan
- Staffing plan
- Procurement plan
- Schedule management plan
- Cost management plan
- Cost baseline
- Scope statement
- Work breakdown structure
- Plan updates
- Resource requirements
- Communications plan

 94

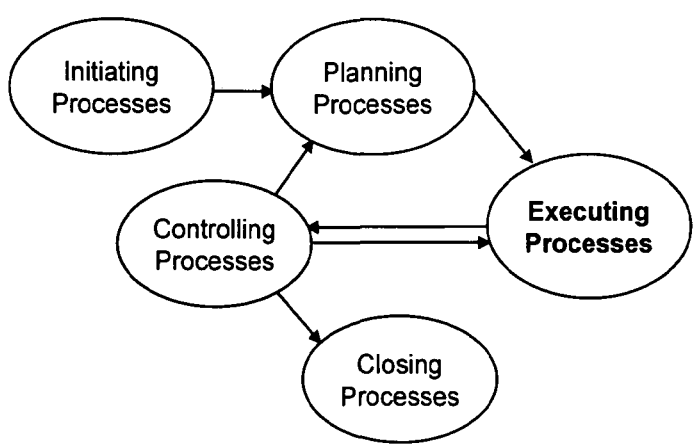
Unit 5: Executing Projects

Upon completion, you will be able to ...

- Describe the purposes of the executing processes
- Identify the inputs and outputs of its core processes
- List the major tools and techniques

 95

Executing Processes



 96

Purpose

- To coordinate, integrate, and manage all resources

Why?

- in order to achieve the project objectives

How?

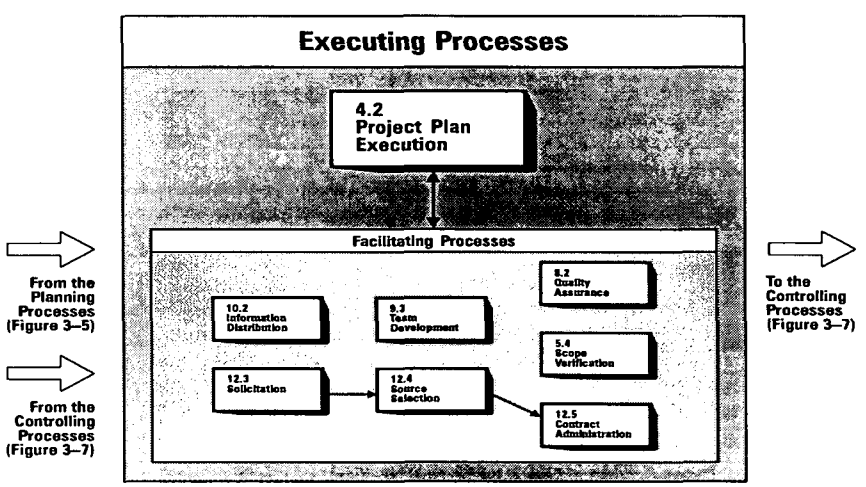
- by carrying out the letter and intent of the project plan

While

- responding to change and mitigating risks

 97

Overview



 98

Core Execution Process
Project Plan Execution

Input	Process	Output
1. Project plan 2. Supporting detail 3. Organizational policies 4. Corrective action	"... the primary process for carrying out the project plan."	1. Work results 2. Change requests

Tools and Techniques

1. General management skills
2. Product skills and knowledge
3. Work authorization system
4. Status review meetings
5. Project management information system
6. Organizational procedures

 99

Facilitating Execution Processes

- Information distribution
- Team development
- Quality assurance
- Scope verification
- Solicitation
- Source selection
- Contract administration

 100

Sample Executing Activities

- Managing work results and requests for change
- Using tools and techniques in project plan implementation
- Building effective relationships with vendors and project team members
- Choosing from potential sellers
- Distributing status information in time for stakeholders to act
- Other?

 101

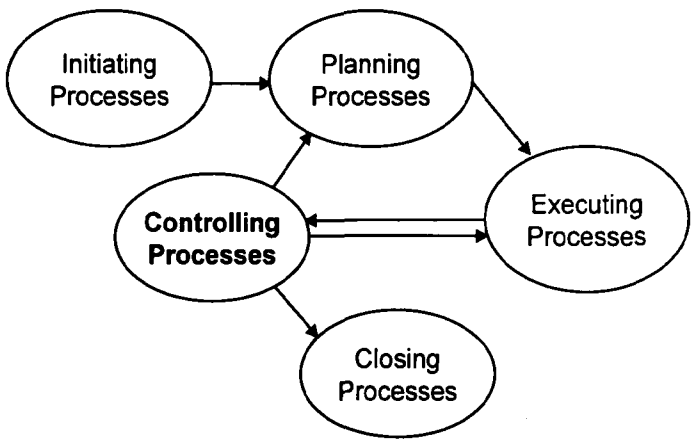
Unit 6: Controlling Projects

Upon completion, you will be able to ...

- Describe the purposes of the controlling processes
- Identify the inputs and outputs of the core controlling processes
- List and define the major tools and techniques

 102

Controlling Processes



 103

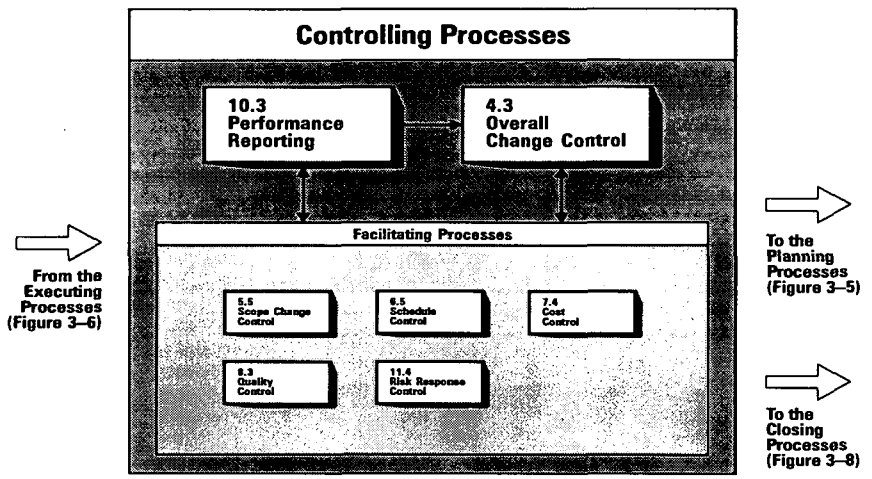
Purpose

To keep the project on track in order to achieve its objectives as outlined in the project plan by:

- Monitoring and reporting variances
- Controlling scope changes
- Controlling schedule changes
- Controlling costs
- Controlling quality
- Responding to risks

 104

Overview



 105

Core Controlling Processes
Performance Reporting

Input	Process	Output
1. Project plan 2. Work results 3. Other project records	"... collecting and disseminating performance information. This includes status reporting, progress measurements, and forecasting."	1. Performance reports 2. Change requests

Tools and Techniques

1. Performance reviews
2. Variance analysis
3. Trend analysis
4. Earned value analysis
5. Information distribution systems

 106

Core Controlling Processes
Overall Change Control

Input	Process	Output
1. Project plan 2. Performance reports 3. *Change requests*	"Overall change control is concerned with: (a) influencing the factors which create change to ensure that changes are beneficial, (b) determining that a change has occurred, and (c) managing the actual change when and as they occur."	1. Project plan updates 2. Corrective action 3. *Lessons learned*

Tools and Techniques

1. Change control system
2. Configuration management
3. Performance measurement
4. Additional planning
5. Project management information systems

 107

Facilitating Controlling Processes

- Scope change control
- Quality control
- Schedule control
- Cost control
- Risk response control

 108

Facilitating Controlling Processes
Risk Response Control

Input	Process	Output
1. Risk management plan 2. Actual risk events 3. Additional risk identification	"... involves executing the Risk Management Plan in order to respond to risk events over the course of the project."	1. Corrective action 2. Updates to the risk management plan
	Tools and Techniques	
	1. Workarounds 2. Additional risk response development	

109

Key Cost Concept

Earned Value

- A method for measuring project performance
- The budgeted cost of work performed for an activity or group of activities
- Compares the planned amount of work with the accomplished amount of work to determine if cost and scheduled performance is as planned

110

Controlling Activities

- Reporting status versus plan and forecasting
- Responding to changes in risk
- Completing and settling the contract, including resolving of any open items
- Identifying and reporting schedule slips
- Determining whether schedule updates require plan modifications
- Other?

