PROJECT MANAGEMENT

THE MANAGERIAL PROCESS

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Third Edition

Chapter 4

Defining the Project

PowerPoint Presentation by Charlie Cook

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"We can control only
what we have planned"

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Defining the Project

Step 1: Defining the Project Scope

Step 2: Establishing Project Priorities

Step 3: Creating the Work Breakdown Structure

Step 4: Integrating the WBS with the Organization

Step 5: Coding the WBS for the Information System

Project Communication Plan

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Step 1: Defining the Project Scope

• Project Scope
  – A definition of the end result or mission of the project—a product or service for the client/customer— in specific, tangible, and measurable terms.
• Purpose of the Scope Statement
  – To clearly define the deliverable(s) for the end user.
  – To focus the project on successful completion of its goals.
  – To be used by the project owner and participants as a planning tool and for measuring project success.

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Project Scope Checklist

1. Project objective
2. Deliverables
3. Milestones
4. Technical requirements
5. Limits and exclusions
6. Reviews with customer

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Project Scope Checklist

PROJECT OBJECTIVE
To construct a high-quality, custom home within five months at cost not to exceed $700,000 on lot 42A in Greendale, Oregon.

DELIVERABLES
- A 2,200-square-foot, 2½-bath, 3-bedroom, finished home.
- A finished garage, insulated and sheetrocked.
- Kitchen appliances to include range, oven, microwave, and dishwasher.
- High-efficiency gas furnace with programmable thermostat.

MILESTONES
1. Permits approved—March 5
2. Foundation poured—March 14
3. Drywall in. Framing, sheathing, plumbing, electrical, and mechanical inspections passed—May 25
4. Final inspection—June 7

TECHNICAL REQUIREMENTS
1. Home must meet local building codes.
2. All windows and doors must pass NFRC class 40 energy ratings.
3. Exterior wall insulation must meet an "R" factor of 21.
4. Ceiling insulation must meet an "R" factor of 38.
5. Floor insulation must meet an "R" factor of 25.
6. Garage will accommodate two large-size cars and one 20-foot Winnebago.
7. Structure must pass seismic stability codes.

LIMITS AND EXCLUSIONS
1. The home will be built to the specifications and design of the original blueprints provided by the customer.
2. Owner is responsible for landscaping.
3. Refrigerator is not included among kitchen appliances.
4. Air conditioning is not included but prewiring is included.
5. Contractor reserves the right to contract out services.
6. Contractor is responsible for subcontracted work.
7. Site work limited to Monday through Friday, 8:00 a.m. to 6:00 p.m.

CUSTOMER REVIEW
John and Joan Smith

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Project Scope: Terms and Definitions

- Scope Statements
  - Also called statements of work (SOW)
- Project Charter
  - Can contain an expanded version of scope statement
  - A document authorizing the project manager to initiate and lead the project.
- Project Creep
  - The tendency for the project scope to expand over time due to changing requirements, specifications, and priorities.
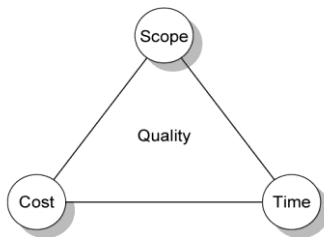
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Step 2: Establishing Project Priorities

- Causes of Project Trade-offs
  - Shifts in the relative importance of criterions related to cost, time, and performance parameters
    - Budget–Cost
    - Schedule–Time
    - Performance–Scope
- Managing the Priorities of Project Trade-offs
  - Constrain: a parameter is a fixed requirement.
  - Enhance: optimizing a parameter over others.
  - Accept: reducing (or not meeting) a parameter requirement.

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Project Management Trade-offs

Scope

Quality

Cost — Time

FIGURE 4.1

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Project Priority Matrix

	Time	Performance	Cost
Constrain		◯	
Enhance	◯		
Accept			◯

FIGURE 4.2

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Step 3: Creating the Work Breakdown Structure

• Work Breakdown Structure (WBS)
  – An hierarchical outline (map) that identifies the products and work elements involved in a project.
  – Defines the relationship of the final deliverable (the project) to its sub-deliverables, and in turn, their relationships to work packages.
  – Best suited for design and build projects that have **tangible outcomes** rather than process-oriented projects.

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Process Breakdown Structure

- Process-Oriented Projects
  - Are driven by performance requirements in which the final outcome is the product of a series of steps of phases in which one phase affects the next phase.
- Process Breakdown Structure (PBS)
  - Defines deliverables as outputs required to move to the next phase .
  - Checklists for managing PBS:
    - Deliverables needed to exit one phase and begin the next.
    - Quality checkpoints for complete and accurate deliverables.
    - Sign-offs by responsible stakeholders to monitor progress.