 111

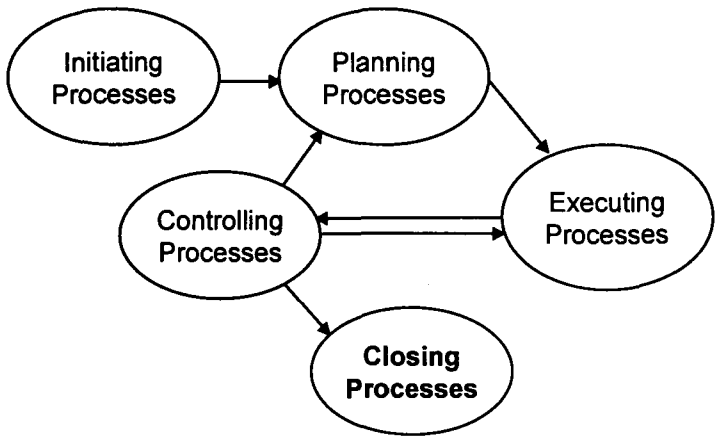
Unit 7: Closing Projects

Upon completion, you will be able to ...

- Describe the purposes of closing processes
- Identify the inputs and outputs of the core processes
- List the major tools and techniques

 112

Closing Processes



 113

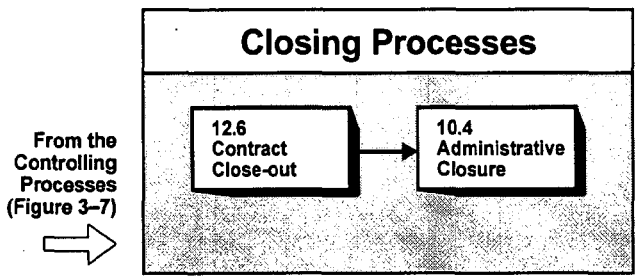
Purpose

Formalizing acceptance of the project and bringing it to an orderly end by:

- Closing the contract
- Achieving administrative closure

 114

Overview



 115

Core Closing Processes
Contract Close-out

Input	Process	Output
1. Contract documentation	"... involves both product verification (was all work completed correctly and satisfactorily) and administrative close-out (updating of records to reflect final results and archiving of such information for future use."	1. Contract file 2. Formal acceptance and closure
	Tools and Techniques	
	1. Procurement audits	

 116

Core Closing Process
Administrative Closure

Input	Process	Output
1. Performance measurement documentation 2. Documentation of the product of the project 3. Other project records	"... verifying and documenting project results to formalize acceptance of the product by the sponsor, client or customer."	1. Project archives 2. Formal acceptance 3. Lessons learned
	Tools and Techniques	
	1. Performance reporting tools and techniques	

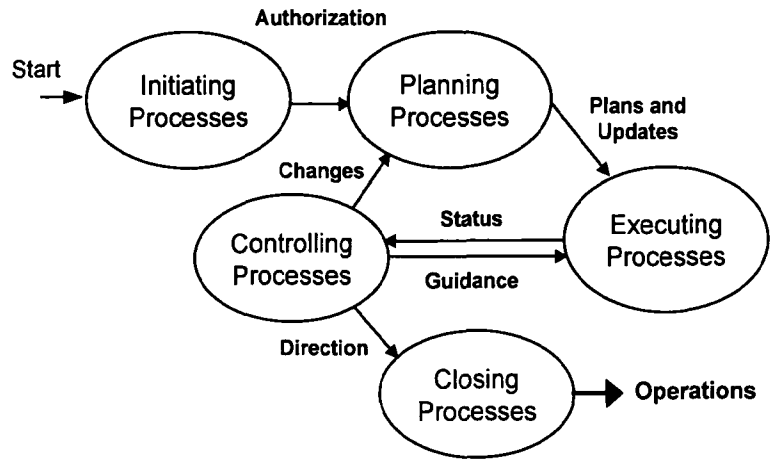
 117

Sample Closing Activities

- Ensuring a record of lessons learned is developed, documented, and made available for future projects
- Verifying acceptance of products or services
- Collecting all required project records
- Determining if final products meet specifications
- Assessing the quality, correctness, and completeness of all formal project acceptance documents
- Give performance appraisals and assist in the planned transfer of personnel to other projects or positions
- Other?

 118

Communication Flow



 119

Exercise 7-1
Process Group Allocation

- Allocate the processes and activities to the correct process group

 120

Questions/Opinions on Processes

- Most important processes?
- Least important?
- Missing?
- Other questions?

 121

Units 3–7 Summary

- Identified the role of each process group
- Identified the inputs and outputs of core processes
- Listed the major tools and techniques used in core processes of each process group
- Described facilitating processes
- Recognized and allocated processes and activities to their correct process group

 122

Unit 8: Organizational Impacts

Upon completion, you will be able to ...

- Describe how different organizational approaches can impact the process and effectiveness of project management

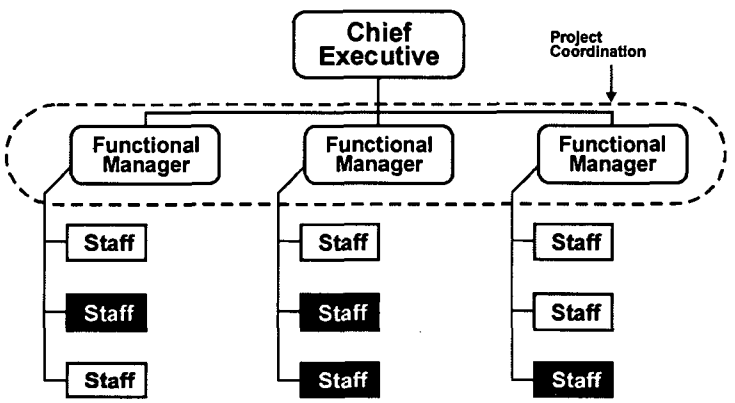
 123

HR Requirements

- PM position descriptions
- Reward system congruence
- Career paths
- Competency models
- Training and development opportunities
- Certification

 124

Functional Organization



(Black boxes represent staff engaged in project activities.)

 125

Functional Organization
Discussion Question

- In your opinion, what advantages and potential disadvantage does this type of organizational structure foster?

 126

Functional Organization
Potential Advantages

- Clear reporting relationships
- Highly specialized expertise
- Homogeneous group
- Drive for technical excellence

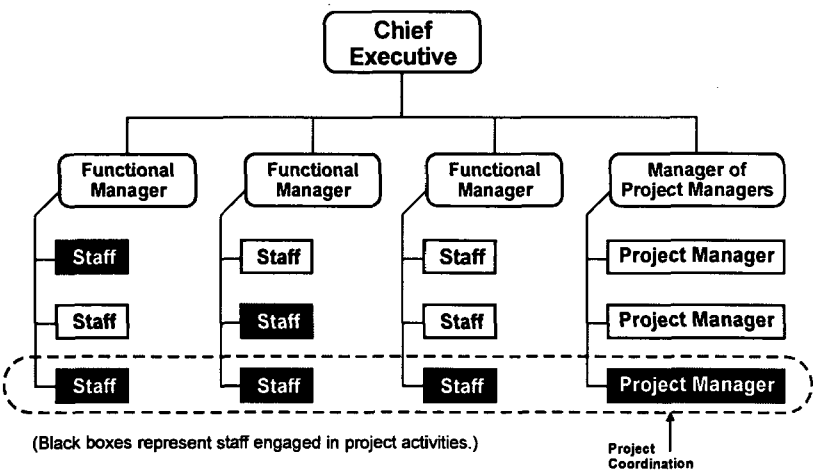
 127

Functional Organization
Potential Issues

- Project boundaries limited to discipline
- Barrier to customer influence and satisfaction
- Employee development opportunities limited
- Project manager dependent on personal influence
- Hierarchical decision and communication processes
- Overwork technical issues versus build to standard
- Fosters part-time roles

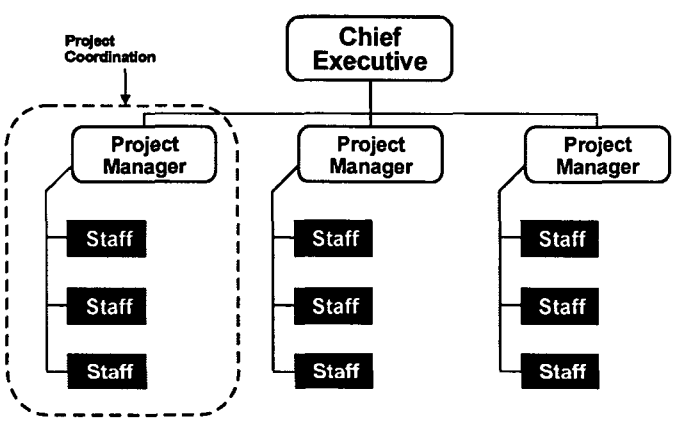
 128

Strong Matrix



 129

Projectized Organization



 130

Projectized Organization
Discussion Question

- Based on your experience, what potential advantages and disadvantage does this type of organizational approach foster?