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PBS for Software Project Development
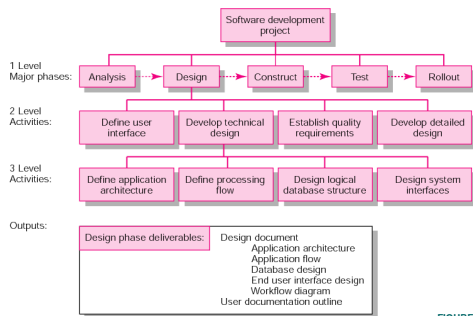
FIGURE 4.8

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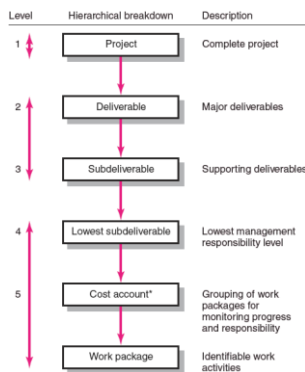
Hierarchical Breakdown of the WBS

FIGURE 4.3

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How WBS Helps the Project Manager

- WBS
  - Facilitates evaluation of cost, time, and technical performance of the organization on a project.
  - Provides management with information appropriate to each organizational level.
  - Helps in the development of the organization breakdown structure (OBS). which assigns project responsibilities to organizational units and individuals
  - Helps manage plan, schedule, and budget.
  - Defines communication channels and assists in coordinating the various project elements.

Work Breakdown Structure
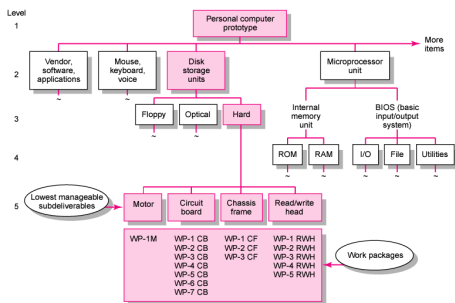
FIGURE 4.4

Work Packages

- A work package is the lowest level of the WBS.
  - It is output-oriented in that it:
    - Defines work (what).
    - Identifies time to complete a work package (how long)
    - Identifies a time-phased budget to complete a work package (cost)
    - Identifies resources needed to complete a work package (how much)
    - Identifies a single person responsible for units of work (who)
    - Identifies monitoring points (milestones) for measuring success.

## Step 4: Integrating the WBS with the Organization

- Organizational Breakdown Structure (OBS)
  - Depicts how the firm is organized to discharge its work responsibility for a project.
    - Provides a framework to summarize organization work unit performance.
    - Identifies organization units responsible for work packages.
    - Ties the organizational units to cost control accounts.

FIGURE 4.5
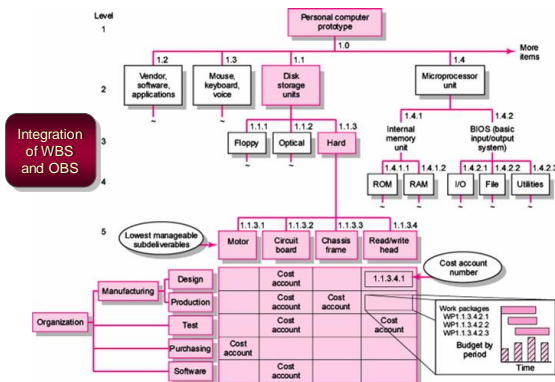
Project Roll-up

- Cost Account
  - The intersection of the WBS and the OBS that is a budgetary control point for work packages.
  - Used to provide a roll-up (summation) of costs incurred over time by a work package across organization units and levels, and by deliverables.

Direct Labor Budget Rollup (000)
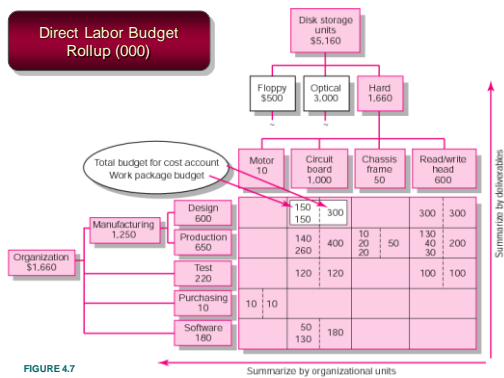
FIGURE 4.7