 131

Project-Based Organization
Potential Advantages

- Strong project manager role
- Full-time administrative staff
- Clear accountability
- Fosters co-location
- Improved focus
- Cost and performance tracking
- Decision-making
- Customer relationships
- Common processes

 132

Project-Based Organization
Potential Issues

- Lessening of employee's "profession" identity
- Reduced focus on technical competence
- Leadership by the nontechnically skilled
- Focus on administrative work versus technical
- Devaluing of functional managers
- Process versus deliverable emphasis

 133

Structure Influence on Projects

Project Characteristics \ Organization Type	Functional	Matrix			Projectized
		Weak Matrix	Balanced Matrix	Strong Matrix	
Project Manager's Authority	Little or None	Limited	Low to Moderate	Moderate to High	High to Almost Total
Percent of Performing Organization's Personnel Assigned Full Time to Project Work	Virtually None	0–25%	15–60%	50–95%	85–100%
Project Manager's Role	Part-time	Part-time	Full-time	Full-time	Full-time
Common Titles for Project Manager's Role	Project Coordinator/ Project Leader	Project Coordinator/ Project Leader	Project Manager/ Project Officer	Project Manager/ Program Manager	Project Manager/ Program Manager
Project Management Administrative Staff	Part-time	Part-time	Part-time	Full-time	Full-time

 134

Exercise 8-1
Organizational Impacts

- If you were given authority for a day and tasked to improve project management in your organization, what changes would you make:
  - To the organization structure and delegation of responsibilities?
  - To your role (no major promotions, please)?

 135

Summary

Reviewed how organizational approaches can impact the effectiveness of project management

- Functional organization
- Matrix organization
- Project-based organization

 138

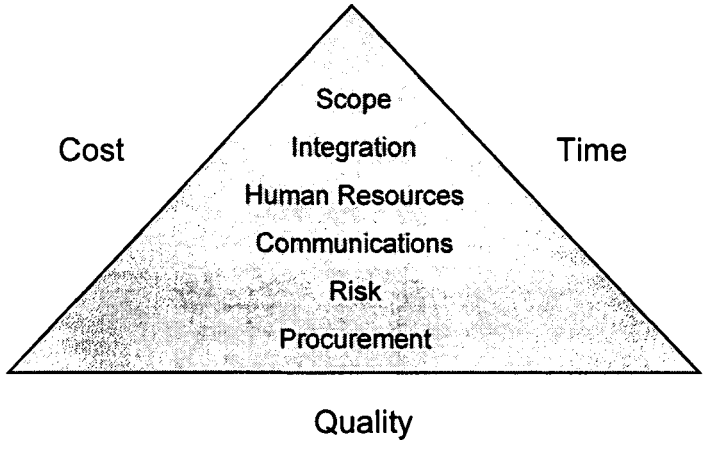
Unit 9: Overview of Knowledge Areas

Upon completion, you will be able to ...

- Identify and describe the nine knowledge areas
- Identify your current development needs and strengths in the processes in each knowledge area

 137

Overview of Knowledge Areas



 138

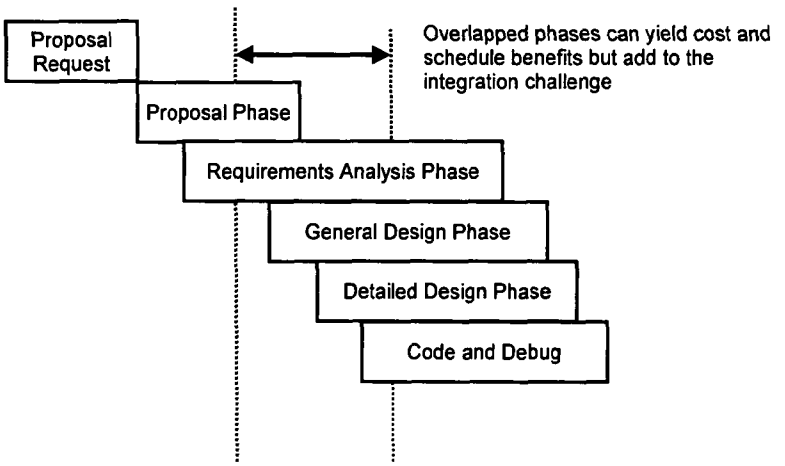
Project Integration Management

"A subset of project management that includes the processes required to ensure that the various elements of the project are properly coordinated."

- Project plan development
- Project plan execution
- Overall change control

 139

The Integration Challenge
Software Product Development Example



 140

Characteristics of Effective Integration

- Overlapped processes
- Effective change control and communication systems
- Reduced development time and cost
- Early and ongoing involvement of all stakeholders
- Early visibility of results
- Early problem identification and resolution
- Use all relevant expertise at earliest meaningful time

 141

Project Scope Management

"Includes the processes required to ensure that the project includes all of the work required, and only the work required to complete the project successfully."

- Initiation
- Scope planning
- Scope definition
- Scope verification
- Scope change control

 142

Key Scope Concepts

- **Configuration Management**
  - A mechanism to track budget, schedule variances, and deliverable versions
- **Specification**
  - A precise definition of a physical item, procedure, service, or result for the purpose of purchase and/or implementation of an item or service
- **Sources of Scope Change**
  - Variation in government regulations
  - Failure to include a required feature in the design of the product
  - Customers who change their minds about the desired nature of the deliverable

 143

Key Scope Concepts (continued)

Work Breakdown Structure

- A deliverable-oriented grouping of process elements that organizes and defines the total scope of the project
- Each descending level represents an increasingly detailed definition of a project component
- Project components may be products or services

 144

Project Time Management

- Definition
  - A subset of project management that includes the processes required to ensure timely completion of the project
- Processes
  - Activity definition
  - Activity sequencing
  - Activity duration estimating
  - Schedule development
  - Schedule control

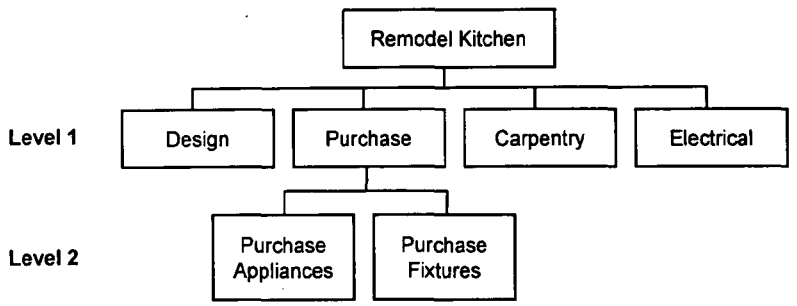
 145

Purpose of Scheduling Processes

- Illustrates interdependence of project activities, work packages, and work units
- Monitors and controls timing of project work
- Guides the allocation of resources
- Drives personnel availability issues and activities

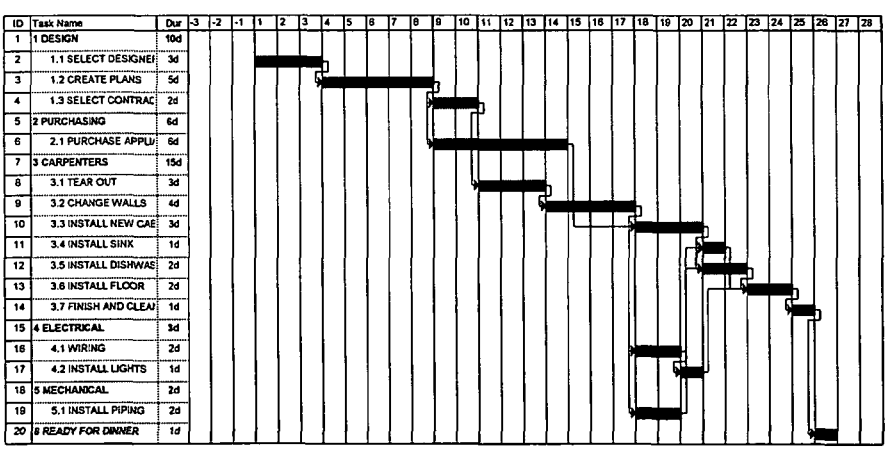
 146

Remodel Kitchen WBS



 147

Kitchen Remodeling
Precedence Relationships

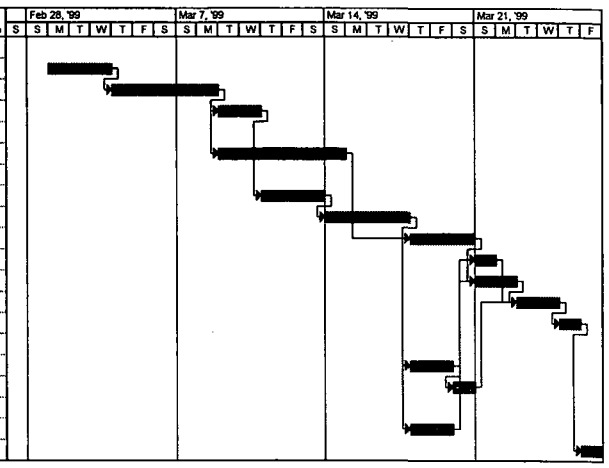


ID	Task Name	Dur
1	1 DESIGN	10d
2	1.1 SELECT DESIGNEI	3d
3	1.2 CREATE PLANS	5d
4	1.3 SELECT CONTRAC	2d
5	2 PURCHASING	6d
6	2.1 PURCHASE APPLI	6d
7	3 CARPENTERS	15d
8	3.1 TEAR OUT	3d
9	3.2 CHANGE WALLS	4d
10	3.3 INSTALL NEW CAE	3d
11	3.4 INSTALL SINK	1d
12	3.5 INSTALL DISHWAS	2d
13	3.6 INSTALL FLOOR	2d
14	3.7 FINISH AND CLEAI	1d
15	4 ELECTRICAL	3d
16	4.1 WIRING	2d
17	4.2 INSTALL LIGHTS	1d
18	5 MECHANICAL	2d
19	5.1 INSTALL PIPING	2d
20	6 READY FOR DINNER	1d

 148

Kitchen Remodeling
Forward Pass - Early Dates

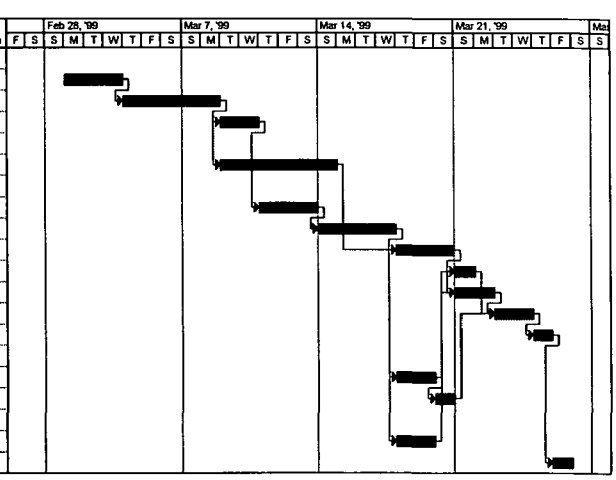
ID	Task Name	Dur	ES Date	EF Date
1	DESIGN	10d		
2	SELECT DESIGNER	3d		
3	CREATE PLANS	5d		
4	SELECT CONTRACTOR	2d		
5	PURCHASING	6d		
6	PURCHASE APPLIANCE	6d		
7	CARPENTERS	15d		
8	TEAR OUT	3d		
9	CHANGE WALLS	4d		
10	INSTALL NEW CABINET	3d		
11	INSTALL SINK	1d		
12	INSTALL DISHWASHER	2d		
13	INSTALL FLOOR	2d		
14	FINISH AND CLEANUP	1d		
15	ELECTRICAL	3d		
16	WIRING	2d		
17	INSTALL LIGHTS	1d		
18	MECHANICAL	2d		
19	INSTALL PIPING	2d		
20	READY FOR DINNER	1d		



149

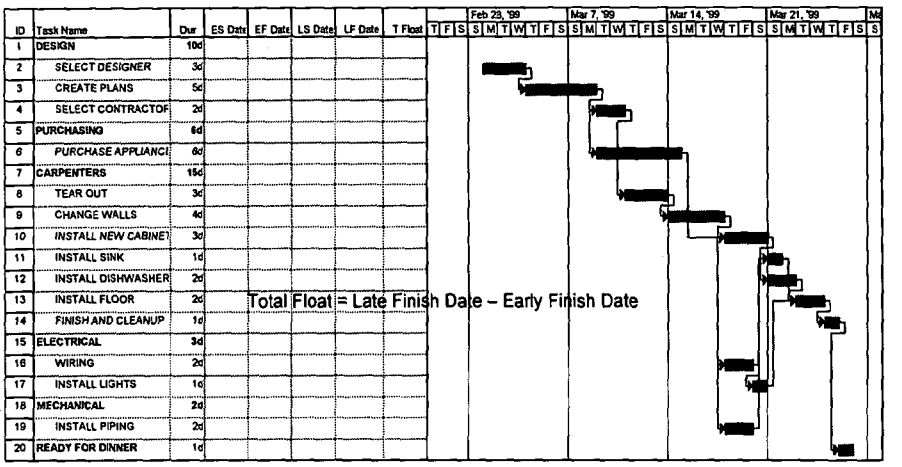
Kitchen Remodeling
Backward Pass - Late Dates

ID	Task Name	Dur	LS Date	LF Date
1	DESIGN	10d		
2	SELECT DESIGNER	3d		
3	CREATE PLANS	5d		
4	SELECT CONTRACTOR	2d		
5	PURCHASING	6d		
6	PURCHASE APPLIANCE	6d		
7	CARPENTERS	15d		
8	TEAR OUT	3d		
9	CHANGE WALLS	4d		
10	INSTALL NEW CABINET	3d		
11	INSTALL SINK	1d		
12	INSTALL DISHWASHER	2d		
13	INSTALL FLOOR	2d		
14	FINISH AND CLEANUP	1d		
15	ELECTRICAL	3d		
16	WIRING	2d		
17	INSTALL LIGHTS	1d		
18	MECHANICAL	2d		
19	INSTALL PIPING	2d		
20	READY FOR DINNER	1d		



150

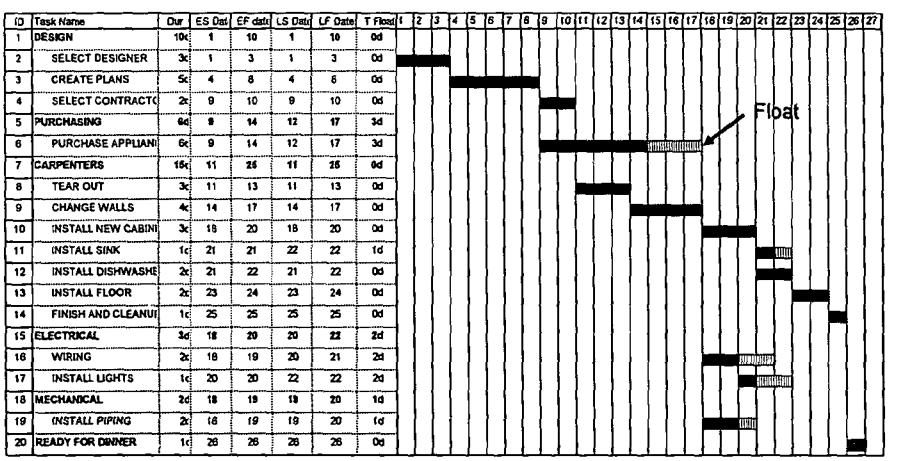
Kitchen Remodeling
Total Float



ID	Task Name	Dur	ES Date	EF Date	LS Date	LF Date	T Float
1	DESIGN	10d					
2	SELECT DESIGNER	3d					
3	CREATE PLANS	5d					
4	SELECT CONTRACTOR	2d					
5	PURCHASING	6d					
6	PURCHASE APPLIANCE	6d					
7	CARPENTERS	15d					
8	TEAR OUT	3d					
9	CHANGE WALLS	4d					
10	INSTALL NEW CABINET	3d					
11	INSTALL SINK	1d					
12	INSTALL DISHWASHER	2d					
13	INSTALL FLOOR	2d					
14	FINISH AND CLEANUP	1d					
15	ELECTRICAL	3d					
16	WIRING	2d					
17	INSTALL LIGHTS	1d					
18	MECHANICAL	2d					
19	INSTALL PIPING	2d					
20	READY FOR DINNER	1d					

 151

Kitchen Remodeling
Summary



ID	Task Name	Dur	ES Dat	EF dat	LS Dat	LF Date	T Float
1	DESIGN	10d	1	10	1	10	0d
2	SELECT DESIGNER	3d	1	3	1	3	0d
3	CREATE PLANS	5d	4	8	4	8	0d
4	SELECT CONTRACTO	2d	9	10	9	10	0d
5	PURCHASING	6d	9	14	12	17	3d
6	PURCHASE APPLIANI	6d	9	14	12	17	3d
7	CARPENTERS	15d	11	25	11	25	0d
8	TEAR OUT	3d	11	13	11	13	0d
9	CHANGE WALLS	4d	14	17	14	17	0d
10	INSTALL NEW CABINI	3d	18	20	18	20	0d
11	INSTALL SINK	1d	21	21	22	22	1d
12	INSTALL DISHWASHE	2d	21	22	21	22	0d
13	INSTALL FLOOR	2d	23	24	23	24	0d
14	FINISH AND CLEANUI	1d	25	25	25	25	0d
15	ELECTRICAL	3d	18	20	20	22	2d
16	WIRING	2d	18	19	20	21	2d
17	INSTALL LIGHTS	1d	20	20	22	22	2d
18	MECHANICAL	2d	18	19	19	20	1d
19	INSTALL PIPING	2d	18	19	19	20	1d
20	READY FOR DINNER	1d	26	26	26	26	0d

 152

Project Cost Management

"... the processes required to ensure that the project is completed within the approved budget."