Step 5: Coding the WBS for the Information System

• WBS Coding System
  – Defines:
    • Levels and elements of the WBS
    • Organization elements
    • Work packages
    • Budget and cost information
  – Allows reports to be consolidated at any level in the organization structure

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	Task Mode	Task Name
1		1 E-Slim Tablet x-13 Prototype
2		1.1 Hardware
3		1.1.1 Cameras
4		1.1.2 Speakers
5		1.1.3 Antenna
6		1.2 CPU
7		1.2.1 Power supply
8		1.2.1.1 Battery (more items)
9		1.2.1.2 Charger (more items)
10		1.2.2 Flash Rom (more items)
11		1.2.2.1 I/O controller
12		1.2.2.2 USB slots (more items)
13		1.2.2.3 Internet (more items)
14		1.2.3 Touch screen
15		1.2.3.1 Keyboard
16		1.2.3.1.1 Work package
17		1.2.3.2 Touch sensors
18		1.2.3.2.1 Work package
19		1.2.3.2.2 Work package
20		1.2.3.2.3 Work package
21		1.2.3.3 Back light (more items)
22		1.2.3.4 Resolution (more items)

WBS Coding

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Responsibility Matrices

- Responsibility Matrix (RM)
  - Also called a linear responsibility chart.
  - Summarizes the tasks to be accomplished and who is responsible for what on the project.
    - Lists project activities and participants.
    - Clarifies critical interfaces between units and individuals that need coordination.
    - Provide an means for all participants to view their responsibilities and agree on their assignments.
    - Clarifies the extent or type of authority that can be exercised by each participant.

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Responsibility Matrix for a Market Research Project

Task	Richard	Dan	Dave	Linda	Elizabeth
Identify target customers	R	S		S	
Develop draft questionnaire	R	S	S		
Pilot-test questionnaire		R		S	
Finalize questionnaire	R	S	S	S	
Print questionnaire					R
Prepare mailing labels					R
Mail questionnaires					R
Receive and monitor returned questionnaires				R	S
Input response data			R		
Analyze results		R	S	S	
Prepare draft of report	S	R	S	S	
Prepare final report	R		S		

R = Responsible
S = Supports/assists

FIGURE 4.9

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Responsibility Matrix for the Conveyor Belt Project

Deliverables	Design	Development	Documentation	Assembly	Testing	Purchasing	Quality Assur.	Manufacturing
Architechural design	1	2			2		3	3
Hardware specifications	2	1				2	3	3
Kernel specifications	1	3			3			3
Utilities specification	2	1			3			
Hardware design	1			3		3		3
Disk drivers	3	1	2					
Memory management	1	3			3			
Operating system documentation	2	2	1					3
Prototypes	5		4	1	3	3	3	4
Integrated acceptance test	5	2	2		1		5	5

1 Responsible
2 Support
3 Consult
4 Notification
5 Approval

FIGURE 4.10

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Project Communication Plan

- Created by the project manager and/or project team in the early stage of project planning
- Map out the flow of information to different stakeholders
  - What information needs to be collected and when?
  - Who will receive the information?
  - What methods will be used?
  - What are the limits on access?
  - When and How will the information be communicated?

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Developing a communication plan

- Stakeholder analysis
- Information needs
- Sources of information
- Dissemination modes
- Responsibility and timing

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Stakeholder communications
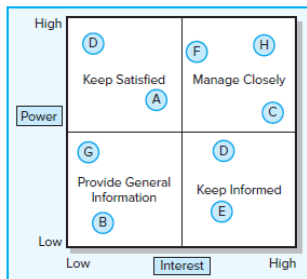
FIGURE 4.9

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Shale Oil Research Project Communication Plan

What Information	Target Audience	When?	Method of Communication	Provider
Milestone report	Senior management and project manager	Bimonthly	E-mail and hardcopy	Project office
Project status reports & agendas	Staff and customer	Weekly	E-mail and hardcopy	Project manager
Team status reports	Project manager and project office	Weekly	E-mail	Team recorder
Issues report	Staff and customer	Weekly	E-mail	Team recorder
Escalation reports	Staff and customer	When needed	Meeting and hardcopy	Project manager
Outsourcing performance	Staff and customer	Bimonthly	Meeting	Project manager
Accepted change requests	Project office, senior mgmt., customer, staff, and project mgr.	Anytime	E-mail and hardcopy	Design department
Oversight gate decisions	Senior management and project manager	As required	E-mail meeting report	Oversight group or project office

FIGURE 4.10

Key Terms

Cost account
Milestone
Organization breakdown structure (OBS)
Scope creep
Priority matrix
Project charter
Responsibility matrix
Scope statement
Work breakdown structure (WBS)
Work package