- Resource planning
- Cost estimating
- Cost budgeting
- Cost control

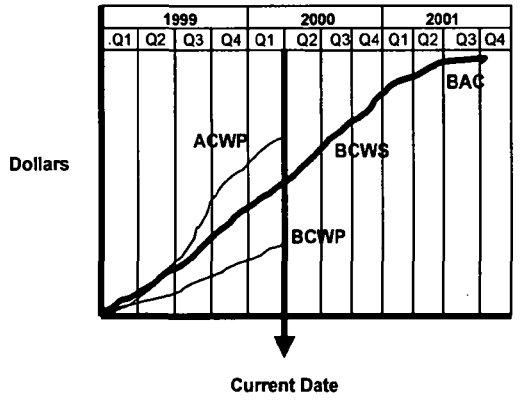
 153

One Performance Measurement

- Earned Value
  - Budgeted Cost of Work Performed (BCWP)
- Related Terms
  - Budgeted Cost of Work Scheduled (BCWS)
  - Actual Cost of Work Performed (ACWP)
  - Budget at Completion (BAC)

 154

Cumulative Status Display



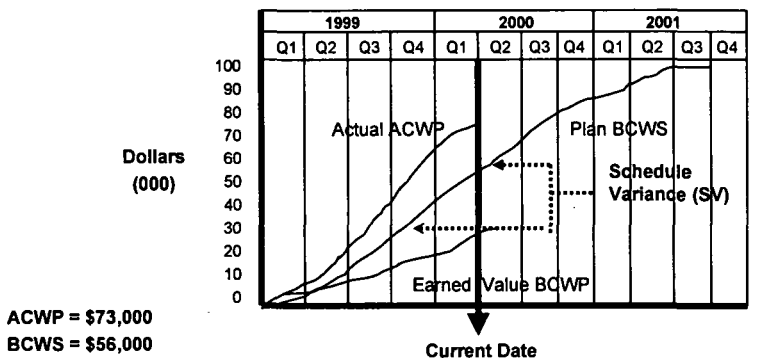
 155

Variances

- Schedule Variance (SV) = BCWP – BCWS
- Cost Variance (CV) = BCWP – ACWP
- Time Variance (TV) = STWP – ATWP

 156

What Is the SV?

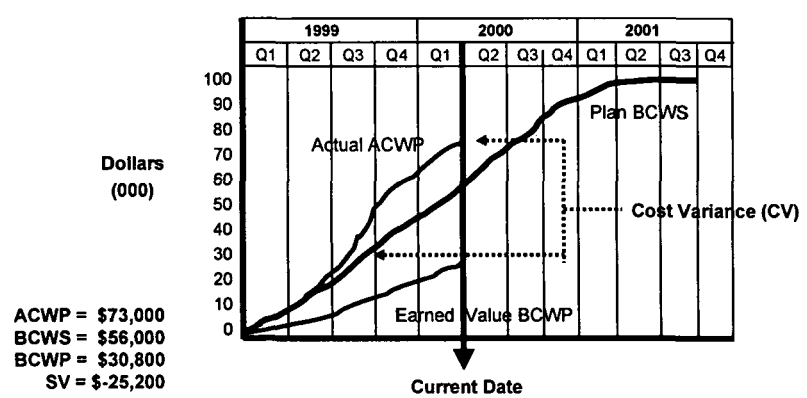


ACWP = $73,000
BCWS = $56,000
BCWP = $30,800 (55% completed)

Project Management—A Managerial Approach, 1995, by Jack R. Meredith and Samuel J. Mantel Jr.

 157

What Is the CV?

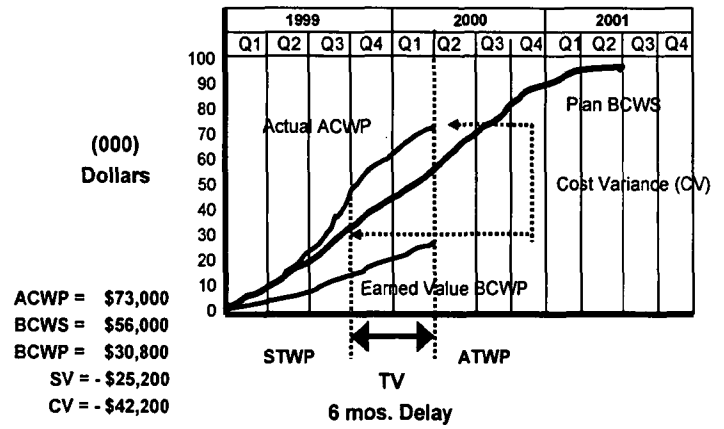


ACWP = $73,000
BCWS = $56,000
BCWP = $30,800
SV = $-25,200

Project Management—A Managerial Approach, 1995, by Jack R. Meredith and Samuel J. Mantel Jr.

 158

What Is the Time Variance?



Project Management—A Managerial Approach, 1995, by Jack R. Meredith and Samuel J. Mantel Jr.

159

Project Quality Management

"A subset of project management that includes the process required to ensure that the project will satisfy the needs for which it was undertaken."

- Quality planning
- Quality assurance
- Quality control

160

Project HR Management

"... the processes required to make the most effective use of the people involved with the project."

- Organizational planning
- Staff acquisition
- Team development

 161

Responsibility Chart

PERSON / PHASE	A	B	C	D	E	F	...
Requirements	S	R	A	P	P		
Functional	S		A	P		P	
Design	S		R	A	I		P
Development		R	S	A		P	P
Testing			S	P	I	A	P

P = Participant A = Accountable R = Review required
I = Input required S = Sign-off required

 162

Responsibility Chart Characteristics

- Work Package Level
- Components
  - WBS activity
  - Responsible organization
  - Responsible position title or person
  - Type of responsibility
    - Approving authority
    - Prime implementation accountability
    - Support
    - Notification

 163

Exercise 9-1
Responsibility Allocation

- Using the handout in your manual, complete the responsibility matrix for your project
- Discuss with a classmate the effectiveness of the allocation of responsibility and authority depicted

 164

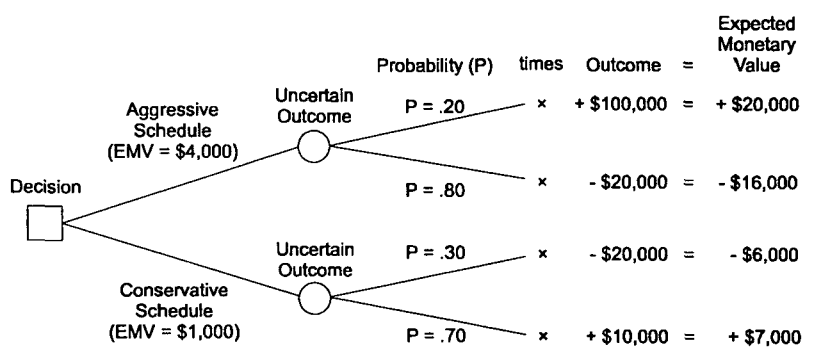
Project Risk Management

"... the processes concerned with identifying, analyzing, and responding to project risk."

- Risk identification
- Risk quantification
- Risk response development
- Risk response control

 165

Risk Decision Tree



- Expected monetary value (EMV) of result = Outcome × Probability of that outcome.
- Expected monetary value of a decision = sum of EMVs of all Outcomes stemming from that decision.
- Aggressive schedule has expected monetary value of $4,000 and is "preferred" over conservative schedule with expected monetary value of $1,000.

 168

Exercise 9-2
Risk Assessment

- Construct a risk assessment tree for a critical decision on your project
- If your original project selection does not lend itself to this exercise, feel free to substitute another project

 167

Project Communications Management

"... the timely and appropriate generation, collection, dissemination, storage, and ultimate disposition of project information."

- Communications planning
- Information distribution
- Performance reporting
- Administrative closure

 168

Project Procurement Management

"... includes the processes required to acquire goods and services from outside the performing organization."

- Procurement planning
- Solicitation planning
- Solicitation
- Source selection
- Contract administration
- Contract closeout

 169

Summary

- Identified and described the nine knowledge areas and the core processes in each
- Allocated typical processes and activities to their appropriate knowledge area

 170

Unit 10: Role of the Project Manager

Upon completion, you will be able to ...

Identify, in your environment, the most critical project manager:

- Roles
- Responsibilities
- Interpersonal skill requirements
- Your knowledge area gaps and strengths

 171

Project Manager Roles

- Decision-maker
- Coach
- Communication channel
- Encourager
- Power broker
- Disciplinarian
- Manager
- Sales person
- PM expert
- Facilitator
- Behavior model
- Other?

 172

Project Manager Responsibilities

- Project plan implementation
- Achievement of objectives
- Project integration
- Communications
- Stakeholder relations
- Change management system
- Priority establishment and maintenance

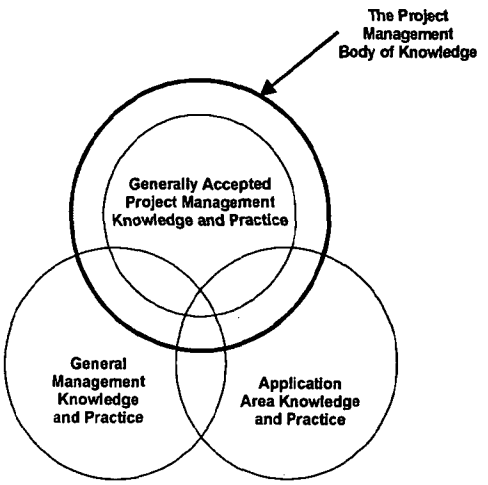
 173

More Responsibilities

- Staff acquisition, retention, and motivation
- Selection and use of PM tools and techniques
- Compliance with regulations, state and federal laws, and organization policies and procedures
- Resolving team conflicts
- Negotiating win/win solutions
- Deliver the project on time and within budget
- Other?

 174

Skill and Knowledge Requirements



This figure is a conceptual view of these relationships. The overlaps shown are not proportional.

 175

Competency can be defined as ...

- A qualification equal to a position requirement,

  or

- Capacities one must possess to perform satisfactorily in a position.

 176

Success depends on your ...

- Knowledge
- Behaviors
- Attitude
- Organizational environment
- Project environment
- Fit
- Self-knowledge and ability to adjust

 177

One Emerging Operating Style

"We will need scroungers, tinkerers, masters of the extemporaneous, and those who can make it happen, regardless of the rules, the odds, or the inevitable second guess."*

* *Project Management Handbook*, by David I. Cleland and William R. King

 178

Exercise 10-1
Project Manager Interpersonal Skills

- Use the handout to assess the interpersonal skills required to manage a project successfully in your organization; then assess your skills, and identify skill gaps and strengths

 179

Recognizing a Successful Project Manager

- Meets cost, schedule, technical, and mission objectives

  Plus

- Attains high levels of satisfaction and perception of project success from:
  - Client
  - Sponsor
  - Users
  - Team

 180

Example of an Organization Competence Assessment Tool

- CMM™ background
- Levels of Software Engineering Maturity Model
  - Basic
  - Repeatable
  - Defined
  - Managed
  - Optimized

 181

Why Reading Your Environment Is Important

Assessments reveal:

- Fit between you, the organization, and the project
- Your development needs and strengths
- PM strategies most likely to be successful
- PM strategies to be avoided
- Guide for tools and techniques selection
- Guide your performance expectations of self and others

And They:

- Influence your own management style

 182

Exercise 10-2
PM Knowledge Needs Assessment

- Complete the exercise in your manual, and then discuss the implications with a classmate
- Identify knowledge gaps, strengths, and possible developmental activities including:
  - Growth assignments
  - Seminars
  - Self-study
  - Degree programs
  - Other?

 183

PM Knowledge Needs Assessment
Discussion Question

What did you learn from this exercise about:

- Yourself?
- Your project?
- Your organization?
- Your future?

 184

A Framework for Project Management
Seminar Summary

1. Introduction and Key Concepts
2. Project Life Cycle Models
3. Initiating Projects
4. Planning Projects
5. Executing Projects
6. Controlling Projects
7. Closing Projects
8. Organizational Impacts
9. Overview of Knowledge Areas
10. Role of the Project Manager

 185

End

- Please complete the seminar evaluation form before leaving.
- **Thank you for your participation!**

 186

Appendix A

Seminar Evaluation Form

A Framework for Project Management Seminar Evaluation Form

CHAPTER/ORGANIZATION: _____

DATE: _____

I. COURSE CONTENT

Please mark your answer for each question by filling in a single square.

1. How well did the overall seminar content and presentation meet your expectations?

❑5	❑4	❑3	❑2	❑1
Far Exceeded		Met		Did Not Meet

Comments and/or suggestions for improvement:

_____

_____

2. How relevant was the seminar content to your current position?

❑5	❑4	❑3	❑2	❑1
Very Relevant		Relevant		Not Relevant

Comments and/or suggestions to improve relevance:

_____

_____

3. How relevant was the seminar content to a future position for which you are preparing?

❑5	❑4	❑3	❑2	❑1
Very Relevant		Relevant		Not Relevant

Comments and/or suggestions to improve relevance:

_____

_____

4. What was the most useful information or exercise presented?

_____

_____

5. What was the least useful information or exercise presented?

_____

_____

II. ASSESSMENT OF PARTICIPANT LEARNING OUTCOMES

Indicate how well the seminar achieved its learning objectives by checking the appropriate box to indicate whether the seminar met, exceeded, or failed to meet its objectives for you.

Target Learning Outcomes Upon completion, you will be able to ...	Met	Exceeded	Did Not Meet
1. Establish a common language and understanding of basic project management terms and concepts including: PMBOK®, project, project management, operations, project phase, charter, scope statement, project life cycle, product life cycle, PDM, AOA, AON, program, stakeholders, earned value, scheduling, networks, critical path, forward pass, backward pass, and project manager responsibilities and competencies.	❑	❑	❑
2. Describe the purpose, inputs, and outputs of the core processes in each of the five process groups.	❑	❑	❑
3. Define the purpose of the facilitating processes in each of the five process groups.	❑	❑	❑
4. Define and understand the relationship between: process groups, knowledge areas, and project phases and project and product life cycles.	❑	❑	❑
5. Define the role of each of the nine knowledge areas.	❑	❑	❑
6. Describe the impact on project management of functional, matrix, and projectized organizational approaches.	❑	❑	❑
7. Explain the function of the following project management tools and techniques and in what phase of a project they are typically initiated:			
Project Charter	❑	❑	❑
Project Scope Statement	❑	❑	❑
Work Breakdown Structure	❑	❑	❑
Responsibility Matrix	❑	❑	❑
Project Planning	❑	❑	❑
Scheduling Techniques	❑	❑	❑
8. Provide insight into your areas of project management knowledge and interpersonal skill strengths and gaps, based on your project and organizational environment.	❑	❑	❑
9. Demonstrate a clear understanding of what processes, activities, tools, and techniques are characteristic of each phase of a project.	❑	❑	❑
Overall Evaluation	❑	❑	❑

III. SEMINAR LEADER(S)

Name: _____ Name: _____

Seminar Leader #1 Seminar Leader #2

1. Leader No.1's knowledge of the subject area is:

❑5 ❑4 ❑3 ❑2 ❑1

Excellent Satisfactory Poor

Comments: _____

_____

2. Leader No. 2's (if applicable):

❑5 ❑4 ❑3 ❑2 ❑1

Excellent Satisfactory Poor

Comments: _____

_____

3. Leader No. 1's presentation techniques were:

❑5 ❑4 ❑3 ❑2 ❑1

Excellent Satisfactory Poor

Comments: _____

_____

4. Leader No. 2's presentation techniques (if applicable):

❑5 ❑4 ❑3 ❑2 ❑1

Excellent Satisfactory Poor

Comments: _____

_____

IV. SEMINAR ADMINISTRATION AND MATERIALS

1. Handouts and audio-visual aids were:

❑5 ❑4 ❑3 ❑2 ❑1

Excellent Satisfactory Poor

Comments: _____

_____

2. How do you rate the registration and administrative processes?

❑5 ❑4 ❑3 ❑2 ❑1

Excellent Satisfactory Poor

Comments: _____

_____

V. OPTIONAL

PMI Member (Y/N): _____

Name: _____

Address: _____

_____

Prior Courses in PM? (Y/N) _____

Telephone: _____

E-mail: _____

Fax: _____

Appendix B

Exercises and Quizzes

1-1	PM Pitfalls and Pluses Exercise
2-1	Project Life Cycle Model Exercise
2-2	Unit 1 and 2 Quiz
3-1	Project Charter Exercise
4-1	Project Scope Statement Exercise
7-1	Process Group Allocation Exercise Version A
7-1	Process Group Allocation Exercise Version B
9-1	Responsibility Allocation Exercise
10-1	Project Manager Interpersonal Skills Exercise
10-2	PM Knowledge Needs Assessment Exercise

1-1: Pitfalls and Pluses Exercise

PITFALLS

Looking back on projects with which you were associated, what were the top three factors that caused serious problems?

1.

2.

3.

Other?

PLUSES

That created a perception of success?

1.

2.

3.

Other?

2-1: Project Life Cycle Model Exercise

Project Name:

Phase Name	Phase Purpose
1.	
2.	
3.	
4.	
5.	
6.	
7.	

2-2: Unit 1 and 2 Quiz

1. The term Project Management Body of Knowledge or PMBOK® is an inclusive term that describes the _____ body of knowledge within the profession of Project Management.

2. PMBOK® includes the generally accepted as well as the _____ and advanced knowledge and practices of project management.

3. The three management disciplines required to manage projects successfully are:
   1) Generally accepted project management knowledge and skills
   2) General management knowledge and skills
   3) _____ knowledge and skills.

4. A project is a _____ unique endeavor undertaken to create a product or _____.

5. A _____ is a group of projects managed in a coordinated way to obtain _____ not available from managing them individually.

6. Project management can be defined as the application of _____, skills, and _____ in order to meet or exceed stakeholder needs and expectations from a project.

7. Stakeholder refers to individuals and organizations that are involved in or will be affected by project activities and includes the project sponsor, clients/customers, functional managers, vendors, senior managers, the project manager, and the _____ _____.

8. List two differences between Projects and Operations.

	Projects	Operations
1)	_____	_____
2)	_____	_____

9. List the two most important factors contributing to project success and failure in your organization.
   Success
   1) _____ 2) _____
   Failure
   1) _____ 2) _____

10. List the two most important benefits of applying project management concepts and tools and techniques in your organization.
    1) _____
    2) _____

11. A project phase is a collection of logically related project _____ usually culminating in the completion of a major _____.

12. Collectively, the project phases make up the _____ _____ _____.

13. A natural grouping of ideas, decisions, and actions into product phases from product conception to product phase-out is referred to as the _____ _____ _____.

2-2: Unit 1 and 2 Quiz (continued)

14. A measurable, tangible, verifiable outcome, result, or item that must be produced to complete a project or part of a project is called a _____.

15. A typical project life cycle could include the following phases: concept, proposal, development, _____, verification, and _____.

3-1: Project Charter Exercise

Project Sponsor Information

Sponsor Name: _____ Title: _____
Business Need: _____
_____
_____
Business Benefits: _____
_____
_____

Major Deliverables
Product(s) or Service(s)

1. _____ 4. _____
2. _____ 5. _____
3. _____ 6 _____

Schedule Constraints and Assumptions

Planned Start Date: _____ Planned End Date: _____ Latest End Date: _____
_____
Schedule Assumptions:
_____
_____
Schedule Constraints:
_____

Key Staffing Requirements

Project Manager: _____ Title: _____ Date Available: _____
Status: _____
Other Key Staff: _____ Title: _____ Date Available: _____
Status: _____

Other Constraints and Assumptions

Constraints: _____
_____
_____
Assumptions: _____
_____

Project Authorization Approvals

Department	Signed	Date
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

4-1: Project Scope Statement Exercise

Scope Description

_____
_____
_____
_____
_____

Project Objectives and Deliverables

	Objectives	Deliverables
1.	_____	
2.	_____	
3.	_____	
4.	_____	
5.	_____	
6.	_____	

7-1: Process Allocation Exercise—Version A

Allocate the project management process or activity in the second column to its correct process group.

#	Project Management Process	Process Group				
		Initiating	Planning	Executing	Controlling	Closing
1.	Commit the organization to begin the next phase of a project.	[ ]	[ ]	[ ]	[ ]	[ ]
2.	Verify that all work was completed correctly and satisfactorily.	[ ]	[ ]	[ ]	[ ]	[ ]
3.	Determine start and finish dates for project activities.	[ ]	[ ]	[ ]	[ ]	[ ]
4.	Coordinate, integrate, and manage all project resources to achieve the project objectives.	[ ]	[ ]	[ ]	[ ]	[ ]
5.	Provide a general description of the sum of the products and services to be provided by the project.	[ ]	[ ]	[ ]	[ ]	[ ]
6.	Distribute appropriate information to stakeholders in a timely manner.	[ ]	[ ]	[ ]	[ ]	[ ]
7.	Formally recognize that a new project exists.	[ ]	[ ]	[ ]	[ ]	[ ]
8.	Convert the project Plan to an operating plan that is the basic tool for controlling project activities.	[ ]	[ ]	[ ]	[ ]	[ ]
9.	Estimate the duration (number of work periods) required to complete each required activity.	[ ]	[ ]	[ ]	[ ]	[ ]
10.	Carry out the project plan.	[ ]	[ ]	[ ]	[ ]	[ ]
11.	Set the overall solution direction.	[ ]	[ ]	[ ]	[ ]	[ ]
12.	Mitigate project risks.	[ ]	[ ]	[ ]	[ ]	[ ]
13.	Develop a work breakdown structure.	[ ]	[ ]	[ ]	[ ]	[ ]
14.	Ensure lessons learned are solicited, accurate, documented, and made available for future projects.	[ ]	[ ]	[ ]	[ ]	[ ]
15.	Update records to reflect final results and archive for future use.	[ ]	[ ]	[ ]	[ ]	[ ]
16.	Define top-level project objectives in project charter.	[ ]	[ ]	[ ]	[ ]	[ ]
17.	Prepare a written scope statement as the basis for future project decisions, including the criteria to determine if the project or phase has been completed.	[ ]	[ ]	[ ]	[ ]	[ ]
18.	Manage requests for change.	[ ]	[ ]	[ ]	[ ]	[ ]
19.	Keep the project on track by managing scope and schedule changes	[ ]	[ ]	[ ]	[ ]	[ ]

7-1: Process Allocation Exercise—Version A (continued)

Allocate the project management process or activity in the second column to its correct process group.

#	Project Management Process	Process Group				
		Initiating	Planning	Executing	Controlling	Closing
20.	Produce a list of activities required to produce the subdivided deliverables of the project.	[ ]	[ ]	[ ]	[ ]	[ ]
21.	Give performance appraisals and assist in the planned relocation of employees.	[ ]	[ ]	[ ]	[ ]	[ ]
22.	Execute the risk management plan in order to respond to risk events over the course of the project.	[ ]	[ ]	[ ]	[ ]	[ ]
23.	Identify the project manager.					
24.	Develop a common understanding of project scope among stakeholders.	[ ]	[ ]	[ ]	[ ]	[ ]
25.	Use tools and techniques in project implementation.	[ ]	[ ]	[ ]	[ ]	[ ]
26.	Identify and document the interactivity dependencies.	[ ]	[ ]	[ ]	[ ]	[ ]
27.	Monitor cost and quality.	[ ]	[ ]	[ ]	[ ]	[ ]
28.	Collect and disseminate performance information such as status, project measurements, and forecasting.	[ ]	[ ]	[ ]	[ ]	[ ]
29.	Subdivide the major project deliverables into smaller, more manageable components.	[ ]	[ ]	[ ]	[ ]	[ ]
30.	Verify and document project results to formalize acceptance of the product by the sponsor, client, or customer.	[ ]	[ ]	[ ]	[ ]	[ ]
31.	Develop the project team and maintain its motivation.	[ ]	[ ]	[ ]	[ ]	[ ]
32.	Identify the specific activities that must be performed to produce the various project deliverables.	[ ]	[ ]	[ ]	[ ]	[ ]

7-1: Process Allocation Exercise—Version B

Allocate the project management process or activity in the second column to its correct process group.

#	Project Management Process	Process Group				
		Initiating	Planning	Executing	Controlling	Closing
1.	Determine if the final product or service meets specifications.	[ ]	[ ]	[ ]	[ ]	[ ]
2.	Respond to changes in risk.					
3.	Build effective relationships with vendors and project team members.	[ ]	[ ]	[ ]	[ ]	[ ]
4.	Identify which quality standards are relevant to the project and determine how to satisfy them.	[ ]	[ ]	[ ]	[ ]	[ ]
5.	Make strategic procurement decisions, such as identifying qualified vendors or "make or buy" decisions.	[ ]	[ ]	[ ]	[ ]	[ ]
6.	Determine if schedule changes require updating of the project plan.	[ ]	[ ]	[ ]	[ ]	[ ]
7.	Evaluate overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards.	[ ]	[ ]	[ ]	[ ]	[ ]
8.	Develop an approximation or estimate of the costs of the resources needed to complete the project activities.	[ ]	[ ]	[ ]	[ ]	[ ]
9.	Secure necessary approvals to begin the next phase.	[ ]	[ ]	[ ]	[ ]	[ ]
10.	Choose from potential sellers.	[ ]	[ ]	[ ]	[ ]	[ ]
11.	Allocate the overall cost estimates to individual work items in order to establish a cost baseline for measuring cost performance.	[ ]	[ ]	[ ]	[ ]	[ ]
12.	Monitor specific project results to determine if they comply with relevant quality standards, and identify ways to eliminate causes of unsatisfactory performance.	[ ]	[ ]	[ ]	[ ]	[ ]
13.	Acquire formal acceptance of deliverables.	[ ]	[ ]	[ ]	[ ]	[ ]
14.	Get the needed human resources assigned to and working on the project.	[ ]	[ ]	[ ]	[ ]	[ ]
15.	Identify top-level project assumptions and constraints.	[ ]	[ ]	[ ]	[ ]	[ ]
16.	Take the results of other planning processes, and put them into a consistent, coherent document.	[ ]	[ ]	[ ]	[ ]	[ ]

7-1: Process Allocation Exercise—Version B (continued)

Allocate the project management process or activity in the second column to its correct process group.

#	Project Management Process	Process Group				
		Initiating	Planning	Executing	Controlling	Closing
17.	Determine physical resources (people, equipment, and materials) and what quantities of each should be used to perform project activities.	[ ]	[ ]	[ ]	[ ]	[ ]
18.	Identify and report schedule slips.					
19.	Influence factors that create change in order to ensure that changes that do occur are beneficial.	[ ]	[ ]	[ ]	[ ]	[ ]
20.	Determine the information and communication needs of the stakeholders: who needs what information, when will they need it, and how will it be given to them.	[ ]	[ ]	[ ]	[ ]	[ ]
21.	Develop individual and group skills to enhance project performance.	[ ]	[ ]	[ ]	[ ]	[ ]
22.	Develop responses to threats and opportunities.	[ ]	[ ]	[ ]	[ ]	[ ]
23.	Assess historical information, strategic plans, and product description to ensure project is linked to business plans.	[ ]	[ ]	[ ]	[ ]	[ ]
24.	Respond to risks over the course of the project, and control their impact.	[ ]	[ ]	[ ]	[ ]	[ ]
25.	Quantify risks by evaluating them and their interactions to assess the range of possible project outcomes.	[ ]	[ ]	[ ]	[ ]	[ ]
26.	Complete and settle the contract, including resolution of any open items.	[ ]	[ ]	[ ]	[ ]	[ ]
27.	Determine that a significant change has occurred and manage it.	[ ]	[ ]	[ ]	[ ]	[ ]
28.	Manage changes to requirements/project scope.	[ ]	[ ]	[ ]	[ ]	[ ]
29.	Determine what to procure and when.	[ ]	[ ]	[ ]	[ ]	[ ]
30.	Use project selection techniques and expert judgment to determine acceptability of project.	[ ]	[ ]	[ ]	[ ]	[ ]
31.	Determine project roles and responsibilities.	[ ]	[ ]	[ ]	[ ]	[ ]
32.	Update the project plan	[ ]	[ ]	[ ]	[ ]	[ ]

9-1: Responsibility Allocation Exercise

Work Breakdown Structure Item	Department and Person	R "P"	O "A"	L "R"	E "I"	S "S"

Legend—Types of Responsibility

"P"	Participant
"A"	Accountable Manager
"R"	Review Required
"I"	Input Required
"S"	Signoff Required

10-1: Project Manager Interpersonal Skills Exercise

Step 1: For each interpersonal skill listed on the attached chart, assess its importance in managing projects effectively in your organization. The three levels of skill importance are:

Nominal	"Nom"	Little or no skill required
Substantial	"Sub"	Significant professional level competence required
Expert	"Ex"	Extensive/mastery of the interpersonal skill required—both breadth and depth.

Rate the competence level required in your organization on each skill to manage projects successfully, and write it in the Organization column.

Step 2: Assess your current skill level, and write the answer in the "You" column. Use the same skill categories described above.

Step 3: Add missing skills, or delete any skills that are not applicable to your organization and project environment.

Step 4: Identify interpersonal skill gaps/development needs and areas of unused potential, using the chart below.

		Interpersonal Skills Required		
		Nominal	**Substantial**	**Expert**
Your Skill Level	**Nominal**	OK	Need	Need
	Substantial	Underutilized	OK	Need
	Expert	Underutilized	Underutilized	OK

Step 5: First discuss with your classmate the implications for the organization, as well as strategies for overcoming any resulting problems.

Then discuss the implication of your analysis from a career management perspective.

10-1: Project Manager Interpersonal Skills Exercise (continued)

#	Skill	Skill Requirement	
		Organization	You
1	Resolving conflicts		
2	Communicating with team members		
3	Relating to and influencing senior management		
4	Relating to and influencing clients/customers		
5	Making sound decisions		
6	Leading meetings		
7	Participating in meetings		
8	Listening		
9	Presenting to small groups		
10	Presenting to large groups		
11	Keeping cool under pressure		
12	Asserting without being obnoxious		
13	Administrating in an organized manner and effectively		
14	Dealing with ambiguous situations		
15	Developing subordinates		
16	Being approachable		
17	Interviewing		
18	Sizing up people		
19	Relating honestly to stakeholders		
20	Using humor effectively		
21	Motivating team members or subordinates		
22	Being aware of own behavior impact on others		
23	Standing alone		
24	Understanding others		
25	Possessing political savvy		
26	Having patience		
27	Relating to people different than you		
28	Negotiating		
29	Commanding respect		
30	Communicating vision		
31	Leading others		
32	Following others		
33	Questioning effectively		
34	Possessing self-knowledge		
35	Operating style flexibility		
36	Providing a buffer for project team		
37			
38			
39			
40			

10-2: PM Knowledge Needs Assessment Exercise

Step 1: Assess the degree of project management knowledge that you would require in the core processes of each of the nine knowledge areas to reach the objectives of the project for which you wrote a charter in Unit 1. Write the knowledge level in the "Project" column of the attached development needs assessment form. The three levels of knowledge are:

"Nominal"	Little or no knowledge of this process required
"Substantial"	Significant professional level knowledge required
"Expert"	Extensive/mastery of subject matter required—both breadth and depth.

Step 2: Assess your current knowledge in each of the processes, and write the answer in the "You" column. Use the same knowledge level categories described above.

Step 3: Identify knowledge gaps or development needs and areas of unused potential, using the chart below.

		Knowledge Required on Project		
		Nominal	Substantial	Expert
Your Knowledge Level	Nominal	OK	Need	Need
	Substantial	Underutilized	OK	Need
	Expert	Underutilized	Underutilized	OK

Step 4: First discuss with your classmate the implications for you and the project, of your knowledge gaps, as well as a strategy for overcoming any resulting problems.
Then discuss the implication of your analysis from a career-management perspective.

10-2: PM Knowledge Needs Assessment Exercise (continued)

Knowledge Area	Subject Matter	Knowledge Requirement	
		Project	You
Integration	Project Plan Development		
	Project Plan Execution		
	Overall Project Change Control		
Scope	Project Initiation		
	Scope Planning		
	Scope Definition		
	Scope Verification		
	Scope Change Control		
Time	Activity Definition		
	Activity Sequencing		
	Activity Duration Estimating		
	Schedule Development		
	Schedule Control		
HR	Organizational Planning		
	Staff Acquisition		
	Team Development		
Cost	Resource Planning		
	Cost Estimating		
	Cost Budgeting		
	Cost Control		
Quality	Quality Planning		
	Quality Assurance		
	Quality Control		
Procurement	Solicitation Planning		
	Solicitation		
	Source Selection		
	Contract Administration		
	Contract Closeout		
Communications	Communication Planning		
	Information Distribution		
	Performance Reporting		
	Administrative Closure		
Risk	Risk Identification		
	Risk Quantification		
	Risk Response Development		
	Risk Response Control		

Appendix C

Resources for Project Management Professional Candidates

RESOURCES FOR PROJECT MANAGEMENT PROFESSIONAL CANDIDATES

The following publications available from the PMI Online Bookstore are resources that certification candidates can use to gain information on project management theory, principles, techniques, and procedures. Descriptions of these books can be found on the PMI website or in the 1999 *Information SourceGuide*.

Publication	Author
1. *Earned Value Project Management*	Quentin Fleming and Joel Koppleman
2. *Effective Project Management: How to Plan, Manage, and Deliver Projects on Time and Within Budget*	Robert K. Wysocki
3. *A Guide to the Project Management Body of Knowledge*	PMI Standards Committee
4. *Human Resource Skills for the Project Manager*	Vijay K. Verma
5. *The New Project Manager*	J. Davidson Frame
6. *Organizing Projects for Success*	Vijay K. Verma
7. *Principles of Project Management*	John Adams, et al.
8. *Project and Program Risk Management*	R. Max Wideman, Editor
9. *Project Management Casebook*	Edited by David Cleland, et al.
10. *Project Management: A Managerial Approach, Third Edition*	Jack Meredith and Samuel Mantel
11. *Project Management: A Systems Approach to Planning, Scheduling, and Controlling, Sixth Edition.*	Harold Kerzner